Case Study of the Impact on Businesses and Society by Mobile Contactless Card Technology

Dissertation Proposal

Submitted to Northcentral University

Graduate Faculty of the School of Business and Technology Management
In Fulfillment of the
Requirements for the Degree

DOCTOR OF BUSINESS ADMINISTRATION

by

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Prescott Valley, Arizona
October 2014

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Approval Page

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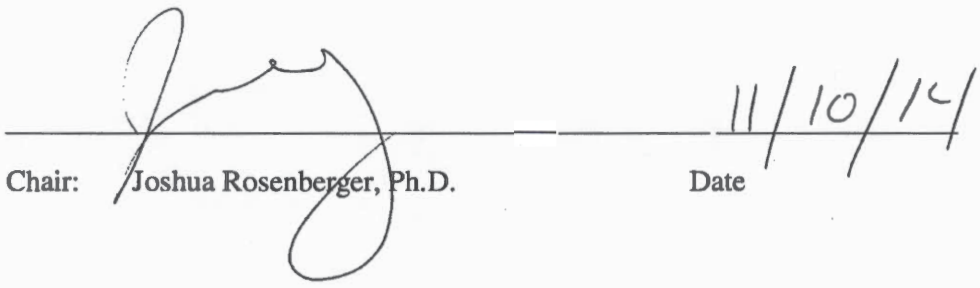

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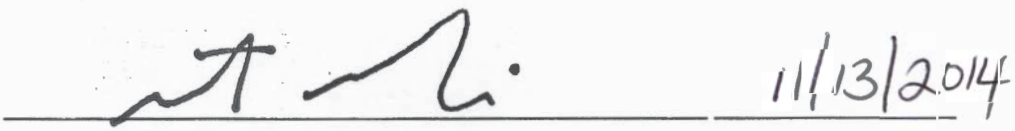

Dean of School : Dr. Peter Bemski, Ph.D. Date 11/13/2014

Abstract

Consumers in the United States have three payment options at a point of sale terminal purchase with a merchant: (a) pay with cash, (b) write a check, or (c) swipe and sign for the transaction with a debit or credit card. Consumers may be reluctance to accept changes in their daily routine with respect to payment options, which may impede acceptance of evolving payment methods like mobile and contactless cards (MCC). Hence, the purpose of this qualitative case study using the Technology Acceptance Model (TAM) was to examine the reasons given by consumers on why they are willing or unwilling to accept this alternative payment system. The selected participants were obtained via a signup sheet at PSCU for of this case study. After signing the informed consent form, the particpants were provided a link to Survey Monkey ™. The participants of the case study represented a broad level based off education, age, marriage and work levels. The partcipants provided their responses to questions that gaugued their knowledge and willingness to try new payment technologies such as mobile and contactless card payments. The responses provided by the participants demonstrated that ease of use (PEO) and usefulness (PEOU) were primary factors in using new payment technologies. Security of the financial data was a factor in the use of new new payment technology as cosnumers have become more conscious of data breaches. Future case studies should be conducted to determine the impact on segements such as the underbanked or underserved markets.

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Chapter 1: Introduction

Since the introduction of the Internet, people's daily lives have been significantly changed not only in the United States, but also globally (Callaghan, 2007). Since 2005, people from every economic stratum in the United States have been experiencing a slow, yet all-encompassing change in their lives as technology becomes embedded in practically every facet of daily life (Pelau & Zegreanu, 2010). For the near future, technology will continue to develop and become a catalyst for even more changes in commerce activities, and will especially affect the lifestyle of consumers, regardless of their economic status (Chen, 2010).

Mobile and contactless card (MCC) devices are one of the newest technological innovations being introduced to consumers (Bills, 2009). MCC technology allows an individual who currently uses a debit card, credit card, or mobile phone to pay for a purchase by simply by waving his or her MCC card over a financial terminal instead of having to swipe it through a card reader. The card contains a wireless computer chip, and the receiving equipment, referred to as a point-of-sale terminal, receives the wireless signal directly from the card (Orr, 2007).

Presently, individuals use electronic appliances such as telephones, iPods, and computers to make individual financial payments. In addition to private businesses, many federal and state governmental agencies are beginning to accept payments online for taxes and other sundry items (Kent, 2012). One of the MCC benefits is that it has the potential to save time by providing consumers with quicker checkout time, although there might be hesitancy to use this new system. Possible hesitation is based on the tacit assumption among commerce and financial entities that consumers have an innate tendency to continue with their daily habits unless required to make a change (Khan, Ghouri, Siddqui, Shaikh & Alam, 2010).

Regardless the size or form of business, business executives, managers, and entrepreneurs must ask how they can gain the acceptance and confidence of consumers in a new payment method whilst understanding the tendency of consumers to resist changing personal habits. However, "it is empirically proven that cash is still the fastest means of executing transactions at the counter, although new innovative payment methods such as proximity cards and near field communication (NFC) mobile payments may be equally fast and sometimes even faster" (Polasik, Górka, Wilczewski, Kunkowski, & Przenajkowska, 2010, p. 3). The question is whether this assumed hesitancy is over an unfounded fear or is it a legitimate issue that will arise when new card technology is introduced to the public. Another facet may be consumers' reactions if they are forced to use the new card technology, as businesses may choose to discontinue current card technology. Whenever a consumer is confronted with no alternative, he/she will reluctantly embrace new technology; however, not without having been prodded because of technology changes (Chan et al., 2010).

Background

The concept of MCC payment technology focuses on the use of near field communication chip technology to process payments for products and services, rather than swiping a card to process payments. Near field, technology involves the utilization of a credit/debit card that transmits a wireless signal to the point-of-sale terminal (Smith, 2010). The information transmitted contains the consumer's card number, expiration date, and automatic transaction counter number along with verification code values (Thakur, 2013). The data is transmitted via radio waves through the air. Many of the common devices used for payment are a phone, card, or fob. However, any device can be used for payment as long as the device contains an embedded chip, which will transmit information for payment of goods and services

(Dong-Hee, 2010).

With today's technology, a consumer does not have to physically provide anyone his or her card to complete any sale or transaction or even be near any financial terminal (Dizon, 2009). The mobile or contactless card is simply waved near a sales terminal to process the transaction. An example of this payment technology has already been expanded in Europe where handheld terminals are used at restaurants without the waitress or waiter physically taking the customer's smart card to complete a dining transaction (Merritt, 2011). The track data on these cards are encrypted so individuals who skim the card or enter into the payment network cannot compromise the information by illegal activities (Blades, 2012). In addition, contactless payment technology may enhance consumer protection through the use of automatic transaction counters to ensure no skimming or counterfeit card duplication occurs when a consumer uses it (Buccafurri & Lax, 2011).

The theory behind consumer acceptance of mobile and contactless card payments could be compared to similar acceptance of other products and services. An example would be consumer acceptance of using online banking services to check their balances, transfer money, or make payments. Consumers were reluctant to use online banking when the product was initially introduced into the marketplace, so researchers investigated the issues around consumer perceptions on internet banking and the behavioral factors analyzed on intent to use the product (Garry Wei-Han, Chee-Keong, Keng-Boon & Alain Yee-Loong, 2010). Financial institutions needed to understand why consumers were not adopting this new technology.

The researcher will endeavor to include as part of this case study to present certain benefits of using MCC rather than their current payment method. One of these benefits could be that the MCC is designed to provide consumers with financial safety. A major point of this case

study is how the MCC cards are more secure than their current credit and debit cards. Once consumers understand that their information is secure; then this may prompt the consumer to start using mobile and contactless cards. Theoretically, the benefits derived from using this payment method should entice consumers to consider this as their preferred payment method.

A possible reason for low acceptance by the general public may be the lack of knowledge about the security features and other benefits of this new payment method. Another technique that merchants and financial institutions could use to help mitigate the qualms of consumers is to advertise the fact that their financial data would be safe on the Internet. Consequently, the consumer will only show trust if the company is capable of showing that it has the economic, technical and human resources to tackle and meet the commitments it has taken on (Mort & Drennan, 2007).

Statement of the Problem

Consumers are being inundated by a seemingly endless introduction of new products or technology being offered by businesses, monetary institutions, and card processing companies. However, commercial, financial, and card processing entities have inadequate academic or credible industry data on the behaviors and acceptance of the new products or technology they offer to consumers (Schierz, Schilke & Wirtz, 2010). Due to this lack of data, financial institutions have been perplexed on how to streamline processes via the introduction of new products and secure consumer financial data.

According to Barnett (2011), a small minority of people may want to use their mobile phones in lieu of a wallet for financial transactions, but the majority of U. S. consumers do not because they fear that this technology will lead to security breaches. A poll conducted by a United Kingdom (UK) survey company, Intersperience, cited 44% of those consumers polled

mentioned security concerns as their chief worry about using their mobile phone as a wallet. Furthermore, the poll results revealed an assortment of emotional and rational views held by consumers on mobile and contactless payment security. European commercial and financial institutions have found a way to gain consumer acceptance for their technology, and instead of wasting valuable resources, commercial, financial, and card processing entities in the United States could wholly or partially adopt the approach used by Europeans.

Ergo, U.S. commercial, financial, and card processing entities have begun to offer mobile and contactless payment systems on a very small scale to businesses and the general public. The problem is consumers are reluctant to accept using new payment technologies such as MCC. However if the majority of consumers do accept MCC, they should experience significantly lower fraudulent transactions on their accounts.

Purpose of the Study

The purpose of this qualitative case study is to investigate the perceived usefulness or ease of use of MCC technology and what factors are responsible for influencing consumers to be willing or reluctant to move from their current financial system to a new financial system. There will be 12 selected participants via a signup sheet at Payment Solutions for Credit Unions (PSCU). The geographic region to be focused on will be the Southeastern part of North America. The researcher will gather information from the selected participants using an online survey. A survey questionnaire designed by Monetas, a research-based online survey company, consists of seven questions which will help identify how customers perceive and potentially use new payment technologies, such as MCC. Monetas is a research-based online survey company. The company also provides various survey templates, which can be modified for each client's purpose. Polančič, Heričko, & Pavlič, (2011) conducted a study using the online survey method

to research and document participant's interest in a product. The technology acceptance model (TAM) will be the survey tool used to collect and document consumer behavior and their opinions concerning this new technology. The results of this case study could be used by various entities such as banking, financial, merchants, etc., to assist consumers using mobile and contactless cards.

Research Questions

The collection and evaluation of data from selected recipients based on their current involvement and participation with MCC will be the focus of this study. Therefore, the main objective for designing questions is to investigate the perceived usefulness or ease of use of MCC technology and what factors are responsible for influencing consumers to be willing or reluctant to move from their current financial system to a new financial system. The following research questions will be used as the basis for the survey questions and subsequent data collection.

Q1. Does a consumer use new payment systems due to usefulness and ease of use of new payment technologies?

Q2. What influential factors did consumers identify regarding their willingness or reluctance to use MCC technology instead of their current or former payment methods?

Q3. What can a merchant do to influence a consumer into using a MCC payment system of staying with their current payment methods?

Nature of the Study

In this case study, accountholder acceptance and knowledge of the product is important to the researcher. Hence, the primary goal is to understand the relationships between the consumer acceptance and usage of new payment technologies. The strategy accomplishing this case study

includes a link to Survey Monkey ™ for the participants. Once accessing the link, the participants will complete a questionnaire, which has been used in other mobile payment studies. Participants will be selected from a signup sheet at PSCU.

Significance of the Study

By conducting the case study, not only will financial institution possibly understand why consumers have been reluctant to accept the new payment methods, but it may be beneficial to other financial institutions may find this information valuable-as they begin to make decisions about the marketing of MCCs. According to Cognet, (2010), financial institutions view mobile banking as a tremendous opportunity for everyone. This new form of payment can create opportunities in terms of marketing, co-branding of services with the mobile carrier and merchants, and increased revenue as these are considered signature-based transactions, which yield higher rates of interchange (Whittaker & Smith, (2008).

The discoveries resulting from this research study may have significant impact to financial institutions. The mobile and contactless cards study may contribute to the academic field of consumer behavior and possibly influence the field of marketing since it may be used to create new insights regarding the effects of implementation of various strategies to gain consumer acceptance of MCCs.

Definition of Key Terms

Automated Clearing House (ACH). The ACH is a system of the U.S. Federal Reserve Bank that provides electronic funds transfer (EFT) between banks (Schneider, 2009).

Contactless card. A contactless card is a card based on the use of radio frequencies to provide a wireless connection to a point-of-sale terminal (Griffin & Ebert, 2007).

Credit card. A credit card is a plastic card issued by a bank, savings and loan

association, retail store, fuel outlet, or any other credit grantor. By means of a credit card, a consumer has the right to charge purchases and pay at a later time (Schneider, 2009).

Customer relationship management (CRM). CRM is a strategy, enabled by information technology, aimed at identifying, targeting, acquiring, and retaining the best mix of customers (Greenberg, 2005).

Debit cards. A debit card is a plastic card issued by a bank to allow customers electronic access to personal funds. Debit cards are used like checks when a consumer is paying for goods and services or withdrawing cash at automated teller machines (ATMs; Griffin & Ebert, 2007).

Electronic funds transfer (EFT). EFT refers to the movement of funds between accounts within the same or different banks (Schneider, 2009).

Mobile payments. Mobile payments are payments to a merchant through a near-field communication chip that accesses the web servers of a bank. Mobile payments are also made through the short message service gateway of a bank, by means of a text message (Schneider, 2009).

Near-field technology (NFT). NFT refers to a form of technology involving a short-range, high frequency wireless connection between two objects. This high frequency provides the identification for a consumer to pay for goods and services at the merchant's terminal. The radio frequency also sends encoded payment data over distances less than 10 centimeters up to 4 inches (Gincel, 2010).

Perceived Ease of Use (PEOU) - PEOU is considered the level of effort that an individual may exert to use an application. Thus the lower level of effort, the chance of an individual using that application increases over an application that is hard to use (Kanthawongs, 2012).

Perceived Usefulness (PU) - This definition refers to the how useful is an application in making the individuals life easier on them. If the individual believes the application enhances their life, the more apt the individual is to use the application (Fagan, Neill & Wooldridge, 2008).

Technology acceptance model (TAM). TAM is a model designed to explain the extent to which consumers are willing to use new forms of technology. The model is based upon the variables of perceived usefulness and ease of use of the product or service (Nayak et al., 2010).

Summary

The main objective of this study is to determine how to educate consumers on how mobile or contactless technology is structured to ensure their financial safety. Once the consumer understands that their information is secure and starts using the card, they will start to see the benefit and features, which should then make this source their preferred payment method.

Information collected and the results of this case study may be beneficial for two distinct entities: financial organizations and merchants. First, financial institutions that may have been considering offering MCC payment technology to their customers have hesitated because of apprehension over customer acceptance along with the associated cost of implementation (Friedrich, Gröne, Hölbling & Peterson, 2009). Over the past several years, contactless payments were launched in varying formats across the United States with some marketing incentives. However, the remaining users of this service are transit systems (Mancuso & Stuth, 2012). The findings of this research may become one of the significant factors that financial institutions use in their management decision-making process to either delay or implement an offer of MCC technology to customers.

The second group, merchants, may also benefit significantly from the findings of this study by determining if a need to spend the resources necessary for upgrading their point-of-sale terminals exists to the accept MCC technology. However, issuers and merchants may complain about the cost of upgrading terminals and cards (Shin, 2010). The expenditure for upgrading these point-of-sale terminals may be costly for larger merchants such as Home Depot or Best Buy, so the need for data confirming that consumers will utilize the new payment technology is crucial for merchants as compared to spending the money and not seeing increased results in terms of more expedient checkout times or more dollars spent per transaction.

Chapter 2: Literature Review

The history of payment methods has evolved over time making the consumer experience of shopping for a product or service more conducive due to steady incremental technological advancements. One of these new evolving payment alternatives showing momentum with consumers around the world is mobile or contactless card technology. According to Yu, (2007), near-field communication is a major technological advancement impacting how financial institutions and merchants will conduct business with consumers. Mobile and contactless cards provides consumer's greater convenience and safety as well as lowering operating costs for merchants and financial institutions.

Over the last 15 years in the financial community, there has been an intriguing plethora of changes noted within the financial domain as a factor of the rapid advancement of technology. The latest financial change that will soon be made available to consumers in the United States is the introduction of mobile and contactless cards. This payment method will allow consumers to make payments for goods and services without ever having their credit or debit card physically leaving their possession (Polasik, Górka, Wilczewski, Kunkowski, & Przenajkowska, 2010). Although consumers are making electronic payments now using their debit or credit card for payment, the mobile and contactless cards are just the next evolutionary step in the payment process.

The financial systems used by the majority of consumers in the United States have four payment options at the conclusion of a sale: (a) cash, (b) check, (c) credit card, or (d) debit card (Klee, 2008). The advantages of using cash include convenience, the speed of the transaction, anonymity and privacy, and the assurance that the bill is paid-in-full and not overdrawn. On the other hand, using cash does not leave an audit trail, the tender itself can be lost, and receipts must

be retained in the event that the merchandise is faulty or needs to be returned.

Currently, consumers can choose from using cash, writing a check or swiping a plastic card through a point of sale terminal to pay for goods and services. Albeit these payment methods are widely used today there are as always an advantage and disadvantage associated with each one. As consumers tend to gain more knowledge of multiple payment methods, then they begin to understand the pros and cons of each payment method.

An advantage of using cash is that the consumer cannot buy more than what they have in their wallet. While the disadvantage of using cash would be if the consumer lost the receipt, they have no proof of purchase of the good or service. The check and plastic card method provide the advantage of being show proof of purchase. The disadvantage for checks is costs of having to get checks printed, while plastic cards tend to spend more money than consumers might have in their account. According to Nadeau and Casselman (2008), the process of checking writing is declining due to consumers using more efficient methods of payment.

Payment by check provides an audit trail that can be tracked through the financial system, with date of check, amount, payee, and transaction date all recorded. Check payments provide consumers with privacy, security, and control over when a bill or purchase is paid (Coven, 2010). However, printing, shipping, processing, and storing checks are costly processes for financial organizations (Schuh & Stavins, 2012). Checks can be inconvenient for the consumer at point of sale, where identification is often required. In addition, the merchant is not assured that funds in the purchaser's account are sufficient. For these reasons, check payment is becoming increasingly obsolete (Poteet & Purches, 2011).

When using a debit or credit card, the buyer completes a transaction by swiping a card at the time of the sale and either enters a personal identification number (PIN) or physically signs

for the transaction. Debit and credit cards provide an audit trail of every transaction. Some of the primary advantages of using either a credit or debit card are the ease of returning an item, the safety of not needing to carry cash, and the ability to delay payment of the purchase over time, in the case of a credit transaction. With a debit card, the consumer can also retrieve cash either at the time of sale or from an ATM. Disadvantages of both debit and credit cards include the risk of unauthorized use and stolen card information along with taking the risk of assuming excessive debt (Milbourn, 2009).

