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**AN INVESTIGATIONAL ANALYSIS OF THE CHALLENGES FACING ONLINE PAYMENT METHODS IN FINLAND AND THEIR FUTURE ADOPTION**

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**Thesis abstract**

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The payments industry is one of those sectors that has experienced changes in terms of technology adoption globally. Finland tops the European nations in the adoption of technology with relation to payments. More specifically, online payments have been adopted in Finland by different parties. These parties include commercial banks, supermarkets, online retailers such as online retail shop, hardware and home improvement shops, among others. Several online payment methods have been implemented, and these include the use of debit and credit cards such as those powered by Visa and MasterCard, PayPal, ePay, Amazon Payment, among others.

However, the continued adoption of these payment methods faces some challenges and thus hindering their future adoption. This research aimed at conducting a qualitative study on the use of online payment systems and the challenges facing their future adoption in Finland. Data was collected through interviews and questionnaires, as well from secondary sources such as the web. Participants included commercial banks, supermarkets, and other merchants such as online retail shops and hardware, and finally employees within different organizations and students.

The study findings indicated that a large segment of the Finnish population used online payment methods to shop and pay for other transactions. Technicalities and complexity of the technology used in the online payment systems was the most common problem as per the responses. Online fraud discouraged customers from using the online payments. The study recommended that the government, banks, and the merchants should adopt conditions that would make it easier for the customers to use the online payment platforms.

Keywords: online payment, money transaction, payment, account, transact

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# 1 INTRODUCTION AND BACKGROUND OF THE RESEARCH

According to Kianieff (2008) online payment is any method of fund transmission through the internet. Similarly, online payment system refers to electronic methods of paying for goods and services that do not involve hand to hand cash exchange. Online methods of payment are transacted through several ways such as PayPal, Authorize.net, Alipay, and Google Wallet among others (Online payment system, 2002). Online payment system is progressively becoming a popular means of payments in today's business transactions. This is due to its effectiveness, suitability and appropriateness. It is a payment scheme that is constantly being embraced and adopted in the commercial system of both industrialized and developing countries with a view to streamline and ease payments in financial transactions (Ally et al., 2010).

The aim of this research was to provide an insight to the current state of online payment systems in Finland by investigating the challenges affecting their use, acceptance and future adoption. Understanding the situation of online payment methods can bring benefits to various stakeholders including consumers, banks, merchants and payment service providers. Different types of payment methods were taken into consideration both at local level and internationally. The research gained beneficial insight by formulating research hypothesis and possibly result in understanding different types of consumer perception, attitude and challenges on the various types of online payment systems. From a hypothetical point of view, the major challenges affecting the user adoption include security, perceived risk and managing online payment systems.

Warkentin (2002) suggests that the advancement in information and communication technology (ICT) has completely transformed individual as well as business operations. Digital technology and ICT has contributed to dynamic evolution in money transfer and payment of goods and services unlike cash and checks methods of payment (Kianieff, 2008). In the current business environment payment are constantly shifting from cash based to electronic means which are much faster and safer. According to Ally et al., (2010), this has been contributed by digital evolution

and technological innovations. In addition, the increased and rapid use of internet globally has facilitated electronic based transactions in the business world.

The origin of Information and communication technology (ICT) is as a result of integration of computer science and telecommunication engineering to help bridge the gap in the way business is conducted and make the world market for goods and services accessible (In Quaddus & In Woodside, 2015). Kianieff (2008) maintains that the use of internet in making payments has provided opportunities for business organizations to develop and take advantage of globalization. Online payment system therefore involves the use of digital technology to enable commercial transactions among businesses and individuals to exchange value across boundaries (Ally et al., 2010).

## 1.1 Types of online payment system used in Finland and Internationally

### 1.1.1 Authorize .Net

This is the most popular and widely used online payment system. The payment gateway permits dealers to securely pass credit card information between the customer and the dealer as well as between the dealer and the payment processor (Electronic payment system, 2002). The online service provider was founded in 1996 by Jeff Knowles in United States and their headquarters are in American Fork. The service allows traders to accept credit card and electronic check via their website supported by an IP connection.



*Picture 1: Authorize.Net*

Source: (Awwwards.com, 2015)

### 1.1.2 PayPal

PayPal is an online money transfer company based in America but operates worldwide. The company was founded in 1998 as software Manufacturer Company by Max Levchin, Peter Thiel, Luke Nosek and Ken Howery ("Send Money, Pay Online or Set Up a Merchant Account - PayPal," n.d.). In 1999 the company became a money transfer service provider. PayPal is the world most famous and widely used payment system. PayPal payments are transacted through the user existing account via their credit card or master card. Payment are sent to the users email preventing the user from opening a new account every time money has been sent. An added advantage while using PayPal is the ability of the user to send money to other users an option which is not possible in other online payment systems.



*Picture 2: PayPal*

Source: (Awwwards.com, 2015)

### 1.1.3 Google Wallet

Google checkout permits users to make payment for goods and services via an account connected to their Google profile. The major competitor is PayPal, however Google Checkout has an advantage since most people use Google for other



activities and services hence making payment through checkout becomes easier. The company was discontinued in 2013 where it now offers a new payment solution known as Google Wallet ("Online Payment Solutions - Google Checkout vs PayPal vs Amazon Payments," n.d.).



*Picture 3: Google Wallet*

Source: (Awwwards.com, 2015)

#### **1.1.4 Amazon payment**

Amazon payment was launched in 2007 and is a subsidiary of Amazon.com and provides the means to transact online. Their headquarters are in Seattle, Washington in USA and allows users to pay online for their purchase of goods and services using their visa or master card ("Accept Payments Online and On Mobile | Amazon Payments," n.d.).



*Picture 4: amazon payments*

Source: (Awwwards.com, 2015)

### 1.1.5 Dwolla

Dwolla was founded and launched in 2010 by Ben Milne and Shane Neuerburg with headquarters in Des Moines, Iowa. The company provides online payment and mobile payments networks in United States (Electronic payment system, 2002). Dwolla provides the same services as PayPal hence becoming a very close competitor. The company processes over 1 million dollars in a day.



*Picture 5: DWOLLA*

Source: (Awwwards.com, 2015)

### 1.1.6 WePay

This is a form of online payment processor that allows users to accept credit cards and bank account payments through the internet. The company is situated in United States and provides services among small businesses, and market environments (In Lee, 2016). WePay also focuses on individual transactions and has recently provided online payment for event tickets, products, services and contributions. The company was founded in 2008 in Boston and their headquarters are located in Redwood city, California. The founders include Bill Clerico and Richard Aberman.



