

A Study on Consumer Preference in Sustainability by Use of Virtual Card Payments in Ireland

Research dissertation presented in partial fulfilment of the requirements
for the degree of
MSc in Accounting and Finance Management

Griffith College Dublin

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06/09/2024

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submitted for the degree of: **MSc in Accounting and Finance Management** is the result of the my own work and that where reference is made to the work of others, due acknowledgment is given.

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Dedication

I dedicate this work to fellow learners and friends who helped me to complete this work by taking part in this survey and my supervisor who guide me to successful completion of this project. I thank everyone for your support and time taken for this research.

Eastel Vinod

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I would like to convey my sincere gratitude to my supervisor for providing me with the required motivation, guidance and knowledge which enabled me to complete my research work effectively and within the stipulated timeframe. Furthermore, I would like to extend my gratitude to my professor for providing me with the required resources and scope for this research work to be conducted properly.

Abstract

This research aims to analyse the impact of virtual card payments on sustainable consumption in Ireland, focusing on how digital payment technologies influence consumer behavior towards environmentally friendly practices. It examines the growing adoption of virtual cards, their role in enhancing security and convenience, and their potential to drive sustainable purchasing decisions. By analyzing consumer preferences and behaviours, the study aims to bridge the gap between financial innovations and environmental sustainability.

The literature review explores the adoption of virtual card payments in Ireland, highlighting technological progression and consumer attitudes across age groups. It covers factors such as digital literacy, trust, lifestyle, and government initiatives. The review also examines consumer perceptions of digital payments, their convenience, security, and sustainability benefits.

The study used a quantitative approach with structured questionnaires to analyze consumer perceptions of sustainable virtual card payments in Ireland. It employed positivism and deductive methods to identify trends and factors influencing payment choices. Data were collected via online surveys and group discussions, with ethical considerations ensuring validity and reliability.

A results and discussion chapter focussing on appraisals in Ireland of consumer behaviour approaches the issue through examining virtual card payments acceptance as an entity. The findings confirm the correlation between virtual card adoption and green purchasing, with ease of use, security and environmental benefits being identified as key drivers. Despite that, adoption is suffered by things like ignorance and security issues. The differing opinions of those three camps on the environmental impact point to an obvious need for better dialogue. The findings offer academic insights and professional guidance to enhance virtual payment systems, activate pro-environmental consumption behaviour.

Having reviewed the results on virtual card use, this chapter concludes by restating its potential influence over sustainable buying behaviour, while it also cites a recommendation and conclusion. It identifies important drivers and barriers and provides practical advice on improving safety, awareness and barriers. The chapter discusses research contributions, limitations, and future prospects and the findings

provide a basis for further research on digital payment systems and their role in promoting environmental awareness.

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1. Introduction

1.1 Background of the Study

The emergence of new payment solutions and the focus on environmental concerns define modern consumers' behaviour and market trends. Virtual card payments are a relatively recent innovation for this purpose. They are a digital form of credit and debit cards with higher security and convenience levels. Since the use of these technologies are gradually becoming part of normal transactions as there is a need to assess the effects on consumer preference, especially in the area of sustainability. The last few years have shown an increased concern of the consumer towards the environment and its sustainability (Busse *et al.*, 2020). People are now aware of the effects of climate change, depletion of natural resources, and environmental pollution, and they are looking for ways of minimizing their impact on the environment by adopting the virtual card of payment.

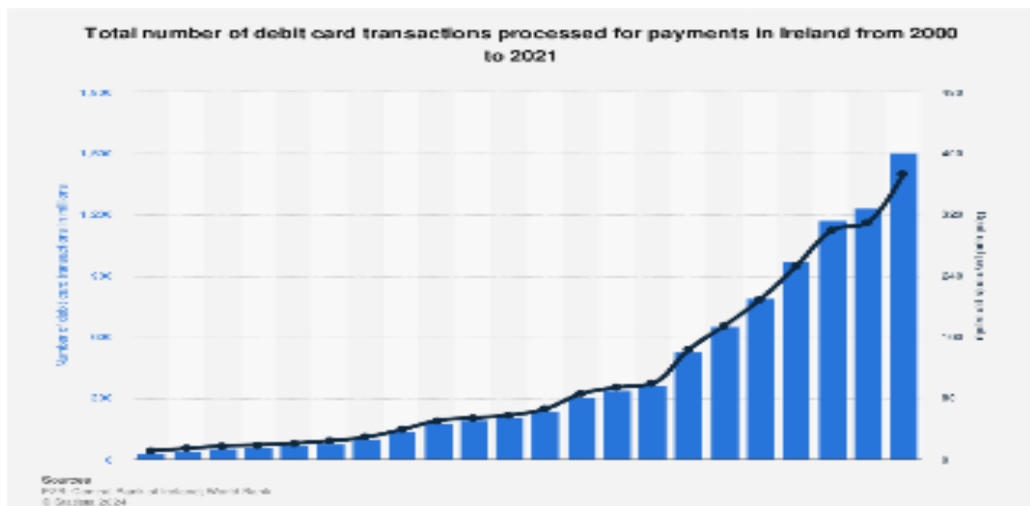


Figure 1.1- Virtual Card Payments Usage in Ireland

Source- (Raynor de best, 2023),[Statista, 2021]

The total number of debit card transactions done in Ireland for the period of 2009 to 2020 was rise in every year especially a sharp increase from 2014 to the present time. The number of debit card transactions was approximately 688 million in the year 2017. However, in 2020, this figure exceeded one billion, which means that the growth of this segment occurs at a rather rapid pace (Dillon, 2020). Through Credit and debit card, approx. 63.7 percent of payments in Ireland had done in 2020.

1.2 Purpose of the Study

This research focus on people's concern regarding the effect of virtual card payments on sustainable consumption by consumers in Ireland. As the adoption of digital payment methods is trend-setting, it is crucial to determine the impact of adopting digital payment system on consumers' behaviour, primarily its impact on the environment (Dai *et al.*, 2023). Virtual cards have enhanced security and convenience and this research on highlighted the dimensions affect consumers' sustainability-related buying and paying behaviour. The objective of this study will therefore be to intensify the relationship between the use of digital payment technologies and sustainable consumer behaviour. The study contributes to the existing literature by filling the knowledge gap on how financial innovations assist or hamper the realization of environmental goals by examining the role of Virtual card payments on environmentally conscious consumption (Busse *et al.*, 2020). The outcomes will depict the overall correlation between virtual cards and the increase of the consumers' awareness and the demand for green products and services.

The implication of this research is in the potential of extending knowledge to businesses, banks, and governments on how virtual card payments can facilitate sustainability. From the results, therefore, businesses could use the information to develop products and sell those products in ways that would fit the environmental conservationist category (Viciunaite and Alfnes, 2020). The information could also be used by financial institutions to sell virtual card solutions as their way of helping to embrace sustainability. It could be used by policymakers to design motivation or regulation that would encourage payment technologies with environmentally friendly characteristics (Salhan and Chahal, 2023). This work's goal is to synchronize the advancements in financial technology with sustainable goals this work will also be theoretical and empirical in both fields.

1.3 Description of the Study

In the Irish financial market, the research seeks to find out the correlation existing between digital payment technologies and consumer sustainability. There are virtual card payments which are a digital copy of normal credit or debit cards to enhance security and convenience among consumers (Auer *et al.*, 2023). There is an emerging global shift to sustainability, mainly attributed to the improvement in the awareness of people to their surroundings and the future menace of global warming. This research is being carried out against this background with a particular focus on technological

advancement and the environment (Pietrucha and Maciejewski, 2020). It is even more significant in a country like Ireland which has adopted the use of technology for reducing the environmental harm rate by implementing virtual card payments on sustainable consumer behaviour.

The shift to digital payments is one of the general trends in the financial sector, where new technologies are created to improve the value for the final customer and increase the efficiency of the industry (Busse *et al.*, 2020). Also, due to their beliefs and the government, Irish consumers have become more aware of the sustainability factors of products (Dillon, 2020). This study locates these trends by examining the impact of Virtual card payment on consumers' sustainable preferences. This study is highlight what these new forms of payment do, whether are they making consumers more sustainable, or are they simply a new way of shopping without the change to the existing attitudes. In this way, the study contributes to the identification of potential of the financial technologies in achieving environmental goals and what might be recommended to businesses, policymakers, and consumers.

1.4 Significance and Justification for the Study

The relevance of this study is centred on the capacity of the research to analyze virtual card payments and consumer sustainability preference; this is a fairly recent and always relevant topic in the financial and environmental period. This is the case since an increasing number of methods of making payments online are likely to have an impact on the sustainability of consumer behaviour (Sampath, 2023). This research then seeks to plug this gap by specifically looking at the antecedent of convenience and security of virtual cards on environmentally sustainable purchasing behavior. The implications of this study may help organizations learn about what financial products are more sustainable and may help in the marketing data that enhances the desirability of the product to the environmentally aware consumer.

The research can be applied by all industries in marketing virtual card solutions as products that are green and provide a competitive advantage. They could be in a position to formulate policies from the research findings that may encourage the use of payment technology which is friendly to the environment (Auer *et al.*, 2023). The justification for the study is anchored on the fact that technology has become part of people's lives and the present-day concern for environmental pollution. There is an ability to understand how technology disrupts sustainability and advancements might be

made concerning the shift in consumer preference (Dillon, 2020). This study does not only contribute to the existing literature in the field but also provides useful information to any party that wants to use Fintech in promoting sustainability.

1.5 Research Aims and Objectives

This research aims to examine the impact of virtual card payments on consumers' sustainable consumption in Ireland, to determine whether payment technologies promote more sustainable consumption.

- To explore the reach of existing technological innovations from individuals among different age groups in Ireland.
- To critically analyze the consumer willingness to adopt digital payment methods in Ireland.
- Do people find the virtual payment system beneficial

1.6 Research Questions

- What are the consumer preferences towards virtual card systems among people in Ireland, which is a sustainable method of banking?

1.7 Hypothesis

- H1: Consumers who use virtual card payments are more likely to make sustainable purchasing decisions compared to those using traditional payment methods.
- H2: The adoption of virtual card payments negatively correlates with increased consumer awareness and preference for eco-friendly products.

1.8 Overview of the Structure of the Dissertation

Chapter 1: Introduction

Chapter 1 presents the research on the influence of virtual card payment on consumer preference on sustainability in Ireland. It explains why it is pertinent to examine the impact of digital payment technologies on environmentally sustainable consumption and the importance of integrating financial innovations for sustainable goals. Chapter One gives background information, purpose and objectives, research questions, and an outline of the dissertation.

Chapter 2: Literature Review

Chapter 2 provides a literature review of the existing literature on the effects of digital payment technologies on consumer sustainability preference. It discusses theories and prior research on the impact of financial innovations such as virtual cards on consumption behaviours (Dillon, 2020). The literature review highlights the existing knowledge and contextualizes the research within the field of digital finance and sustainability.

Chapter 3: Methodology

In this chapter, primary quantitative data has been collected by conducting survey and finding has been develop as per the survey response.

Chapter 4: Discussion of Results

The findings of the data collected are presented in Chapter 4. It synthesizes how virtual card payments affect consumer behavior concerning sustainability, and themes and patterns.

Chapter 5: Discussion

Chapter 5 presents a discussion of the results in light of other empirical findings and theoretical propositions (Anysiadou, 2023). Finally, the chapter discusses the implications of the findings to the overall research interest in the link between digital payment technologies and sustainable consumer behaviour.

Chap 6: Recommendations and Conclusion:

Chapter 6 synthesizes the results of the study and offers recommendations for productions, financial institutions, and policymakers on how they can advance on the use of virtual card expenditures in the advancement of sustainability. The chapter presents a mixture of the research findings and their inferences for the field of study and practice as well as future study recommendations.

2 Literature Review

2.1 Overview

The literature review emphasizes on analyzing consumer predilections, technological progression, and sustainability of the virtual card payment arrangement in the Republic of Ireland. The first part emphasizes on the rate and patterns of adoption that follow technological progression within the different ages and how this affects the uptake of digital payment arrangements (Charlie Taylor, 2019). It inspects the degree of comfort or ease that individuals have with technology, or the lack of it, that is quite significant when it comes to the use of virtual expenditures. It also provides a critical assessment of consumers' perception of digital expenses, with an emphasis on cognizance and acceptance (Nambiar and Bolar, 2022). This has inferences on how convenience, uncertainty, or the ease of using an app influences customer choices with regard to electronic money transactions. It looks at the perceived advantages of virtual payment systems and presents consumer-centered views on how these systems improve the manipulation of finances, ease the use of money, and conform with current digital ways of living.

2.2 Technological Adoption across different age groups in Ireland

Digital Literacy and Technological Comfort



Figure 2.1: Digital Literacy and Technological Comfort

Source: (Mukesh Sharma, 2023), LinkedIn

Despite the general increase in digital payment methods adoption, it was recognized that the digital literacy rate plays an important role and considerably differs between different age groups. The newer populations, especially the digital generations (Millennials and Gen Z), are tech-savvier and prefer to use digital platforms (Pietrucha and Maciejewski, 2020). A reliance on smartphones, applications, and electronic purchases means that they will again be more likely to use virtual card payments. It has been found that Irish consumers in the younger generation are more inclined to use and frequently transact using forms of digital payments due to the convenience and usage of the form in their everyday digital life. On the other hand, certain age segments, especially those above 60 years, might experience some difficulties connected with the use of the Internet (Nandal, 2023). Though this demographic has increasingly embraced the use of smartphones and the internet the technological comfort is still relatively distinct from that found in younger generations. This has created a gap, especially in the adoption of new forms of payments when engaging in digital payments, as older consumers prefer to use old-fashioned methods like cash or even a physical credit card.