The mobile and contactless payment processing technology is a new and evolving payment form for customers and businesses. Mobile and contactless card technology is a form of payment where a customer uses a debit card, credit card or a mobile phone to pay for products or services by waving any of these items near a point of sale of terminal. Cards or phones transmit payment information via radio waves, which are picked up by the sales terminal (Moore & Taylor, 2011). If this new payment method is to be successfully implemented in the United States, three entities, i.e., customers, businesses, and financial institutions will have to accept this new payment method.

One benefit of the MCC transaction system is speed of processing. Standard debit or credit card transactions are processed in approximately one minute (Lyddon, 2011). Cash or check transactions are processed in varying time periods up to 2 minutes. An MCC payment can be processed as quickly as 10 seconds. MCC technology does not require a buyer to swipe a card, enter personal identification data, or sign for a transaction. The consumer waves the card or phone within 2 inches over the terminal, and the information is transmitted via radio frequency to complete the transaction (Heydt-Benjamin, Bailey, Fu, Juels, & O'Hare, (2009).

Many businesses and credit card processors understand the value of mobile and

contactless cards, and also how this technology will inevitability not only change the lifestyle of consumers but also provide one of the most secure financial systems in the economy. However, a major barrier to the business community and credit card issuers is to devise a marketing advertisement approach that provides consumers with not only the qualities and usefulness of this product, but also dispels imaginary usage obstacles. The single most important subject in the marketing promotion should be to make sure that the message of convenience and security is understood by all segments of the population regardless of demographics or socioeconomics, and that this only the next step in the digital transaction age of technology.

The primary advantage of MCC transactions, however, is increased security, resulting from the functionality of the chip design. MCCs have an automatic transaction counter, so that a hacker cannot duplicate a card. As the card is used, the automatic transaction counter keeps track of transactions in a sequential order at the processor. If a user duplicated the card fraudulently, the transaction number would be out of sequence, and the processor would automatically deny the transaction.

Mobile and Contactless Card Background

The conceptualization of mobile and contactless cards is based on the application of innovative communication technology to process payments for any type of financial transaction. In the composition by Holmes (2011), near-field technology denotes the application of a plastic card containing a chip, which broadcasts to a wireless indicator to the merchant's sales terminal. The data transmission is comprised of a person's card number, expiration date and automatic transaction counter number along with verification code values. The compilation of information is transmitted via radio waves from the card to the point of sale terminal. This new technology could allow any device such as phone; plastic card or fob to be used for making payments

provided this chip is embedded in the device (Blades, 2012).

A demand is emerging for mobile or contactless payment methods for consumers. Near field communication (NFC) technology is going to be the major technological development, which will impact the payment industry. This technology will increase the acceptance of contactless transactions by placing this technology into the smart phones for payment devices (Annadurai & Prasad, 2012). The interest in these new types of payment forms would be due to the advances in technology. Customers want a more expedited and convenient form of payment service while merchants are constantly pursuing methods to speed up the checkout process. The consumer does not have to physically provide anyone his or her card to process any terminal transaction. The mobile or contactless card is simply waved near the point of sale terminal to process the transaction. This payment technology can be expanded to where handheld terminals can be deployed at restaurants without the waitress or waiter physically taking the card to complete a dining transaction (Vanetti, 2010). In addition, contactless payment technology will enhance consumer protection through the use of automatic transaction counters to ensure no skimming or counterfeit card duplication occurs when a consumer uses it.

Often consumers will consider the features and benefits on which specific payment method benefits them the most while making a purchase. This decision could depend on numerous factors (Pollai, Hoelzl, & Possas, 2010). Those factors could be an opportunity to gain reward points, receive a coupon for reduction from their purchase or get cash placed back into their account. Many times consumers still may choose one payment method over another payment method based upon their social influences within their demographic group.

Acceptance or Rejection of a Technological Innovation

As with new technological advances, an ever-present fear of security from merchants, consumers and financial institutions may exist. These entities are extremely concerned that this form of payment is secure from criminals obtaining account information. "Each transaction is unique, and a cryptogram is generated by the transponder by the secure microcontroller in the payment token. That cryptogram is sent to the backend authorization network so each transaction is unique and secure" (Coetzee, 2013, pg. 73). The new contactless card technology records each transaction in sequential order so that criminals will not be able to skim and create a counterfeit card.

Consumer behavior is not only hard to understand but difficult to define (Ballantine & Creery, 2010). A consumer's choice to try, and then accept any new technology is determined by the ease of use, usefulness, cost, risk, and lifestyle compatibility of the new technology (Chandra, Srivastava, & Yin-Leng, 2010). Pollai, Hoelz, and Possas (2010) stated that consumers would possibly base their decisions on predictions and emotions on how a product or service benefits their needs or wants for convenience of service. Wang (2008) conducted a study on contactless card adoption. After his study, Wang promoted TAM, because it provides variables on why consumers may or may not try new payment technology.

The use of TAM enables the identification of possible barriers to acceptance of a product or service (Nayak et al., 2010). In terms of cost, consumers may want to know if a new payment technology creates additional fees or charges (Tanakinjal, Deans, & Gray, 2010). Consumers may not be able to use mobile payment applications without upgrading to a newer cell phone, which would incur additional costs. The consumer may debate whether this cost is justifiable in terms of usefulness or perceived value of the MCC to their lifestyle. The consumer may also

wonder if the merchant will charge more, levy monthly service fees, or offer a discount for using a new payment technology.

Theories tend to be based on psychological and scientific methodologies for conducting research. A simplistic definition of a theory is that it is an attempt to answer or explain a question to an observable problem (Fletcher & Sarkar, 2013). Therefore, coherence between the theory and the practice of applying it to the subject matter are absolutely essential.

The benefit of constructing a theory rather than attempting to place practice within the definition of a theory is beneficial to researchers. One of the goals that a researcher is trying for is to develop knowledge that will provide guidance and knowledge in the practice of utilizing the hypothesis. This practice might bring about changes socially making individual's lives better in the long run (Herr, 2008, p. 133). Therefore, the primary goal of researching consumer acceptance of mobile and contactless adoption is to develop strategies that may lead to a quicker adoption of the next payment technology.

Technology Acceptance Model for Research

One of the goals that a researcher is trying for is to develop knowledge that will provide guidance and knowledge in the practice of utilizing this hypothesis. This practice might bring about changes socially making individual's lives better in the long run (Herr, 2008). Therefore, the primary goal of researching consumer acceptance of mobile and contactless adoption is to develop strategies that may possibly lead to a quicker adoption of the next payment technology.

In daily practice, businesses and individuals rely upon specified theories or conditions of an environment. However, consumers may start adopting new technology such as mobile and contactless cards if there are significant changes in the marketplace as a result of economic changes (Eldomiaty & Ismail, 2009). Some examples of how economic changes could be causal

drivers in consumer behavior would be if there were increases in demand by consumers for more types of mobile phone carriers offering the contactless technology. This consumer demand would also require merchants to upgrade their point of sale terminals to accommodate the increase, and financial institutions could discontinue the issuance of magnetic striped debit and credit cards.

In the last few years, there have been many new theories regarding payment technologies that have emerged and have been presented and incorporated into consumers' lives (Bindusara & Hackney, 2010). Consumers have used theories like TAM and TRA to gauge adoption.

These theories have provided consumers and financial institutions the ability to implement new payment practices. However, the practice of adopting these payment technologies has been dependent on perceived usefulness of the product (Zhang, 2009).

Due to an absence of any scholarly research of consumers' behavior when faced with technological changes of mobile and contactless card technology, Fred Davis' published Technology Acceptance Model shall be used as a major component in this research. The primary reason that the Technology Acceptance Model was selected was that it provides an opportunity to evaluate an individual's behavior in analogous circumstances for trying and accepting new technologies in such areas as like electronic grocery stores, distance education programs, online financial services, e-commerce and other web based operating system applications (Baron, & Harris, 2010). The Technology Acceptance Model can be beneficial as an auxiliary source based on published results of studies conducted on consumer acceptance or opinions toward the use of mobile and contactless cards.

The lack of any published or reliable hypothesis that can be used by businesses, financial organizations, or even researchers to develop a formula on how to market mobile and contactless

cards that will meet the acceptance and anticipations of consumers dictates that the only dependable guide, based on this researcher's opinion is the Technology Acceptance Model (Birch, 2007). According to Moore's law of technology, (Hopkins, 2010), the development of major technological changes that occur with regularity approximately every two years are extremely costly and has actually lead to a decrease over the last decade of expenditures by businesses unable to absorb the costs involved in maintaining prevalence with technology. This is a difficult process for businesses since people are naturally apprehensive about changing their current lifestyle because it is familiar and it makes them feel safe. Businesses are constantly striving to remain competitive and profitable by exploring new processes to improve their profit margins while minimizing costs, which is usually the result of some type of technological change or innovation. One specific area in the business environment that has been undergoing rapid changes in recent years because of technology is the processing of financial transactions. The Technology Acceptance Model theory, although not applicable to use as a philosophy for this study, can be used to explore alternative payment methods like mobile and contactless card payments that businesses in the United States have already begun to implement. A major reason for the inclusion of the Technology Acceptance Model is because that it can be used as a tool to develop a paradigm to aid in the understanding of consumers' behavior to either accept or reject new technological advances.

The research of investigating consumer acceptance of mobile and contactless card payments will focus on the qualitative method. The reason for choosing this method is that the researcher wants to understand why consumers are reluctant to try this new technology. By understanding the positive and negative reasons that consumers reject technology could help in how card processors or financial institutions implement new payment methods. The theory used

to support information obtained in this study is the Theory of Reasoned Action (TRA). The reason for using TRA is that this theory focuses on consumer interpretation, behavior and attitudes of the societal norms.

One of the models derived from the TRA is the Technology Acceptance Model (TAM), which evaluates human behavior on perceived ease of use and perceived usefulness. "This model hypothesizes that system use is directly determined by behavioral intention to use, which is in turn influenced by users' attitudes toward using the system and the perceived usefulness of the system" (Çelik & Yilmaz, 2011, p. 154). The TAM is a tool that can be used for the consumer acceptance or attitudes toward the use of mobile and contactless cards because this model has been applied for studies. The goal of mobile and contactless card payment acceptance research is to evaluate various studies and compare how each study answers adoption rates of consumers.

Researchers have exercised the Technology Acceptance Model to assist in understanding individual behaviors of new payment applications in limited or specific locales such as mobile banking and online stores (Yousafzai, Pallister & Foxall, 2009). The history of the Technology Acceptance Model is a compilation of other theories specifically designed to investigate human behaviors in various milieus such as the Theory of Reasoned Action. Icek Ajzen and Martin Fishbein developed the Theory of Reasoned Action in an effort of understanding intentions, beliefs, influences, and attitudes that may shape the intentions of a singular person (Wang, Sy, & Fang, 2010). A case in point to demonstrate the Theory of Reasoned Action could be a consumer going out to purchase another vehicle; however, this person does not make an effort to investigate or go by any car dealerships. The individual continues to drive the same car that they have regardless of the automobiles condition.

Since this qualitative study does not have a quantifiable hypothesis to either verify or

disprove, the addendum of the Technology Acceptance Model will offer scholarly data on consumer behavior. During the research process this researcher will use the Technology Acceptance Model as an aid to the design and development of questions. The behavior of individuals is unpredictable because in every situation the various factors such as age, education, and environmental issues impacts behavior of individuals

A philosophical apprehension can be as scholars lean towards using the Technology Acceptance Model, they might be obscuring their true intent which is to explore and deduce intentions and performance repercussions of acceptance and adoption of technology among people (Hernandez, Jimenez & Martin, 2009). Researchers may deviate from their rudimentary motive or purpose of their research because that the critical outcomes of the research may be based upon a single behavior that is conceptualized in a single narrow manner (Benbasat & Barki, 2007). Ergo, scholars might direct their focus on the perceived ease of use and usefulness and fail to investigate the perspectives of demeanor on why a person would or would not explore using a new product.

Fenghsiu, Chin-Wei, and I-Hung (2013), indicates in their article that scholars cannot presume that one design of perceived ease of use and usefulness can be used to decipher decisions made by a people. A singular person's choice of using a new technology might not only be based on perceived ease of use and usefulness of the commodity. The commodity might offer other features, functionalities and adoption situations, which may entice them to try it. These critiques add substance to the conversation on why scholars might select not to use the Technology Acceptance Model since scholars are not delving into the phenomenon of why individuals may or may not explore new technology. Scholars should explore all relevant data regarding the intentions and mental states of mind on how and why people decide upon trying

new technology.

When dealing with the characteristics of intentions and mental states of mind, it should be recognized that environmental factors could have a significant influence on an individual. Those environmental factors can be from their external or internal environment. These intellectual suppositions of conformity and social influences of applying or not applying new technological applications could be something that scholars should be prepared for when administering the Technology Acceptance Model to validate their acceptance percentages (Smith, Hogg, Martin, & Terry, 2007).

The definition of conformity can be considered as a singular persons intentions or mindsets that may be manipulated by friends, family or work colleagues. Conformity could be divided into three classifications. Those classifications are compliance, identification and internalization (Sommer, 2011). A group can use conformity and social influence to dictate behavioral patterns of other individuals towards a product or service. These actions could create various positive or negative outcomes for an individual depending upon the situation.

Compliance is when a person may safeguard their decision for trying a new product or service clandestine from other people. Identification can be defined as when a singular person is striving to fit in with a group. This person gives up on voicing their introspection on a topic. Internalization can be defined as consent to an ideal and observes it in a public and private forum. An example to illustrate these classifications could be that a person does not like to shop at a certain name brand store, however if their family, friends and colleagues discuss openly their preference to shop here over other stores, the person might be unwilling to share their thoughts with the group.

A couple of examples where the Technology Acceptance Model has been used to clarify

the practical importance regarding consumer adoption are the evolution of the mobile phone and electronic payment industries. The mobile phone industry has expanded over the past three decades from a product that very few individuals would use on a daily basis to a product that many individuals feel is a necessity in their lives. Many individuals do not have a landline phone in their homes, because their cell phone is their primary communication instrument.

Coincidentally, the electronic payment environment has advanced over the past three decades from where an individual originally used cash or checks to pay for products to now using some form of electronic payment. In today's environment, many individuals utilize a debit or credit card to pay for purchases of products. There are few individuals who still carry around a checkbook or large amounts of cash in their wallet. The next step for cell phones is to move to mobile and contactless card payments arena. In the interest of understanding growth within each industry, a timeline of evolution better illustrates their process.

Motorola developed the first cell phone in the early seventies; however, consumers were leery about using a cell phone because it was not clear whether or not the phone would be easy to use or if there was any perceived usefulness to carrying around a cell phone. So the beginning stage of offering mobile phones to consumers, the adoption rate was very low, which created not only questions but also concerns for Motorola. However as time went on, consumers began to see the value of usefulness from using a mobile phone and adoption increased for the mobile phone industry.

In comparison, there has been a metamorphosis on how individuals can make payments for products and services. One of those advancements was the introduction of debit and credit cards in the nineteen seventies which prevented people from retaining large quantities of cash or carrying a checkbook in the purse. At first, consumers could not envision the value or usefulness

of using the card because many merchant locations around this time frame did not possess the technological application to finalize an electronic payment (Quinn & Roberds, 2008). Other electronic applications that have enhanced the payment process are electronic bill payment, automated clearinghouse (ACH) and automatic monthly reoccurring drafts from a person's account. The next step in for consumers would be the mobile and contactless card payment process for finalizing a transaction.

The Technology Acceptance Model can be a beneficial and reasonable device in the study of implementing mobile and contactless payments. As consumers observe the perceived ease of use and usefulness, this method will further progress the payment industry. Consumers will experience quicker checkout times while having the peace of mind that their card is safer than the old magnetic stripe cards being issued in our current environment (Slade, Williams & Dwivedi 2013). In conjunction with mobile phone and card processors, scholars can use the Technology Acceptance Model to establish a product that could be the conventional product for society.

The reason Technology Acceptance Model demonstrates theoretical and rational importance for mobile and contactless card payments is the evaluation of acceptance on new technology by consumers. Although the criticisms of this model does not take into account future behaviors, businesses and researchers need to understand if an individual will only use a new product if they perceive any value for themselves from using it. If the individual does not recognize value by perceived ease of use and perceived usefulness, then no behavior will change will take place and thus no need for this model.

Security Aspects of the Product

One benefit for financial institutions using mobile and contactless card would be the reduced costs of fraud claims placed by consumers (Orr, 2007). The merchant will also be able to focus on keeping less cash and employees at the front of a store when the mobile and contactless card method is implemented. Consumers can also set the pace of their checkout process since they would just waved the card over a sale terminal instead of writing a check or swiping a card along with entering a personal identification number or signing for the purchase.

When a consumer submits a fraud claim with their financial institution, the debit or credit card is closed and another card number is issued to the consumer. In some instances, the consumer may have to close and re-open their entire account. This can be very frustrating for an individual if they have to reinstate direct deposits and monthly payment drafts. Mobile-and contactless cards possess the ability to minimize this impact to consumers by the use of automatic transaction counter technology.

One of the numerous features of this new technology is that it provides security and peace of mind for the customer through the automatic transaction counter (Blass, Kurmus, Molva & Strufe, 2013). The automatic transaction counter feature updates a customer's card profile with a sequential number each time the card is used during a transaction. If a customer's card is duplicated by a hacker and used, then the card would be recorded with that sequential number at the time of card skimming. The fraudulent card will not work after that one swipe because the transaction number being transmitted does not correspond with the last transaction from the person's mobile phone or contactless card.

The automatic transaction counter technology is equipped with a dynamic key value instead of a static key value. This dynamic key provides a sequential recording of transactions. In

the event a card's data was obtained and someone made a fraudulent card, the fraudulent card would have the exact transaction number previously used by the original cardholder. The consumer would have made other purchases so the card processor would know any transactions out sequential order would be fraudulent. The card processor would deny those transactions and contact the consumer to make them aware of the issue.

Businesses and consumers may have been startled by news reports of security data compromises at Heartland Payment Services, TJX Corporation and RBC Payment Services. These data breaches involve several million customers' confidential card data (Sullivan, 2010). Consumers are frequently unaware of a security compromise until they learn about it from the news media. However, sometimes the news media does not provide accurate information regarding the source and impact of the breach (Romanosky, & Acquisti, 2009). The consumer expects merchants to provide secure monitoring of their payments being transmitted from point of sale terminals across the payment network.

One of the methods to help consumers feel safer and continue to process transactions in a quick manner is contactless and mobile technology currently being deployed in European countries. The user just waves the smart card over a terminal to pay for their transaction (Hayashi, 2012). When describing a theory of how consumers may accept this new technology, the Technology Acceptance Model (TAM) can provide insight to how consumers might accept mobile and contactless card payment technology. The TAM evaluates consumer behavior based upon a predisposition to use or not use new technology (Svendsen, Johnsen, Almås-Sørensen & Vittersø, 2013). The four components of the TAM are perceived ease of use, perceived usefulness, behavioral intent to use and actual. This theory can be applicable due to the correlation of consumer acceptance and new technologies such as mobile and contactless

payments. Due to the limited and low adoption rates of mobile and contactless card payments, one area that the field of TAM has been applied to real world situations in comparison to mobile and contactless card payments is the adoption of online banking by consumers.