*Picture 6: WePAY*

Source: (Awwwards.com, 2015)

### 1.1.7 2Checkout

2Checkout is an online payment service provider that allows integration of a merchant account and payment gateway thus allowing the users to receive credit card and PayPal payments. The company enables worldwide payments, shopping cart stores among others.



*Picture 7: 2Checkout*

Source: (Awwwards.com, 2015)

### **1.1.8 V.me by visa**

This is an online payment service provider that allows the user to store more than one payment cards in a single place so that they make online payments without having to enter the card details. To use the service, the customer starts by registering through a bank allowing the use of the service. From then onwards to make online payment the user uses his/her email address, chooses the payment card and completes the transaction.



*Picture 8: V.me by Visa, (Awwwards.com, 2015)*

Source: Source: (Awwwards.com, 2015)

### **1.1.9 Serve from American Express**

This is a prepaid debit account with an enabled online account access and a mobile application that allows the user to pay for goods, services and bills online.



*Picture 9: Serve from American Express*

Source: (Awwwards.com, 2015)

#### **1.1.10 Payment through mobile devices**

Recently payments are being facilitated by use of mobile phones using short messages or phone calls. They are also called m-payments and are often regional (Loshin & Vacca, 2004). In Quaddus & In Woodside (2015) explains how m-payments transactions are done, it follows simple steps where the payer identifies with the merchant by providing his/ her phone number. The agent forwards the payment and customer information to the payment service provider for example through a mobile network service provider. The service provider notifies the payer for confirmation for example through a pin. The amount is debited from the payers account and credited to the beneficiary account where he/ she can collect the money. Example of these payment systems include Paybox in Australia, Germany, Spain, Sweden and UK. M- Payments are usually offline, however, Square and Intuit's Gopayment are online service providers that allow merchants to accept credit card payments through their mobile devices such as iPhone, iPad and Android Smartphones (Laudon & Traver, 2013).

The historical development of online payment can be drawn from the time when money was first moved to United States via a telegraph (Cavusgil et al., 2015). This was way back in 1918, and in 1972 the technology was automated and elec-

tronic currency became widely used. This enabled the U.S commercial banks and treasury department to incorporate electronic payment methods in addition to checks. Credit card payment method can be traced back to 1915 when stores, oil companies, western union and hotels begun giving credit cards to their customers to enable them to make payments via credit cards (Ally et al., 2010). At first credit cards were paper based but in 1990 they were transformed to electronic system.

With increased preference of online business transactions, the online payment system has become popular among merchants and creditors due to its importance in improving their operation efficiency (Ally et al., 2010). According to Warkentin (2002) adoption of online payment system has been received warmly in this digital era though there are some variations in customer acceptance which is contributed by different factors. Web systems and technological factors could influence customer acceptance of online payment (Cavusgil et al., 2015). Expected benefits and perceived risks are other factors that either promote or limit the adoption of online payment systems.

## **1.2 Research Problem**

Loshin & Vacca (2004) states that the use and development of various online payment systems and their future adoption would be an effective solution to monetary transactions in the business world. The implementation and acceptance of online payment methods plays a vital role in promoting online shopping and service delivery. Previous research has found that online payment system is associated with many challenges such as cyber threats, legal, social and technological factors. The results of a survey conducted in 2003 in Finland showed that only a small number of people, less than 7% of mobile phone users have used their phone for ordering or purchasing online (Statistics Finland, 2003). Financial, cyber threats as well as legal risks are serious issues hence, it will be necessary to control risks in online payment system (Treese & Stewart, 2003).

According to Warkentin (2002), there is limited information to help figure out factors that affect the user adoption of online payment and their future development.

The major factors limiting the adoption of online payment globally include security, awareness, trust, and technical aspects (Treese & Stewart, 2003). Thus the result of this study will be based on filling the knowledge gap between user awareness and acceptance of online payment service and future development and adoption that could contribute in benefiting providers of online payment services.

The scope of this research will also navigate why a huge percentage of online shopping are met through cash on delivery (COD) rather than using online payment systems such as PayPal. For instance, in China more than 60% of all online purchases are made through COD rather than using online payment due to lack of trust (Dr P Tobin, Comline, & Gregory Ian, 2013). Treese & Stewart (2003) maintains that many people in Finland and the entire world are still reluctant in accepting online payment services and usually wait and see the future of such systems. It would be therefore fundamental to carry out this research to help promote online payment adoption.

It is important that online payment service providers like Authorize.net, WePay among others understands the factors that will promote or hinder users from accepting online payment in order to achieve widespread use and acceptance of online payment.

### **1.3 Research Objectives**

The general objective of the study was to investigate various online payment systems used in Finland and challenges affecting their future adoption. Specific objectives of the research were:

- To determine the challenges that limits adoption and use of online Payment systems.
- To identify factors that promote online payment providers in order to increase user acceptance in future.

- To come up with recommendations aimed at minimizing the challenges as well as increase user acceptance and adoption of online payments system.
- To establish the extent to which online payment systems have been adopted in Finland.

#### **1.4 Delimitations**

This research had some delimitations. To start with the number of online payment service providers are many in the world and only a few of them operate internationally. Secondly, the users of online payment methods in Finland were mainly middle aged people. The sample of this survey therefore focused on young people's use, acceptability, and adoption of online payment system and challenges affecting the use.

#### **1.5 Value of the research**

Online payment systems contribute a big saving to the economy as compared to other methods of payment since they decrease leakages, lower down transaction, administrative and overhead cost (Garcia, Moore, & World Bank, 2012). The research provides an understanding of the acceptance of the most recent online methods of payment with regard to online business transactions. Providers of online payment services as well as consumers can learn from this research about the existing online payments model and their benefits to financial institutions. Given that only limited information or literature exist concerning online payment systems, future researchers are expected to benefit from this research as a good source of reference.

Online payment are crucial means of enabling business transactions when used by individual and organizations as a safe and efficient way of making payments over the internet. In addition, they contribute to technological advancement in the field of business and world economy (In Lee, 2016). Online payment model has also contributed to success of businesses that provide online shopping such as



amazon as they rely on these systems to transact with their customers through the internet. Cavusgil et al., (2015) suggests that online payment system have brought about efficiency, deception reduction and improvement in world payment system.

With online payment system cash and paper transactions have been converted to electronic and hence the cost of securing, transporting and accounting for cash is reduced (Dr P Tobin, Comline, & Gregory Ian, 2013). In addition, online sales and purchases have been accelerated due to emerging of easy to use and convenient payment methods that allows transactions to be enabled to any part of the world. Ajakaiye et al., (2011) shows that traditionally, vouchers, travelers check, and meal tickets have been in use for a long time but nowadays they are being replaced by online payment methods that are less intensive.