Trust and Security Concerns

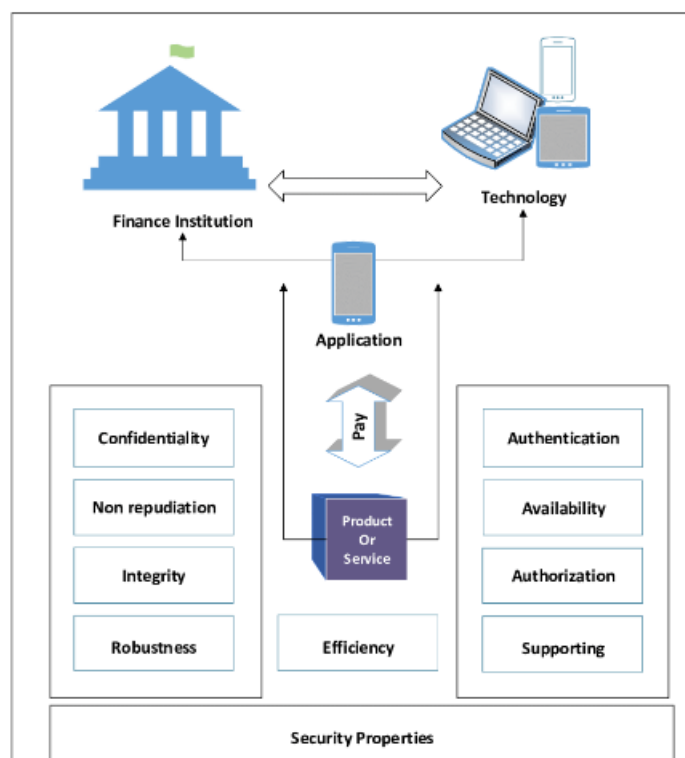


Figure 2.1: The security properties of electronic payments

Source:(Hassan *et al.*, 2020)

Another key factor that influences the level of technology is trust, especially in technology related to financial transactions over the Internet. In terms of the security and reliability of digital payment methods, different age groups possess a dissimilar level of trust. Specifically,

younger consumers who are more tech-savvy and used to conducting activities online have higher trust levels in the online purchasing environment (Agrawal, 2021). On the other hand, it is seen that security properties in the digital payment system have gone through the payment process with authentication, integrity and confidentiality (Hassan *et al.*, 2020). This can result in a better understanding and application of security measures like double factor identification, encryption, and biometric identification that gives them confidence in payment through virtual cards. Concerns like security may prove to be a barrier to consumers in the older generation when transacting electronically (Gupta and Narayan, 2020). Such issues are further compounded by a negative experience or heightened awareness due to the coverage of data breaches in digital payment platforms.

Impact of Lifestyle and Income

Lifestyle and income levels are also key factors that influence the extent of digital payment technologies across various age demographics. All the younger population who are in constant mobility and who always use their mobile devices to get things done find digital payment options such as virtual cards very convenient (Pietrucha and Maciejewski, 2020). The anonymity and swiftness that come with touchless transactions can be considered as satisfying their desire to get things done quickly and without much personal contact. The cross-sectional survey found that younger consumers are more likely to shop online and use e-commerce, hence encouraging the use of virtual payments. On the other hand, the older consumer may require or want different lifestyles and this affects their payment preferences. For example, individuals in retirement age or those who are less interactive with technology may not understand why virtual card payments must be adopted since they frequently carry out physical transactions. Another reason is that income level affects the use of digital payments since older individuals with higher incomes are more familiar with the latest technology.

The Social Influence Factor

Social influence remains another fundamental aspect contributing to the use of new technologies especially among the older population. Youth are also seen as pioneers in the purchase of new technologies, thereby setting a precedent for other users in society (Agrawal, 2021). In Ireland, an increasing number of young people help older family members get registered and start using mobile payment services. It can go a long way in narrowing down the current generation's digital comfort and assist the elder audience in embracing electronic payments. Peer pressure cannot be overlooked as a vital driving force in society (Nambiar and Bolar, 2022). When consumers notice their counterparts in older age groups using digital payment systems to make purchases, they are likely to follow their example. Friend circles, social associations, and social media groups can positively influence the adoption of ASPs best when positive experiences and gains are socially broadcasted.

Government and Industry Initiatives

Consumer surveys indicate that government and industry are influential in enhancing the use of digital payments among people of all ages. Specifically in Ireland, attempts have been made to target initiatives to encourage the use of technology and being active online, especially for the elderly (Shang and Chiu, 2022). Initiatives taken by the government in collaboration with the IT Ministry to improve digital literacy along with efforts made by industries to make payment platforms easier and more convenient have yielded positive results in the task of reducing the generation gap (Gupta and Narayan, 2020). For example, the banking and financial sector has also woken up to the reality that it has to address the needs of the older generation through human-friendly interfaces, separate support services as well as informative literature. Public awareness campaigns that stress the safety and ease of performing transactions electronically would go a long way in removing misconceptions and enhancing electronic money usage amongst people of all ages.

2.3 Consumer Perception of Digital Payment Systems

Digital payment systems have emerged as popular methods of payment in Ireland in the recent past mostly due to innovation in the financial technology industry and increasing use of digital payments in everyday transactions. Analyzing consumer attitudes to these methods is critical for forecasting further rates of their usage and possible challenges (Skare and Riberio Soriano, 2021). TAM has been widely used by scholars since Davis introduced it in 1989 to explain consumers' adoption of new technologies. TAM specifies two perceived variables as the degree of usefulness and ease of use, that define an individual's attitude towards adopting technology and, consequently, their intention.

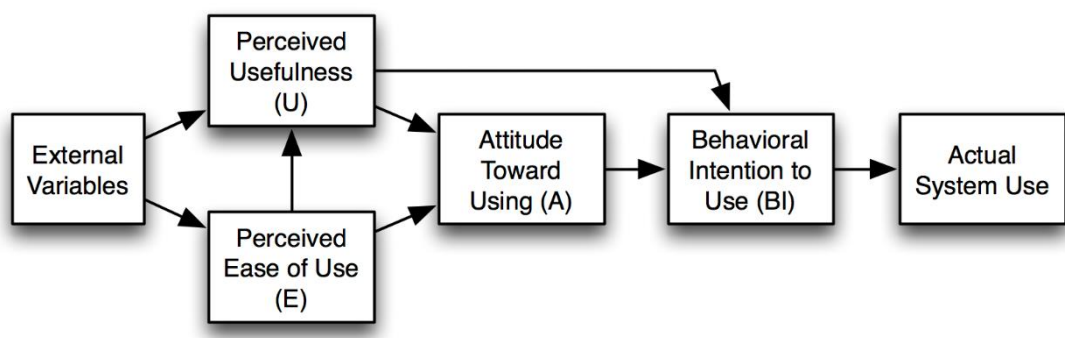


Figure 2.2: Technology Acceptance Model

Source: (Skare and Riberio Soriano, 2021)

Perceived usefulness of the digital payment methods

Perceived usefulness is the extent to which a consumer considers a certain technology to be useful in improving their performance or in this case, making payments an easier task. The

acceptance of virtual cards, mobile payments, and online banking has been regarded as highly useful in Ireland because of the convenience, speed, and efficiency attributed to these forms of payment (Yang *et al.*, 2021). Consequently, these payment methods provide consumers with an opportunity to carry out transactions efficiently without the use of money apart from checks. This is particularly the case in today's world where options that are preferred are those that require the shortest time to complete (Darma and Noviana, 2020). The addition of other financial service features like the use of a budget app, as well as tracking financial transactions in real-time, contributes to perceived usefulness. Irish consumers increasingly value the freedom to keep track of their consumption and financial standing through digital tools.

Adoption of New Technology

Another component of the TAM framework is perceived ease of use that means the extent of experienced ease of using the given technology by the consumers. Regarding the flexibility of non-cash payment, ease of use refers to the overall usability of the product, its interface, and the process of paying with it. Therefore, consumer convenience is the primary reason behind the use of EMV digital payment methods in Ireland (Karjaluo *et al.*, 2020). Applications and services that provide an uninterrupted flow for users such as mobile money services and banking apps have been embraced. Specifically, qualitative differences are found between the two groups, and younger consumers, who are more familiar with digital technologies, stated that digital payment methods are more convenient to use (Kaur *et al.*, 2020). The easy-to-navigate interface of many of the digital payment systems is due to the desire of this generation to complete their transactions with as little difficulty as possible. Also, the increased adoption of digital payment methods through different retail outlets and online stores makes the payment mode appealing in processing common transactions.

Security Issues and Trust in Electronic Payments

TAM mostly depends on perceived usefulness and ease of use, but security is an important attribute that affects consumers' attitudes toward digital payment technologies. As with many other countries, the level of trust placed in the safety of payments online is a key measure of the adoption rate (Rafferty and Fajar, 2022). Those customers who believe digital payment methods are secure are more likely to embrace and use them frequently, while others who may be skeptical due to fears of fraud, identity theft, or data breaches are less likely to do so (Kar, 2021). Younger customers are more likely to depend on digital payment services, that may be explained by their exposure to e-commerce and secure payment options such as SSL, two-factor authentication, and recognition through biometrics. These security measures increase the perceived safety of digital payments that leads to higher adoption by this group. They might have some doubts about the safety of using digital wallets, especially if they are older consumers or are unfamiliar with new technologies.

Social influence on digital payment adoption

Another factor not considered in the TAM is social influence, but it remains an important factor in an individual's attitude toward using digital payment techniques. In Ireland specifically, social influence is a factor seen where consumers adopt new payment technologies through the influence of friends, families, and social connections (Ghosh, 2021). Especially vulnerable to social influence is the younger generation of consumers using social media and digital platforms. They are more inclined to embrace digital payments that are common among their peers or recommended by celebrities within their networks. Another factor contributing to the shift to digital payments is intergenerational influence (Darma and Noviana, 2020). Adult children help grandparents learn how to use digital payment options for assistance and expose them to the advantages of such kinds of payments. This social dynamic would contribute to narrowing the gap in digital literacy and functionality and would promote the use of digital payments among older consumers.

2.4 Potential Advantages of Virtual Payment Systems

Convenience and Accessibility

Flexibility constitutes one of the most important advantages of employing virtual payment systems. It also means that consumers are able to make payments at the time and place of their convenience without having to use cash or cards. Flexibility is especially beneficial in a rapidly evolving culture where individuals are willing to use strategies that save their time (Chaveesuk *et al.*, 2021). Mobile payment system eliminates the formalities of transactions and customers can easily make their purchases through their smartphones or other devices. Virtual payment systems include various processes in connection with e-commerce websites, applications, and payment terminals (Sahi *et al.*, 2021). This integration makes sure consumer has many opportunities for finalizing the transactions that contributes to convenience. The number of payment options that may be linked to the same digital wallet also helps to ease the payment process meaning that consumers do not have to carry several physical cards. Another important factor to consider in virtual payments is the accessibility [*Referred to appendix B*].

Enhanced Security Features

When it comes to financial transactions, security is a very important factor when deciding where to do the transactions. Since virtual payment systems are generally considered to include more novel security measures, they are viewed as safer compared to the more conventional forms of payment. These systems generally utilize features such as encryption, tokenization, and multi-factor authentication to safeguard users' financial data and minimize the chances of fraud and unauthorized access (Pandey, 2022). Encryption is a critical tool that enables the safe transmission of information over the internet with the assurance that the information can only be

viewed by the intended recipient and never the perpetrator. Tokenization involves replacing the payment details with a token or a code that can only be used once in a specific transaction. This process enhances security since the details of the actual payment are not revealed throughout the payment process (Rafferty and Fajar, 2022). Another important aspect of security in virtual payment systems is the use of multi-factor authentication (MFA). MFA makes users provide two or more factors of identification to gain access, and these include a password, biometric data like a fingerprint, or a code that is sent to the user's mobile device. This additional layer of authentication greatly decreases the probability of a malicious actor gaining access to the user's account.

Financial Efficiency & Cost Competitive Advantage

These virtual card payments also provide consumers and businesses with cheaper and more efficient means of payment system. To consumers, such systems prevent the carrying of cash or plastic cards that can be vulnerable to loss or theft. Virtual payments also facilitate budgeting and financial planning, because users can check their expenditures through the records of the conducted transactions and statements (Khando *et al.*, 2023) This real-time transparency of financial activities enables consumers to be more prudent in their spending patterns and market their funds better. In general, it is beneficial for many businesses since virtual payment systems tend to result in lower processing expenses. Functions like cash management and check operations are less efficient and can be expensive in comparison with electronic transactions. Virtual payments, in contrast, are completed electronically eliminating the need for physical handling and the related expenses (Kaur *et al.*, 2020). Another advantage that several organizations stand to gain includes the ability to process payments more efficiently, this leads to positive cash flows, and timely payments. Also, virtual payment systems may help to decrease the expenses linked with fraud prevention and protection. Implementing enhanced security measures like encryption and tokenization lowers the likelihood of fraud and loss.

Environmental and Social Benefits

Besides the advantages associated with convenience, security, and cost benefits, virtual payment systems have environmental as well as social benefits. Another advantage of the method is that it involves with elimination of the paper or plastic that is used in other payment methods. Since virtual payments do not involve the use of paper receipts, cheques, or payment cards, this leads to less use of paper, a step towards minimizing the effects of environmental harm (Sahi *et al.*, 2021). The transition to virtual payments also makes this policy relevant to the present consumer focus on sustainability. Environmental concerns are rising across the globe and so it is the focus on choosing products and services from environmentally friendly companies. With the help of virtual payment systems, businesses are able to claim that they are preserving the environment that helps to improve the company's image and attract clients who care about the

state of the environment. From a social viewpoint, virtual payment systems help foster the idea of financial intermediation (Chaveesuk *et al.*, 2021). Such systems offer basic financial services to people who may never use conventional methods to access any form of banking services.

Future Potential and Innovation

The advantages of using virtual payment systems will only increase as time goes on, due to the development and introduction of new technologies. The use of Artificial intelligence and Machine learning in virtual payment systems could also increase the level of security and bring in a more personalized experience (Khando *et al.*, 2023). For example, to implement a fraud detection system from transactions performed, an AI can identify and quantify unnatural trends more effectively, and on the other hand, the use of ML can facilitate recommendations for the use of money based on users' behavior. Also, the advancements in new forms of money, such as digital currencies and blockchain, may transform virtual payment systems for even more secure, transparent, and instantaneous payments (Pandey, 2022). As these technologies advance and become more developed, they can address several transaction costs, and privacy, and further improve the efficiency of international remittances. Future advancements in virtual payment systems in Ireland will be catalyzed by user requirements that are more accessible, safe, and environmentally friendly.