Consumer Perceptions of Mobile and Contactless Payments

Initially, consumers were very skeptical of paying bills or even purchasing products electronically whenever this payment methodology was introduced, however, over time consumer confidence has increased and it is now considered just a normal or routine way for an individual to make a payment for a purchase or service. Once consumers begin using the mobile and contactless card payments they will soon realize that this payment method offers them easier access to financial transactions, and also provides a more secure payment method then their current credit or debit cards (Coetzee, 2013).

Consumers will utilize their mobile or contactless cards as their primary payment method. Some concerns could be that some consumers do not understand how secure this payment method is when compared to current payment systems, apprehension about data compromise, being set in their ways of payment or perceived notion that their transactions are being tracked by the government (Sumanjeet, 2009). Consumers develop their fears of using new payment methods based on previous personal experiences, what they hear or read in the news media and their general milieu.

Retailers often seek to provide convenient services to consumers by purchasing the point-of-sale terminal needed for MCC transactions. While increasing the speed of the checkout process, MCC technology also enables retailers to provide coupons or other promotional incentives in the form of advertisements to the consumer's phone (Zhou, Tu, & Piramuthu, 2009). Some individuals may perceive this feature as a disadvantage or

invasion of privacy and others may view the feature as valuable.

As the technology of payment processing has grown, consumers have increased their usage of electronic forms of payment such as debit cards, credit cards, and bill payments (Sahut, 2008). Consumers becoming more familiar with the new MCC technology may accept and demand access to the product because of the increased convenience and reduced processing time (Hughes, 2010). In addition, individuals under the age of 35 tend to expect to have their transactions processed in the most efficient manner and may be more willing to embrace new technological advances (Bielski, 2007) since younger people tend to be more receptive to using new forms of payment technology (Gincel, 2010). Members of this demographic group tend to focus less on loyalty to financial organizations and more on what is beneficial for them (Tellis, Yin, & Bell, 2009). Representatives of financial organizations, therefore, must strive to acquire and maintain consumer loyalty by offering the most innovative products and services for processing transactions.

There has been a growing tendency among younger consumers to use the debit card as opposed to writing a check or using a credit card according to authors Wessels and Drennan (2010). The mobile and contactless card is a product that younger consumers may gravitate towards quickly due to their ability to try new technology. Bills (2009), states that if consumers begin to use the new alternative payment application of mobile and contactless cards that they may realize benefits not now provided by other payment methods. This new payment method would provide people quicker checking out times, the option to carry just one plastic card and provides encryption methods for enhanced security of their financial transaction.

One of the outstanding features of using MCC is that it helps prevent fraud and reduces fraud-related costs (Baxley & Hergenroeder, 2008). Savings from reduced consumer losses from

fraud and unauthorized charges could be reimbursed back to customers. Additional revenue may also be generated in the form of a decrease in fees paid to card issuers by merchants, commonly called interchange income (Jepson, 2006). With MCC, a financial institution can provide the consumers with a text message regarding a new product or service or information concerning a recent purchase (Jepson, 2010). This enhanced service for mobile phone customers may create loyalty among consumers to the financial institution by enabling advance notice of new offerings and transactional information. However, some consumers may experience these messages as an invasion of privacy.

The mobile and contactless payment technology will minimize the impact of data compromises and the mass re-issuance of cards to customers. The impact of having to mass reissue cards to customers costs the financial institution and card processors time, money, loss of reputation and customer frustration. Customer frustration comes from having to reestablish direct deposits or automatic payment drafts being received and disbursed off the card.

One of those perceptions consumers could have besides security concerns could be related in terms of their ideas on how accurate is the information (Mäenpää, & Voutilainen, 2011). For example, when a consumer viewed the information in the online banking portal, they might have wondered if the information was current as of the moment they logged into the system or was the information from a file generated off yesterday's activities. Another perception would be that financial institutions would cut staff by implementing this new technology. Financial institutions handled each of these perceptions by demonstrating that online banking was more accurate information within a twelve or twenty four hour window while dismissing any rumors that reductions in staff would occur if consumers used online banking.

A concern revolving around mobile and contactless cards is that consumers may not feel adequate security measures exist to protect their data. However, consumers who receive proper education will know that dynamic data encryption is deployed on mobile and contactless cards. Dynamic data encryption means that consumer payment data is encrypted in a method different that the traditional card payment method (Sullivan, 2008). This information should dispel any of thoughts that security is less prevalent on this product.

The mobile and contactless payment technology will minimize the impact of data compromises and the mass re-issuance of cards to customers. The impact of having to mass reissue cards to customers costs the financial institution and card processors time, money, loss of reputation and customer frustration. Customer frustration comes from having to reestablish direct deposits or automatic payment drafts being received and disbursed off the card

Another aspect of the Technology Acceptance Model shows that consumers are more willing to try new technology when they feel that the usefulness and ease of use does not compromise security of their information (Hossain & Prybutok, 2008). Consumer behavior is shaped by beliefs and values of how a product or service benefits them. As individuals begin to have positive experiences then mobile and contactless card payment acceptance will gradually increase.

Financial Institutions

Financial institutions have been interested in the acceptance and demand from customers for mobile and contactless card payments. The reason for their interest in the demand from customers is that financial institutions will need to provide them with the mobile and contactless cards. Financial institutions will receive various benefits from the distribution of this payment technology. The distribution of mobile and contactless cards will help in the prevention of fraud

and this prevention will help financial institutions to reduce their fraud related costs. Fraud related costs are the losses of unauthorized charges being reimbursed back to customers or mass re-issuance of new cards being printed and shipped to the customer. In addition to savings from fraud, financial institutions will have the opportunity to generate additional revenue in the form of increased interchange income (Börestam, & Schmiedel, 2012).

MasterCard and Visa studies have shown when a shopper is using mobile or contactless card payment technology, they tend to use the card more often than they realize. As customers use a certain card for payment with more frequency, this top of wallet mentality creates loyalty to the financial institution (Mori & Takahashi, 2010). The increase in transactions will generate more income for the financial institution because these charges are registered on the system as a signature based transaction since the customer is not entering a personal identification number. The difference in interchange income for the financial institution is approximately one percent greater per transaction than using a personal identification number. Customers should benefit because financial institutions are able to reinvest their savings from fraud costs and additional interchange income into new products or services, which provides the financial institution a competitive advantage in the marketplace.

As the Internet has gained greater momentum in consumer usage over the years financial institutions have been exploring various methods on how to provide greater convenience and giving clients the ability to monitor their accounts. These exploratory sessions have led to the development of an online banking system for consumer usage via a financial institution's website. As financial institutions began to implement the technology; their conundrum was how to get their accountholders to use the new technology (Laukkanen, Sinkkonen, & Laukkanen, 2008). Their first step in the adoption process was to educate their staff so they could handle any

upcoming concerns about the new computer application. After staff education, financial institutions can then begin educating customers on the perceived ease of use with this new technology.

In conjunction with computer literacy, financial institutions needed to dispel any trust over the security of online banking. Online banking will provide cost efficiencies for the financial institution; however consumers are concerned whether or not their information could be accessible by third parties or other accountholders (Benamati & Serva, 2007). Financial institutions had two main tasks when marketing online banking to their accountholders. They had to educate not only on how to use the system but to provide consumers peace of mind that the information was secure in the financial institution.

As financial institutions begin to market their online banking services, they needed to understand that consumers have varying levels of computer access and literacy, thus creating significant challenges (Guriting, Chunwen, & Ndu, 2007). One of the major concerns could be the cost of launching a marketing campaign using a company's labor, capital, and other resources to invest in advertising of online banking. Mobile and contactless card payment marketing tactics could be oriented initially more towards younger segments of the population because of their use of various smart phone applications along acceptance of new technology (Jeppsson, 2009). However, financial institutions and businesses should be prepared to focus their marketing efforts on all debit and credit card users because this payment technology could be more acceptable and can be used by anyone regardless of their age.

Financial institutions need to ensure that their staff members are comfortable with this new technology and can help customers (Durkin, 2007). If a staff person is unsure on how to navigate through their company's website, the staff person will not present their self as

knowledgeable and convincing on the benefits of online banking when trying to sell the product to a potential customer. For example, if a staff person is trying to show the benefits of online banking but cannot effectively navigate to show where detailed account history is located; the consumer might not be inclined to try online banking. Consumers tended to reject the idea of using online banking due to unsubstantiated fears on how this new technology is used; who can view their information, information available to them, and can someone else access their personal info.

In a similar fashion, staff members must be educated on the features and benefits of mobile and contactless card payments. Staff should be able to discuss how the mobile and contactless card works out in the marketplace. Additionally, they should have the means and ability to provide a sample demonstration on how it works within their office space. Consumers should be presented with the benefits of how mobile and contactless card payments speed up the process providing greater ease at checkout (Raghubir & Srivastava, 2008).

Currently, financial institutions have seen or implemented smaller versions of contactless card payment technology along with online and mobile banking applications. However, many of the staff at these financial institutions is not fully aware of the capabilities of these technologies (Conti, 2008). One reason is that staff has not been properly instructed because their financial institution has not fully integrated contactless cards into their card portfolio. Another reason could be that their mobile banking application may be of such a generic nature that it only allows consumers just the ability to see balances and allow transfers from a savings to a checking account.

The Technology Acceptance Model suggests that if a consumer is going to embrace new technologies like mobile and contactless card payments, they will need to be advised on how

using this technology is easy to use for them. One example can be the comparison to online banking. Businesses using web-based application to enhance consumer experiences need to understand consumer acceptance may be slow to start until behaviors are altered by group acceptance of the product (Huang, 2008).

Some financial institutions have been interested in the acceptance and demand from customers for mobile and contactless card payments. The reason for their interest in the demand from customers is that financial institutions will need to provide them with the mobile and contactless cards. Financial institutions will receive various benefits from the distribution of this payment technology. Financial institutions can educate staff and consumers on the features and benefits of mobile and contactless cards, realize the cost savings of issuing cards versus having to order and reorder checks and additional revenue to the financial institution through the use of mobile and contactless cards (Nasri, 2011).

One benefit for financial institutions using mobile and contactless card would be the reduced costs of fraud claims placed by consumers (Orr, 2007). The merchant will also be able to focus on keeping less cash and employees at the front of a store when the mobile and contactless card method is implemented. Consumers can also set the pace of their checkout process since they would just waved the card over a sale terminal instead of writing a check or swiping a card along with entering a personal identification number or signing for the purchase.

Another source that the financial institutions can utilize to help train their staff and perhaps consumers would be Visa and MasterCard training materials. A major feature of the new mobile or contactless card system is that the automatic transaction counter prevents skimming and counterfeiting of a card because the processor will accept the next transaction in sequence rather than an old transaction sequence number. The counterfeit card would have the old

sequence number and the merchant would then deny subsequent transactions. The financial institutions would also benefit from the mobile and contactless technology by not having to print and ship checks (Mori & Takahashi, 2010).

The costs of postage, ink and paper would be saved because the issuance of a card would be a minimal one-time cost for the financial institution over the next two years (Gillis & Pillay, 2012). The financial institution would benefit from the mobile and contactless technology through additional revenue in terms of interchange income, which is not earned by the financial institution when using checks of cash payments.

The distribution of mobile and contactless cards will help in the prevention of fraud and this prevention will help financial institutions to reduce their fraud related costs. The fraud related costs would be the losses of unauthorized charges being reimbursed back to customers and mass re-issuance of new cards that would need to be printed and shipped to the customer. In addition to savings from fraud, financial institutions will have the opportunity to generate additional revenue in the form of increased interchange income (Dahl, Lawrence & Pierce, 2011).

MasterCard and Visa studies have shown when a shopper is using mobile or contactless card payment technology, they tend to use the card more often than they realize. As customers use a certain card for payment with more frequency, this top of wallet mentality creates loyalty to the financial institution (Mori & Takahashi, 2010). The increase in transactions will generate more income for the financial institution because these charges are registered on the system as a signature based transaction since the customer is not entering a personal identification number. The difference in interchange income for the financial institution is approximately one percent greater per transaction than using a personal identification number. Customers may benefit

because financial institutions may be able to reinvest their savings from fraud costs and additional interchange income into new products or services, which provides the financial institution a competitive advantage in the marketplace.

The other reason financial institutions would like to see adoption of MCC payments is the increased interchange income and savings from card fraud losses. In terms of interchange income, banks earn approximately one basis point more on a signature-based transaction as compared to a pin-based transaction (Segal, Ngugi, & Mana, 2011). Bielski, (2007) outlines that revenue from interchange income from transactions accounts for 30-40% of operating revenue for financial institutions. Additionally, the denial of processing any transactions not authorized by the consumer benefits the profit and loss of the financial institution. When financial institutions or a merchant requires PIN identification before approving any transactions over $75, this will limit any reservations if the phone is lost or stolen by someone (Scarborough, 2010). These aspects make financial adoption of MCCs seem inevitable.

Financial institutions and card processors acceptance of mobile and contactless payment technology shall be driven from customer and merchant demand for the product (Budac & Baltador, 2010). The financial institutions and card processors are able to achieve customer demand and merchant acceptance through effective advertising and educating on the features and benefits of the technology. The card processors advertising of mobile and contactless payments in partnership with city municipalities and merchants will help in educating customers on the payment method (Balaban, & Vîntu, 2010).

One method of educating customers on the payment method would be to provide a streaming video on the city municipality, merchant or card processors websites or place television commercials on how to use and benefits of the card. One of the primary benefits to

financial institutions and card processors is the reduction in fraud (Merschen, 2010). The mobile and contactless payment technology will minimize the impact of data compromises and the mass re-issuance of cards to customers. The impact of having to mass reissue cards to customers costs the financial institution and card processors time, money, loss of reputation and customer frustration. Customer frustration comes from having to reestablish direct deposits or automatic payment drafts being received and disbursed off the card. The combination of lower fraud losses from counterfeit cards being created by hackers and costs of creating and shipping replacement cards is beneficial for card processors and financial institutions. Financial institutions can provide the savings back to customers in the method of higher deposit rates and lower loan rates. Card processors and financial institutions will not experience any loss of reputation or class action lawsuits from those data compromises. Financial institutions will see a lift in revenue from the increased interchange income earned from the payment technology (Jepson, 2009). The consumer demand in conjunction with the combination of increased security and revenue streams should be beneficial for financial institutions to accept and implement the new mobile and contactless payment technology.

Merchants

Merchants strive to provide the most efficient and convenient method to process payments for products and services for customers. However; each of these payment methods may bring additional procedural, security and processing functions for the merchant. The cash payment method presents several issues for businesses. A business must have a sufficient amount of cash on the premises and may have to employ more security and have a staff familiar with accounting balancing methods. The check payment method also presents accounting balancing issues for the merchant. The vendor must recoup costs for insufficient fund checks accepted from

a consumer (Khanna & Arora, 2009). The retailer may invest in automated clearinghouse technology to avoid non-sufficient fund checks or choose to write off the non-sufficient fund checks as cost of doing business. Finally, the processing of debit and credit card transactions is the most efficient method for the shopkeeper due to the transaction is being approved or declined at the point of sale terminal and the decreased requirement to enhance security procedures for balancing of the sales (Greene, 2009). The revenue gained can fund new stores or be placed into research and development of new products.

Merchants have a couple of main reasons for not pushing for the widespread adoption of mobile and contactless card payments by consumers. One reason is that merchants would need to upgrade their point of sale terminals so that the terminal could accept mobile and contactless transactions (Bills, 2008). However merchants may be reluctant to implement these terminals due to the cost and possible low adoption rate of consumers using a mobile or contactless card. The key ingredient of the study shall be to gain a better understanding of potential adoption rates by consumers.

A secondary reason for merchant push back from implementing new mobile and contactless card payment technology would be the incurred cost of having to train and have qualified staff to answer questions about the product. “Considering the potential that mobile payment systems hold in advancing transactions in electronic, mobile, and physical environments, a more profound understanding of their adoption among merchants is needed” (Mallat & Tuunainen, 2008, p. 26). Until merchants see a demand for this product, merchants shall be slow to upgrade their point of sale terminals and train staff on the technology.

Merchants within the United States have been slow to implement the new sales terminals or point-of-sale terminals needed for MCC processing because of costs (Keifer, 2010).

However, representatives of some of the larger retailers, such as Best Buy and Convenience Value and Service (CVS), have started implementing this technology at certain U.S. locations (Orr, 2007). The implementation of MCC technology can result in operational efficiencies such as lower costs in terms of balancing cash and check payments, lower losses from insufficiently funded checks, and reallocation of staff to focus on other tasks (Ching & Hayashi, 2010). The additional revenue generated from these new point-of-sale terminals can be allocated for funding store upgrades or payments to stockholders.

However, if card processors want businesses to make this expensive investment, the card processors will need to provide some incentive plans or trade in programs on the older point of sale terminals. Once businesses start receiving assistance and incentives from card processors, an upgrading to point of sale terminals could be completed within the next two to three years. Once businesses begin upgrading their point of sale terminals, an additional investment will need to be made in customer relationship management software to help in tracking customer sales and provide targeted marketing capabilities (Bills, 2008). These targeted-marketing messages will benefit the participating business in terms of lower promotional costs and build customer loyalty due to providing a product or service that the customer is or has used in recent months.

The mobile and contactless payment technology will provide merchants an ability to acquire data on which products a particular customer purchases on a regular basis which will help with inventory and other vendors who work with the merchant's payment processes. This information is inputted into a customer relationship management system. The customer relationship management system can warehouse those regular transactions and send the customer information to their phone when the product or service goes on sale. This customer service aspect can create customer loyalty and acquisition of new clients.

Merchants upgrading their point-of-sale terminals may need to make additional investments in CRM software to help in tracking customer sales and to provide targeted marketing capabilities (Bills, 2009). These targeted-marketing messages may benefit businesses through lower promotional costs, as well as by building customer loyalty by providing a product or service that the customer uses or has used in recent months. MCC technology may enable merchants to offer rewards programs for frequent shoppers. A rewards program may help in increasing card usage at the store or online (Simon, Smith, & West, 2010). A rewards program can also benefit the consumer who receives something free or at a reduced price with or without a purchase, and may increase their loyalty to the company.

One of the outstanding features of using MCC is that it helps prevent fraud and reduces fraud-related costs (Baxley & Hergenroeder, 2008). Savings from reduced consumer losses from fraud and unauthorized charges could be reimbursed back to customers. Additional revenue may also be generated in the form of a decrease in fees paid to card issuers by merchants, commonly called interchange income (Jepson, 2006). With MCC, a financial institution can provide the consumers with a text message regarding a new product or service or information concerning a recent purchase (Jepson, 2010). This enhanced service for mobile phone customers may create loyalty among consumers to the financial institution by enabling advance notice of new offerings and transactional information. However, some consumers may experience these messages as an invasion of privacy.