Due to the rapid growth of online payment system as a means of accelerating business globally, banks have realized the importance of disbursing funds to other banks or to individual clients using information and communication technology (Garcia, Moore, & World Bank, 2012). Traditional payment methods such as MoneyGram and Western Union are perceived to have many limitations that undermines their use and acceptance. Some of these limitations include lack of trust, costly while carrying out transaction, security issues, high risk perception and lack of perceived advantage (In Quaddus & In Woodside, 2015). These factors have made the banks to embrace the new technology of digital era where money transactions are done online.



## **2 LITERATURE REVIEW**

### **2.1 Introduction**

Warkentin (2002) states that online payment system is principally a type of non-cash payment which is done through diverse methods but there is no cash involved in the transaction. Making payment and purchases over the internet is a fact that is being depended upon by individuals and business enterprises. Kianieff (2008) mentioned that the best way business can trade globally is by taking their services and products to their customers via a website. This is why it has become significant to purchase and make payment through the internet by the help of many payment service providers. A payment service provider operates by managing online payment between the seller and the customer by accepting payment electronically (Laudon & Traver, 2013). The principal services offered include bank transfers, credit cards and orders. Payment service provider also offers security or guarantee against any form of risk that might occur during the transaction hence buying the customer trust and confidence. All online payment systems are expected to pay a tax rate which is fixed or variable.

### **2.2 Theoretical Review**

An investigation towards acceptance and adoption of online payment system encompasses the importance of developing and adopting online payment platforms. According to Ajakaiye et al., (2011), online payment is a category of electronic commerce in which customer pay for goods or sends money to other users via a web page or another online platform. In short all forms of payments done through the internet are also referred to e-payment (Wahlgren & Stockholm Institute for Scandinavian Law, 2010). Different methods are being used to enhance online payment such as cards and electronic transfers. There has been an increased use and growth of online payment users and the number is expected to increase in the near future (Electronic payment system, 2002).

Treese & Stewart (2003) mentioned that, with the development of electronic commerce online payment system have also vastly developed. Currently online payment service providers have developed all over the world with PayPal being the most widely used. PayPal has offered its services in more than 193 regions in the world with over 200 million registered users ("Online Payment Solutions - Google Checkout vs PayPal vs Amazon Payments," n.d.). The establishment of online payment service providers has facilitated the development of online payment and e-commerce.

In Lee (2016) illustrates that the arrival of internet has contributed greatly to the development and growth of online payment and business transactions worldwide. Kianieff (2008) mentioned that, in the past consumers could order for goods online and pay by sending an encrypted credit card figures via the internet which was less efficient and did not provide much security. Recently a variety of new efficient online payment schemes have been established as consumers become increasingly aware of their security and privacy (In Quaddus & In Woodside, 2015). In addition, digital money transfer has significant benefits to organizations, banks and merchants in terms of security and flexibility.

The emergence of ICT has completely changed the manner in which business transactions are being done (Ajakaiye et al., 2011). Individuals and organizations operations have been transformed through online delivery of goods and services and payment respectively. Kianieff (2008) mentioned that, business transactions are shifting from cash based payment to non-cash payment schemes facilitated by the internet. The rapid use of internet globally has contributed to implementation of online payment technology by digital media entertainment, and intellectual property suppliers (Dr P Tobin, Comline, & Gregory Ian, 2013).

### **2.2.1 Challenges associated with online payment**

- ***Security***

Security refers to the laid down procedure for ensuring that the user information is safeguarded from unauthorized access, is only available to the user on request and is shielded from modification or alteration (In Quaddus & In Woodside, 2015).

Warkentin (2002) states that if consumers realize that their security is at risk of being breached, they lose trust with the payment scheme. Trust is very critical in ensuring acceptance and adoption by users. Online payment systems represent a security challenge as they rely on ICT systems that increase vulnerability due to security threats by hackers (Laudon & Traver, 2013). A secure online payment system has to meet several requirements for customer's confidence and trust while using the system to be maintained. Such requirements include integrity, privacy, accessibility and dependability (Loshin & Vacca, 2004).

- ***Currency differences and payment methods***

Carrying out transactions globally involves accepting different currencies and payment methods (Loshin & Vacca, 2004). Debit and credit cards enable dealers to operate in international markets by transacting in their local currencies. Linking the banks in such transactions allows the currency to be exchanged across the borders. Identifying an online payment service provider with an infrastructure capable of bridging currency and payment method gaps is a challenge since only a few service providers possess such an infrastructure (In Quaddus & In Woodside, 2015). PayPal is a good example of an online service provider that supports cross border currency exchange.

### **2.3 Empirical Review**

Internationally, the development, acceptance and adoption of online payment system is dictated by the country economic, technological as well as social considerations (Garcia, Moore, & World Bank, 2012). With the number of internet users reaching 3,5 billion in 2016, people are now managing most aspects of their lives through the internet (Cavusgil et al., 2015). There are several variations in internet use and accessibility and these are based on geographical location and technological advancement. According to Kianieff (2008) business people, organizations and individuals are now managing their bank accounts online to effectively carrying out internet based financial transactions. Treese & Stewart (2003) mentioned that, the internet is the basic platform being used by people while making decisions whether to purchase an item or not.

Study conducted by Laudon & Traver (2013) showed that mobile devices such as iPhone, iPad and Android smartphones have been used to take the internet closer to the people thus relatively increasing online transactions. The result of this is taking payment along with the internet closer to the people. Warkentin (2002) in his research concluded that the correlation between mobile payment and online payment has become less clear over the years. This is because the number of mobile users who are young and therefore do not have bank accounts. Mobile devices contain mobile applications that allows online payments to be made via the app or a browser (Loshin & Vacca, 2004). Such payments are mainly done for digital products and services such as purchasing apps online and digital entertainment tools.

Mobile phones have been used to purchase online goods and services which is called m-commerce (In Lee, 2016). Online business activities are integrated into mobile phones in an effort to increase revenue opportunities. Mobile devices are therefore a key infrastructure in the implementation of online purchase and payment for goods as well as money transmission (Warkentin, 2002). Warkentin further mentions that business models are currently designing their own applications that can be installed in mobile devices to enable m-commerce transactions. In the field of purchasing digital goods such as music, games, applications are a rapid flourishing area in mobile payments (Kianieff, 2008). Mobile payments are done by feeding the user credit card details into the user account or prepaid cards credited to the card holder account. Currently the new payment systems are allowing these activities with PayPal taking a huge market share while others like Google are establishing themselves to take advantage of this new market opportunity. Alipay is an online payment service provider in China that is performing quite well however, PayPal remains a good example of non-traditional online payment service provider.