2.5 Role of Sustainability in Consumer Payment Preferences

Understanding Green Consumerism

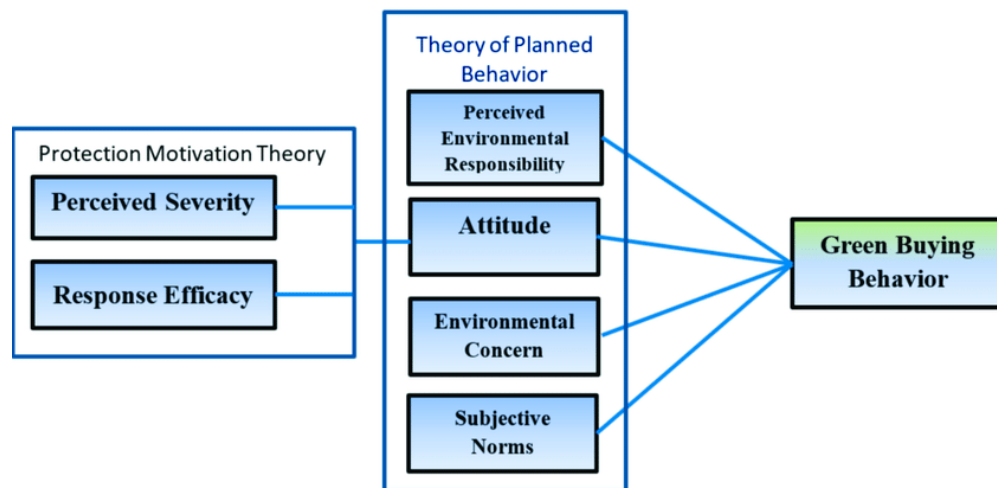


Figure 2.3: Green Consumerism theory

Source: (Mohammad Masukujjaman, 2021)

Green Consumerism theory holds that the consumption decisions of consumers are gradually becoming more inclined towards the minimization of the negative impact on the environment. This theory posits that consumers are motivated by factors such as price, quality, and

accessibility but also the morality of products (Hwang *et al.*, 2021). In the context of payments, green consumerism also includes consumers' choice of how they would like to pay, preferably through environmentally friendly options. Conventional green consumers are more conscious of the impact of their actions on the environment and are open to change to support sustainability (Darma and Noviana, 2020). This can be done for example by buying products that come with little or no packaging, buying from companies that have good environmental policies, or using environmentally friendly methods of paying for products. With the consciousness of sustainable practices deeply embedded in consumer self-identity, payment considerations are also driven by a willingness to support sustainability when it comes to payments.

Effects of Conventional Modes of Payment

Cutting-edge payment methods, including cash and plastic cards, have negative effects on the conservation of the environment, that have become well-known to green consumers. The conventional process for the creation of paper currency entails the use of water, energy, and raw materials and often leads to deforestation and pollution (Khando *et al.*, 2023). The creation and destruction of plastic cards are also environmentally problematic since many of them are made of non-recyclable plastic material. Cash payments with receipts create a paper mess that is not healthy for the environment. Leveraging paper in financial transactions impacts the environment through deforestation, emission of greenhouse gases, and wastage (Pandey, 2022). Due to the environmental impacts of these traditional payment methods, green consumers consider others that are sustainable and can fulfill their needs without polluting the environment. Virtual payment systems like the digital wallet, mobile payments, and virtual cards are relatively more eco-friendly.

Increase in Virtual Payment Systems

Sustainability aspects in the decision-making process of consumers have also had some influence on the trends in virtual payment systems. Virtual payments are consistent with the concept of greening of consumption since they are more environmentally friendly compared to general payment techniques (Gupta and Narayan, 2020). They are computer-based systems by design, and this eliminates the use of physical assets and control of wastage. In Ireland, the use of virtual payment systems has been occasioned by some factors such as convenience, security, and the need to shift towards sustainable payment methods. To many environmentally conscious consumers, virtual payment methods are a popular choice due to their environmental impact (Alfina, 2020). By opting for virtual payment systems, these consumers are able to ensure that their payment methods reflect their ecological conservation preferences and support a sustainable economy. Virtual payment tools also have other features aimed at supporting sustainable development. For instance, digital wallets, and payment apps typically come with the functionality that enables users to decline paper receipts.

Consumer Awareness and Education

Consumer knowledge and understanding significantly influence the preference given to certain payments, especially those that are environmentally friendly. The environmental consciousness of the products and services consumers is commonly referred to as green consumerism (Malik, 2020). The general public is gradually getting enlightened on the impacts of conventional modes of payment on the natural environment hence opting for green payment solutions. Awareness creation has been crucial in the adoption of virtual payments in Ireland due to environmental gains (Hwang *et al.*, 2021). The adoption of electronic money can be promoted by public awareness campaigns that link the use of cash, plastic cards, and paper receipts with adverse environmental effects. Also, the companies that convey their sustainability concerns and green payment options could gain green customers who are seeking environmentally conscious companies.

Position of Businesses in Enhancing Sustainability for Payment Systems

There is no doubt that businesses have an important role in the promotion of sustainable payment methods as well as the shaping of consumers' habits. Due to the provision of virtual payment systems, businesses can associate themselves with Green Consumerism and make themselves appealing to environmentally conscious customers (Ahmad Ramli and Hamzah, 2021). Businesses that aggressively market the ecological advantages of virtual payments can boost the brand value and attract more clients. Irish organizations have noticed this trend and have adapted to the numbers by including environmentally friendly payment methods (Akhtar *et al.*, 2021). For instance, using digital receipts that are more sustainable and meet the needs of green consumers, retailers, and service providers continue to eliminate paper receipts from their operations. There is also an effort by some firms to extend their sustainability initiative to loyalty programs where customers are rewarded for using sustainable payment options.

Prospects for Sustainability in Legal Tender Preferences

Since sustainability is becoming a relevant topic worldwide, consumer demand for environmentally friendly payment solutions will likely increase in the future. This demand can be easily fulfilled by virtual payment systems that can be a more sustainable payment method than most of the physical ones (Yang *et al.*, 2021). In the future, more improvements will be introduced in payment systems that contribute to sustainability, for instance, the use of more sustainable digital currencies backed up by blockchain technology that is environmentally friendly in conducting transactions. In Ireland, the implementation of sustainable compensation preferences is anticipated to increase in the future because of improved consumer knowledge and the growth of green consumerism (Skare and Riberio Soriano, 2021). Since customers are increasingly becoming more mindful about sustainability, producers will have to rise to the

obstruction of meeting this demand by providing sustainable payment platforms to customers. This evolution to more sustainable payment solutions will not only have an optimistic impact on the situation but will also positively affect the expansion of the digital economy.

2.6 Conceptual Framework

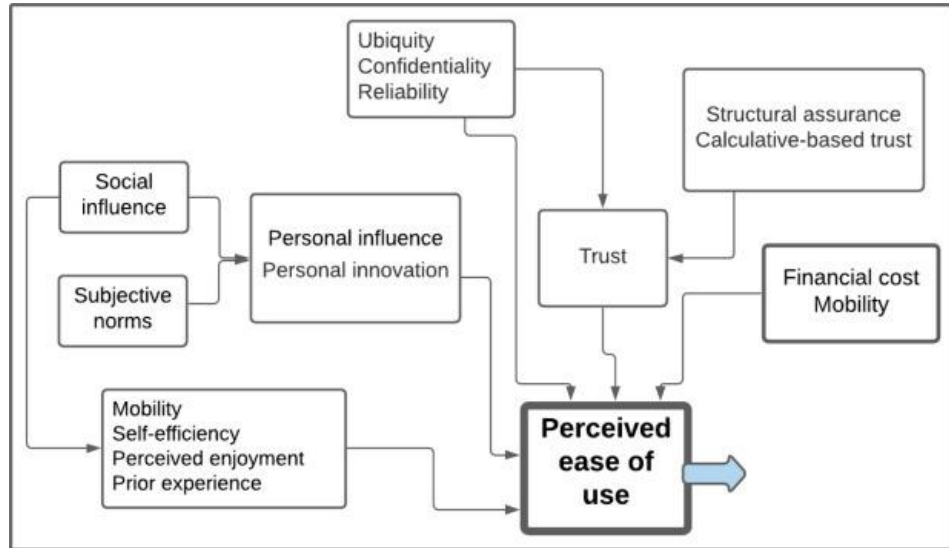


Figure 2.4: Conceptual framework for consumer adoption of digital payment

Source: (Sahi *et al.*, 2021)

The research proposition for this study purposes to establish an association between sustainability, predilections, and virtual card payments based on a theoretical framework drawn from the collected literature on green consumerism, technology acceptance, and digital payments. Using this background aids in defining how these mechanisms are related and how they impact each other in the procedure of investigating customer behavior about virtual payment arrangements in Ireland (Pietrucha and Maciejewski, 2020). The main thoughts in this research are sustainability, customer preference, and virtual card expenditures. Sustainability is demarcated here in relation to green consumerism theory that contends that consumers make a procurement with reference to environmental impact and ethical ideals (Nambiar and Bolar, 2022). Consumer predilection can be defined as the decision customers make while choosing the most favorable imbursement method from the available payment substitutes weighted by perceived profits, convenience, and the situation.

Virtual cards as an expense method are an innovation that is intended to eliminate the need for physical cards, producing less impact on the environment with every fiscal transaction conducted. The interconnectedness of these concepts' procedures the source of the analysis of consumer behavior that is pursued during the study (Akhtar *et al.*, 2021). Green consumerism is used within the background to assert that sustainability matters play a considerable role in

shaping the predilection of consumers for payment methods. This impact should be observed in virtual card expenditures as these are considered to be more welcoming to the natural atmosphere than the use of cash or even plastic cards (Malik, 2020). The use of virtual card expenditures is also amplified by factors like expediency, security, and environmental openness. This cycle is bidirectional, where the rising use of more sustainable payments adds to the consciousness and commitment to sustainability among customers.

Green Consumerism Theory offers the theoretical context through that sustainability affects consumers' payment predilections. According to this philosophy, people when they become conscious of the atmosphere will choose products and services that are approachable to the environment (Alfina, 2020). In the setting of this study, the theory offers an understanding of Ireland's drive toward embracing virtual card compensation because of awareness of the environment. It also allows researchers to determine areas that necessitate further research, especially in terms of probing moderating variables, including age, revenue, and education level, when it comes to sustainability apprehensions and payment predilections (Ahmad Ramli and Hamzah, 2021). The conceptual framework permits for the identification of propensities related with the employment of virtual card payments among customers. It offers a conceptual framework for analyzing how sustainability deliberations affect client adoptions and how these adoptions affect the utilization of virtual payment stages.

2.7 Conclusion

The literature review has helped in identifying the tendency of customers to be more conscious of sustainability when consuming goods and amenities, including the mode of reimbursement. In light of the Green Consumerism Philosophy, it has been postulated that customers are changing their methods of operation to environmentally mindful ones and this indeed includes modes of compensation. Virtual card payment is not only facilitated by technology and security features but also by green initiatives to minimize environmental effects. The Technology Acceptance Model (TAM) highlights how perceived ease of use and perceived usefulness drive the adoption of digital payment methods among consumers. The review depicts a changing tide in the consumers' awareness of sustainable payment options occasioned by a growing ecological consciousness and ethical standards. This laid the premise for subsequent inquiry into the strategies and techniques for enhancing these preferences to increase the usage of virtual payments in Ireland.

3 Methodology and Research Design

3.1 Overview

In this research, the quantitative study method was used to analyze customers' perceptions of sustainable virtual card compensation systems in the context of Ireland. A quantifiable research technique was employed, where organized questionnaires were used to capture involvements from customers on how they regard and adapt to green payment arrangements. The members were chosen to reflect the population of customers in terms of age, gender, and income to get the best viewpoint. The survey method permitted the gathering of quantitative information that was analyzed using inferential data (Firdaus *et al.*, 2021). To achieve this investigative goal, patterns or tendencies of customers' attitudes were presented and explicated in order to understand key drivers and factors for virtual card expenditures. Using a strict statistical emphasis, the study aims to answer the research query and further the information on how sustainability affects the choice of compensation in Ireland.

3.2 Research Philosophy and Approach

In the study of consumer preference towards sustainability through the use of the virtual card payment system in Ireland, the research adopted the positivist research philosophy. The research with positivism is considered as hypothetical deductive model which build the research as per verification of hypothesis and done experiment by measuring the variables (Park *et al.*, 2020). The kind of philosophy that was adopted in the research was positivism for developing hypothesis and done research on consumer attitudes towards the use of virtual card payments. Being consistent with the positivism paradigm, structured questionnaires and quantitative data obtained from an aggregated sample of the population were used.

This method employed an empirical way to source the data as this reduced bias when answering the questions. This is a strength of the quantitative approach as it enables the research to work with factors that are easy to measure, usage frequency, preferences, and perceptions about virtual card payment systems (Husam Helmi Alharahsheh, Abraham Pius, 2020). Positivism informs the execution of quantitative analysis whereby patterns and relationships in the data can be investigated. This was done with the aim of getting both reliability and generalizability within the population (Junjie and Yingxin, 2022). Embracing a positivist epistemology made it possible to systematically analyze consumer behavior, relying on quantitative data, and gave a clear and unambiguous explanation of how sustainability influences a decision to use payment method, thus contributing to the understanding of virtual card payments in Ireland.

To establish consumer preference for sustainability in the digital mode of payment for virtual card payments in Ireland, the deductive research approach was suitable. This approach was selected to allow the author to track new datasets and the continued trends of patterns discovered throughout the examination that were not predicted by the theory or assumptions (Kaur *et al.*, 2020). During the study, the researchers had to use deductive research approach that involved getting theories that could explain the reasons for the observed evidence rather than having research theories that were already in existence. Deductive approach in the research methodology support to maintain validation of research to conduct quantitative and mixed research methods (Casula *et al.*, 2021). There was a necessity to employ quantitative data to search for definite patterns in consumers' behavior to understand what they require.