Merchants within the United States have been slow to implement the new point of sale terminals due to the cost of upgrading their sales terminals. However some big box retailers such as Best Buy, Wal-Mart, Walgreens and CVS have started implementing this technology at certain locations within the United States. Some businesses realize the benefits from mobile and

contactless payment technology. Among the benefits include operational efficiencies such as lower costs in terms of balancing cash and check payments, lower losses from insufficient funded checks and the reduction of staff to oversee the associated accounting functions.

Businesses that continue to operate within smaller operating margins may not be able to afford to upgrade their point of sale terminals. Some of these businesses such as Best Buy, which have implemented the new technology, take advantage of return on investment models to provide financial institutions with information on how they can increase customer satisfaction while lowering their costs (Bills, 2009).

These incentives offered to offset implementation cost in association with the reduced cost for merchants in terms of less staff for balancing of cash and checks should provide the initiative to convert to mobile and contactless payment technology (Levitin, 2008). Merchants will experience greater customer satisfaction by providing them the ability to move through checkout lines at an expedited rate by waving their card rather than punching in a personal identification number, writing a check or wanting for change from a cash transaction.

Businesses will need to assist in the effort to use mobile or contactless payments through coding the terminals to prompt for this payment method. Today, many electronic systems prompt consumers to enter their personal identification number when swiping their debit card to process a transaction. The shopkeeper will need to educate their employees on understanding the technology so they can assist consumers by asking if they have a mobile or contactless card and, if needed then walk them through performing the transaction. The businesses should recognize economies of scale and maximize their profits thorough an effective and efficient payment system. Another benefit of implementing mobile and contactless cards would be less labor

requirement such as having to balance cash transactions at the end of a business day and collection of insufficient fund checks (Bills, 2009).

Once businesses begin upgrading their point of sale terminals, an additional investment will need to be made in customer relationship management software to help in tracking customer sales and provide targeted marketing capabilities (Bills, 2008). These target-marketing messages will benefit participating business in terms of lower promotional costs and build customer loyalty due to providing a product or service that the customer is or has used in recent months.

The mobile and contactless payment technology will provide merchants an ability to acquire data on which products a particular customer purchases on a regular basis which will help with inventory and other vendors who work with the merchant's payment processes. This information shall be inputted in to a customer relationship management system. The customer relationship management system can warehouse those regular transactions and send the customer information to their phone when the product or service goes on sale. This customer service aspect can create customer loyalty and acquisition of new clients (Liu, 2007).

Cost Versus Consumer Acceptance Approach

The process of offering new technology can be taxing on an organization in terms of staffing resources, marketing costs, and brand perception. Each of these resources are explored in depth as part of inquiries into consumer acceptance and behavior toward new technology according to authors Aldás-Manzano, Ruiz-Mafé & Sanz-Blas, (2009), Chmielarz, & Nowak, (2010), Yong & Hongxiu, (2010), Zhu, Sangwan & Ting-Jie, (2010) and Tan & Chen, (2008). Five variables that were continually noted by researchers during interviews with respondents were anxiety, credibility, social influence, performance expectancy, and usefulness when trying to determine an individual's reaction to new technology. Published research data on these

variables should be part of any business's marketing plans before development and implementation of a marketing strategy introducing new technology to consumers.

When reviewing each of these variables, it is important for the researchers to understand what the meaning is of each definition. In addition, businesses need to know how each of these variables may affect an individual's decision on trying and using new technology. As businesses begin to understand what each variable is and how it affects other variables and decisions, they are better equipped to understand consumer behavior.

Perceived usefulness is known as the degree to which an individual believes a new technology would benefit them by not using new technological applications. For example, an individual uses a general ledger to compile and calculate monthly sales figures; however the organization has provided the person with Excel to be more efficient in terms of time. If the individual believes Excel will benefit them in terms of compiling, calculating and retaining data, and provide them more time for other tasks, the individual may use Excel.

Perceived ease of use is known as the degree to which an individual believes new technology is easy to use and will not require additional effort beyond what the individual does in their current environment. When using the same example of the individual using general ledgers, if the individual does not believe using Excel is easy to use in terms of entering the data, they will not use it. However if they believe the process of entering data is easy and can be shown the efficiencies with using Excel, they will use it.

Perceived credibility is known as trustworthiness and expertise. In terms of an individual's decision to try new technology, they must have faith in the business that is offering new products or services through up-to-date technology. For example, if a bank is offering online banking and bill payment services to their accountholders, the individual must believe the

website housing their account information is secure from outside sources. Additionally, the individual needs to believe that information provided to them in the terms and conditions of the website provide accurate information about the service.

Social influence is known as how a person acts based upon how others have influenced them. The influences of others can effect on how or if any individual will try and accept new technology. For example, an individual might be interested in trying a new product like contactless cards. However the individual's friends and co-workers state the technology is suspect and poses a high security risk based upon what they may have heard or read; the individual will not be inclined to try a contactless card. Notwithstanding for businesses and merchants to have consumers embrace mobile and contactless card payments, they will need to fully educate society on the features and benefits of the product.

Performance expectancy can be defined as how an individual believes a system will enhance their job performance. An example would be the implementation of a new software system that tracks and pages out upcoming due dates for contracts. If an individual is comfortable by reviewing contract renewal dates from a spreadsheet, they might believe the new paging software will not benefit them. Therefore they will not try the software system because it provides no enhancement to their job performance.

Anxiety can be defined as a fear about a situation or event. This fear can be realized or fantasized about by the individual. An example of anxiety in terms of mobile and contactless cards can be an individual's fear of the wireless technology. The individual may believe the technology is not as secure as a regular debit or credit card. Due to this belief, the individual may be reluctant to try the product. Businesses and merchants will need to fully educate individuals on the security features of the product.

The nexus to understanding a consumer's behavior on why they continued to use a product or service after their initial introduction is very important and fundamental to any study since it could provide valuable understanding of how to design, implement, and market to consumers in the future. Each of these empirical articles stated that they observed that the type of payment method bestowed most often by a consumer is determined by two major factors, i.e., personal experiences and environment. For example, a consumer may utilize the check payment method if that is what their family and peers use and if they are comfortable using that method of payment. Once consumers take the time to experience new payment methods and see how it expedites a consumer's check out time, the mobile or contactless payment method may well become the new preferred payment method.

The Technology Acceptance model was selected because its strategies appear to provide the best methodology available to comprehending consumer behavior in the milieu of new technology. This is the best instrument to help researchers to appraise the feelings of individuals that have answered their questionnaires on mobile and contactless card technology. Since this study is both innovative and unique, it will entail essentially research into a multifaceted topic without any established criteria.

This research methodology may provide valuable information about how consumers interpret and compare this new technology based on their current payment methods. When designing the research questions, an area of concern would be to keep away from being excessively detailed about the predictable statistical outcome and ensure validity of the research.

The responses may provide data that may prove useful in helping merchants and other end users in formulating strategies on how to get consumers into trying and accepting new products and services. In an article by Baron and Harris (2010), consumers incorporate their

acceptance process for new items or methods if they perceive a value to changing their current process. If the consumer believes the experience is valuable to them in terms of time or money savings, then the consumer may be more willing to try the new method. One of the areas to pay particular interest to is the younger responder in the survey. If the survey data shows that consumers are reluctant to accept new payment technologies; the researcher may then assume that consumers are set in their payment methods regardless of what merchants or other financial institutions offer them in the way of incentives.

The one major question that each of the five studies does not answer is will the consumer continue to use the new technology. In four of the five studies reviewed, the emphasis was to try and understand reasons why the consumer did not want to try new technology. The reasons given for individuals in the studies on why new technology was not used were segmented and characterized based on factors such as age, gender, education, and economic status. However, the studies did not show a success rate six to twelve months after the consumer starting using the new technology. In the interest of ascertaining if the business or merchants plan was truly successful, a follow-up study or report should be conducted to determine consumer loyalty over time to the product.

A plan should be developed by a business to select a specific population to market the mobile and contactless card. The thrust of the study would be to prepare a timeline with designated milestones so that each one the individuals in the study would be contacted to determine their level of involvement with the mobile and contactless card. After a predetermined time frame, the research would be concluded and the data gathered would be studied to determine the action of consumers. This information would be valuable in understanding why the consumer begins using any new technology and provide an opportunity to

begin targeting a segment of the population that was the most responsive to the mobile and contactless card during this research.

The information gleamed from consumers, e.g., gender, education, and economic status will help solidify the marketing strategy to identify a receptive population to ensure a lower risk of failure. Additionally, the answers from respondents in the study may also provide information to researchers about involvement and experiences with alternative payment methods. In an effort to encourage individuals that have been selected to participate in this study, one method that could be used is to provide some type of prize or reward to each of the individuals contacted during each milestone. Albeit, the data and results collected from this study are not infallible but it can furnish a business that is planning to market the mobile and contactless card some data along with some direction on how to develop their marketing campaign.

In an effort to assist in overcoming the issue of not knowing if the consumer continues to utilize the new technology after an extended period of time, the mobile and contactless card payment study will contact those participants at a predetermined time in the future. This follow up will assist in gauging their progress on using the mobile and contactless cards. The results would be beneficial in determining why consumers stop using the new technology. Those reasons could assist in future implementations of new technology.

The correlation of understanding consumer behavior on continued use after the adoption phase is important to the study. Consumer decisions to use a technology are based on pleasure or utility-based value considerations. If the consumer does not believe in the technology providing them an enduring benefit, they might discontinue using the product (Martin & Rice, 2010). In the mobile and contactless card payment study, it shall be important to outline ongoing education and security benefits to help with consumer acceptance of the product.

It was noted that the generalization of taking results in these studies and then using them as if it would benefit an entire community could be misleading to readers. For example, when stating that individuals in China are more willing to accept new technology does not solidify that all individuals will accept new technology. For example, the mobile and contactless card product has shown positive growth in other countries such as England, Spain and Australia. However, the growth rate in the United States has been stagnant because merchants have been reluctant to spend monies needed to upgrade their point of sale terminals. Government agencies, card processors, and banks have tried various tactics to persuade the merchants that upfront cost expenditures for point of sale terminals will reap greater rewards later, to no avail.

Consumer Privacy Concerns

Ethical codes of conduct for technology encompassing the radio frequency identification technology of the mobile and contactless card environment has four specific areas that may possibly a pose an ethical dilemma for someone working in this specific field. These four areas are privacy of the individual, precedent of offering the ability to opt in or opt out for the product, government regulations, and the suspicions of individuals that they are under some sort of surveillance (Glasser, Goodman & Einspruch, 2007). Furthermore, the moral dilemma that confronts researchers and businesses is the question of how useful will customers perceive new technologies in the marketplace.

All four of the dilemmas, i.e., privacy of the individual, precedent of being able to opt in or opt out of the product, misgivings of individuals about their replies, and government regulations will need to be focused by the researcher to ensure an adequate population pool and response rate for the mobile and contactless card payment study. Since any of these ethical dilemmas could pose apprehension among consumers to participate in the study, it is important

to discuss a possible hypothetical dilemma regarding each principle. Then a solution can be formulated to deal with each of the conjectured dilemmas to ensure how the researcher plans to overcome these with consumers.

In terms of the ethical dilemma of utilitarianism facing scholars and businesses, they need to realize that this ideal may not be practical for new technology. Utilitarianism is the premise that an action taken can be deemed as ethical if the outcome of this action provides the greatest benefit to society with the fewest negative outcomes (Hair & Clark, 2007). When exploring and determining possible multiple new technological applications, businesses cannot base their decisions on which application will provide the best benefit for the majority of consumers. Consumers are going to try and accept new technology based upon their perception of ease use and perceived usefulness to them. It would be virtually impossible for a business to make decisions based on this paradigm for every consumer in the marketplace so researchers will need to take this into consideration during their study.

During the mobile and contactless card study, one major ethical problem that could be of significance is the concerns of individuals about their privacy and how the information may be associated with tracking and predicting consumer behavior. Although this theme is not new for scholars and businesses, the idea of businesses capturing and storing information on where and what consumers purchase can be envisioned by some individuals as big brother watching their daily routines. However, many consumers do not understand that businesses have two reasons for gathering and storing of this information (McCredie, 2011). Those two reasons are to assist the business with their supply management and customer relationship management services. Each of these services can benefit the consumer by ensuring the business has the right product and adequate inventory at the right time for consumers.

The speculation of privacy being a potential ethical dilemma on the study of mobile and contactless card payments would be that consumers might have a belief their participation could be used for other purposes rather than gauging acceptance of trying the product (Bandyopadhyay, 2011). Consumers may be very reluctant to explore new technologies if they feel businesses or the government is capturing and retaining information for ulterior motives (d'Astous & Kamau, 2010). Scholars have a responsibility to make sure that all individuals involved in the study understand that their responses shall be kept confidential and not be used for any other purpose during the study except for research purposes. If this information is not clearly comprehended by selected respondents, then this researcher may not get anyone willing to participate in the mobile and contactless card payment study.

The potential ethical quandary surrounding the application of government regulations can be summarized on compliance factors within the payment card industry guidelines. Businesses and payment network providers have been mandated through government action to transmit card data in a safe secure format, while properly eliminating the cardholder information from their server banks on a periodic basis (Rysman, 2007). When consumers experience breaches of their account through negligence of businesses or payment network providers not properly adhering to protocol, they may be leery of exercising the option of trying new technology. As scholars and businesses are researching acceptance of new technologies, the dilemma would be to have an assurance that this new technology does meet government guidelines to best ensure an optimal adoption level ratio.

When dealing with the potential ethical quandary of the privacy of the individual, the researcher for the mobile and contactless card payment study will need to provide assurances to the participants that their personal information and responses is kept confidential from public

scrutiny (Hung & Wong, 2009). In pursuance of accomplishing this task, participants on the list for the survey shall be generated through a random selection process using an Excel software application and Survey Monkey. This e-mail list of potential participants shall be kept confidential from others by using a blinded copy list when distributing the questionnaire. The questionnaire is made up of five to ten simple to questions that will not coerce any personal information of the participant. Finally, the link to the Survey Monkey site is locked and inaccessible to others who might try and retrieve data about the respondents because the researcher is the administrator of the survey link.

In evaluating the principle precedent of consumers having the ability to opt in or out for a product, there needs to be some consideration for scholars and businesses when evaluating the development and distribution of new technologies to consumers (Mack & Sharples, 2009). Consumers may start using a new product, however if they do not get immediate satisfaction or desired results, they will want to stop using the product. The concept of precedence of opting in or out may have been pre-established by the distribution of debit and credit cards. On occasion, businesses force consumers to start using new technology through the discontinuance of an older version of the product. Nevertheless, consumers need to be provided with the option of being able to accept the new technology without being coerced into using it by a business.

In addressing the possible predicament for the precedent of being able to opt in or opt out for the product, the researcher would need to tell participants of the mobile and contactless card payment study that this research is a completely voluntary process for them. The participants would need to be fully aware that if they start the survey but due to other obligations or unforeseen circumstances that arise; they can excuse themselves from the survey. In conjunction with providing them with the survey link, the participants need to be informed that this study is

not going to be given to any financial institutions or merchants to make a determination on replacing current debit and credit cards with mobile and contactless cards. The study is attempting to understand why consumers may or may not try new payment technologies.

The addressing of government regulations for the mobile and contactless payment study, the researcher will need to recognize the current regulations governing the mobile and contactless card payment process. The payment card industry standards would be an optimal guide to have readily available for participants when conducting this study. This information could dispel any notions that this new payment technology is not capable of securely transmitting data from the stores point of sale terminal system to their financial institution (Sussman, 2008). Furthermore this guide can provide a pathway to show where the payment industry is heading as this standard is slowly becoming a mandated process for all entities that capture, transmit and store any type of card data.

Mobile Payment's Future

In 21st century environment, consumers are using their mobile phones to purchase airline tickets, receive coupons, and texting. Mobile phones are inexorably becoming more of an electronic device, which is educating and entertaining along with informing and connecting consumers (Pope et al., 2011). This enhanced functionality of the mobile phone could evolve into a type of digital wallet. Also, as consumers become more comfortable with attaching their personal information on their mobile phone, that activity will increase service requirements on financial institutions.

However, there are two very significant issues that have not been decided, and these are controls or limits on collection and distribution of information and security of personal telephones. Since users of mobile telephones need to feel confident that unauthorized

individuals cannot access their financial information, several methods are available to ensure security. One of the methods is to try and use key values that can transmit encrypted information from the phone to the point of sale terminal (Bareisis, 2011). One type of key that many telephone providers are deploying is symmetric key values (Li, Wen, Su, & Jin, 2012). However, many financial organizations feel that dynamic key values may be more effective combating potential fraud (Darsow & Listwan, 2012). Regardless of the key, the phone is going to be viewed as a gateway connecting consumers, merchants, and financial institutions (Daskapan, Van den Berg, & Ali-Eldin, 2010).

The mobile phone adoption and behavior is critical for financial institutions and phone carriers to keep pace with innovation. At stake is balancing this new technology against consumer adoption of the product. Some of the variables that need to be evaluated are social influences and beliefs and personal traits of the consumer (Yang, Lu, Gupta, Cao, & Zhang, 2012). Finally, the key to understanding which of these variables will drive consumer adoption of mobile phones and capitalize on those attributes are monumental tasks for the financial and merchant sectors.

Consumer Acceptance and Impact

Consumers may tend to be skeptical about using a new payment technology because it involves their personal financial information. Consumers normally choose payment methods that they are comfortable and familiar with regardless of the cost of processing a transaction (Jonker, 2007, p. 274). A prime example of consumer payment behavior is the today of consumers still using checks to pay for goods and services while, in our current financial environment, merchants offer many electronic methods of payment for an efficient service (Shahrokhi, 2008, p. 370).

Consumers will accept and demand access to mobile and contactless payment processing based upon a variety of factors (Tinnilä, 2012). Mobile and contactless payments provides for a more convenient processing form of payment because a purchaser does not have to enter their personal identification number, wait to sign for a transaction, or have their card or phone leave their possession during a transaction.

Consumer adoption of mobile and contactless card payments may be driven by the Generation Y and Z demographics. These two age demographics have demonstrated the ability to try new technology without any preconceived notions of product functionality (Svendsen, Johnsen, Almås-Sørensen & Vittersø, 2013, pg. 324). As these demographic groups become a larger portion of society, these consumers may drive demand for mobile and contactless card technology. Additionally, Generation Y and Millennium's are two demographic groups that expect to have their transactions processed in the most efficient manner and are willing to embrace these and other new technological advances (Hernandez, 2008). These consumers do not focus as much on loyalty to financial institution or program; rather they focus on what is most beneficial for them. Financial institutions have to strive on acquiring and maintaining consumer loyalty by offering the most innovation products and services to help their consumer's process transactions. Mobile and contactless card technology is one of those products that will help acquire and retain these demographic groups because consumers will use a card that feels most beneficial in terms of processing time, security and possible reward benefits.