Study shows that the improvement in offering online payment options was heightened in 2011 when google launched Google Wallet for smartphones while partnering with master card (Kianieff, 2008). Barely a year later Visa followed the same trend by launching an online payment system called V.me. Google Wallet require users to set up a pin number that must be keyed on the smartphone for payment

to be permitted and to prevent unauthorized access (Ajakaiye et al., 2011). According to Ajakaiye et al., (2011) PayPal remains a giant in the market since google wallet is basically used in purchasing products supported by google site.

Studies by Laudon & Traver (2013) shows that currently the international card payment providers are a market dominated by just a few service providers. Among them is MasterCard, Visa and American Express that control a huge market share. Recently these card industries are coming up with plans to challenge the market giant which is PayPal by coming up with a series of offers and partnerships. For instance, in 2011 Visa used 2 billion dollars to improve online security while using their credit, debit and prepaid cards (In Lee, 2016). This was done by collaboration and acquisition of cyber space. Another development facilitated by Visa is creation of tool that enables users to interact online with their friends through Facebook and email in an effort to increase sales and adoption of their online payment service.

In United States non cash transactions are well embraced and adopted than any other part of the world (In Quaddus & In Woodside, 2015). Research has shown that more than two third of money in the state were transacted electronically via cards and online payment service providers. The trend is increasing as compared to a few years back with emergence of more online payment service providers. However, this is not the case with other countries in the world and particularly Africa (Garcia, Moore, & World Bank, 2012).

According to research carried out by Laudon & Traver (2013), online payment services are dictated by economic, social and technological advancement. For instance, Africa is generally a cash based society due to limited access to financial services and inadequate technology (In Lee, 2016). However, there are financial services that have flourished in Africa that do not involve online money transfer. The low level of development of e-commerce which facilitates online payment in Africa can be linked to inadequate access to credit card, nonexistence of government policy on use of credit card, lack of private sector investment, perceived risks by banks and consumers (Garcia, Moore, & World Bank, 2012). Entry of PayPal in Africa in 2010 has contributed to online transactions being enabled in the continent

however, such systems are met with administrative operation restrictions within the region.

The slow uptake and growth of online payment methods in Africa has made the financial sector to integrate their system to mobile phone operators to tap more customers. Thus mobile phones have been the main tool through which people access financial services and transfer money in this part of the world (Electronic payment system, 2002). The African financial transactions are powered partly by some form of online payment options linked to banks that have access to the internet. Example of banks and companies offering online payment services in Africa include standard bank autopay, payGate, PayFast and EBucks (Dr P Tobin, Comline, & Gregory Ian, 2013). However, these systems have only taken a small portion of the market share due to limited access to the internet. Mobile payments therefore continue to dominate the market due to limited access to card technology (Kianieff, 2008).

According to Laudon & Traver (2013), online payment system cannot succeed without access to computer and affordable internet connection. With a bigger percentage of people in Africa living below the poverty line and majority of them unemployed the affordability of computer and smartphones is beyond the affordability by many people (Dr P Tobin, Comline, & Gregory Ian, 2013). African countries contribute less than 2% spending in online platforms (Garcia, Moore, & World Bank, 2012). In a good performing economy, internet use ranges from 7% to 10% which no African country comes close to this. For online payment system to be accepted and adopted, the telecommunication network requires improvement with banks and private sector being at the forefront (Kianieff, 2008).

## **2.4 Research Hypothesis**

To examine the current state of user acceptance and adoption of online payment systems in Finland, this study employed several hypotheses. Many people perceive the quality of service to be a contributing factor hence become reluctant in accepting these services. In online payment system the better the quality of ser-



vice the more likely that people will accept and use the system. This study proposed to use the following hypothesis:

- Client perception on service quality has a positive influence on acceptance and use of online payment system.
- Risk perception by customers reduces the adoption and use of online payment system.
- Individuals with positive attitude towards online payment systems will have a higher intention to using them.
- High social influence from colleagues and other customers increases the use of online payment systems.

### **3 RESEARCH METHODOLOGY**

Research is categorized in several ways. Some of these ways depends on the significance of the research, the methods of data collection and how that data will be analyzed and used (Welman, 2005). The research methods mostly used in literature include exploratory, descriptive and explanatory. Explanatory can also be referred to as causality type of research. Its purpose is to explain the reasons for something happening and the series of effects connected to these reasons. Explanatory research is done when there is a hypothesis formulated stating why something is happening. Information collected is designed to support that hypothesis and show whether it is valid or not.

According to Welman (2005) explanatory research is performed with respect to marketing or when researching a social phenomenon. Online payment system is one type of a social phenomenon as well as a cause and effect type of study. Therefore, the research purpose is to collect information to measure the challenges affecting customer use of online payment systems and the challenges affecting their future adoption. The research model attempts to explain challenges affecting banks, Shops, supermarkets and Individuals/customer acceptance of online payment system and their future adoption.

In this study, a review of the various online payment methods used in Finland and other parts of the world as well as the challenges affecting the user acceptance and future adoption was employed.

#### **3.1 Research Design**

A research design shows the work frame or how data will be collected, analyzed and conclusions made. The research methodology for this study was formulated according to the following components:

- Data collection methods
- Data collection tools
- Data source
- Quantitative versus qualitative type of data

➤ Data analysis methods

The table below shows the research design for this study

Research Design	
Data collection methods	Survey
Data collection tools	Questionnaires
When administered	After establishing the target population
Data source	Customers, banks, shops and supermarkets
Person to administer	Researcher

*Table 1: Research Design*

### 3.2 Scope of Research

This study collected data regarding the challenges affecting the consumer acceptance of online payment methods and their future adoption. Transactions from consumers, banks, and point of sales formed the basis for data collection. Some of the major payment gateways permitted in Finland include; 2Checkout, Authorize. Net, PayPal, stripe, ePay, Paymill among others.

### 3.3 Data collection

There are different methods of data collection used in research. Among them is primary and secondary data collection. Primary data is obtained from the field unlike secondary data which is obtained from previous data collected for other purposes (Pratt & Loizos, 1992). This study utilized both secondary and primary data gathering methods. The combination of both methods made it possible to come up with a complementary investigation.

### 3.3.1 Primary data collection

- ***Interviews***

Interviews involves a discussion between two or more people aimed at gathering certain information or for a specific purpose (WetFeet, 2008). Interviews help the researcher to gather relevant data regarding the research objectives and questions. According to WetFeet (2008) interviews differs in formality and in this case they could be categorized into structured, semi structured, and unstructured interviews. Unstructured interviews are general and do not follow any formality. Their aim is to engage the respondent in exploring the subject matter in depth. Semi structured interviews vary depending on the interview and are based on a list of questions and theme. In this research, unstructured interview was used and conveyed through the phone. Phone interviews saves time, are cost effective and the researcher can interview many respondents within a short time.