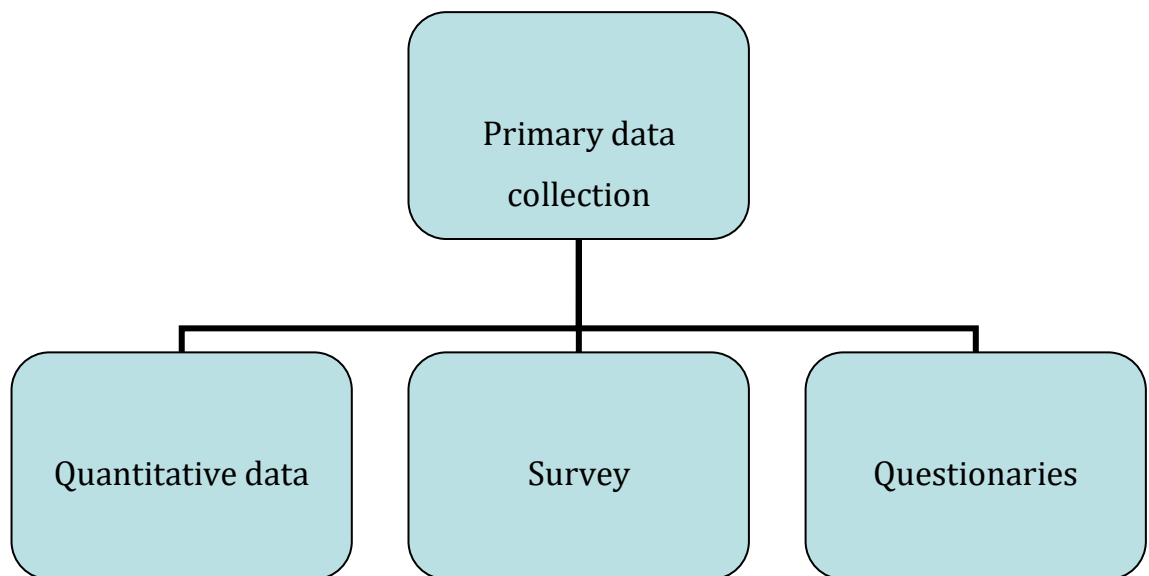


Figure 3.1: Primary data collection
(Source: Self-developed)

The deductive method made it possible to identify other unknown relationships or trends in the data that was collected. To pinpoint the topics and concerns, the answers given by the participants were analyzed and coded (Drakopoulos, 2024). This was conducted with no biases as the focus was on establishing new theoretical theories that could help in understanding consumer preferences and sustainability regarding virtual payments in general. This allowed the research to develop the concepts concerning the adoption of sustainable payment methods from the consumer perspective that in turn can facilitate the development of theories to explain them. The deductive approach particularly facilitated the exploration of the variations in consumer attitudes toward the adoption of sustainable virtual card payments in Ireland and the discovery of new themes and theoretical assumptions.

3.3 Research design

The study used descriptive research design with the help of questionnaires to assess the level of awareness of consumers about sustainable virtual card payments in Ireland. In line with the positivist paradigm, quantitative data regarding usage behaviour, preferences, and sustainable views were captured by means of self-completion structured questionnaires with a heterogeneous sample group. Data collection approach with descriptive study is useful as it supports the questionnaires for collecting response (Pandey and Pandey, 2021). In order to make a conclusion and to compare the trends and relationships, descriptive and thematic analyses were used. Consumers' behaviour was effectively captured given that data were collected through online surveys and focus group discussions. The ethical issues were respected, the participants' permission was received and their information was not disclosed.

3.4 Research Strategy

In the quantitative research conducted for the purpose of the study on consumer preference in sustainability with virtual card payments in Ireland, there was a methodological approach adopted to capture the sense and sentiment of the consumers. The strategy was designed to collect measurable data that would help explain how or to what extent sustainability factors influence payment decisions (Rana *et al.*, 2021). The research method adopted was the use of structured questionnaires, these were designed in a way that would help in the collection of the necessary data concerning the consumer perception and use of virtual card payment. To aid in the quantification of the constructs such as frequency of use, perceived benefits, and sustainability attitude, Closed-ended questions were included in the questionnaires (Zawacki-Richter *et al.*, 2020). This made the process of collection of data easier since there was less inconsistency in responses from the large sample size that was used in the research. Due to the necessity to comprise a larger sample selection and address various population types, the convenient sampling technique was employed in the study.

3.5 Collection Primary Data

3.5.1 Sources

Performing research on consumer behavior and attitude towards the sustainability of virtual card payments in Ireland meant that primary data was collected through different sources to capture the consumer attitude towards the use of virtual cards (Mwita, 2022). The main data collection tool was the survey, which was conducted through an online questionnaire of a convenient sample of Irish consumers. The survey was designed in a manner in which it could produce quantitative information on the purchase decisions, the perceived sustainability, and virtual card payments. There is always a possibility of getting many respondents from the target population since the survey was advertised among social media, subscribers, group members, etc. Through this way, inclusiveness was achieved since as many people in the community as possible

participated. In this survey, total 100 responses have been taken and the participants are selected through random sampling.

Another data collection technique employed in conjunction with the online survey comprised group discussions in order to gather larger quantitative data about the consumers' attitudes and behavior. The approaches of the survey employed in this study could provide the participants with the chance to explain why they placed more emphasis on the preferred sustainable payment method. These discussions helped in complementing the survey results to gain additional related information regarding the quantitative results (Kumari, 2022). These sources offered support to assess the macro trends and the realities on the ground that corroborated what was revealed from the primary data sources. Research coupled with online surveys offered a comprehensive and more comprehensive approach to the identification of consumers' consideration of virtual card payments in Ireland.

This approach was to group the population in certain demographic features such as age, gender, and income, and then select people from each category. This approach afforded the researchers a proper understanding of how different subgroups within the population perceive and accept virtual card payments (Taherdoost, 2022). Descriptive statistics were employed to analyze the data obtained with the objective of identifying the general trends, relationships, and patterns. This research aimed to establish the factors such as environmental issues and perceived benefits that influence the consumer's attitude towards virtual card payments. This research strategy provided a sound framework for developing and accessing quantitative data that would improve knowledge of consumers' views of sustainable payment systems and the diffusion of virtual card payment in Ireland.

3.5.2 *Access and Ethical Issues*

The quantitative investigation on the factors influencing consumers' sustainable consumption through virtual card payment in Ireland paid attention to access and ethical concerns to maintain sample internal validity and reliability (Gupta and Narayan, 2020). To avoid compromising the validity of data collected, the research also restricted itself to ethical considerations including seeking consent of the participants and avoiding their identification. These measures were important in ensuring that results generated retrieved accurate and credible evidence.

Access Issues

Recruitment of participants was done strategically to ensure that there was access to the targeted participants. This online survey was distributed on social networks, mailing lists, and forums to include as many participants as possible. To boost the coverage, participants from different age groups, economic statuses, and different parts of Ireland were contacted (Agrawal, 2021). Some of the challenges encountered include how to sample or rather target some of the population

groups and how to attain high response rates. To address these issues, follow-up reminders followed by incentives were used to encourage the participants.

Ethical Issues

Ethical concerns were of significant concern during the research process. Participants' permission was sought before the completion of the survey. Participants explained the purpose and goal of the study, they were also told that their participation was voluntary and they could withdraw from the study at any time without reasons being asked of them, additionally informing them that their identity would be fully concealed to ensure complete anonymity (Drolet *et al.*, 2023). Participants' identities and details were not disclosed during the study to maintain participants' identities. Some data were collected and stored in a secure manner and accessible to only some people (Drakopoulos, 2024). Measures were taken into account to ensure that the rights of participants were not violated and the ethical rate of research was high. These measures were vital in addressing ethical issues and ensuring that the observations made were valid.

3.6 Approach to Data Analysis

In this research, both descriptive and thematic analysis has been done to interpret the survey response. In case of descriptive analysis, the finding is being analysed individually whereas based on the outcome, themes are developed and then analysed. The evaluation was based on the relationship, correlation, and correlation analysis between consumer perception and consumer behaviour. This integrated approach helped to identify more subtle trends and patterns which were useful in understanding how sustainability factors influenced the use of virtual card payments in Ireland. Descriptive analysis has support to conduct a meaningful observation by creating detailed interest on phenomena (Pandey and Pandey, 2021).

Quantitative data were analyzed with the help of descriptive statistics, whereas relational and hypothesis testing on variables was done with the help of inferential statistics (Kumari, 2022). On the relationship analysis between the variables such as consumer attitude towards sustainability, and the type of payment which favoured Virtual cards, proper analysis was conducted. To test for the relationship between the demographic variables and payment preferences, themes are developed. Thematic analysis comprises the analytical process by underpinning the research goal (Ayre and McCaffery, 2022). This was good for identifying the effect of factors which include age, income, and concerns for the natural environment on the choice made by the consumers. Since the study aimed to identify the key factors influencing the adoption of virtual card payments, factor analysis was performed to identify the number of latent factors corresponding to consumer attitudes and preferences (Mwita, 2022).

3.7 Conclusion

The study on the consumer perception of sustainability by paying with a virtual card in Ireland adopting the quantitative approach had a paradigm that was used to gain general knowledge about the consumer's opinion. In the quantitative approach, which included structured questionnaires, and as a way of cross-checking the results from the well-organised surveys, the research ensured that the identified preferences and behaviors were valid and reliable. Since the authors employed the use of inferential analysis to determine relations and patterns, they were able to provide detailed findings and at the same time used ethical considerations for data collection procedures. This methodological framework was helpful for the study to determine factors that contributed to the successful execution of green payment forms.

4 Presentation and Discussion of the Findings

4.1 Overview

Based on demographic aspects, perceptions of sustainability, and the enabler and barrier factors, this chapter has further reflected on the analysis of the study results on consumer acceptance of virtual card payments. From the convenience, incentives and security point of view, it is more likely that technological and young age customers will go for virtual card payments as evidenced by this study. Acceptance of wider use is therefore constrained by such barriers as ignorance and limited acceptability. There were some arguments as to the impact of virtual payments on the environment; some customers claimed to have concerns about the digital trails that come with such purchases while others argued that virtual cards are more environmentally friendly since there is little physical use of resources such as papers. On the hypotheses of the research, the following conclusion supports H0: “There is a significant relationship between virtual card usage and sustainable consumer purchase decisions over traditional payment methods.” This is evident from the noted trend of virtual card usage and a higher probability of environmentally friendly purchases. On the other hand, if consumer knowledge or desire for environmentally friendly items does not have a negative correlation with acceptance of virtual card payments, then hypothesis H1 cannot be supported. On the other hand, additional acceptance of virtual payments appears to encourage environmentally friendly activity.

4.2 Findings

4.2.1 Interpretation of Age Distribution

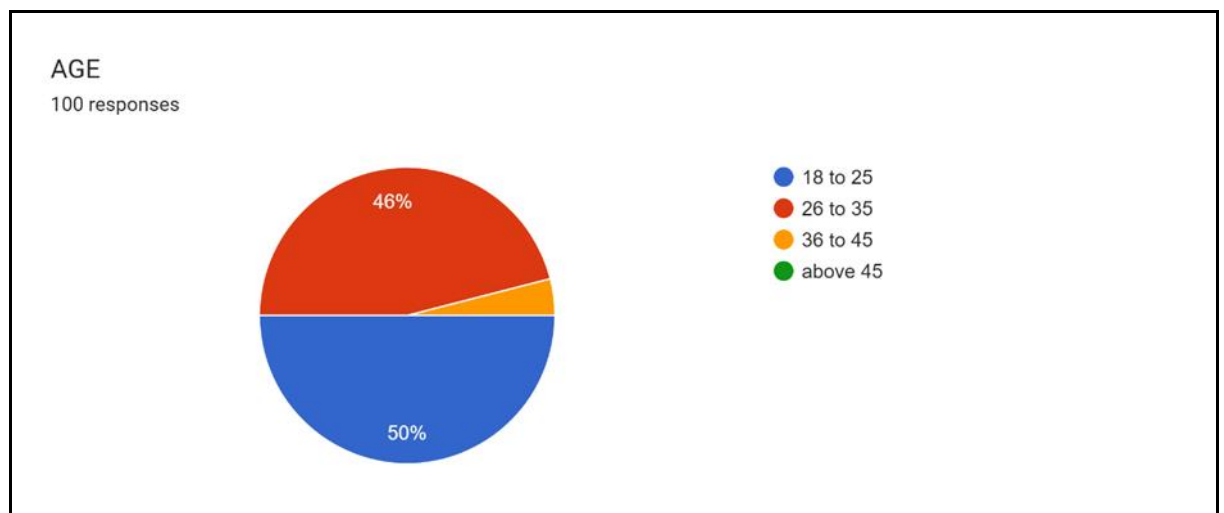


Figure 4.1: Age
(Source: Self-Developed)

Based on responses, the age distribution of respondents; all in all, it can be seen that most of the respondents in this study fall clearly under the category of young adults, with two dominant age groups:

18 to 25: This age group has the highest response percentage and represents 50% of all the respondents. This implies the possibility of the youthful persons being involved in the survey or having a high concern in the area of focus.

26 to 35: The largest segment of the respondents fall under this category representing 46% of the respondents. Though it is slightly lesser than the 18-25 age group it is also a good portion of the sample size.

The last two age groups, the 36 to 45 and the above 45, combine to take the remaining 4 percent. This means that although there are old people in the survey, they are relatively fewer than the other age groups who participated in survey. Therefore no conclusion is made on people older than 35 years.

4.2.2 Interpretation of Virtual Card Usage Frequency

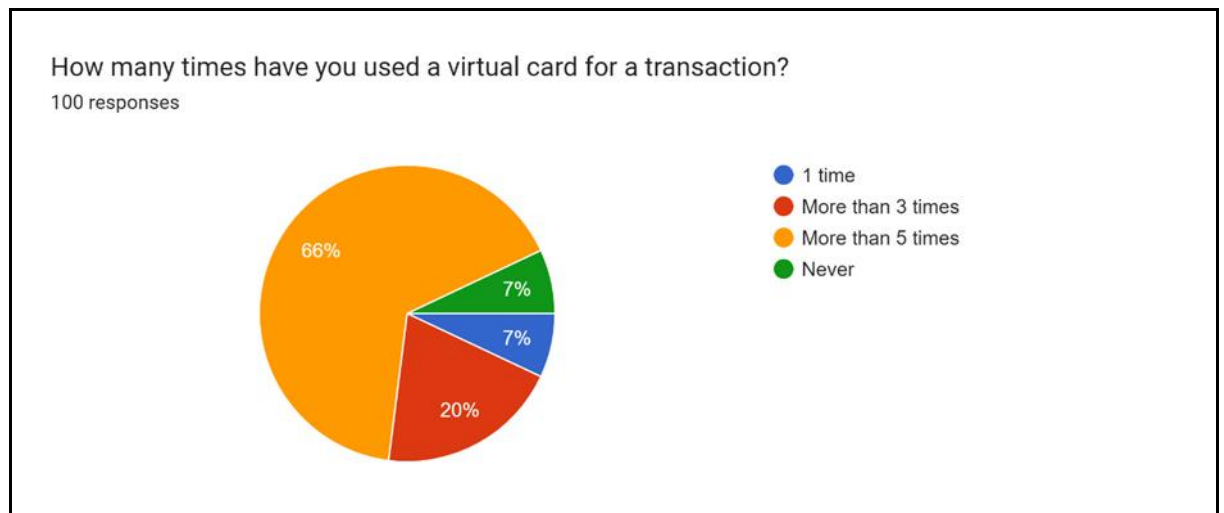


Figure 4.2: How many times have you used a virtual card for the transaction?