Mobile and contactless payment technology promotes security and peace of mind for customers. One of the numerous features of this new technology is it provides security and peace of mind for the customer through the automatic transaction counter (Blass, Kurmus, Molva & Strufe, 2013). The automatic transaction counter feature updates a customer's card profile with a

sequential number each time the card is used during a transaction. If a consumer's card is duplicated by a hacker and used, the card would be recorded with that sequential number at the time of card skimming. The fraudulent card will not work after that one swipe because the transaction number being transmitted does not correspond with the last transaction from the person's mobile phone or contactless card. When this activity is compared to some of the recent data breaches where a hacker was able to compromise a processing network, retrieve non-contactless card data, create fraudulent cards and use them in the marketplace (Kapostasy, 2008). This breach created an issue not only for consumers, but also for the financial institution involved that was required to write off the fraudulent charges and the merchants who lost business due to the bad publicity.

The demand for mobile and contactless payment methods by customers will drive merchant implementation of the new point of sale terminals. This is the most advanced process available to pay for financial transactions. Due to these customer demands, trust in the financial institution and card processors on keeping data secure during the payment process will help drive utilization of mobile and contactless payments (Bills, 2009). The education of secured transmissions, expedited service and ease of use will drive the consumer acceptance by merchants and financial institutions.

Summary

The literature reviewed in this section provides a background for a case study into the attitudes of U.S. consumers towards their use of MCC as an alternative payment method. The background of MCC technology was presented with a discussion followed of how MCC technology may affect the business environment. TAM provides the most applicable methodology for collecting data on consumer acceptance of new technology for this case study.

This method has been shown via the studies cited above to focus on the issues of social influence, perceived ease of use and usability by consumers (Çelik & Yilmaz, 2011). TAM will provide researchers an opportunity to document the attitudes and intentions of consumers regarding mobile and contactless cards.

The end result is for financial institutions and card processors to attempt to understand consumer's attitudes and intentions regarding trying and using any type of new technology. The reason for desiring to understand consumers' attitudes and intentions is so that businesses and financial institutions can design and plan before implementing a marketing strategy to promote this new technology to consumers in the future (Wentzel, Diatha & Yadavalli, 2013). Consumers may take the opportunity to try mobile and contactless cards and experience more efficient processing times, and then consumers may continue to use this product and even investigate other technology to enrich their life.

Chapter 3: Research Method

Since the topic of MCC acceptance by consumers is based on new technology and having minimal documented scholarly studies, the researcher determined that an attempt to get an understanding of this subject would require a qualitative case study research design. Since this case study is both innovative and unique, it will begin a new body of research into a multifaceted topic without any previously established criteria. The case study may provide valuable information about how consumers interpret and compare this new technology based on their current payment methods.

Baron and Harris (2010) found that consumers accepted new items or methods if they perceived a value to changing their current process. If the consumer believes the experience is valuable to them in terms of time or money savings, then the consumer may be more willing to try the new method. One of the areas of particular interest to this researcher is the relative difference between younger and older responders in the survey.

Consumers today live in an increasingly complex and global society that is constantly changing as knowledge increases and technology continues to evolve. Given this scenario, consumers are continually inundated by the introduction of new technology products being offered by business organizations, monetary institutions, and card processing companies. However, these commercial, financial, and card processing bodies have limited academic or credible industry data on the habits and attitudes of consumers' acceptance of new products or technology. The problem is how these three groups are going to get consumers to accept and use new technology such as the MCC payment plan. In this scenario there are several unknowns about consumers, acceptance factors, advertising costs, product costs, training costs, etc. Advertising strategies will need to be developed on what is the best approach to influence

consumers to accept and use the MCC plan. The general problem is that to date, there has not been any concerted effort by business organizations, monetary institutions, and card processing companies to market the MCC plan to consumers. The specific problem to be addressed by this study is to identify the barriers to implementation of these more advanced payments methods using an MCC payment plan that will ultimately culminate in countrywide coverage.

The purpose of this qualitative case study is to gather data on the effects and responses of consumers when introduced to the new technology of MCC. This case study will involve concentration on data collection based on participant feedback from surveys to evaluate consumer reactions to alterations in their financial transactions. As part of this research, data will also be examined to ascertain how these changes may or may not alter the financial behavior of those selected individuals, and any possible effects on society. The research shall be completed through surveys distributed to chosen consumers who are accountholders of a local financial institution in South Carolina. Financial organizations, merchants, and card processors to gain a better understanding of how to market products for acceptance and utilization by the consumer may use any information gleaned from consumers during this study. TAM is the primary theoretical framework used to analyze consumer behavior and their opinions concerning this new technology. According to authors Nayak et al., (2010), consumers may try new technology if they perceive that the new technology is easy to use and offers value to them. Therefore, consumers' acceptance of new technological innovations is normally based on various components such as past experiences, presence or absence of personal resources, and a level of assurance of the safety (Wessels & Drennan, 2010). Finally, the endeavor is to identify those prominent characteristics of individuals who readily use MCCs for their financial transactions.

This case study will consist on collection and evaluation of data provided by selected recipients based on their involvement and participation with the new technology of MCC. Therefore, the main objective for designing questions was to investigate and record the perceptions and experiences of the respondents. The following research questions are to be used to gauge these perceptions and experiences.

Q1. What perceptions do consumers have regarding MCC technology in terms of usefulness and ease of use?

Q2. What influential factors did consumers identify regarding their willingness or reluctance to use MCC technology instead of their current or former payment methods?

Q3. What can a merchant do to influence a consumer into using a MCC payment system of staying with their current payment methods?

Research Method and Design

Since the topic of MCC acceptance by consumers is based on new technology and there are minimal documented scholarly studies on the topic, the researcher determined that an attempt to get an understanding of this subject would require an ethnographic or case study research design. Use of the case study design may provide valuable information about how consumers interpret and compare this new technology based on their current payment methods.

The surveying aspect of this study consisted of an open- ended questionnaire that was administered through a modified on-line instrument known as Survey Monkey ™. Survey Monkey ™ provides researchers an ability to reach individuals across various geographic regions at one time. Additionally, the website is able to compile and provide valid data and statistical results from the survey. This survey shall be available to respondents for 3 consecutive weeks during this study so participants will have ample opportunity to provide their perceptions on

MCC. After the deadline set by the researcher has expired, the data collected via Survey Monkey shall be analyzed for bias, reliability, and validity issues before being summarized to test the premise of this study.

Population

In pursuance of achieving the target population for this research study, 12 people were randomly selected from active members of a local credit union that received invitations and indicated an interest in participating. As outlined in article on theory based survey interviews, a sample size of 12 is adequate to assess consumer preference and views on MCC payments (Francis et al., 2010). Additionally, Huu and Kock (2011) stated that interviewing a smaller subset of participants for a case study provides more engaged participation by the individual. In the case of consumer acceptance of MCC payment technology, the researcher needed to gather as much data as possible on why a consumer may or may not use this technology.

This researcher received approval from PSCU to use their locations in South Carolina and Florida. After approval a sign-up form was placed in each of the branch locations that requested participants to provide their email address to the researcher for distribution of the survey, if interested. Individuals that indicated interest in the study from the signup sheets at the credit unions received an introduction letter from this researcher in the form of an e-mail that also had a link to Survey Monkey ™. In this e-mail, the researcher informed each participant that the survey information was secure and that they will remain anonymous so as to allay any fear of their identity being revealed to in an effort to solicit their unbiased opinions. Participants that were selected saw a consent form when opening the survey link. The participants were required to read the consent form, and if they agreed to its contents, then they could indicate their acceptance by entering the survey. However, they were not able to access the survey itself

without accepting the consent form.

Materials/Instruments

A survey questionnaire designed by Monetas consisting of seven open-ended questions will help identify how customers perceive and may use new payment technologies, such as MCC. Monetas is a research-based online survey company. The organization provides various survey templates, which can be modified for each individual's purpose. Polančič, Heričko, & Pavlič, (2011) conducted a study using the online survey method to research and document participant's interest in a product. The reason for utilizing an online format is the ability to reach consumers throughout a demographic region. The survey will be open for a 3-week time span to allow enough selectees to access the survey and input their data. The researcher will send a follow-up e-mail after weeks one and two to encourage them to complete the survey. The survey questionnaire concept is more cost effective than other methods, such as face-to-face interviews (Heerwegh, 2009). Schram (2006) noted that when you use fewer questions in a survey, the participant is more willing to complete the survey, thus this survey is constructed with just three questions.

The questionnaire is designed to capture data and combine variables to determine if customers have reservations about trying and accepting new technology. The reason for designing the questionnaire is to ensure that the questions are specifically used to address the reasons consumers may or may not try mobile and contactless cards. The questionnaire for this case study will also contain a short specific title so the participants will be aware of what type of survey they are participating in, along with concise directions for completing the survey. The survey is structured so anyone taking it will have to respond to each question before allowing the participant to move to the next question. The questions for the survey are included in the

appendix of this dissertation proposal. A survey questionnaire was designed consisting of questions that identified customer's perceptions and experiences on using new payment technologies, such as MCC.

Data Collection, Processing, and Analysis

The data handling and reporting of a research case study is comprised of distribution, collection, and analysis of information collected from participants. In determining the process, Ward, Clark, Zabriskie & Morris, (2012) outlined the three steps of collecting data: (a) record the information, (b) transfer the data into an electronic database, and (c) extract the various data sets to support the research. When conducting the research for consumer acceptance of MCC technology, the researcher will coordinate the data collection and reporting process in two steps. The first step is data collection, which is completed by distributing a questionnaire via e-mail to participants using a link to Survey Monkey ™.

The second step is the processing of this collection of data. In the interest of accomplishing this task, as participant's accesses Survey Monkey, ™ the information shall be collected and compiled automatically, thus not requiring any manual collection of paperwork by the researcher and ensuring security because no one else can access the information. White & Yuan, (2012) stated that many records are being moved into an electronic format for enhanced security. In addition, Survey Monkey ™ will provide statistical reporting on the number of participants who accessed and provided responses.

Due to the low adoption around U.S. consumer acceptance of MCC payments, the results of this case study could possibly provide valued insight to financial organizations and merchants (Bodhani, 2013). These entities may use this information to make marketing and consumer educational material decisions on their course of action related to this product. The researcher

will communicate with each individual in person and via e-mail about the study, ask for his or her participation in the study, and for each participant to complete a consent form. Some examples of ethical values are outlined as honesty and integrity (Crossan, Mazutis, & Seijts, 2013). The signed consent form establishes the ethical value of honesty in the study by showing the participants were aware, provided consent and the study could not be manipulated by outside sources. Additionally, the consent form provides permission to the researcher to obtain and disseminate their comments and experiences with MCC.

Once the case study time frame has concluded, the researcher can download a detailed summary report on how many participants actually participated in the study, how many responded to each question, what their responses were, and a collection of comments from participants about each question. This information should be credible and valid because the researcher will not have the ability to alter comments or responses to questions made by participants. Once the information has been collected and a conclusion has been made regarding reasons for consumer behavior toward acceptance or rejection to new payment methods such as MCC in the United States, the researcher will need to decide on the disclosure and exchange of these results of the case study.

Assumptions

Data analysis of the responses from the participant's will aid in identifying their willingness to utilize the MCC technology as their primary payment method. Another facet of this emerging process is how the merchant's demeanor was perceived during the purchasing process. The participants in this study depend on their causal schemata directly resulting from individual experiences, observations, relationships, implicit, and explicit life experiences. The possibility is that this empirical process could shape of dependence on causal schemata by the

participants to make underlying judgments linked to contexts or events starting in their childhood, pubescent, or even early adult experiences since it are a factor in outcomes of this research. Therefore, the researcher must use a realistic validation process to establish the value of the responses to this qualitative inquiry by associating the data with the respondent and this study.

Limitations

When evaluating the limitations of the case study, one of the main limitations would be the participant's willingness to utilize the MCC technology as their main payment method and how the merchant's demeanor with MCC was during the purchase process. As smart phone technology becomes more prevalent in our society, the mobile payment aspect should gain transaction in the marketplace (Flatraaker, 2009). Each consumer has a preferred payment method, which they utilize for payment product and services. If the participant does not remember to use the MCC payment application, then the researcher may not get accurate feedback to the research questions. When consumers use a preferred payment, they are doing so because the card has meaning to them, such as a picture or design that signifies relevance (McKenna, 2007). The types of payment methods used most often by customers are determined through their personal experiences and environment. Organizations have begun to notice this preference for electronic payments and have begun offering this service to their consumers online (Hernandez, 2008). The MCC card type will need to provide the same features and benefits described to obtain usage and once customers experience the ease of using their MCC payment method in financial transactions, this payment type may become their future preferred payment method.

Another limitation that needs to be understood may be the lack of merchant locations that have point of sale terminals that can accept and process MCC payments. The participants would not be aware if a point of sale terminal can or cannot accept MCC payments. If the participant visits a merchant and cannot attempt to secure a purchase using a MCC, then the participant may not have good feedback for the study. Additionally, the participant may tend to stop being a participant due to the lack of knowledge and information provided to them (Adeoti, Oshotimehin, 2011). The researcher will need to provide the participants with a list of merchant locations that have the proper terminals.

A third limitation may be attributed to lack of knowledge on MCC payments by merchant staff and general public. This lack of knowledge can be a deterrent if the participant does not understand how to process a MCC payment and the merchant staff person cannot provide guidance on how to insert and process the MCC (Manahan, 2013). The researcher will need to provide educational information such as a frequent question and answer list on how a MCC payment works at a point of sale terminal. The education pieces may benefit the participant by understanding what may or may not happen as they attempt to use MCC payment applications.

Delimitations

The research results will also help identify weaknesses on the part of customers to utilize their MCC as their primary payment method. Participants of this case study are delimited to consumers that do not completely understand how secure this payment method works when compared to their current payment systems, apprehension about security, being set in their way to make payments, or finally, have the notion that their transactions are somehow tracked by the federal government. Consumers develop their fears of using new payment methods based on previous personal experiences, what they hear or read in the news media, and within their own

general milieu. Many times consumers are concerned about using new payment applications due to the security set up for those new payment systems. If the consumer does not feel confident their information is secure, they may be apprehensive to accept it (Toma, 2012). However the consumer may not realize that the financial institution has a vested interest in keeping the consumer information secure from outside sources. Weber & Darbellay, (2010) found that financial institutions to protect against fraudulent events monitor the transactions. Consumers may tend to be weary of adopting new payments tools such as MCC because the government may be monitoring their spending patterns and locations of those purchases (Higgs, 2007). This case study is attempting to dispel those delimitations around MCC payments.

Ethical Assurances

The individuals who are selected to participate in the MCC case study must give their informed consent. The researcher will inform the consumers of the purpose of the case study and are willing via email to answer any questions concerning the case study. Field (2013) stated that voluntary informed consent is required for research where consumers are involved in providing their thoughts, feelings, and behavioral patterns. During the process of getting consent from the participants, information will be made available to the consumers participating and if the consumer wants to receive a copy of the case study, the researcher will provide it.

Once a potential consumer consents to be a part of the case study, individuals are requested to provide their knowledge and personal views on MCC. The questionnaires are disseminated to consumers via e-mail with a link to the survey application called Survey Monkey ™. The use of this survey application will ensure that the researcher cannot show influence or bias towards the participants of the case study.

Privacy and confidentiality are terms that are intertwined, as each term supports the other. Privacy is considered as protecting someone from unauthorized access of their information without consent from that individual. Confidentiality is conceptualized as sharing this information with others in a restrictive manner once achieving consent (Francis, 2008). When performing the investigation of consumer acceptance for MCC payments, the researcher will take precautions to ensure the privacy and confidentiality of all participants in the case study. Participants will have complete privacy since the researcher is unable to ascertain who answered a specific question in Survey Monkey ™. In the name of not allowing anyone to access the survey names at a later date and time, the researcher will delete the survey from Survey Monkey ™ after the results have been assessed and written for this case study. Additionally, the researcher will work with the CIO to shred the forms for potential participants of the study.

The researcher will document the entire process from beginning to the end before starting the case study. Institutional review board (IRB) approval from NorthCentral University (NCU) shall be obtained prior to starting the case study. The researcher shall seek the guidance of his mentor to ensure that the requirements of the IRB are fulfilled. In the interest of maintaining a valid case study, the potential participant names shall be accessible to just the researcher and CIO, who will run the program to determine the participants. Only the researcher via the Survey Monkey ™ web site will know the responses of those selected participants. The responses of participants will not be revealed to any outside sources.

Summary

In terms of the MCC payment case study, the purpose for doing the case study is that customers in the United States tend to either embrace or oppose changes to any type of new technology (Wessels & Drennan, 2010). The two major reasons that a consumer may choose to

either embrace or oppose technology may be based on one or more of the following reasons: past experiences, lack of personal resources, or a level of assurance using current technology. However, consumers may not move to a newer type of technology unless incentives, such as no annual card fees, earning of redeemable cash credits, or a discontinuance of a product or service without any comparable alternative. Authors Wessels and Drennan (2010) explained that consumers may also try to accept new technology if the process is simple to use and provides some sort of perceived or real value.

As Pollai, Hoelz & Possas (2010) explained in their article, consumers may be more willing to utilize a new product or service if it meets their personal needs or desires. The researcher may use these two basic perceptions during research to try and identify any possible barriers that may impede acceptance of the product or service. One research item to be analyzed is consumer acceptance towards the MCC payment system. It may be plausible that consumers are unsure about this new payment system, which could lead to some apprehension about using this new technology.

Chapter 4: Findings

This chapter begins with the purpose of the research study and research questions, by a summary of the results related to the research questions. The answers to research questions provided by the selected respondents were evaluated. Subsequently, this chapter appraises each finding through a detailed discussion with supporting data and a description of what each finding will mean to future readers of this case study.

The purpose of this case study was to explore the consumer acceptance of mobile and contactless cards based on the knowledge of their experiences with the product. The primary instrument used to collected data from selectees was a web site entitled Survey Monkey ™. The web site contained an introduction for selectees and then requested answers to specific questions, which was recorded for retrieval later by the researcher. The survey site questions posed were structured to record each selectee's perceptions of this new technology, regardless of whether or not they had any experience or knowledge of mobile and contactless cards. The response data was then scrutinized further to determine if any of the participants could be categorized into one or more of the following, i.e., current of credit cards users, debit cards users, and prepaid cardholders. The purpose of this categorization of data was to evaluate responses to determine if there appeared to be any significant differences from those who use prepaid card with those who use credit and debit cards. The researcher received an email group of potential consumers from PSCU. Twenty-five participants were sent an email with a consent form requesting them to participate in this case study. Once a participant notified this researcher of their acceptance, a link to Survey Monkey ™ was submitted to them by email. After each respondent had completed the survey, this researcher was then notified by the Survey Monkey ™ website that a specific respondent had finished the survey. While 18 surveys were collected (72% response rate), only

12 were needed to gather all of the data for the case study. As a result of the data analysis, the knowledge discovered could assist financial or commercial entities implement marketing plans to introduce mobile and contactless cards to consumers. One aspect of the data analysis was identifying core themes of perception, usage and ease of use of mobile and contactless cards. The researcher explored the following areas with the consumer participants:

Q1. Does a consumer use new payment systems due to usefulness and ease of use of new payment technologies?