The interview questions were based on identifying the major challenges affecting the respondent acceptance and use of online payment systems. In the literature review the major challenges included security issues, service quality perception, and risk perception. The interview involved an in-depth conversation in an attempt to identify other challenges that might hinder the targeted individuals reluctant in using the various online methods in the country. The interview used questions on factors that will increase the future adoption of the payment methods. The various factors outlined in the hypothesis included influence by colleagues, and positive attitude towards the payment methods. The interviews investigated whether the above hypothesis were correct or not. A combination of this information with questionnaires helped generate a thorough investigation for viable conclusions to be made.

- ***Sampling***

In this study the target population was individual customers, merchants, and banks. The results of a 2003 survey proposed that only a small amount, less than 7% of mobile phone users have used their phone for ordering or purchasing online (Statistics Finland, 2003). Further surveys conducted in Finland on the same formed a ground for the preliminary data analysis and interpretation. Because of

time, resources, and other constraints, only a sample was drawn from the target population to investigate the user adoption of online payment systems and challenges affecting this adoption. Sampling is defined as observing only a section or a part of a whole thing in order to gain an oversight about the whole case (Cochran, 2005). From the figure below sampling is divided into three categories including random, nonrandom and mixed sampling.

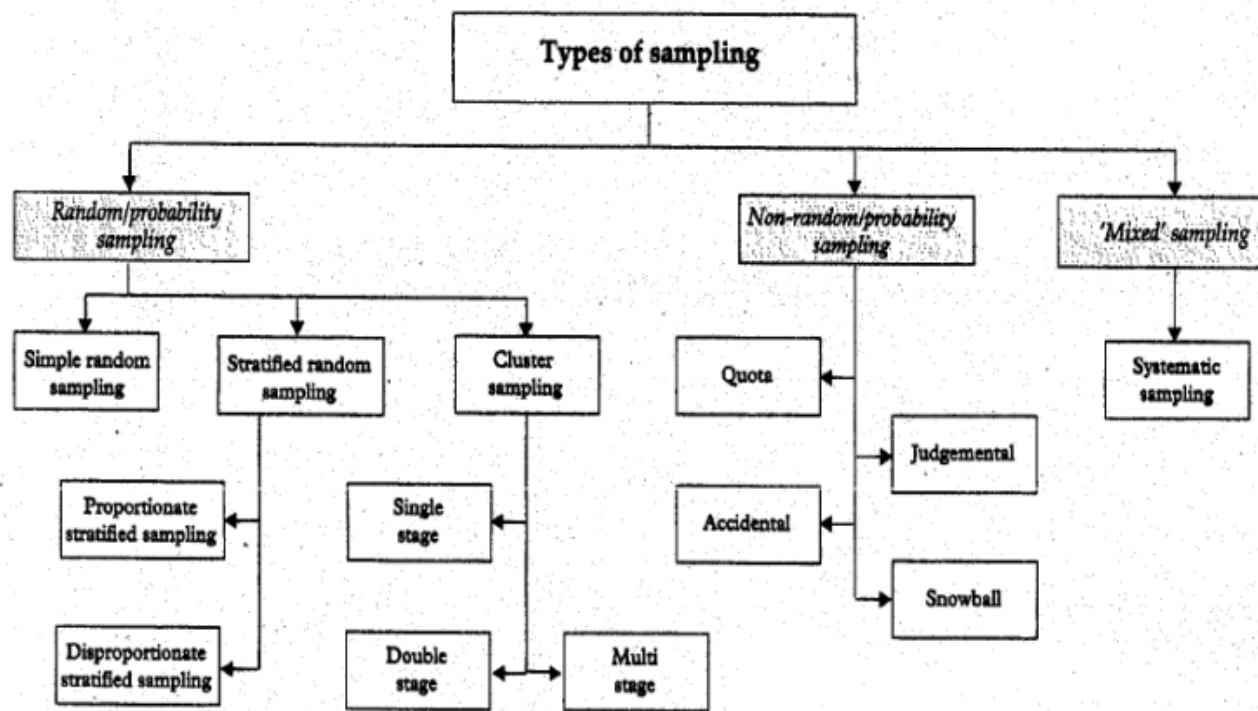


Figure 1: Sampling Methods

This study utilized the quota sampling technique. Quota sampling is possibly the best used method particularly in market research and in opinion polls. To collect the information, the population is first divided into strata depending on certain variables. The strata in this case constituted of banks, individuals/ customers, and merchants. According to Ardilly & Tillie (2006), a sample size of 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1000 is excellent. Ardilly and Tillie encourages researchers to use a sample size of 500 if possible. This research, however, used a sample of 300 which was considered to be suitable in giving the overall picture of the existing situation. The sample included customers who use the existing online payment methods in Finland and those who do not. This is in an attempt

to understand why they currently resist from using online payment methods as well identify the user challenges.

- **Questionnaire**

Questionnaire technique was the second method which was used to collect primary data. Questionnaires, depending on the research, could be self-administered or interviewer-administered (Pratt & Loizos, 1992). Self-administered questionnaires are sent to the respondents either through the post office, email, delivered to the respondent or internet-mediated technique. In this research, delivery and collection of questionnaires as well as internet-mediated method were used. The internet method involves engaging respondents to access the questionnaire through a web link and fill it online. Compared to other methods, online surveys are fast, cheaper, and simpler.

Since the research sampled different strata, the questionnaires were designed for each particular stratum. These included individual/ customer based questionnaires, questionnaires addressed to the banks and finally merchant based questionnaires. Merchants included shops and supermarkets and other retail outlets.

In individual respondent questionnaire, the first part from question one to six asked background information questions such as the respondent's age, gender, occupation, education level as well as monthly earning. The second part asked individuals whether they used online payment methods or not. They were also requested to state the reason why they used or did not use as well as their perceptions and attitude towards accepting the methods. The attitude and perception questions were answered using a rating scale which enabled the respondent to indicate how strongly they agreed or disagreed with the online payment methods. The scale ranged from one "completely disagree" and seven "completely agree". The respondents were also requested to indicate the monthly online transactions they performed using any of the existing online methods in the country. The idea behind this question was to establish the level of usage of these systems.

For banks the first part of the questionnaire addressed the name of the bank and types of online payment systems they had linked to the customer account. The objective of this section was to gather information on the various online payment

systems recognized and accepted by the bank. The second section requested the banks to indicate the estimated amount of transactions from the various online payment methods they had transacted. This helped to assess whether the use of online payment systems had increased or decreased over the last five-year period. In addition, other questions in this section asked the most frequently used online payment system. This helped to establish the level of acceptance and use of online payment system and predict the future adoption. Finally, the third section asked the banks to identify the various challenges experienced while enabling the use of online payment systems.