(Source: Self-Developed)

The findings show virtual cards as the most popular means of payment among the sampled population with many of them having made several uses. As can be seen clearly, 66% of respondents said that they have used virtual cards more than five times. This implies that through embracing virtual cards, the public has for instance accepted cards as their main mode of paying for goods and services. The frequent use of virtual payment proves the advantages of virtual cards compared to physical payment methods. That indicates that only 20% of the

respondents said that they had used virtual cards more than three times. This means that even though this is lower than the 66% group, a good number of samples have come to accept virtual cards as one of their usual modes of payment. This, of course, can be explained by possible differences in the purpose of use, preferences, or prior employment of virtual card solutions. Seven percent of respondents revealed that they had used virtual cards once only while 7% of respondents said they had never used virtual cards at all. These smaller percentages indicate the fact that even though the use of virtual cards is on the rise, there is a section of the population which is either not well conversant with the technology or not very keen on using it. This may be attributed to issues of security, ignorance, or perhaps a person's preference for the older style of processing payments.

4.2.3 Interpretation of Virtual Card Payment Purposes

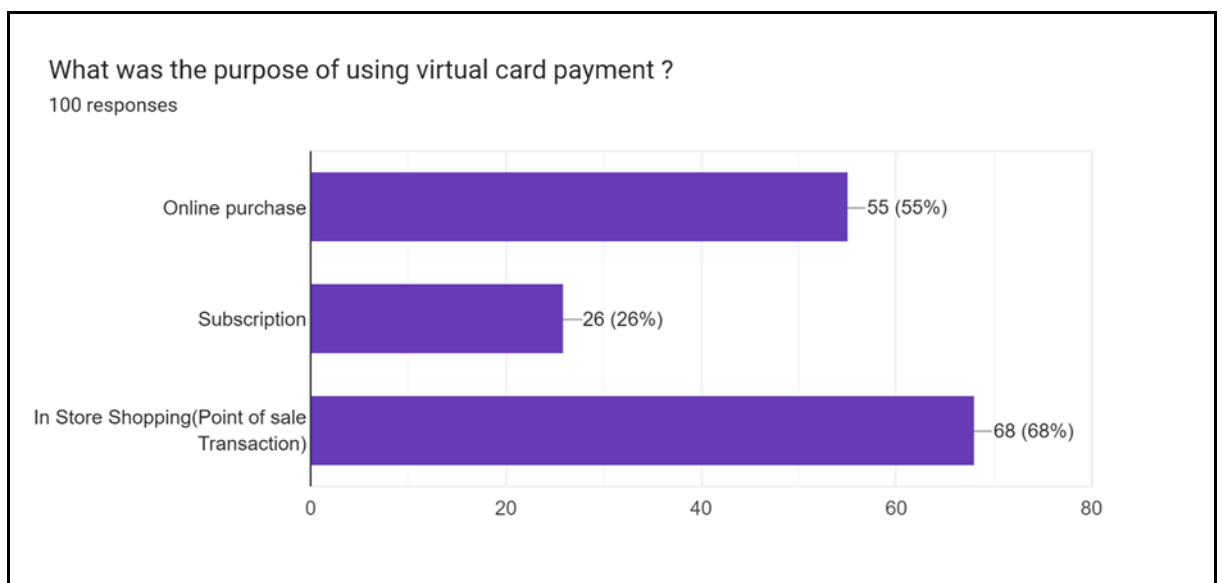


Figure 4.3: What was the purpose of using virtual card payment?

(Source: Self-Developed)

The survey shows the dominance of virtual cards in both online and offline payments with the physical store-purchase Usage case being the most preferred. Respondents confirmed spending by virtual cards in the quantity of 68% for purchases in the Point of Sale. This implies that virtual cards are seen and used as an effective method of making payments for ordinary purchases. The high percentage proves that people prefer using Virtual cards as a safer, faster and touchless method as compared to physical cards or cash. The second most popular type in the list of usage was online purchases where 55% of the respondents made use of virtual cards. This is in line with the rise in e-commerce as well as the rise in the use of digital modes of payment when making online purchases. Virtual cards have several pluses for shopping on the Internet like Security, convenience, options and flexibility in managing accounts and budgets. Less common was subscription usage: virtual cards were used for subscription costs by 26% of

respondents. Nevertheless, subscriptions remain in the top five of the most common types of virtual card payments even though they are not as popular as in-store shopping or Internet purchases. This could be because subscriptions often reoccur and thus virtual cards are convenient to use every time a subscription payment is due.

4.2.4 Interpretation of Virtual Cards and Sustainability

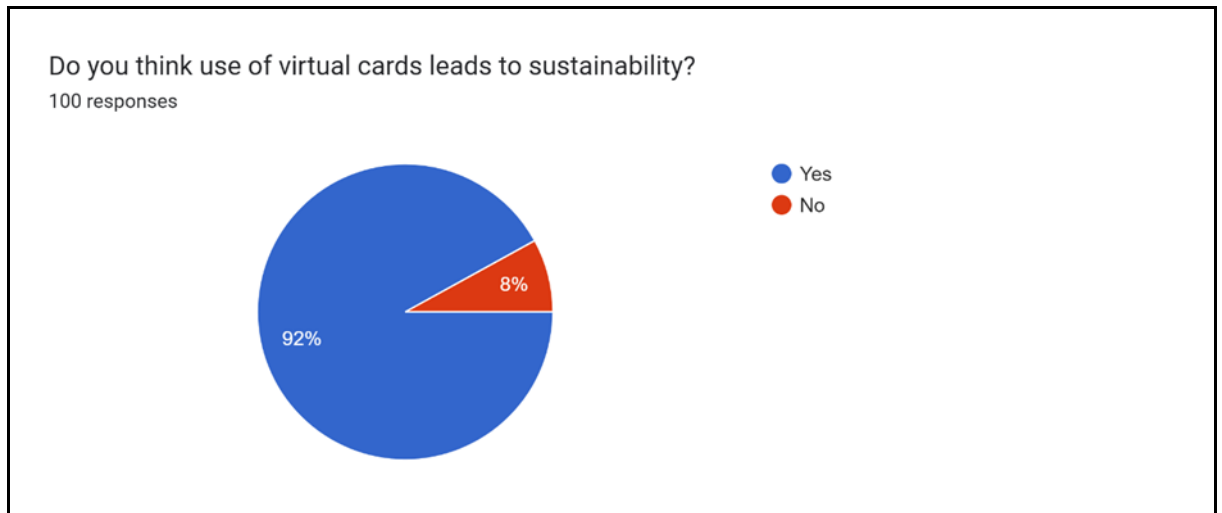


Figure 4.4: Do you think the use of virtual cards leads to sustainability?

(Source: Self-Developed)

According to the data collected, the majority of the respondents assumed that virtual cards are not sustainable while some, though a small proportion thought it was sustainable. Non-belief of virtual cards to sustainability was an overwhelming 92% according to the respondents. This implies that the general assumption out there is that such an instrument as the virtual card can adversely impact the environment or society in one way or the other. Some of the negative impacts that are possible can be that since many people use the cards for convenience, they end up spending much more than they usually would, secondly, when it comes to physical cards there is the consumption of energy in data centres and payment processing and thirdly fraud and wastage can be associated with online transactions. In particular, only 8% of the respondents consider that virtual cards can help to solve the problem of sustainability. A higher percentage of 6% of the total choosers had chosen virtual cards with a belief that the cards had environmentally sensitive advantages. For instance, while it seems logical to argue that virtual cards can decrease the use of paper by abolishing receipts or that they encourage the use of online shopping and therefore cut the number of physical stores.

4.2.5 Interpretation of Virtual Cards and Sustainability in Ireland

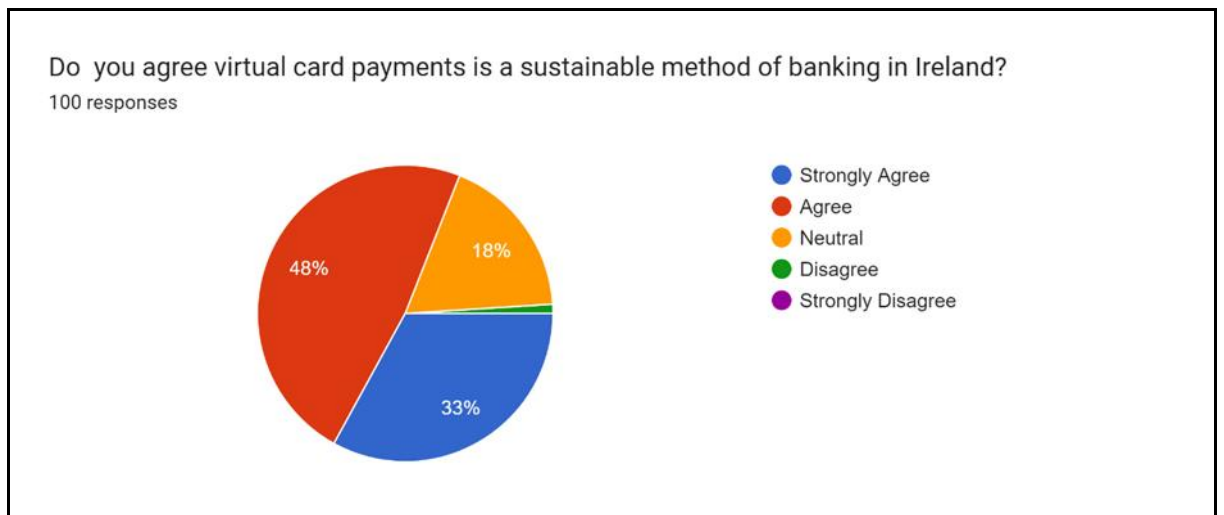


Figure 4.5: Do you agree virtual card payments are a sustainable method of banking in Ireland?

(Source: Self-Developed)

The gathered data indicates that there is a split decision among the participants with a majority responding either affirmatively or with a noncommittal attitude towards the sustainability of this payment method. More than half of respondents 48% affirmed virtual card payment as a sustainable form of banking in Ireland. This is an indication that a good proportion of society acknowledges the fact that virtual cards may in some way be useful for environmental or social sustainability causes. These factors may comprise the decrease in the use of physical cards and paper statements, the possibility to minimise the energy demands related to the conventional banking model or the opportunity to support the notion of contactless payments which can assist with preventing the spread of infections. In as much as the respondents gave responses about the sustainability of virtual card payments, 18% of them were the ones with a neutral stand on this subject. This means part of society is still in the grey zone or has some reservations about the environmental and social effects of implementing this method of payment. It may be envisaged by the absence of information, different views or apprehensions regarding certain aspects of the application of virtual cards. Only 33% of the respondents disagree with the assertion that virtual card payments are sustainable. This means that a significant percentage of people may have an issue to do with the environmental or social impact of using the virtual card. There are possibly several reasons that might hinder the approval of this product, including dissatisfaction with the energy used by data centres and payment processing, the possibilities of fraud and misuse in online transactions, and consumption-related issues that may stem from the use of virtual cards.

4.2.6 Interpretation of Reasons for Virtual Card Sustainability

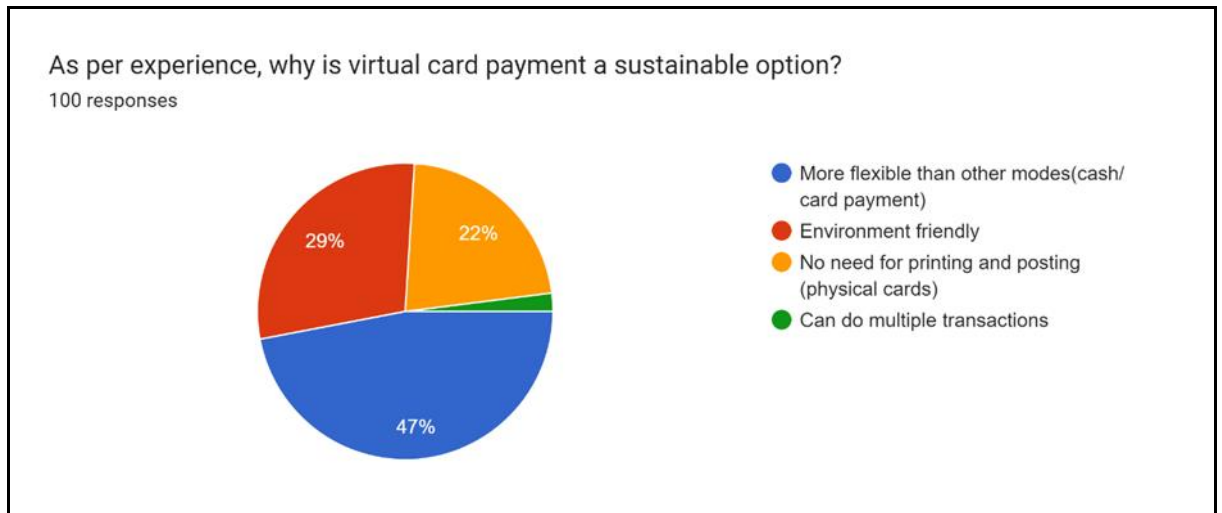


Figure 4.6: As per experience, why is virtual card payment a sustainable option?