Q2. What influential factors did consumers identify regarding their willingness or reluctance to use MCC technology instead of their current or former payment methods?

Q3. What can a merchant do to influence a consumer into using a MCC payment system of staying with their current payment methods?

Results

The case study results for consumer acceptance of mobile and contactless cards came from a careful inspection of the data to glean themes in response to the research questions. The primary aspiration of the data collection and analysis was to explore the consumer perspectives of mobile and contactless card usage. The data collection process resulted in 12 consumers participating in surveys via Survey Monkey ™. Prior to the consumers taking the survey, they had to sign up consenting to participation in the survey; this process can be labeled as a field test to achieve the 12 participants for the case study.

Prior to the final survey questions being accessible to the participants, the researcher conducted a field test by having potential participants sign up for the survey. The primary goal of conducting this field test was to: (a) obtain the required number of participants for the survey

(b) build key understandings of what the survey means for the US market and (c) finalize the interview protocol and the data collection procedures (Kim, 2010).

In order to determine the individuals who would be a participant for the field test, the researcher used a signup sheet for the survey. The signup sheet identified potential field test participants and contained the contacts to the researcher, the researcher performed the screening activities by email to determine whether or not potential participants were eligible to be part of the case study by asking for them to sign and return the informed consent form. The participants was comprised of twelve individuals: five from the business and financial operations industry, and one each from the maintenance repair, operations management, social services, sales, education, legal and insurance industries.

The researcher provided access to the Survey Monkey ™ site for three weeks allowing the participants ample time to complete their survey. Four males ([33%]; PSC01; PSEP05; PSI03; PSS02) and eight females ([67%]; PSC04) participated in completing the survey. While nine of them (92%) were in the category of being married (PSC01 and PSI03), 1 of them (8%) were in the category of being divorced (PSC04, PSEP05 and PSS02). In terms of the education levels, four of them (32%) had attended at least 1 year of college (PSC01), five of them (42%) had graduated college (PSC04; PSI03; PSS02), and three of them (25%) had a graduate degree (PSEP05). Table 1 shows the participate sign up schedule with other statistics.

Figure 1

Participant ID	Sign up date	Complete participant profile	Signed Informed Consent
PSC01	6/15/2014	YES	YES
PSS02	6/15/2014	YES	YES
PS103	6/17/2014	YES	YES
PSC04	6/19/2014	YES	YES

PSEP05	6/19/2014	YES	YES

Each of the participant profiles met the specified criteria required for the case study. The quantified criterion used for this field test was to identify participants who: (a) were users of debit or credit cards; (b) had experienced the use of a mobile or contactless cards (c) had little to no experience from a consumer perspective about mobile and contactless cards; (d) represented the diversity of the selected group within PSCU; and (e) could provide information relevant to the purpose of the study. The profiles of the field test participants were presented in the Appendix K.

The demographic makeup of the 12 participating consumers surveyed was made up of 8 women (67%) and 4 men (33%). Based on the 12 surveyed, 67% of the consumers participating in the case study were between 31- 50 years of age; 28% were between 18 and 30 years of age and 5% of the consumers who participated were between 51 and 70 years of age. Figures 1 and 2 outline the results of the age and demographic breakdown of men to women respondents that participated in the survey.

Figure 2

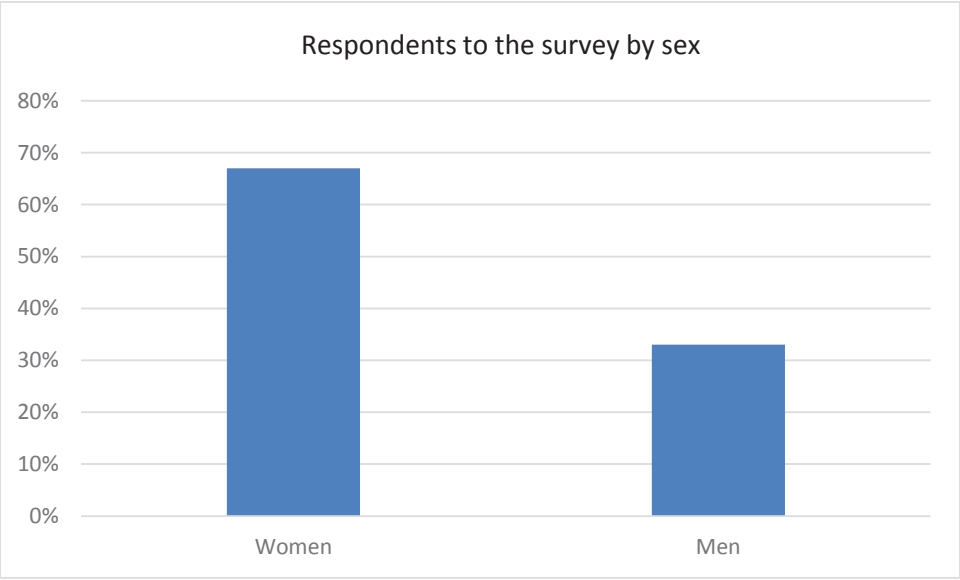
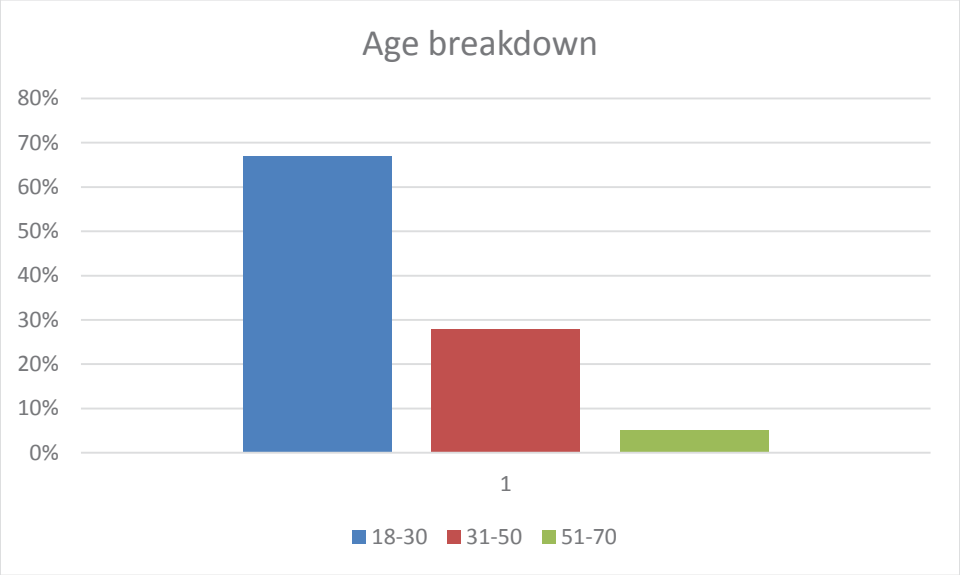


Figure 3

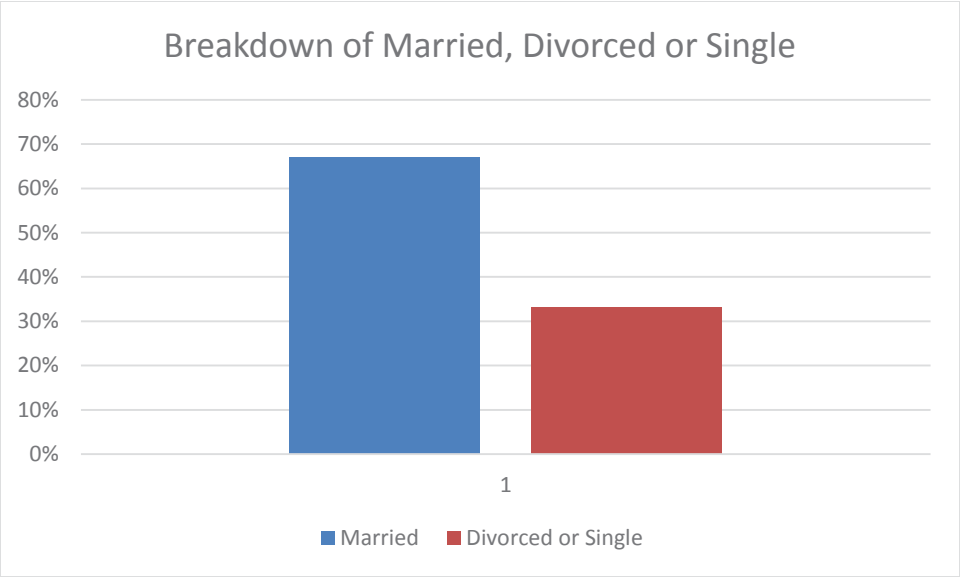


Out of this selected group, the researcher contacted and personally interviewed 8 of the consumers who participated in the survey. These eight were drawn through the use of a random formula within Survey Monkey ™. The researcher did not set any criteria based upon participant's gender, age or occupation to participate, however the researcher expects it necessary to provide breakdowns for a complete analysis of the data. The demographic makeup of the 8 consumers who participated in the survey who were interviewed consisted of 5 women and 3 men.

The 8 consumers who were interviewed were a part of the overall participant group and provide a representation all of the consumers who participated in the case study. The mirroring of those consumers for the purpose of selecting consumers for interviewing ensured that the information obtained from those consumers who participated in the survey was consistent with the consumers interviewed for the case study. This selection process eliminated the possibility of tainted data and ensured uniformity on the data collected in the case study.

Of the 12 surveyed, 67% of the consumers who participated were married and 33% of those consumes were divorced or single. On the 8 consumers that were interviewed, 98% were married with 2% being divorced or single. The overall totals of consumers, who participated as being married, divorced or single is provided in Figure 4.

Figure 4

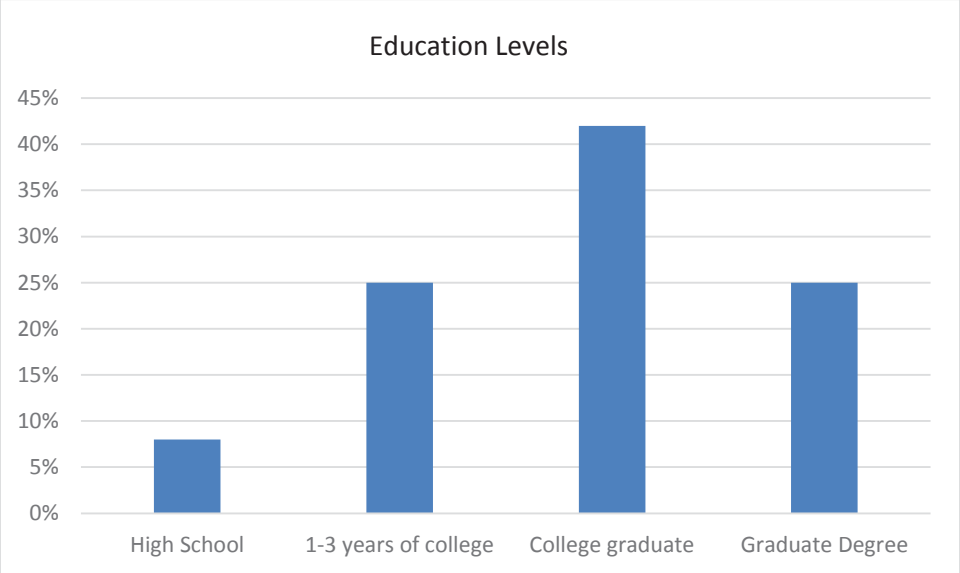


Of the 12 surveyed 58% of those consumers who participated in the survey earned between $40,000 and $60,000 on an annual basis, 26% of those consumers who participated in the survey earned between $20,000 and $39,999. The remaining 16% of those consumers participating in the survey earned in excess of $60,000 on an annual basis. The analysis of participating consumers indicates their marital status as either being married, divorced or single is shown in Figure 5.

Figure 5

Of the 12 surveyed, only 8% of the participants in the survey had at least obtained a high school diploma, 25% had 1-3 years of college and the remaining 25% had a graduate degree. These percentages are outlined in Figure 6.

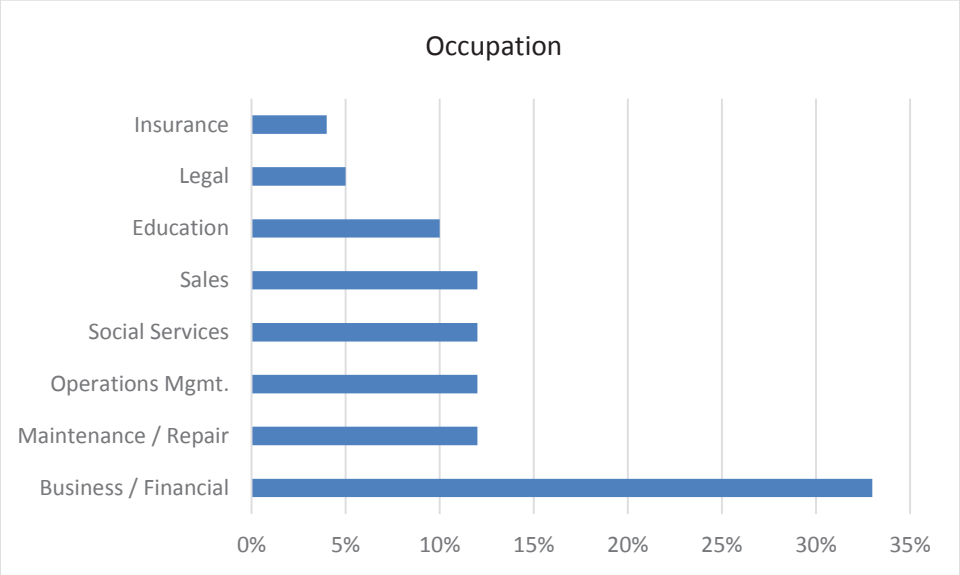
Figure 6



The background of the twelve individuals selected for the survey are as follows: five had experience in business or financial operations industry, and one each from the maintenance repair, operations management, social services, sales, education, legal and insurance industries.

The occupation levels of the consumers who participated in the survey was broken down as 33% of those consumers were in the business and financial operations sector, 12% from the maintenance repair industry, 12% of the consumers came from the operations management sector, 12% of the consumers are in the social services environment, 12% of the consumers had a sales background, 10% of the consumers are in the education field, 5% of the consumers are in the legal profession and 4% are in the insurance industry. These percentages are shown via Figure 7.

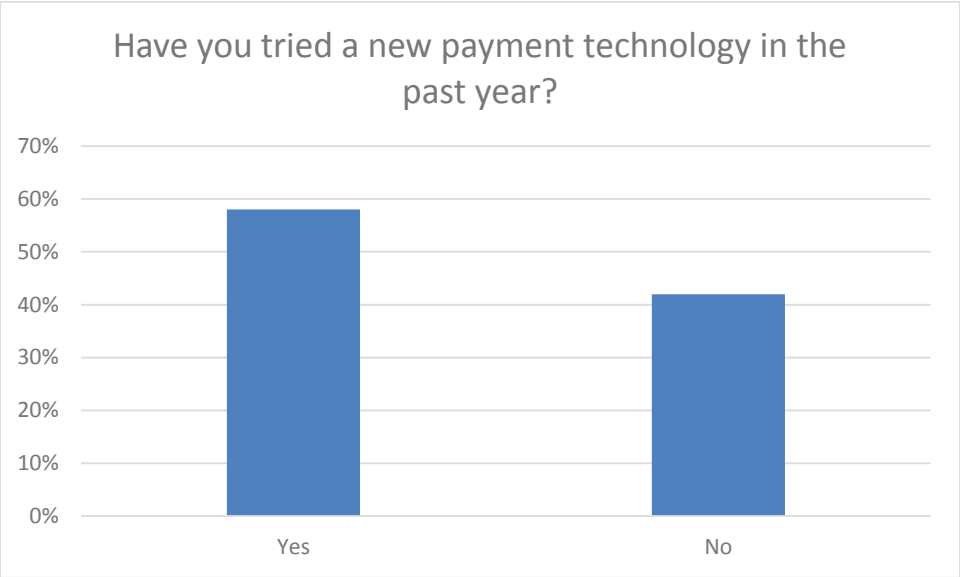
Figure 7



The first five questions in the survey via Survey Monkey ™ were designed to gauge the consumer's knowledge base of mobile and contactless payments. Out of the 12 consumers who were surveyed and the 8 consumers that were interviewed 42% answered that they had tried a new payment technology in the past year and 58% of those consumers had not tried a new payment technology in the past year. The percentages were outlined in Figure 8. The demographic information was polled for the case study to represent the various levels of

acceptance for trying new payment technologies by education, age, marriage and other levels. These levels determine the willingness of an individual to try and use new payment technology.

Figure 8



When the consumers who responded yes to the question if they have tried a new payment technology in the past year, 42% of those respondents who answered yes, were provided a follow up question asking if ease of use played a factor in using the payment technology. Out of the consumers who received this question, 67% stated that ease of use did play a factor in their process around trying new technology (Fig. 9).

The ease of use for new payment technologies goes in line with the technology acceptance model (TAM). When a consumer feels comfortable with using new technology and recognizes a benefit to them in terms of convenience, greater security or enhanced functionality, the consumer will utilize the product on more frequent basis (Tung-Liang, Hsu-Kuan & Shu A-Mei. 2014).