For the merchant's questionnaires, the first section of the questionnaire asked the name of the shop, supermarket, bookshop etc. and types of online payment system accepted. The various online payment methods offered in the country were indicated and the merchants were requested to tick the one they preferred the most. The objective of this question was to understand the types of online payment system most frequently used. For the second part, the merchants were asked to provide an estimate percentage of payment transactions completed through the various online payment methods for the last two years. These questions provided a clear overview towards the level of usage of online payment methods. Finally, the third section focused on the challenges faced by these merchants as they transact online.

After formulation of the first draft of questionnaires, pilot testing was performed to ensure that the respondents would have no problems with understanding and answering the questions and that they would be able to effectively adhere to the instructions. Ambiguous statements and questions were also rectified after pilot testing and any other problem identified.

### **3.3.2 Reviewing Secondary Data**

Secondary data usually provide useful information from which to partially answer the research questions (Pratt & Loizos, 1992). In this research, google

scholar and other internet based sources such as Galileo and Google scholarly articles were used to gather secondary data. The main objective of assembling secondary data was to find out what other researchers have investigated towards the challenges facing the adoption of online payment methods and their future adoption.



## 4 DATA ANALYSIS FINDINGS

### 4.1 Preliminary Findings

From an initial general study, considering the period between 2013 and 2015, the following graph shows the statistics of online payments in Finland.

#### Most Commonly Used Online Shopping Payment Methods in Finland Between 2013 and 2015

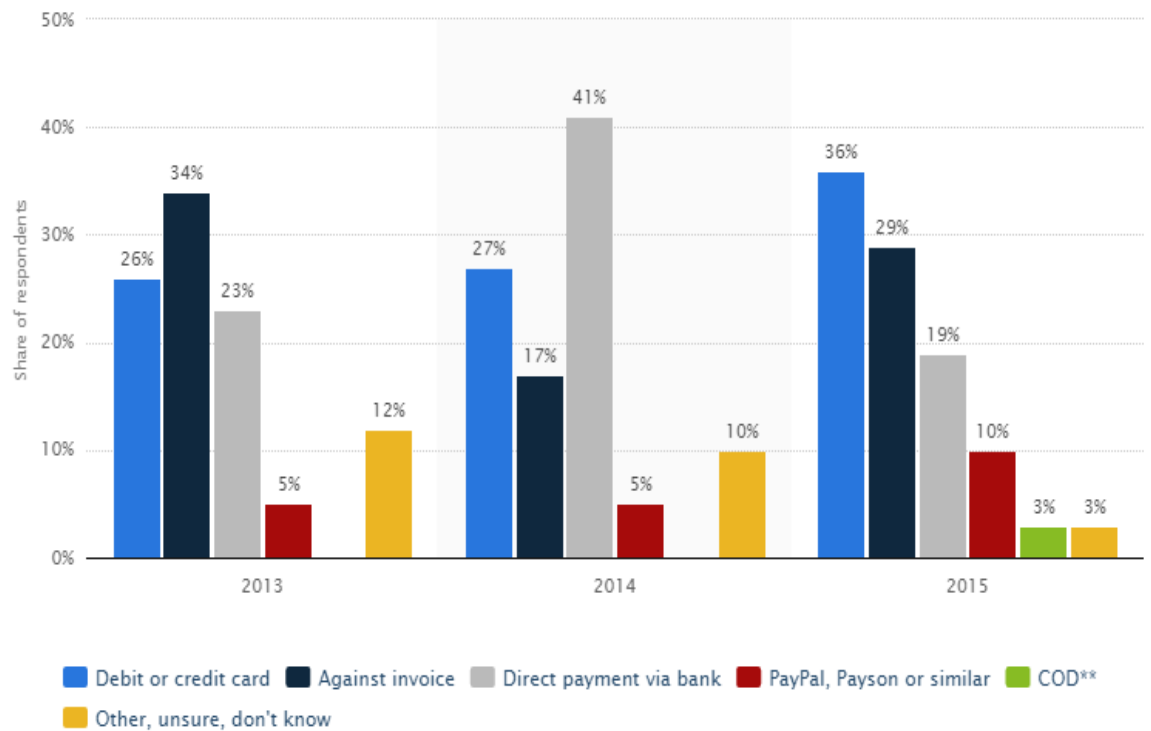


Figure 2: Common Online Shopping Methods

Source: ("Finland: online shopping payment methods 2013-2015 | Statistic", 2015)

The general trend indicates that the debit cards and PayPal usage has been on the rise.

## **4.2 Research Data Analysis and Findings**

Descriptive statistics was used to determine the user acceptance and use of online payment systems and challenges affecting their future adoption. The questionnaires from respondents were analyzed as well as findings from the interviews. Data was collected from questionnaires directed to banks, individual customers and merchants alike. A total of 30 questionnaires were directed to banks, among which 24 of them were responded positively. This represents 80% positive response rate. Likewise, a total of 80 questionnaires were directed to merchants including shops, supermarkets, and other retail outlets. This category of questionnaires received a 50% response rate where 40 questionnaires were positively filled. The last category of questionnaires was directed to individual users and non-users of online payment systems. A total of 80 questionnaires were sent where 56 of them received a positive response. This is 70% response rate. Most of the questionnaires were filled online as well as administering them personally.

### **4.2.1 Bank questionnaires**

All the 12 banks that responded positively have a big percentage of customers using online payment methods. Out of the 12 banks that responded, most of them accept online payment methods. Nearly all banking facilities can be accessed online in Finland. From the 12 banks that completed the questionnaire, all 12 banks allow the user to purchase goods and services via an online payment gateway connected to the user bank account. All banks, however, were noted to accept electronic payment methods such as debit and credit cards. The 12 banks were noted to issue Visa cards to their customers. The payment gateway most frequently used is PayPal. 12 banks have been supporting user online payment

through payment gateways provided online. The most frequently used online payment method was noted to be PayPal where 12 banks had integrated the user bank account to PayPal. Other online gateways were also used but less frequently.

Number of questionnaires to banks	Response	Percentage response rate
15	12	80%

*Table 2: Response Rate for Banks*

The most prevalent challenge noted in all the banks acceptance and use of online payment method is growth of fraudulent internet transactions. Another challenge identified is the limited number of customers using online payment methods for goods and services. All the 12 banks replied positively that they have been monitoring online payment methods and concluded that examination of these transactions had positively impacted their operations.

Additionally, the banks that participated in the research also indicated that the previous Finnish financial and economic crisis had led to a deterioration of the economic conditions and thus banking had been affected large. Others indicated that some of the technology used by the banks in their online payments was outdated and complex for customers to use. The most common assertion among all the banks was technical problems, such as system failures and complexity that made it impossible for clients to transact efficiently.