(Source: Self-Developed)

According to the data, respondents consider the primary sustainability benefits of virtual cards as flexibility and environmental concerns, while fewer respondents highlight that sustainability benefits include no need for physical cards and multiple usage of cards. Indeed, a high percentage of 47% supports that virtual cards are indeed more flexible as compared to other physical methods of payment such as cash or physical cards. This implies that respondents consider virtual cards as easy to use, easily accessible and very flexible. They might prefer to use virtual cards for one-stop shopping, carrying out online transactions, shopping in physical stores as well as for making their bill payments. About factors influencing their decision, 29% of respondents stated that virtual cards are environmentally friendly. This means that a significant number of the population believes that virtual cards are environmentally friendly. Possible explanations for such a perspective might be, for instance, the elimination of the need for physical credit cards, checks, and paper balance statements that are rather damaging to the environment. Besides, virtual cards may also help to reduce energy consumption as no physical visits to banks or ATMs are required. Another 22% of the respondents spoke of sustainability advantages in terms of no need to print and post physical cards. This means the respondents appreciate all the effects of manufacturing and circulating physical cards to the environment. The use of virtual cards also lowers the emission of greenhouse gases linked to the manufacture and delivery of cards. Sustainability benefits were informed by 4% of the respondents, of which 2% only responded that they appreciated the ability to carry out several transactions. Although this is less, it also means that there are people who view the convenience and efficiency of virtual cards as being environmentally beneficial. For instance, when a user employs a virtual

card for many transactions within a day, it eliminates the chances of multiple travel, thus, energy wastage and emissions.

4.2.7 Interpretation of Factors Maintaining Customer Willingness for Virtual Card Payments

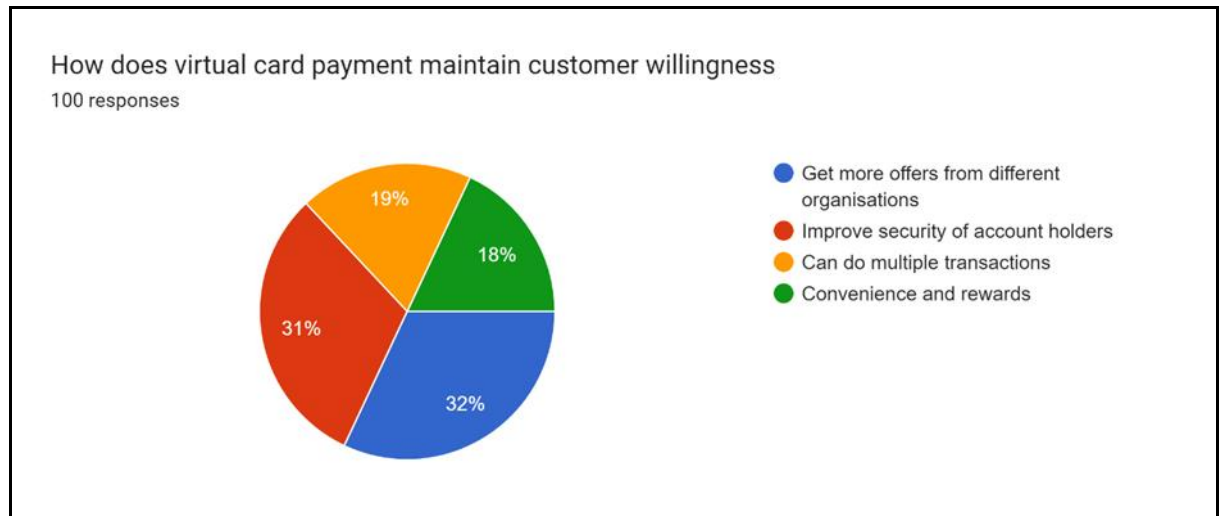


Figure 4.7: How does virtual card payment maintain customer willingness?

(Source: Self-Developed)

The result found that the most important benefits of the continuous use of virtual cards according to respondents are convenience, appeal for rewards and security. Two main areas of response were convenience and rewards with 32% and 31% of participants respectively. This implies that customers enjoy the benefits that come with using virtual cards within different transactions. The convenience that comes with the possibility to make payments instantly, more often using only a couple of taps on a smartphone screen is a key attribute for so many consumers. Also, the opportunity to receive actual rewards, including cashback, points, or some other privileges, can encourage customers to use virtual cards. This was followed by Security which was considered important by 19% of the respondents to enhance the security of the account holders. This goes to show the ever-rising issue of customers being cautious of fraudulent activities and hacked databases. Some of the virtual cards may be more secure than the physical cards in that they can be tokenized and its users may be required to undergo biometric verification before any transaction is authorised. Several transactions, with the possibility to do more than one, were mentioned by 18% of the participants. Even if less emphasised than convenience, rewards and security, this factor is also a determinant of the willingness of buyers. Virtual cards help to minimise the need to manage multiple accounts and payments and thus make it easy for customers to monitor their spending patterns and make payments on time.

4.2.8 Interpretation of Benefits of Virtual Payment Systems

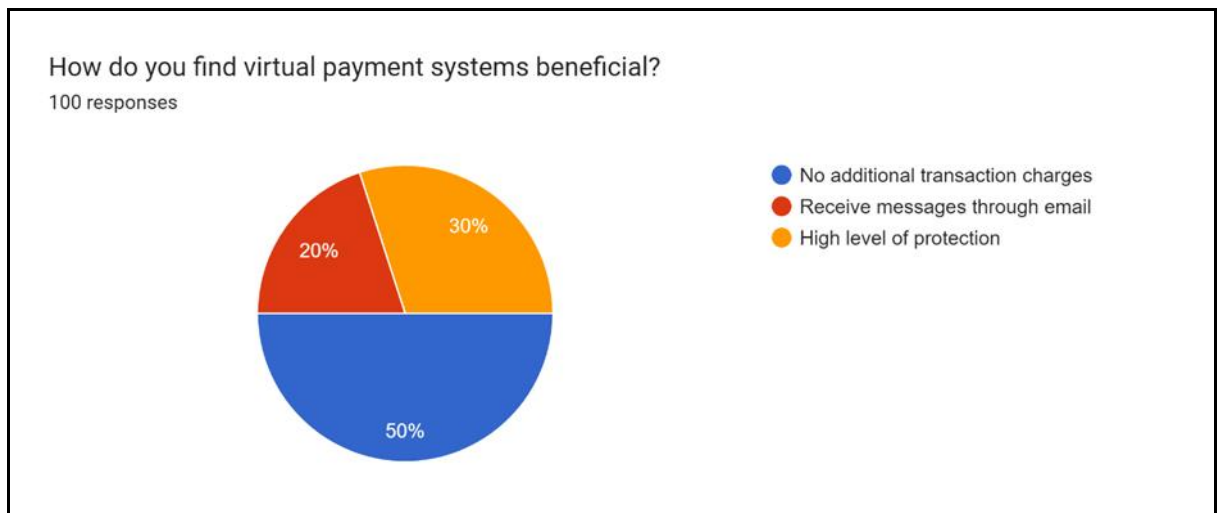


Figure 4.8: How do you find virtual payment systems beneficial?

(Source: Self-Developed)

The survey data shows that the five most important reasons that respondents want to use virtual payments are its convenience, security, capability to receive messages through email and others that are not on the list. Additionally, the virtual payment system users claimed the option of “No additional transaction charges” as the most prominent one by giving 50% of their approval. From this, we derive that several customers understand the fact that virtual cards are cheaper to use compared to other modes of payment that would charge for some transactions. Regarding responses from 30% of the respondents, the benefits of the product which have received significant attention include the ability to receive messages through email. Unlike the situation where transaction charges are not charged this factor is not as influential, but still has its part to play in customer satisfaction. Another benefit of email notifications is that they offer information about transactions, and account balances among other things with added convenience and reassurance. 20% of respondents appreciated the aspect of a “high level of protection” of virtual payment systems among the benefits. This means that customers appreciate the security measures in virtual cards including tokenization and biometric identification. These features may reduce cases of fraud and individuals who have unauthorised access to their financial details.

4.2.9 Interpretation of Satisfaction with E-Wallets and Virtual Cards

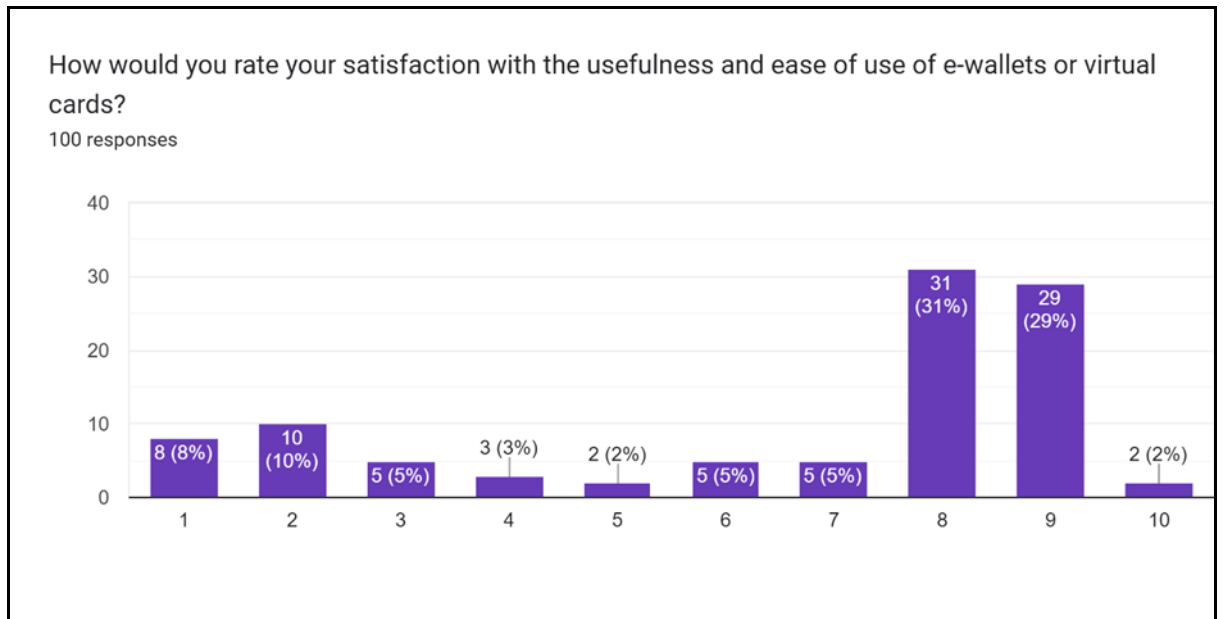


Figure 4.9: How would you rate your satisfaction with the usefulness and ease of use of e-wallets or virtual cards?

(Source: Self-Developed)

The statistical data reports show a rather positive tone, with most of the participants rating their satisfaction at 8 or above 8 out of 10. 31% of respondents said that their satisfaction was 8 out of 10 while 29% said their satisfaction ratio was at 9 out of 10. Such high rates reveal the fact that the majority of people consider e-wallets and virtual cards to be convenient and useful. Together with high indices, the results indicate that the respondents value such factors as convenience, speed and other advantages of the digital payment methods. Another 5% of respondents gave the result of 7/10, 6/10 and 5/10 to the satisfaction level. These ratings indicate that although the respondents who were asked these questions view e-wallets and virtual cards as being useful and easy to navigate, they may not be entirely without concern or potential for improvement. A large part of the remaining respondents also reported higher levels of satisfaction while only a small part to lower levels of satisfaction. 10% rated their satisfaction at 2 out of 10, 8% at 1 out of 10, and 3%, 2%, and 2% each rated their satisfaction at 3, 4, and 5 out of 10, respectively. These lower ratings suggest that maybe only a few of the respondents may have had some challenges or issues when using e-wallets and virtual cards.

4.2.10 Interpretation of Perceived Security of Virtual Cards and E-Wallets

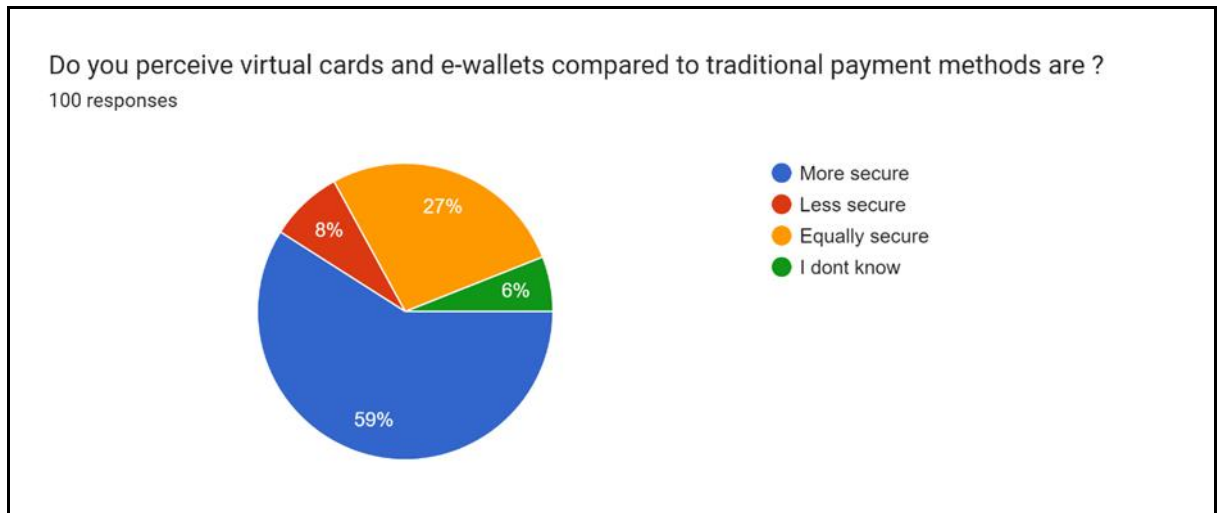


Figure 4.10: Do you perceive virtual cards and e-wallets compared to traditional payment methods as secure?

(Source: Self-Developed)

The survey shows the majority of the respondents find virtual cards and e-wallets more secure as against the minority who categorise them as less secure or as equally secure. More than half the respondents, that is 59%, saw greater security in using virtual cards and e-wallets than conventional payment platforms. This leads to the conclusion that a significant fraction of the population considers that digital payment solutions come with improved security features which can prevent fraud and unauthorised access. This can be attributed to the application of complex technology tools such as encryption, biometric authentication, and tokenization which may blur the eyes of hackers on intercepting or misuse of such payments. Just as often, 27% of respondents said virtual cards and e-wallets were as safe as a standard payment method. This means that some of the population is indifferent to the security issue, it may be due to the information gap, dual thinking or certain kinds of risks related to digital payments. A rather small proportion of respondents 8 % considered virtual cards as well as e-wallets to be less secure than credit and debit card payments. This indicates that only a small percentage of users may be sceptical of electronic payments perhaps after falling victim to fraud or are just not convinced with the use of new technology.