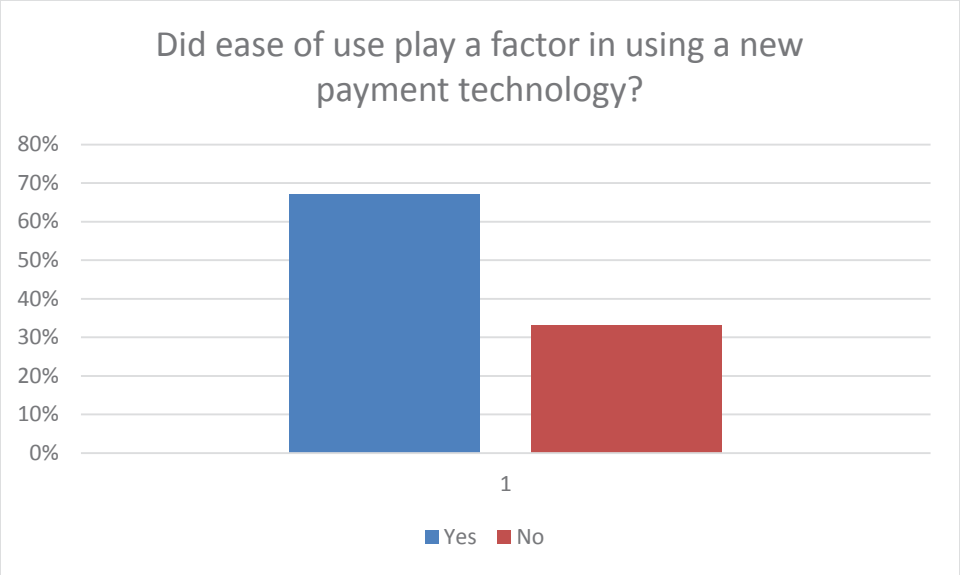
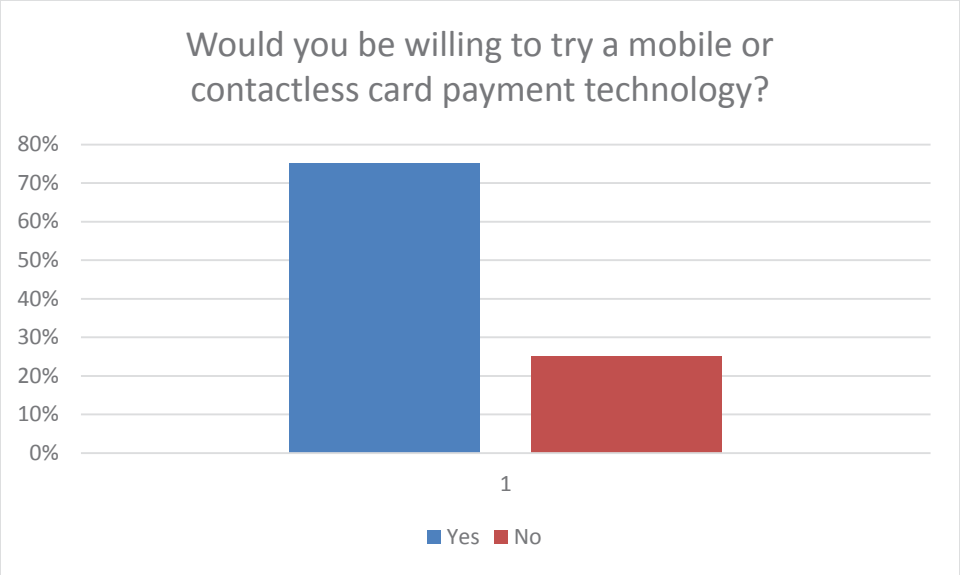


Figure 9

As participants moved from question 2 into question 3, the survey participants were asked if they would be willing to try a mobile and contactless card payment technology. This question was designed to help gauge the consumer participant's level of interest in trying a new payment technology (Rigopoulos, 2007). This question was very important, as the response to the question is the primary basis of this case study.

The participant responses to the question were overwhelming in that 75% of the participants in the survey would be willing to try a new payment technology (Fig. 10). This response rate does support the basis of the case study where consumers are willing to try new technology such as mobile and contactless card payments.

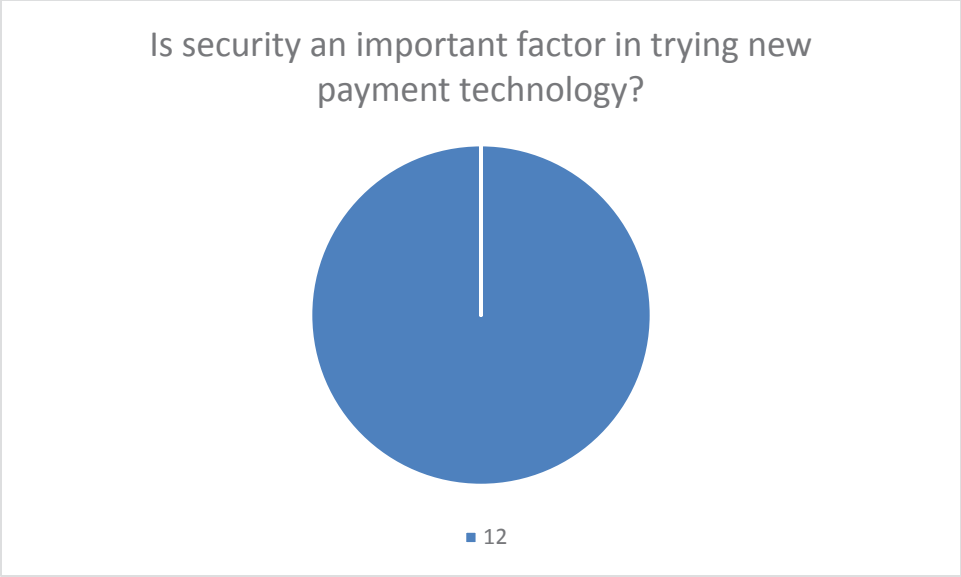
Fig. 10



The next question posed to the participants was around the security of their transaction. As noted by Liébana-Cabanillas, Sánchez-Fernández & Muñoz-Leiva (2014), consumers are very conscientious about keeping their financial data safe and secure.

If a financial institution cannot keep their data safe and secure, the consumer will not have much loyalty or trust with the financial institution. Additionally, the consumer will be reluctant to try new payment technologies presented by them. On this question, all 12 participants responded at a 100% (Fig. 11) rate that security plays an important factor in whether or not they would try a new payment technology.

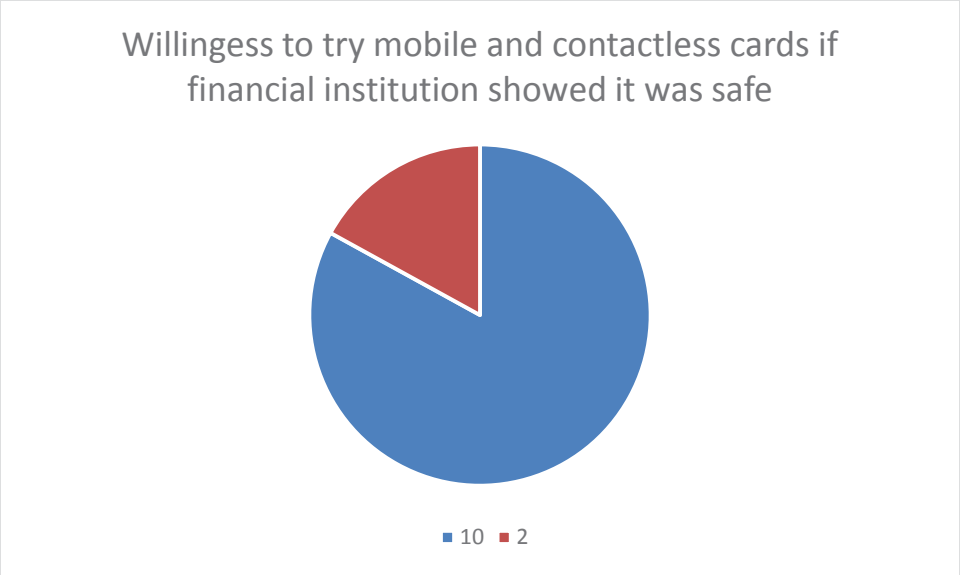
Fig. 11



The last question provided to the 12 participants was if the financial institution could provide information to show this mobile and contactless card payment technology is more secure than traditional payment technology, would you be willing to try mobile or contactless cards? These responses assist the researcher in solidifying the case study as the responses lay the groundwork that financial institutions can use with deployment of mobile and contactless card technology.

Out of the 12 participants responding to the question, 83% stated they would be willing try mobile and contactless card payment technology if the financial institution can provide information that this payment is more secure than traditional payment methods. The 17% of the respondents that said they would not be willing to try mobile and contactless payments commented that they did not feel it was hacker proof.

Fig. 12



Research Question 1 Does a consumer use new payment systems due to usefulness and ease of use of new payment technologies? In finding out whether a consumer will use a new technology such as mobile and contactless cards was a much about ease of use for the consumer and at the merchant. The survey questions 1 and 2 from Survey Monkey consisted of wording around perceived ease of use and experience with new technologies. These philosophies are the basis of technology acceptance model (TAM) which are universal to products and services presented to consumers.

In the article by Hess, McNab &Basoglu (2014), they discuss the scales used on the form to outline perceived ease of use and perceived usefulness of new products to consumers. In appendix D, the characteristics of variables asked by researchers are around items such as: product easy to use, easy to learn, is it flexible, using it produces performance or convenience. The researcher developed the case study of consumer acceptance of mobile and contactless cards around this same doctrine of technology acceptance model. When the participants who were surveyed were asked if ease of use would play a factor in using ne payment technology, the respondents were overwhelming in their response (75%) that this is a must for them.

Research Question 2 What influential factors did consumers identify regarding their willingness or reluctance to use MCC technology instead of their current or former payment methods? In finding out what factors determined whether or not a consumer would try mobile and contactless card payments, the researcher asked two important questions to the participants of the case study. The first question revolved around the security of their financial information. The second question was if a financial institution could provide information showing these payment types were more secure than the traditional payment offerings today, would they be more willing to try mobile and contactless cards.

Regarding the first question if security plays a factor in using a mobile or contactless card, the participants were unanimous (100%) that security of their financial data was an important factor in trying out mobile and contactless card technology. The main technology around mobile and contactless payments is based on dynamic data authentication. Dynamic data authentication encrypts the card information so that the card number, pin offset, cardholder values are not in the clear versus traditional payment systems which is static data authentication. Static data authentication means all of the cardholder information is in the clear and the same type of authentication message is sent every time to the acquirer so it is easier to hack and get this information. This dynamic data authentication method is much different and more secure than our traditional payment system (Isaac & Zeadally, 2014).

The second question probed the participants that if financial institutions provided this information of mobile and contactless payments being more secure would they be willing be try and start using this payment method. Out of the twelve survey participants, 83% stated that they would try and start using mobile and contactless cards. In the article by Bryson (2013), he outlines that if a consumer is provided clear and concise information about how a payment

method is set up and provides greater security to a consumer, the more willing a consumer will be to try that new payment method. In the research of the case study, the results show that consumers are craving the information and if provided with it, they would be willing to try and use mobile and contactless cards.

Research Question 3 What can a merchant do to influence a consumer into using a MCC payment system of staying with their current payment methods? In determining what influence that the merchant can have over influencing consumers into using mobile and contactless cards was to determine if the merchant point of sale terminals and staff was educated on this new payment method.

In regards of being able to obtain this information, the researcher asked the participants of the case study if they have tried a mobile or contactless card in the past year. The results of the survey question were that 42% of the participants had tried the new payment method. One of the comments made around trying the new payment technology was that it was easy to use, however the consumer did have a problem in that not all merchants had set up the new point of sale terminals for this new payment technology. One of the factors surrounding this low adoption was that prior to the liability of EMV, merchants were not compelled to upgrade their point of sale terminals. Now that Visa, Master Card, AMEX and the other associations have implemented this liability shift timeline, merchants have deployed these new points of sale terminals to over 70% of their locations. The remainder of the point of sale terminals will be upgraded prior to the liability shift of 2015 (Cimiotti & Merschen, 2014).

The second factor for the merchants is staff education of the new payment method. Many of the participants that used the new payment stated that the merchant staff of those upgraded point of sale terminals understood the new payment technology and what it meant in terms of

enhanced security for them. The new payment method will ensure that consumer financial data is safe and secure due to dynamic data authentication. Thus the consumer will feel more trusting of using their card at these merchant locations with the new point of sale terminals. Those merchants that choose to not deploy newer point of sale terminals will assume the responsibility for any cardholder fraud and must reimburse the cardholder and financial institution for those losses (Tuttle, 2014).

Evaluation of Results

Based on the research data, more than half of the consumers surveyed responded to the survey question of having tried a new payment technology in the past year with comments pointing out ease of use. The questions of willingness to try a new payment technology such as mobile and contactless cards and using this technology if it provided a more secure transaction garnered a combined average of 85%. A need has been demonstrated for this new payment technology with two main critieria for consumer acceptance which is ease of use and security of the consumer's financial insformation.

The participants responded positively to the question that they would use a mobile and contactless card if the payment process is easy to use and convenient to them. The challenge for financial institutions is showing consumers that mobile and contactless cards is an easy product to use at the point of sale terminal. The ease that the financial institutions have deployed products like bill pay and online banking can show mobile and contactless cards can achieve high penetration levels for mobile and contactless cards (Pimentel, 2013). Consumer's word of mouth is the best source of adoption for new technologies and mobile and contactless cards are no exception to this process (Gupta & Heng, 2010). The key for adoption of mobile and contactless cards like any technology is ease of use (Dahlberg, Mallat, Ondrus & Zmijewska,

2008). These results support the need for financial institutions to move forward in offering their consumers mobile and contactless cards.

The question around security of consumer data represents an important aspect for consumer acceptance of mobile and contactless cards. When reviewing the recent breaches of consumer financial information from merchants such as Target, Home Depot, Albertson's and others, consumers are more aware and concerned that their financial institution is taking adequate steps to secure their personal financial information (Dospinescu, 2012). If consumers had been using mobile and contactless cards, these breaches would have resulted in minimal consumer impact due to the fact that mobile and contactless cards use dynamic versus static authentication. This authentication method means the consumer data is encrypted and secure from hacking (Anderson & Murdoch, 2014). Since the transaction data from mobile and contactless cards contain this type of dynamic data authentication, the financial institutions should commercialize these benefits to assist in the adoption of the product. The researcher established that mobile and contactless cards is something that consumers would be willing to try if they are shown by their financial institution that their financial data is safe and secure from hackers (Willey & White, 2014).

Conclusion

This chapter discussed the results from this case study, as well as the analysis of these results. The analysis was centered on the qualitative analysis, which integrates both gathering feedback directly from the participant. Finally, the chapter concluded with the evaluation of the study's results, particularly concerning the advantages associated with consumers using mobile and contactless cards. The following chapter will introduce the implications, recommendations, and conclusions of this study.

Chapter 5: Implications, Recommendations and Conclusions

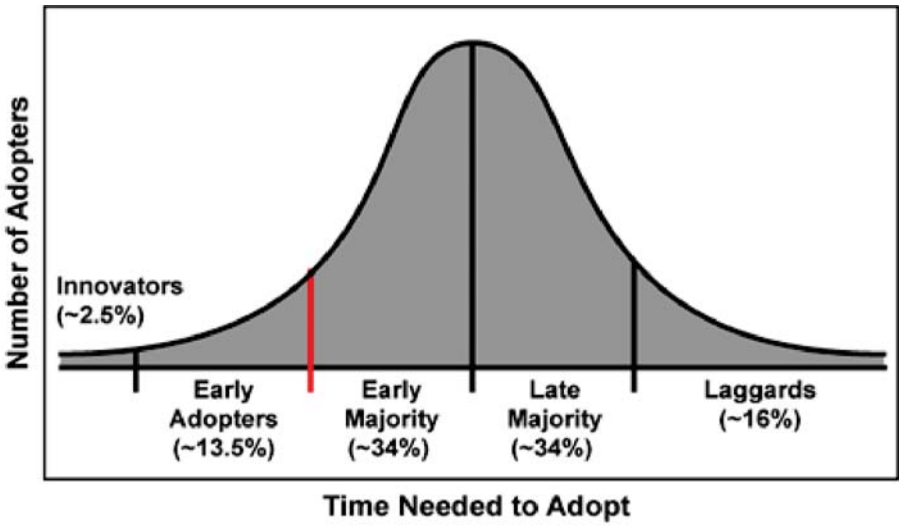
Introduction

This chapter will introduce the implications, recommendations, and conclusions of this case study. Fundamentally, this chapter will explain the meaning of the established findings as well as the recommendations for future studies on the issue of mobile and contactless cards.

Implications, Recommendations and Conclusions

The adoption of new technologies by consumers has been sporadic over the past few years. When any type of new technology is introduced into the marketplace, there are five distinct groups of individuals that will determine pace of its acceptance of rejection of the new technology. These five groups of are innovators, early adopters, early majority, late majority and laggards (Fig. 11). In order to gain adoption across the board of a new technology, the innovators and early adopters need to have perceived ease of use and perceived usefulness of the product. If the product is not easy to use or deemed to be useful to only these two groups, the adoption will be slow to not at all. Thus, the other groups will not try or use the product (Schuster, Drennan & Lings, 2013). In terms of the consumer acceptance of mobile and contactless cards, the product is new to the market and thus the researcher conducted this case study to determine ease of use and perceived usefulness of the product.

Fig. 13

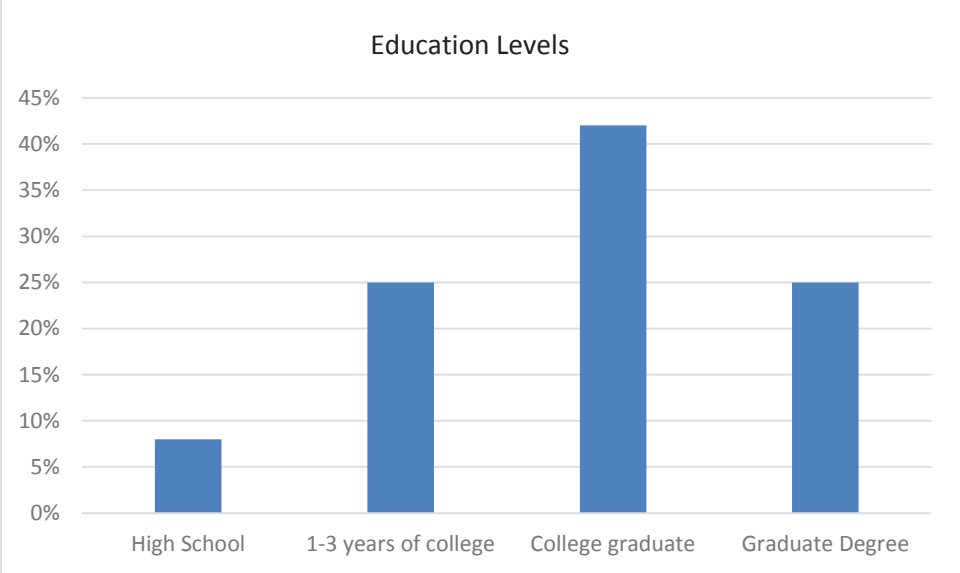


Any future studies should be conducted by researchers to analyze the cause and effect of consumer acceptance of mobile and contactless cards and to determine what measures can be taken to maximize utilization of a new payment technology. This case study used a sample of 12 participants who agreed to participate and was selected from PSCU, which is the largest card processor for credit unions in the United States. This database provided the researcher a valuable population of cardholders from which to select a sample. Therefore, the respondents answered the survey and interview questions based on their experiences of using a mobile and contactless card. All participants gave informed consent and ostensibly knew their right to recoil, authority and deception during the case study. All participants were aware of their rights regarding including the maintaining of their confidentiality and anonymity.

The analysis was based on two variables: perceived ease of use and perceived usefulness of the product via the technology acceptance model. If the consumer does not see where the product provides them more convenience and ease of use, then the consumer will not continue use the product (Lin & Chang, 2011). The results indicates that of all 12 participants surveyed, college or graduate school graduates are nearly twice as likely to use a mobile or contactless than the participants that were not college educated or had just a high school diploma (Figure 5).