Banks in Finland have also established a safe payment solution for online payment based on an Internet banking method. When a customer is at a retail store that accepts online payment method, and wants to buy something, they click on the Internet payment of their bank and is related to the bank's website, where they accept the bill, after which the bank account is debited and the payment credited to the trader.

#### 4.2.2 Merchant questionnaires

The 40 merchants who responded positively to questionnaires directed to them include 8 supermarkets, 10 bookshops, 12 shops, 2 fashion houses, and 8 hardware's. The merchants allowed their customers to use third party online payment systems while purchasing goods. This however, depended on the payment gateway the user has been registered to and which the merchants supported. The 40 merchants were found to support the use of PayPal in making online payment since it was the most widely used payment gateway in Finland. Other online payment systems were used but less widely. The merchants revealed why customers prefer PayPal. Some of the reasons they gave include; it is widely supported, affordable to use, and familiar to customers. 40 merchants rejected to fill the questionnaires claiming that no online payment had been made for the last one year despite having an active online payment method.

Merchant questionnaires	Response	Percentage response rate
80	40	50%

*Table 3: Response Rates for Merchants*

Retail outlet	Number
Supermarket	8
Bookshop	10
Fashion house	2
Hardware	8
Shops	12

*Table 4: Merchants Interviewed*

Most merchants were not able to provide a track of records of online payment methods they have transacted for the last few years since the level of usage was still low.

The major challenges pointed by the respondents include; most customers prefer using their visa cards instead of using payment gateways hence competition with electronic payment methods is a challenge. Another reason for low usage of online payment methods as indicated by these merchants is that Finnish people still prefer cash payments and payment habits seem to change very slowly.

Another interesting finding was that most of the web stores did not have enough resources and personnel to manage the online shopping and payment systems. In other words, they complained of lack of sufficient competency in running e-commerce. Most of the shops pointed out that the adoption of the online payment systems was dismal due to the lack of the online shop specific features such as chat, profiling, comparisons, ratings, and recommendations. Technical problems also had a hand in the customers' acceptance and full adoption of the online payment methods.

#### **4.2.3 Individual questionnaires**

In order to get a deeper understanding of online payment methods existing in Finland and the user acceptance as well as the challenges affecting the future adoption, students and employees were examined. The respondents were between the age of 22 and 60. Gender variations was also noted with 38% of respondents belonging to the female gender, this figure constitute 20 females and 36 males.

Occupation	Response	% Response rate
Students	12	21%
Private Organization employees	24	43%
Government employees	20	36%
Total	56	100%

*Table 5: Individuals' Response Rates*

These were mostly immigrants or foreign students living in Finland. The respondents mainly pointed out that most of these online shops and banks had technologies that did not undergo any refinements to make the user interface user-friendly. Others stated that the platforms had less competitive advantages as compared to the usual means of payments and thus they opted to use the offline means.

### **4.3 Discussion**

The general understanding from different researches is that Finland is one of the leading European countries that has the highest growing adoption of the online payment systems in its various sectors. As such, analyzing these trends is an important call.

From the above results, it is clear that there is much that needs to be done in relation to the use of online payment systems in Finland. Being the leading user in online payments, the Finnish stakeholders have a role to play in ensuring that these systems are well-tailored to make it easier for the users to adopt. From the challenges expressed by the respondents from each category, it is evident that technology application is the most challenging aspect. Some of the respondents, such as the banks, the retailers, and the individual respondents cited that technicalities of the system were among the most obvious challenges that made it difficult to adopt the online payment modes. Borrowing a leaf from well-established sellers as eBay and Amazon would be a great step towards reaping full benefits from the online payment approaches. Amazon, eBay, Alibaba, among other fa-

mous online shopping sites have online platforms that enable even a new user to transact with ease. In cases of any difficulties, there are always tutorials to serve as guide. What is more, these retailers carry out regular maintenance of their platforms to include more efficient features and increase the user-interactivity.

Online fraud has been in existent for years. This is one major reason that discourages customers from transacting using the online payment methods, out of fear of their financial details falling in wrong hands. Banks are the most affected. Cases of PayPal fraud and other means where the clients' details are linked to their banks have been of the fast lane to inhibit an effective adoption of the online payment methods. Warkentin (2002) explains that customers trust channels that can ensure a complete safety and security of their details.

Consequently, there is also a stiff competition between the online and the offline payment systems. Obviously, the older population in Finland would not be so digitalized as to embrace the technologies that come with the online payment systems. Conservatism is one of the factors that would be associated with such a segment of the population. Thus, they tend to give preference to the traditional means of payment, which offers a real competition to the newly developed online payment systems. The figure below shows a comparative observation between online and offline payment via debit cards. As of 2014, Finland had a circulation of 9 million debit cards. As illustrated in the chart below, the online debit payments were leading but closely followed by the offline debit payments. This is a clear indication of the competition that faces the online payment methods. Thus, there is a need to take care of this competition by the various providers.

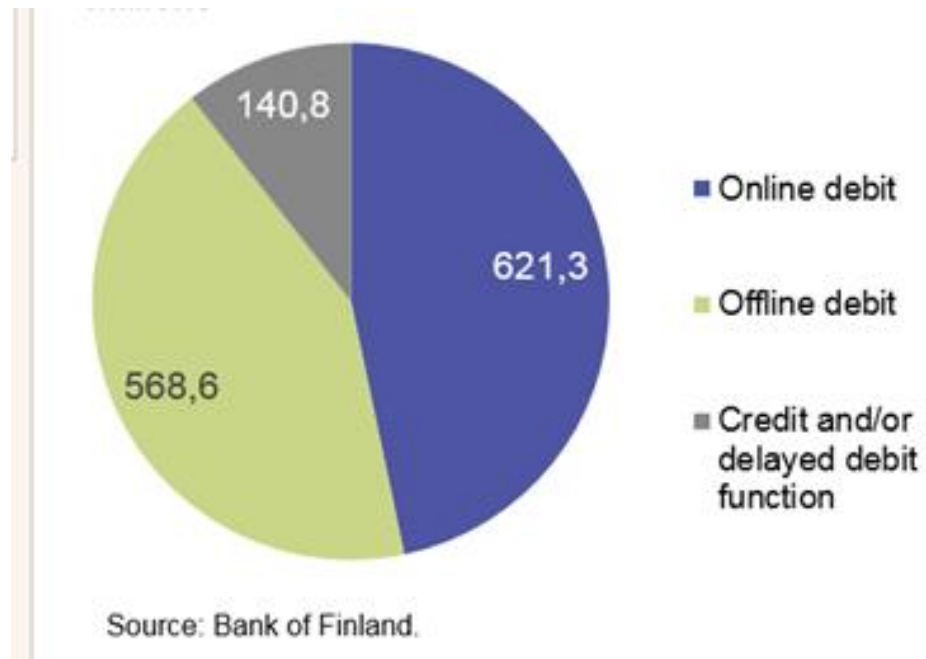


Figure 3: Payments statistics for 2014

Source: ("Payments statistics for 2014", 2015)



## 5 CONCLUSION AND RECOMMENDATION

There are several elements that are attractive within the payment industry in Finland. One, it is large, second, it is growing at a high rate, and third, it is relatively profitable especially after the Finnish crisis. With this, it implies that the various players can take advantage of these three conditions by putting into place measures and strategies that would make it easier for the remittance of these funds flowing between households and providers. The best way as per the present world is through the use of online payments. Online payments are more efficient in terms of saving time and accessing a larger audience, even overseas.

