

A Model for the Evaluation of Society's Progress Towards Cashlessness: A Comprehensive Analysis of the World and Norway

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University of Agder, 2021
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Foreword

This thesis is completed as part of the University of Agder's Master of Business Administration degree. The course consists of 30 credits, or one semester, and is completed during the program's final semester. This has been challenging, entertaining, and most importantly educational, with numerous hurdles to properly establish the project. We choose to focus on cashless societies in Norway and compare them to other countries because we believe it is an intriguing topic, given that we are seeing a rise in the popularity of technology and payment methods among the public. We hope that the master's thesis will be intriguing to readers and that it will generate ideas for other sorts of payment methods, particularly for the attention of young people, but also the older generation. Finally, we would like to express our gratitude to our supervisor Lars Oxelheim, who has provided us with excellent guidance, assistance, and follow-up throughout the semester. We would also want to thank our friends and family for their help with this project.

Abstract

The purpose of this thesis is to determine Norway as well as other countries in terms of the progress in cashless societies. When it comes to payment services, there are constantly new and better innovations that suppliers are attempting to find solutions for and that are easily available to consumers. The main aim of this thesis is to determine which phases a society is in by using a model for cashless society phases. As there are no fitting models for analyzing such cashless societies, we introduce a new model of cashlessness, and use it as the base of the analysis. Some countries with advanced technology and rising markets are discussed to see what kind of payment methods the country provides to its citizens. The benefits and drawbacks of establishing a cashless society are also presented to determine which groups will be most affected, as well as determining the importance of physical money to the public.

Table of contents

1 Introduction	6
2 Theory	7
2.1 The Meaning of Money	7
2.2 Cashless Alternatives	9
2.2.1 Credit/Debit cards	9
2.2.2 Electronic payment systems.....	10
2.2.3 Digital currency	11
2.3 Central Bank Digital Currency	12
2.4 Stakeholder Model	12
3 Methods	14
3.1 Model of Cashlessness in Society	14
3.2 Subcategories of the cashless phases	18
3.2.1 Consumer Behavior	19
3.2.2 Disruptive Innovations	19
3.2.3 E-Commerce.....	20
3.2.4 Governmental Actions	20
3.2.5 Cultural Aspects	20
3.2.6 Privacy concerns.....	20
3.2.7 Past and future plans	21
4 Data collection.....	21
4.1 Norway	21
4.1.1 E-commerce.....	22
4.1.2 Cultural aspects.....	23
4.1.3 Privacy and Security concern	23
4.1.4 Past and Future plans	24
4.2 Sweden	24
4.2.1 E-commerce.....	25
4.2.2 Cultural aspects.....	26
4.2.3 Privacy and Security concern	26
4.2.4 Past and future plans	27
4.3 Japan.....	27
4.3.1 Consumer behavior.....	27
4.3.2 Disruptive innovations.....	28
4.3.3 E-commerce.....	28

4.3.4	Governmental actions	28
4.3.5	Cultural aspects.....	28
4.4	China	29
4.4.1	Consumer behavior.....	29
4.4.2	Disruptive innovations.....	30
4.4.3	E-commerce (Online Shopping).....	30
4.4.4	Governmental actions (Central Banks).....	31
4.4.5	Cultural aspects.....	31
4.4.6	Past and future plans	31
4.4.7	Privacy and security concerns	32
4.5	The United Kingdom (UK).....	32
4.5.1	E-Commerce.....	33
4.5.2	Cultural aspects.....	33
4.5.3	Privacy and security concern	34
4.5.4	Past and future plans	34
4.6	The United States (US).....	35
4.6.1	E-commerce.....	35
4.6.2	Cultural aspects.....	36
4.6.3	Privacy and Security concern	36
4.6.4	Past and future plans	37
4.7	Emerging economies	37
4.8	India.....	37
4.8.1	E-commerce.....	38
4.8.2	Cultural aspects.....	39
4.8.3	Privacy and security concern	39
4.9	Kenya	39
4.9.1	E-Commerce.....	40
4.9.2	Cultural aspects.....	41
4.9.3	Privacy and security concern	41
4.9.4	Past and future plans	41
5	Analysis	42
5.1	Stakeholder theory	46
5.1.1	The government and central banks	46
5.1.2	The public.....	47
5.1.3	Businesses	48
5.1.4	Other countries.....	48