There have been very few researchers who have explored the benefits of mobile and contactless cards in the market place; and the residual benefits that financial institutions or merchants have received by deploying mobile and contactless card technology in the marketplace. This chapter presents the implications, recommendations and conclusions consequent this research.

Fig. 6



Despite the lack of studies that highlights the positive and negative effects of mobile and contactless cards in the marketplace, aspects of this case study demonstrates that mobile and contactless cards are beneficial to consumers. In addition, of the 75% of participants said that they would be willing to try and use this new technology. This statistic indicates that the consumer acceptance of mobile and contactless cards initiative would be successful. Furthermore, the data showed that 83% of participants would be willing to try and use mobile and contactless cards if the financial institutions provided them information outlining the safety aspects of using this new payment method. The information derived from the case study is significant as the consumer adoption for this new payment technology is higher than the norm for product adoption. In figure 11, it outlines the average adoption rate by innovators and early

adopters are 16% where the respondents of the survey on trying this new payment technology were over 83%.

The findings indicate that financial institutions and merchants need to recognize the concerns of consumers about issues such as safety and security when using this new payment technology. If these issues were to be addressed to consumers concerns then it would eliminate a major barrier to use of mobile and contactless cards. Since the use of mobile and contactless cards is not mandatory, the financial institutions or the merchants cannot stop consumers from using their older forms of payment. In this regard, these entities will need to ensure proper materials are provided to consumers outlining the benefits and features of mobile and contactless cards (Ismail, Bokhare, Azizan & Azman, 2013).

Moreover, the financial institutions and merchants need to undertake fundamental efforts to ensure transactional data is safe and secure to gain the trust and confidence of consumers when conducting transactions. Additionally, the findings infer that if mobile and contactless cards does not improve the performance of consumer transactions; if it increases checkout times; or it is difficult to use; then, these payment methods will not likely to be used by consumers. Consequently, recommending that financial institutions and merchants work meticulously to ensure adoption of mobile and contactless cards (Chiu, Lin, Sun & Hsu, 2009).

Research Question 1 Does a consumer use new payment systems due to usefulness and ease of use of new payment technologies? The variables of usefulness and ease of use was tested to verify the case study. The researcher was gauging the respondent's feedback on mobile and contactless cards for user acceptability in order to document its usefulness, ease of use, and security in the marketplace. The findings give an understanding that financial institutions and merchants should information about the ease of use, usefulness to the consumer who would be

using mobile and contactless cards. This informational process could ultimately boost the adoption of mobile and contactless cards and provide a competitive advantage other financial institutions who lag on offering mobile and contactless cards in the market (Kim & Park, 2012). The data revealed financial institutions develop education programs outlining the features and benefits of mobile and contactless cards, whereby information the consumers can disseminate and share effectively to improve adoption of this new payment method. The information provided by the financial institutions should be simple, easy to read and understand in order to save time and low adoption of mobile and contactless cards.

Research Question 2 What influential factors did consumers identify regarding their willingness or reluctance to use MCC technology instead of their current or former payment methods? The factors of education and financial data security were evaluated verify the case study. Perception is reality to many consumers. If the perception of mobile and contactless cards was that these are unsafe payment methods, then consumers / respondents of the survey would be reluctant to use the payment method. As a result, consumers need a finite source where they can obtain the correct information about the security benefits of mobile and contactless cards (Stern, Royne, Stafford & Bienstock. 2008). Initially, this proper documentation of features and benefits on the safety and security of mobile and contactless cards may appear to be a solution for the problem, since 42% of participants surveyed said that they had tried a mobile or contactless payment in the past year. The main reason was that the consumer was not aware if their financial institution offered this payment method and if this payment was safe and secure. A solution can be implemented with better marketing around their products offered by the financial institution.

The secondary item was around the security of the consumer's financial data. When asked if security of financial data played a factor in using new payment technologies, 100% of

the participants responded this was the most important factor. In order to gain mass adoption of mobile and contactless cards, the financial institutions will need to actively promote via marketing materials that this payment method is safe and secure from hackers. These institutions need to outline that the new payment method provides encryption of financial data versus the old traditional method. Additionally, the marketing material should outline the use of automatic transaction counters which prevents their card from being skimmed and used in a fraudulent manner. If consumers were aware of these security features, they will be more apt to try and use mobile and contactless cards (Kamleitner & Erki, 2013).

Research Question 3 What can a merchant do to influence a consumer into using a MCC payment system of staying with their current payment methods? The variables of usefulness and ease of use was tested to verify the case study. In order to gain mass adoption of mobile and contactless cards in the market place, the merchants will need to have the new point of sale terminals deployed and staff educated on the new payment process. When reviewing the merchant adoption of new point of sale terminals in the marketplace, merchants have accelerated this process with the implementation of EMV. The reason for the acceleration of deployment is the liability shift imposed on merchants that fail to upgrade their terminals. If a merchant decides to not upgrade their terminal, then after October 2015, the merchant assumes all liability for fraud with a point of sale transaction (See-To, Papagiannidis & Westland, 2014).

As this newer point of sale terminals are deployed and activated, the merchants need to ensure that staff is aware how the newer payment methods can provide ease of use and usefulness at the checkout. As a consumer begins to use their mobile or contactless card for a transaction, they will realize that they do not have to take a card and swipe it through the point of sale terminal or in the case of EMV, have the card inserted and left in the point of sale for the

duration of the transaction. This new method will provide convenience to the consumer because they will not need to hold the card or wait and retrieve the card after the transaction. Since the EMV process of having the card inserted the terminal is different, there could be a concern that consumers will forget the card and leave the store. Thus, the consumer will have to return to the merchant or report the card lost or stolen with their financial institution. Neither of these results promote ease of use or usefulness to the consumer (Kamleitner & Erki, 2013). By the deployment and use of mobile and contactless cards, the net effect would be a more efficient check out process in terms of time and reduction of lost cards for the consumer.

Recommendations

Financial institutions can accomplish their objective of adoption of mobile and contactless cards by having marketing materials available for consumers outlining the features and benefits of mobile and contactless cards. These marketing materials need to outline the features and benefits of using mobile and contactless cards. These benefits will be around the ease of use and security of the consumer's data. Research has shown if the company provides documentation that is relevant to the consumer, the more likely the consumer will be willing to try that new technology (Salmony, 2011). Additionally, financial institutions will need support from the merchants for mobile and contactless cards to be successful in the market place.

The merchants can assist in this adoption by having the newer point sale terminals deployed and staff educated on the newer process. These are two main characteristics that must occur for successful adoption of mobile and contactless cards (Fumiko & Bradford, 2014). If the merchants fail to deploy the newer point of sale terminals, then consumers will experience confusion on which terminals can accept the new payment and thus will give up on using the product. Addtionally, the merchants have to educate the staff on how the card and terminal

interact for a transaction (Khan, 2012). If merchant training is good, then the adoption of the new payment product will be successful in the market. If the product is not educated properly, then low usage and adoption will occur in the marketplace.

The characteristics of mobile and contactless cards are similar to those of the traditional magnetic stripe cards. They both contain a consumer's financial data so consumers can purchase a product or service in the market place. However, the mobile and contactless cards provide enhanced convenience, greater ease of use and usefulness to the consumer. Additionally, mobile and contactless cards are more secure forms of payment for consumers. Therefore, the promotion of mobile and contactless cards, complimented with the enhanced security, ease of use and usefulness, will provide financial institutions better adoption of this payment method (Koether, 2013). In return this provides consumers a new payment method that is more secure and easier to use which would result in lower fraud costs, more usage of the card which provides greater interchange to the financial institution.

Future case studies should be geared to focus on the continued ease of use and security factors to ensure adoption of the payment product across multiple channels. One of those channels would be the underbanked population. The underbanked population is a growing demographic of consumers (Bolar, 2014). This group is made of varying education, marriage, work and other levels. The group has grown exponential in the past few years especially due to the recent economic crisis. Many of these consumers had traditional financial institution accounts, however due to job loss and other factors, their account was closed. Every financial institution strategizes annually on how they can increase this market share (Mathew, Sulphey & Prabhakaran, 2014). If they can offer a successful mobile and contactless card program, they should be able to gain market share in this group.

Conclusion

The acceptance of mobile and contactless cards by consumers has been a challenging endeavor for financial institutions. One reason is that many times consumers are slow to accept the trying new payment methods when it involves their financial data. Due to the number of card breaches encountered by financial institutions and merchants, the last thing a consumer wants to do is try something that they know little about in terms of the product and process. Another reason is that the consumer needs to realize how this new payment method will benefit them in terms of convenience and ease of use. This endeavor has been the understanding of how the new payment method would work, ease of use, usefulness and security around mobile and contactless cards (Willesson, 2009).

The results from this case study on the acceptance of mobile and contactless cards could significantly impact the financial and merchant industries. Comparable research should be conducted on consumers who may be considered underserved, meaning no primary financial institution to determine if mobile and contactless cards are enticing to them. The results of which may be consistent with this case study because according to this case study, mobile and contactless cards have a favorable appeal to consumers as 75% of respondents were willing to try mobile and contactless cards.

Consequently, the use of the findings in this case study must be cautiously considered. This chapter presented the implications, recommendations, and conclusions of the research. Fundamentally, this chapter attempted to explain the meaning of the established findings as well as the recommendations for future studies on consumer acceptance of mobile and contactless cards. The following sections state the references used for this study as well as annotated bibliographies and appendices.

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Appendixes

Exhibit A: Informed Consent Form

Case Study of the Impact on Businesses and Society by Mobile Contactless Card Technology

What is the study about?. You are invited to participate in a case study being conducted for a dissertation at Northcentral University in Prescott, Arizona. The study is interested in your thoughts and opinions about contactless and mobile payments. The study is to obtain your views on this new type of payment processing.

What will be asked of me*?* You will be asked to answer some questions where you check off rating scales about how you view the current payment process and the future of contactless and mobile payments. It is estimated it will take 30 minutes for you to fill out the surveys.

Who is involved? The following people are involved in this research project and may be contacted at any time: Art Harper (artharper@msn.com or 843-200-8268 or Dr. Joshua Rosenberger (JRosenberger@my.ncu.edu / 1-317-809-4806 Chair to researcher)

Are there any risks*?* Although there are no known risks in this study, some of the questions might be personally sensitive since some of the questions ask about the purchase of your good or service. This can be distressing to some people. However, you may stop the study at any time. You can also choose not to answer any question that you feel uncomfortable in answering.

What are some benefits*?* There are no direct benefits to you of participating in this research. No incentives are offered. The results will have scientific interest that may eventually have benefits for people who procrastinate.

Is the study anonymity/ confidential*?* The data collected in this study are confidential. Your name or personal information is not linked to data. Only the researchers in this study will see the data.

Can I stop participating the study? You have the right to withdraw from the study at any time without penalty. You can skip any questions on any questionnaires if you do not want to answer them.

What if I have questions about my rights as a research participant or complaints?

If you have questions about your rights as a research participant, any complaints about your participation in the research study, or any problems that occurred in the study, please contact the researchers identified in the consent form. Or if you prefer to talk to someone outside the study team, you can contact Northcentral University's Institutional Review Board at irb@ncu.edu or 1-888-327-2877 ex 8014.

We would be happy to answer any question that may arise about the study. Please direct your questions or comments to: Art Harper (arthaper@msn.com / 843-200-8268) or Dr. Joshua Rosenberger (JRosenberger@my.ncu.edu / 1-317-809-4806 Chair to researcher)

Signatures

I have read the above description for the Case Study of the Impact on Businesses and Society by Mobile Contactless Card Technology study. I understand what the study is about and what is being asked of me. My signature indicates that I agree to participate in the study.

Participant's Name: _____ Researcher's Name: _____

Participant's Signature: _____ Researcher's Signature:_____

Date:_____

Appendix B: Participant Letter

Dear Participant,

The purpose of this email is to confirm your participation in a research project. As a doctoral candidate at Northcentral University, I am gathering data for my dissertation on consumer acceptance of mobile and contactless cards.

Please complete, sign, and return one of the two informed consent forms back to me by date. The form can be emailed or sent via traditional mail methods to me. The second informed consent is your personal copy and should be retained for your records.

Once I receive the consent form, a second email will be sent containing a link to Survey Monkey where you can complete the questionnaire. If you have any questions, do not hesitate to contact me by e-mail address, artharper@msn.com or telephone at (843) 200-8268 or you can contact my research supervisor. Please be assured that your responses will be considered strictly confidential and that your identity will be protected through the use of a pseudonym. If you would like a copy of the results of the study, please indicate this on your return email. Finally, I would like to take this opportunity to thank you for participating in this study.

Respectfully,

Arthur Harper

Appendix C: Informed consent form to participants

I agree to participate in a dissertation research study conducted by Arthur A. Harper. I understand that research procedures may include a personal interview. I understand that all of my responses, transcriptions, and information collected during this study will be deemed strictly confidential. My identity will be protected through the use of a pseudonym whenever my responses are used for research purposes.

I am aware that I can refuse to answer any question, which I consider inappropriate or that makes me uncomfortable. I also have the right to withdraw from participation in this study at any time and to request that all or none of my responses be recorded or used. Finally, I understand that I will receive a copy of this form for my personal records, and that I have a right to look at drafts of the study, transcripts, and ask questions concerning interviews by contacting:

Arthur A. Harper

302 Oleander Way

Summerville, SC 29485

(843) 200-8268

My signature below certifies that I have read this informed consent form and agree to participate in this study.

Signature_____ Date_____

Appendix D:

Notes for IRB review
Name: Art Harper
School of Business
Date: June 26, 2014 (3rd submission)

Dear Art,
Thank you for your third submission of your IRB application and supporting documents based on the revisions provided to you.

- ✓ This is an exempt IRB review.
- ✓ All feedback has been addressed in your responses to the IRB application and the supporting documents.

Decision status: Approve

Good luck with data collection. Be sure to keep in close communication with your mentor and dissertation committee. Keep in mind that if there are any changes to the research procedures, you must notify the IRB.

Sincerely,

Alice Yick, Ph.D.
NCU, Associate Director of IRB and IRB Reviewer

Appendix E: Survey

Q1. Have you tried using a new payment technology in the past year? If so, what was your experience?

Q2. Did ease of use play a factor in using the new payment technology?

Q3. Would you be willing to try MCC payment technology? If not, why?

Q4**.** Does the security of your information play a factor in whether or not you would try new payment technologies?

Q5. If the financial institution could provide information to show this new payment technology is more secure than traditional payment technology, would you be willing to try MCC?

Appendix F:

Original Scales for PEOU and PU

PEOU - Original Scales: Each item was initially coded as present or not present. If 4 or more of the original items were used and no new items were added, then the study was coded as using the original items. We used 4 as the number of items for PEOU, rather than the original 6 items, as a study by Davis et al. (1989) published at the same time as the original scale development (Davis 1989) used 4 items, and the majority of studies have used 4 items. In our sample, only 17 studies used the original 6 items to measure PEOU.

1. Learning to operate _____ is easy for me.
2. I find it easy to get _____ to do what I want it to do.
3. My interaction with _____ is clear and understandable.
4. The _____ is flexible to interact with.
5. It would be easy for me to become skillful at using _____.
6. Overall, I find _____ easy to use.

PU – Original Scales: Each item was initially coded as present or not present. If 4 or more of the original items were used and no new items were added, then the study was coded as using the original items. We used 4 as the number of items for PU, rather than the original 6 items, as a study by Davis et al. (1989) published at the same time as the original scale development (Davis 1989) used 4 items, and the majority of studies have used 4 items. In our sample, only 33 studies used the original 6 items to measure PU.

1. _____ enables me to accomplish tasks more quickly.
2. Using _____ improves my job performance.
3. Using _____ increases my productivity.
4. Using _____ enhances my effectiveness on the job.
5. Using ____ makes my job easier.
6. Overall, I find _____ useful in my job.

Appendix G:

Questionnaire

The following questions are of a voluntary nature. However if you choose to answer these questions below, please check those items that are applicable:

Gender: Female _____ Male _____

Marital Status: Married_____ Single _____ Divorced _____

Educational Level: High School _____ Associates _____ Bachelors _____ Masters _____ Doctorate _____

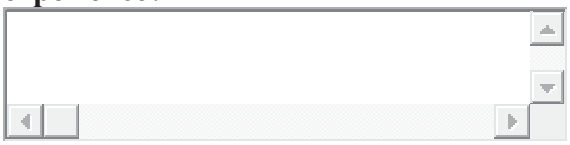
Industry: Automotive _____ Banking / Financial _____ Education/Academia _____ Health/Medical Care _____ Technical / _____ Service _____ Other _____

Income Level: $0-$20,000 ____ $20,001-$40,000 _____ $40,001-$60,000 _____

$60,001-$80,000 _____ $80,001- $100,000 _____ $100,001 and above _____

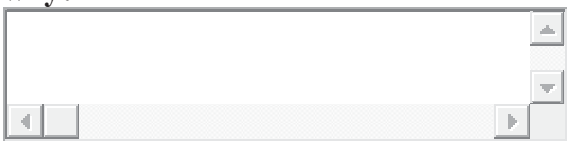
Appendix H: Survey questions

1. Have you tried using a new payment technology in the past year? If so, what was your experience?



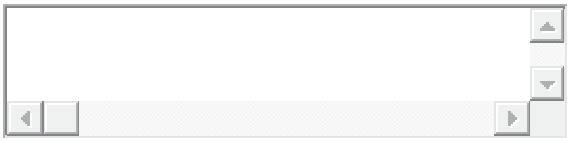
2. Did ease of use play a factor in using the new payment technology?

3. Would you be willing to try a mobile or contactless card payment technology? If not, why?



4. Does the security of your information play a factor in whether or not you would try new payment technologies?

5. If the financial institution could provide information to show this new payment technology is more secure than traditional payment technology, would you be willing to try mobile and contactless cards?



6. What is your gender?

- Female
- Male

7. Which of the following best describes your current relationship status?

- Married
- Widowed
- Divorced

- Separated
- In a domestic partnership or civil union
- Single, but cohabiting with a significant other
- Single, never married

8. What is the highest level of education you have completed?

9. Which of the following best describes your current occupation?

- Architecture and Engineering Occupations
- Management Occupations
- Business and Financial Operations Occupations
- Construction and Extraction Occupations
- Legal Occupations
- Personal Care and Service Occupations
- Food Preparation and Serving Related Occupations
- Protective Service Occupations
- Installation, Maintenance, and Repair Occupations
- Community and Social Service Occupations
- Healthcare Support Occupations
- Farming, Fishing, and Forestry Occupations
- Healthcare Practitioners and Technical Occupations
- Arts, Design, Entertainment, Sports, and Media Occupations
- Computer and Mathematical Occupations
- Production Occupations
- Office and Administrative Support Occupations
- Building and Grounds Cleaning and Maintenance Occupations
- Life, Physical, and Social Science Occupations
- Sales and Related Occupations
- Education, Training, and Library Occupations
- Transportation and Materials Moving Occupations
- Other (please specify)