4.2.11 Interpretation of Recommendations for E-Wallets and Virtual Payment Systems

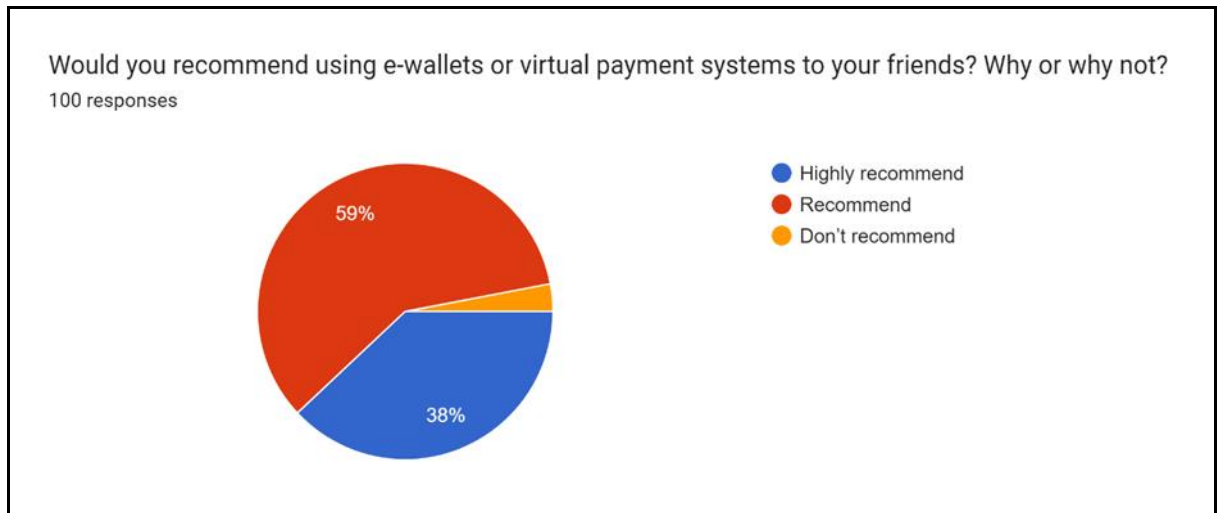


Figure 4.11: Would you recommend using e-wallets or virtual payment systems for your friends?

(Source: Self-Developed)

The findings indicate that most of the respondents possess a positive attitude towards the use of these digital payment methods and are willing to recommend them. By far, a significant 59% of those surveyed said that they would advise friends to embrace the use of e-wallets or virtual payment systems. Schools, therefore, get the indication that many people are happy with what they encounter and think that these approaches to digital payment methods present considerable value. Another 38% of the people said they would recommend the use of e-wallets or virtual payment systems to use for their friends. Still, this is a fairly good attendance when weighed against the total sample even though not as high as 59%. It shows that a large proportion of respondents can recount a positive encounter with these forms of payment and argue that others should give them some thought. A mere 4% of the respondents remarked that they would not recommend e-wallets or virtual payment systems to their friends. This means that a small number of the population could have had some bad experience or have certain issues with the said digital payment methods.

4.2.12 Interpretation of Suggestions for Improving Virtual Payment Systems

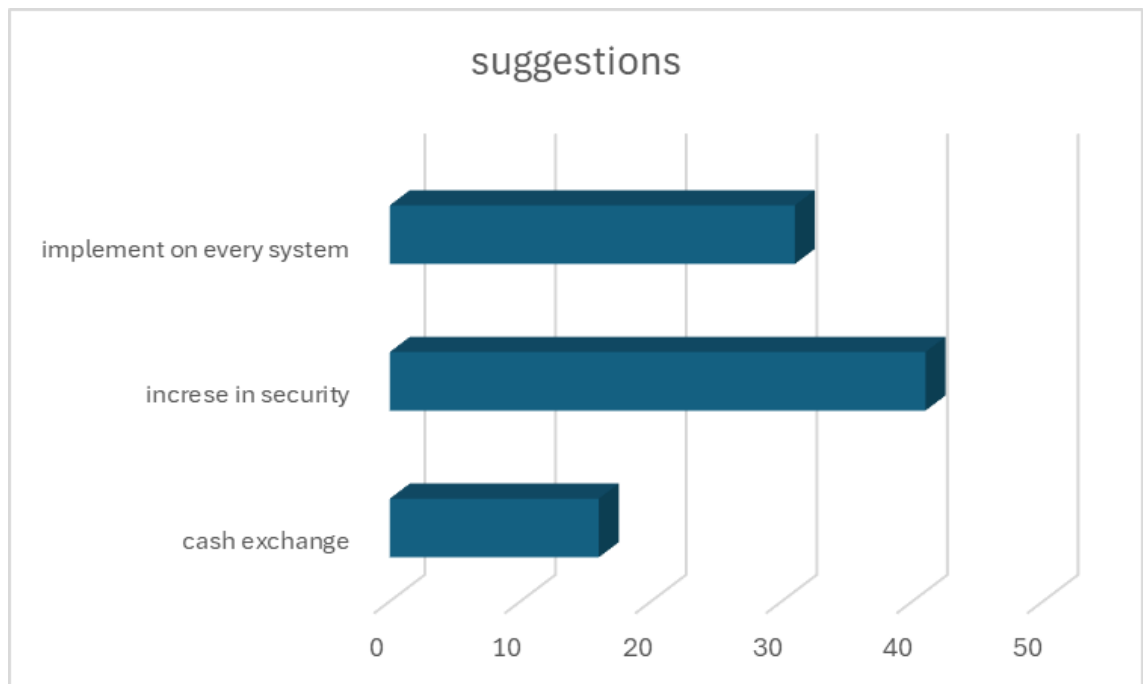


Figure 4.12: Any suggestions to improve the existing virtual payment system?

(Source: Self-Developed)

The results of the data analysis indicate that the most frequently provided recommendations are connected with safety, comfort and availability for a larger number of people. The leading proposal which 41% of the respondents supported is the increase in the level of security and the speed of the virtual payment systems. This means security is an issue of significant concern to most of the users and they think that the higher levels of security would increase their confidence in using the digital payment systems. Besides, there is also the need for 'quicker' transactions, which underlines the issue of effectiveness and ease of use. The second most popular recommendation is to implement virtual payment systems everywhere, supported by 31% of participants. This implies that people have more needs for financial services, especially the ideas of convenience and the omnipresence of digital payments. The proposed: With increased access to virtual payment systems, it can be seen that the user is allowed to perform transactions conveniently in many areas. Another 16% of the respondents proposed to accept cash in exchange for virtual payments. This may suggest that society is in search of such hybrid solutions where consumers are allowed to transact electronically as well as ensure that they use physical cash at some point.

4.3 Discussion

4.3.1 4.3.1 Consumer Demographics and Adoption of Virtual Card Payments

This study asserts that differences arising from demographic characteristics such as age and computer literacy emerge clearly when it comes to the use of virtual card payments. The results of our survey also depict that young customers particularly those between the ages of 18 to 35 years are more likely to embrace virtual card payments given their comfort with digital technology. (Szumski, 2020), highlights a strong prior bias regarding the use of digital financial services among younger generations due to their higher level of interaction with digital environments supports this trend. The acceptance rate is, therefore, lower particularly among customers 50 years and above as compared to the other age group. Lower levels of digital literacy and concerns over the safety of their transactions and their personal information could be the reason behind the same (Agárdi and Alt, 2022). They also show that while some of the elderly users are familiar with virtual cards, they mostly regard them as rather complex and less reliable than the common forms of payments. According to (Siagian *et al.*, 2022), perceived complexity may significantly hinder the use of digital technologies among older individuals. Digital literacy is especially noteworthy since it is a crucial factor for readiness in the utilisation of virtual cards. Digital literacy for payment and the tendency to employ RU payments exhibit a favourable correlation in statistical terms. The younger the person, the better he or she is familiar with digital devices, and the better he or she understands the simplicity and benefits of non-contact payments (Al-Smadi, 2023). However, there is still a share of consumers who are not eager to use new forms of communication because of unfamiliarity or inexperience, thus worsening the digital gap. They might lessen these gaps if targeted educational programs, aimed at increasing the level of digital literacy of elderly people are implemented. (Szumski, 2020), mentions that by adopting easily obtained community campaigns promoting digital skills and knowledge, virtual payment methods can potentially be embraced by all generations.

4.3.2 4.3.2 Perception of Virtual Cards and Sustainability

In many cases, several factors affect the consumers' perception of the sustainability of virtual card use leading to such confusion of ideas. On the one hand, due to their digital nature and the absence of physical production which hurts the environment, many users regard virtual cards as a more environmentally friendly solution as compared to traditional plastic cards. This is in line with the findings by (Shankar and Rishi, 2020), who argue that through reducing the necessity for physical resources and hence the transportation emissions associated with the distribution of the cards, the virtual payments may have the potential to reduce the environmental impact of the financial industry. This view is not shared, however, everywhere and the relationship between social media companies and governments is not always an antagonistic one. Considering the existing surroundings of the digital world, some customers have questioned the authenticity of the environmentally friendly approach of virtual cards. Most of the issues stem from the high

power usage of data centres and the servers that support digital transactions (Guandalini, 2022). On the same note on conserving the environment, some critics argue that even though digital payment tools like virtual cards minimise the use of paper hence environmental degradation, the carbon footprint from the activities that support the digital aspect of cards might be detrimental to the environment. These opposing points of view are revealed by our poll results. Perceiving virtual cards as a process of improvement in financial behaviour, a large number of respondents admit the less physical consumption linked with it (Rosário and Dias, 2022). However, a significant portion of the respondents doubts whether the shift to digital decreases environmental costs taking in mind the increased energy consumption by digital banking products. Better access to more detailed information about the effects of virtual payments on the environment is needed to receive and consider a lot of opinions. The initiatives taken by the financial companies may help in the following manner from the sustainability perspective to explain the benefits and or/ limitations of digital transactions. (Sahi *et al.*, 2021), opine that since consumers may not know the whole life cycle of digital payment systems then enhancing their awareness may assist in developing a better perception therefore encouraging the right use of virtual cards and maybe more acceptance.

4.3.3 Drivers and Barriers to Virtual Card Adoption

Some key parameters and challenges associated with consumers' behaviour play an important role in the acceptance of virtual cards. On the one hand convenience, motivation in the form of incentives and better security are the key reasons for consumers. The process is made less complicated by the use of immediate issuing, smartphones and digital wallets for virtual cards. They also provide convenience for Particular customers, especially the technologically skilled customers who value the speed and convenience in the nature and types of payment methods and this will greatly appeal to them (Jain and Raman, 2023). Virtual cards may sometimes give consumers certain benefits such as offering some percentage discount or rebates for the product or service. Furthermore, dynamic CVVs enhance their security aspects, and the ability to set spending limits inspires customers who are concerned with fraud and other illicit activities, thus allowing them to have control and security. However, it is also possible to identify losses for virtual cards' general acceptance which are unconditional and evident. One major factor that may deter the cause is a lack of knowledge among possible consumers. Customers are not willing to use this new form of payment as they are unfamiliar with how virtual cards work and what benefits they hold. According to (Mei Mei Lau, Aris Y C Lam, Ronnie Cheung, Tsan Fai Leung, 2019), this has been occasioned by the fact that financial institutions have not offered focused teaching activities. Security may act both as a threat factor and as a motivating factor for people and organisations. While the extra layer of security is appreciated by some customers, others retain certain scepticism regarding the risk of possible data leaks and other forms of cybercrime related to virtual card payments (Mhlanga, 2020). Some stores do not accept virtual cards and this leaves the customers with no other option other than to avoid using

this method of payment at all. While large online store chains have adopted virtual cards younger companies and foreign competitors possibly have not, thus creating potential consumer irritation. To overcome these challenges, financial service providers need to sensitise and push for the usage of virtual cards through security awareness and widened acceptance for merchants to make the usage of virtual cards feasible and appealing to a wide array of customer bases.

4.3.4 4.3.4 Recommendations for Enhancing Virtual Payment Systems

Several focused strategies should be considered to address security, accessibility, and integration if we want virtual payment systems used and successful. Since a large number of users consider security as the primary problem, it is the priority. As per (Nambiar and Bolar, 2022), to protect the users' information and secure their transactions, banking organisations and fintech companies must invest in procedures and technologies such as two-factor authorization and encryption. Moreover, adding to the enhancement of customer confidence are recurrent security assessments and unrestricted security practice discourses. Education of consumers about the risks of digital fraud and how to avoid them can also reduce anxiety and will improve perceived security in the general sense. Another key facet that has to undergo improvement is access. To ensure that virtual payments are easily adopted across the board service providers should focus on designing interfaces that are easy to use across the various classes of users especially the seniors and other relative novices to digital technologies. More registration forms, the presence of multiple languages, and innovative applications may help the user in giving a better experience and attract more users (Pal *et al.*, 2019). Through partnerships with educational institutions, and community organisations one may also promote digital literacy thus ensuring that each segment of users feels safe when engaging in virtual payment systems (Rasheed *et al.*, 2019). Providers of virtual payment means should expand their links to cover a wider range of stores, especially small businesses and international sellers to increase its adoption in our daily lives. By lowering the cost of transactions and offering other additional services like discounts on processing fees or some other form of promotion more stores will accept virtual cards. Another step towards bringing virtual payments even closer to the common people is forming cooperation with essential sectors like utilities and public transportation, to integrate such payments into routine processes (Mombeuil, 2020). Such applications of artificial intelligence and machine learning may also enhance the experience of spending as well as an individualised reward. They may be useful in establishing a perception that electronic payments are safe, convenient and easily integrated into mainstream activities thus increasing usage.