With regard to this argument, the challenges facing the adoption and implementation of online payment methods in Finland need to be assessed. The various participants; the banks, merchants such as retailers, and other retailers, should aim at improving the current conditions by considering the challenges that have been expressed. This research is an eye-opener into what can be done to solve the problems. Technological technicalities came out as the most prominent contributors to the challenges facing the adoption of the online payment methods in Finland. What this means is that these parties have the duty to use technologies and include features that enable the clients to use these platforms in an easier way. The technologies adopted must also be in a position to enhance other features such as securing the transactions from fraud and counteracting the competition from non-online payment methods.

Another recommendation that should be implemented is the government's involvement in regulating the online payments. The Finnish government can encourage the adoption of the online payment methods by ensuring a stable economic performance. A stable economy has all the characteristics that would facilitate the payments methods, and furthermore, innovative ones such as the online methods. The government should also protect the transaction by eliminating issues of cyber-crime, which target such online payments.

By looking at giant online retailers such as Amazon and eBay, one can understand the true definition of online payments. Finnish banks, retailers, and other parties in

the payment industry should borrow a leaf from these established retailers and online payment platforms.

The banks also need to educate their client on how to use the online payment methods that they use. Their databases should be simplified in a manner that the customers can easily understand the procedures. The retailers should add features to their platforms that first offer guide to the users before proceeding to the real part. This way, it would be easier to handle the online payment methods and develop the urge to adopt more.

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## APPENDICES

### Appendix 1: Commercial Banks Interviewed

Aktia Savings Bank
Bank of Åland
eQ Bank
Evli Bank
Helsinki OP Bank
Nordea Bank Finland
OP-Kotipankki
Pohjola Bank
S-Bank
Sampo Bank
SEB Gyllenberg Private Bank
Suomen AsuntoHypoPankki
Tapiola Bank
Handelsbanken
DnB NOR

## Appendix 2: Supermarkets

K-Market,
K-Citymarket,
Lidl
K-Supermarket
Alepa
Sale
Prisma
R-kioski

## Appendix 3: Retail Shops

Boohoo
H&M
Lindex
Jack&Jones
Bubbleroom
Aukia
Musta ja Mirri
Sokos
Seppala
Halens

#### Appendix 4: Fashion Houses

Parturi Kamppamo
Samuji

#### Appendix 5: Bookstores

Suomalainen Kirjakauppa
Rosebud
WSOY
Era Nova
Kaapelin Kauppa
Arkadia
Pocket Shop
Kolmen Sepän Kirjakauppa
Adlibris Finland
Kaapelin Kauppa

#### Appendix 6: Hardware Stores

K-Rauta
Motonet
Stark
RTV
Clas Ohlson
S-rauta
Agrimarketi
Biltema

## **Appendix 7: Individual Questionnaire**

### Online Payment Methods Survey

The essence of this survey is to collect basic information regarding the usage, adoption, future state, and challenges facing the future implementation of online payment systems in Finland.

#### **Which of the below best describes you?**

Student

Government Employee

Private Organization Employee

Retired personnel

Other...

#### **Do you use online payment at all?**

Yes



No

I have heard people talk about it

**Which online payment methods do you know?**

Debit Cards such as Visa and MasterCard

PayPal

Online bank (Net Bank)

Google Checkout

Amazon payment

We Pay

Dwolla

Authorize.net

Other...

**Which online payment do you use most regularly?**

Debit Cards such as Visa and MasterCard

PayPal

Online bank (Net Bank)

Amazon Payment

We Pay

Google Checkout

I don't use online payment

Authorize.net

Other...

**What is the main thing you like about online payment and online payment methods?**

.....

Short-answer text

**What you don't like about online payment and online payment methods?**

.....

Short-answer text

**Would you recommend any online payment method to a friend, which one and why?**

Yes

No

.....

**Do you think there is a large usage of online payment systems in Finland?**

.....

Long-answer text

**What are the challenges you have encountered with online payment systems?**

.....

Long-answer text

**Do you think most people will adopt online payment methods in future in Finland?**

.....

Long-answer text

**What are the challenges you think face the adoption of online payment systems in Finland as the e-commerce sector continues to grow?**

.....

Long-answer text

**What do you think should be done to address these challenges?**

.....

Long-answer text

## **Appendix 8: Bank Questionnaire**

### **Questions Asked to the Banks**

These questions were asked to the various banks regarding the use and adoption of the various payment systems in Finland

**What are the most common types of bank accounts offered to your customers?**

Fixed accounts

Savings account

Online banking accounts

**What are the different ways a customer can operate his/her account held by you?**

Internet banking

Mobile/telephone banking

Automated Teller Machine (ATM)

Branch or Over the counter service

**Given the rapid change in money transactions technology in Finland, how readily have you adopted the use of online banking?**

We offer all our account holders online banking access

We offer selected account holders online banking access

We have not started using online banking

We do not know about online banking as we prefer the traditional banking

**What banking technology software do you use to support efficiency?**

Internet banking system

ATM banking

Core banking system

Loan and credit management system

**If you have adopted online payment methods and systems, which are the methods that you offer your customers for payments?**

Debit Cards such as Visa and MasterCard

PayPal

google wallet

Online bank (Net Bank)

Others

**Finland has been named as one of the fastest growing country in Europe in the adoption of online payment systems. What factors drive your banks into adopting the online payment systems?**

.....  
.....

**What do you like most about the online payment systems?**

.....  
Short-answer text

**Online payment systems have been criticized for their various failures that discourage potential users. What are some of the failures and challenges that your bank has faced while using online payments with customers?**

.....  
Long-answer text

**What have you done or what do you suggest should be done to address these challenges?**

.....

Long-answer text

**Online payments are very efficient in making money-related transactions. As such, almost all sectors will be using online payments. You as the banks will play the intermediaries for most of these transfers. What steps do you plan to take and implement to ensure efficient online payments?**

.....

Long-answer text

**What factors will facilitate the growth of online payments in your banks in the next 10 years?**

.....

Long-answer text