4.4 Conclusion

The findings of this study highlight the fact that the combination of consumer characteristics, views on sustainable practices, and factors that either enable or hinder virtual card payment are intertwined. It is identified by the study that young customers specifically the technologically inclined ones in the reception of virtual payments, which is influenced by convenience,

incentives as well as enhanced security standards. However, similar to many other mobile payment solutions, ignorance, security, and the fact that not all merchants are willing to accept this solution keep the usage broader and limited. Opinions that can be linked to virtual cards are divided; some clients deem virtual payments environmentally friendly due to the lack of paper and plastic products, and others are sceptical about the overall impact because of the energy consumption of digital systems. The study confirms that users of virtual cards tend to be environmentally conscious when making purchase decisions, consistent with the theory that digital payment systems align with environmentally conscious consumer behaviour. However, the empirical analysis did not reveal a negative correlation between the variable knowledge of or interest in sustainable items with the acceptance of virtual cards. These outcomes tend to suggest that even though virtual card payments can be seen to have a highly positive impact on the ability to shape sustainable consumer behaviour it is essential to do more to reduce barriers and enhance what is considered a host of benefits. To enhance its applicability in daily practice, there should be improved related security policies, increased access, and specialised education.

5 Concluding Thoughts on the Contribution of this Research, its Limitations, and Suggestions for Further Research

5.1 Implications of Findings for the Research Questions

The studies have provided an elaborate understanding of how the capabilities of virtual card payments impact customer consideration and environmental impacts in Ireland. Some specific objectives of the study included assessing customer adoption readiness for digital payments, establishing the coverage level of technical innovations in different age subgroups, and understanding the perceived benefits of virtual payment systems. From the study, it is evident that virtual card payments suit the younger generation with a better appreciation of technological advancement, convenience, incentives, and improved security features of the card. This is more typical of an overall shift in customer behaviour and aligns with the growing trend towards digital operations. It also emerged from the survey that although a good percentage of respondents agreed that virtual cards, to some extent, have some environmental benefits, their overall sustainability benefit is still questionable. This conflicting view prompts further elaboration on how payments made online contribute towards environmentally friendly living. The study was able to confirm that virtual card users are likely to select environmentally friendly purchases, thus providing credence to the hypothesis that digital payment systems may align with eco-conscious behaviour. Studied findings also showed, however, that challenges are unawareness, security concerns, and proneness which hinder broader adoption. Such findings go against some of the prior studies that at times emphasise more broadly the environmental impact of digital payments. Therefore, this paper underlines the importance of further investigation of the unique sustainability impact of virtual cards and their acceptance tendencies. The results of this study offer utilitarian recommendations concerning enhancing security qualities, expanding the merchant base, and increasing public awareness of the benefits of digital money. Thus, for a further detailed analysis of the long-term effects virtual payment systems have on sustainability, academic further research is needed, as well as the elimination of the hurdles which were outlined in this paper. The present research provides the groundwork for understanding the dynamics of the emergence of the digital payment's environment and its impact on client behaviours and sustainability.

5.2 Contributions and Limitations of the Research

Contributions

Overall, the findings of this study contribute to the understanding of the customers' decisions as well as the influences of virtual card payments on Irish sustainability. The key contributions are:

- The study gives the population characteristics of the virtual card users with emphasis on the point that young, IT savvy are the key consumers of virtual cards. This makes the direction and routes of decisions and the tendency towards virtual payments clear. By focusing on specific age brackets, the study enhances the comprehension of how different populations engage with novel payment systems.
- The studies help to remove uncertainty about the progressive or non-reformist strategies in the case of using virtual cards. But again there is much doubt even if many of the respondents agree with the possible environmental benefits. This creates a more nuanced picture that could help companies and legislators, thus disputing often sweeping statements on digital payments and their impact on sustainability.
- The survey identifies such a limitation as lack of knowledge and security concerns as well as the main drivers of the adoption of virtual cards such as convenience incentives and security. This comprehensive knowledge may lead to the formulation of strategies for enhancing acceptance and managing customer complaints, thus enhancing the marketing and technology strategies.
- It guides the study to make recommendations for improvement in the virtual payment system based on the findings. Some of them include the enhancement of security measures, courtesy, enhanced accessibility and consumer awareness. Such advice is very helpful for companies and legislators who are attempting to gain more acceptance and integration of the form of virtual payments.

Limitations

Despite its contributions, the research has several limitations:

- **Sample Representativeness:** As it pertains to the survey most of the responses were nabbed from the younger populace with less or no representation from the elder people. This demographic bias may limit the generality of the findings to the rest of the populous. Therefore, for an enhanced understanding of the tastes of each age group in the independent samples, future research should go for the balance.
- **Scale of Sustainability Affective:** The study focused more on customers' perceptions than on carrying out a comprehensive analysis of the environmental impact that virtual card systems have. Another area of research that should be conducted relates to the practical real-world sustainability advantages of virtual payments, carrying out lifetime assessments and comparison of Virtual Payments to conventional payment systems.
- **Regional Specificity:** The proposed research applies to Ireland only thus the results may not be applied to other regions with different payment systems and sustainability issues.

Perhaps comparative research carried out in several nations or areas could assist one in realising different dimensions of the global impact of virtual card payments.

5.3 Recommendations for Practice

Research results provide some useful suggestions to improve the acceptance and efficiency of virtual card payments:

- This means that worries about virtual card issuers must familiarise themselves with developing and strengthening security measures. Some of the measures include leveraging advanced fraud detection systems, multi-factor authentication, and real-time transaction notifications to enhance customer trust (Szumski, 2020). Further, satisfying the frequent security protocol changes and openness will help users reduce their anxiety and gain confidence.
- Lack of awareness of virtual cards and their benefits is a form of hurdle to acceptance. Informing the customers through educational initiatives that are to be carried out to popularise virtual payments as easy, secure, and possibly rewarding will assist them in overcoming this (Pal *et al.*, 2019). Dealing with such clients as financial institutions, educational institutions, and community organisations contributes to ensuring that the material reaches out to more people with different demographics and appeals to a more general audience.
- This is mainly due to a rather low level of acceptance of virtual cards in different stores. Some of the ways through which virtual card issuers and companies might help bring about greater acceptability of virtual payment choices include linking virtual payment choices with POSs and e-commerce. Management of incentives such as discounts or free loyalty rewards for the users of virtual cards also entails wider use even by the companies.
- Stressing the environmental benefits when using virtual cards will appeal to environmentally conscious clients even though there may be different views about sustainability (Nambiar and Bolar, 2022). There is minimal emphasis that should be placed on physical card production while realising that there may be potential for somewhat lower carbon emissions than more typical payment mechanisms. In addition, third-party certification and reporting on the environmental impact of virtual payments can also enhance credibility and attract consumers who are sensitive to environmental issues.
- Making virtual card systems available to each of the customer's right down to those with lower levels of IT literacy is fundamental. Low-tech-savvy users can still manage to use these interfaces and get customer service support, and instructional materials for individuals with low technical skills (Guandalini, 2022). Providing multilingual services

and accepting reasonable accommodation demands would further enhance the appeal of virtual payments.

- If one accumulates and analyses customer feedback from time to time, one may gain significant insight into the aspects that require improvement. For capturing the experiences of the users and identifying the probable areas of concern, virtual card issuers should adopt the techniques of the regular survey and focus group that are further used to address those requirements (Agárdi and Alt, 2022). Such an approach ensures that the virtual payment system evolves as a result of the user regarding and according to the user's needs and tastes.

5.4 Recommendations for Future Research

Future studies on virtual card payments should concentrate on many important areas to develop the conclusions of this study and handle developing trends and challenges:

- By comparing how people change their attitude to paying with virtual cards over a certain period, one may understand certain temporal factors and components which influence continuous usage. In addition to ‘snapshots’ of the virtual payment stage, longitudinal databases enable tracking of shifts in consumers’ behaviour, technical advancements, and payment tendencies.
- Analysing the formation of how technologies such as blockchain, biometric verification, and artificial intelligence will uncover new opportunities and issues as they emerge in the virtual card payments technologies stream. Research may focus on these technologies helping to enhance the user experiences and their consequent usage, enhance the tempo of transactions, or add to the security element.
- Management should undertake further studies to understand one or another customer segment in terms of their expectations and needs for virtual cards. Investigations on several age groups, economic levels or geographical areas may afford specific solutions that the organisations may use in marketing strategies and product positioning or creation.
- Because the opinions about the environmental benefits of virtual cards vary, further research should attempt to elaborate on the positive impact of virtual cards on the environmental method more accurately than the results of conventional payment systems. Studying the life-cycle impacts of e-cards in terms of emissions to the environment, wastes to the environment, and the general use of economic resources can help in presenting the picture of the sustainability of virtual cards in a better manner.
- Therefore, considering combining virtual cards with other nowadays developing payment systems like cryptocurrencies or mobile wallets could potentially shed more light on the further development trends of digital payments. Research could be on how

different set-ups affect either security or the acceptance rate by the users among other factors.

- Exploring those various psychological and behavioural factors that may impact customer decisions over virtual cards might serve as valuable empirical investigations within the frameworks of behavioural economics and consumer preferences. Research proposals could compare how social influence, perceived risk and self-organised personal heuristics influence adoption and use behaviour.

5.5 Final Conclusion and Reflections

Conclusion

This research specifically examined the acceptance and impacts of virtual card payments as seen and perceived by consumers within Ireland with a focus on their behaviour. As pointed out in the report, virtual cards have definite advantages such as greater convenience, high reliability, and a good potential to promote environmentally friendly purchasing behaviour. The study validated the main hypothesis which posited that in comparison to those that use other traditional modes, virtual card users are inclined to be greener when making their choices. This was evidenced by a positive correlation between the use of virtual cards and environmentally friendly buying behaviour hence corroborating the notion that the adoption of online payment solutions could encourage conscious practice of sustainable consumption in consumers. Nevertheless, there are some advantages identified with virtual cards by the research that also includes prevailing factors affecting the acceptance of virtual cards. Two main challenges are the customers' poor awareness and persistent concern over the security of virtual payments. Moreover, the environmental impact of virtual cards has been divided in terms of people's perceptions. While some participants view these payments as a longer-lasting solution, others express uncertainty about the overall environmental efficacy of these processes, implying the need for a clearer elaboration of the concept of the environment. By doing so, the study lays the groundwork for future academic research and supplies a more profound understanding of consumer behaviour and motivations related to virtual payment systems and applications to actual practices in electronic finance. However, it is not without limitations that are as follows: The focus on a given region and the use of subjective data may not offer an accurate picture of the cross-sectional usage and perception of virtual card payments. As such, this work identifies directions for future research and improvement as well as the role that virtual cards may play in increasing consumer consciousness of environmental impacts. Steps towards making virtual payments more popular and efficient include decreasing the barriers to usage and pointing at the environmental benefits.

Reflection

Completing my dissertation has been a joyous passage with so much academic and personal realisation. Originally a simple subject of virtual card payments, what was supposed to be a straightforward topic of customer behaviour, technological impact, and environmental factors was realised as a complex study. My first curiosity arose from my affection with the intersection of sustainability and technology. As the studies unfolded it was seen that this subject requires a profound understanding of how technology overarches the consumers' lives and decisions. However, one of the most significant things I learned was the significance of a critical discussion of qualitative and quantitative findings. This demanded not only the application of statistical techniques but also a good understanding of customer attitude and behaviour. By doing this work, the relevance of getting beyond prejudice and limiting rules, as well as the necessity of a rational approach to achieving reasonable outcomes, was shown. Applying and discussing my research findings with current literature also assists me in having better insight into the shift in the field of digital payments and their impacts on the environment. Thus, it was observed that factors such as environmental issues and demography, among others, impact the impression of customers. With this more encompassing perspective, there was recognition of the importance of considering many voices and modalities as to the impact of new technology. On a personal level, this area of study has enhanced my critical thinking, analysis of different data and writing skills. It has also enhanced my appreciation of the environmental and social transformation which has come with technical development. Reflecting on the time spent on this project, I derive satisfaction from having contributed to the advancement of knowledge in this field and look forward to other studies extending from such findings. It inspired my desire to explore the intersection of sustainability, finance and technology further as well as enriched me academically. It reignited my passion for pursuing more education in these fields and readied me to tackle the next academic or career-related mountain.

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Appendices

Appendix A – Questionnaire

1. AGE
 - ✓ 18 to 25
 - ✓ 26 to 35
 - ✓ 36 to 45
 - ✓ Above 45

2. How many times have you used a virtual card for a transaction?
 - ✓ More than 1 time
 - ✓ More than 3 times
 - ✓ More than 5 times
 - ✓ Never

3. What was the purpose of using virtual card payment ?
 - ✓ Online purchase
 - ✓ Subscription
 - ✓ In store shopping

4. Do you think use of virtual cards leads to sustainability?
 - ✓ Yes
 - ✓ No

5. Do you agree virtual card payments is a sustainable method of banking in Ireland?
 - ✓ Strongly agree
 - ✓ Agree
 - ✓ Neutral
 - ✓ Disagree
 - ✓ Strongly disagree

6. As per experience, why is virtual card payment a sustainable option?
 - ✓ More flexible than other option (cash/card)
 - ✓ Environment friendly
 - ✓ No need for printing and posting (physical cards)
 - ✓ Can do multiple transactions

7. How does virtual card payment maintain customer willingness

- ✓ Get more offers from different organisations
 - ✓ Improve security of account holders
 - ✓ Can do multiple transactions
 - ✓ Convenience and rewards
8. How do you find virtual payment systems beneficial?
- ✓ No additional transaction charges
 - ✓ Receive messages through e-mail
 - ✓ High level protection
9. How would you rate your satisfaction with the usefulness and ease of use of e-wallets or virtual cards?
- 1 2 3 4 5 6 7 8 9 10
10. Do you perceive virtual cards and e-wallets compared to traditional payment methods are?
- ✓ More secure
 - ✓ Less secure
 - ✓ Equally secure
 - ✓ I don't know
11. Would you recommend using e-wallets or virtual payment systems to your friends?
- ✓ Highly recommend
 - ✓ Recommend
 - ✓ Dont recommend
12. Any suggestions to improve the existing virtual payment system?
- _____

Appendix B – Consent form for participants

A study on consumer preference in sustainability by use of virtual card payment system in Ireland.

B *I* U  

I am a researcher conducting a study titled "A study on consumer preference in sustainability by use of virtual card payment system in Ireland." Your participation will help in understanding the attitude of Individuals towards virtual card payment system (like NFC payments and e-wallets).

Please be assured that all responses will be kept confidential and used solely for academic purposes. Your individual responses will not be shared with any third parties. By completing this survey, you consent to participate in this research.

Thank you for your time and contribution to this study.

Consent *

Yes