5.2 Concurrent trend: Central Bank Digital Currency.....	48
5.3 What Norway should be doing based on the model.....	49
5.3.1 Achievements of other nations.....	49
5.3.2 Norway’s benefits and drawbacks.....	50
5.3.3 Drivers and resistances from most countries	51
5.3.4 Other significant factors.....	51
6 Discussion.....	51
6.1 Benefits and costs in achieving cashless society.....	51
6.2 Advantages and disadvantages of the model.....	52
6.3 Research limitation	53
6.3.1 The Impact of the Covid-19.....	53
7 Conclusion.....	54
References	56
Appendices.....	69
A - Detailed table of non-cash transactions in countries.....	69
B - Discussion Paper.....	70
I Reflection note - Jimmy Chan	70
II Reflection note - Nina Nguyen.....	72

1 Introduction

There have been various types of payment systems throughout history, including barter, gold, and paper currency. Charge cards first appeared in the mid-twentieth century. Since then, experts have predicted that cash will become obsolete and that society will inevitably become cashless (Swartz, Daniel D., Hahn, Robert W., & Farrar, Anna-Layne, 2006).

In general, the payment system is an integral part of a country's financial and economic infrastructure, and it is critical for the stability of the financial system, the economy, and the national currency. Payment systems that function properly enable money transfers to be completed securely, on time, and at a low cost, and are therefore critical in a developed market economy. A well-functioning money economy and financially stable system needs to be open, functional, and robust. Payment systems manage a variety of payment transactions, including settlement of sales of products and services, securities trading, capital transfers, currency trading, and so on, with transfers taking place between businesses, banks, retail customers, and government agencies.

Given the advancements in technology, societal attitudes toward money have shifted as well. Maintaining physical cash is difficult and expensive. Printing notes and counterfeit coins are no longer required in a cashless society. The new alternative payment options are advantageous in various circumstances. For instance, it increases the difficulty for robbers to commit cash-related crimes. As for vendors, the ease of transaction through various payment methods will increase their revenue, improve operational efficiency and lower operating cost (Tee, Hock-Han & Ong, Hway-Boon, 2016).

It was revealed in the beginning of 2020 that cash amounts to only 3-4% of all payments in Norway, surveyed by Norges Bank (Flinders, 2020). Cash use has been discouraged as a result of the authorities' use of cash, and many user sites have declined cash payments. Consequently, the share of cash usage was poor in Norway (Olsen, 2020). Sweden, for instance, is considered as the first mover or early driver for electronic payments using smartphones with a valid phone number to make instant transactions. Studies have claimed that by 2023, it will become a norm in Sweden that many shops

will no longer accept cash as a means of payment meaning that it will be the first country taking digital and card payments only (High, 2020). This concept is successful in Sweden due to aspects of the Swedish culture. The exchange of money and debt is considered as a threat to friendship, and this conveniently supports this trend, while in other countries and cultures such as Italy, paying for the other is a deed for maintaining friendship which, in most cases, involves cash payments, making it more difficult to achieve the similar transformation (Maxia, 2020). Studies have indicated that the demand for certain payment methods not only depend on motivation of the method, but also the payment context, such as bills and online transactions (Hiroshi, 2020).

This leaves many open questions, and it is interesting to look into whether other countries and their demographics are suitable to become cashless, which will be left for further investigations. In this paper, we introduce the Model of Cashlessness in Society (MCS), which can be used to evaluate a nation's progress toward cashlessness. We then use that as an indication for whether Norway will turn cashless in the future. Finally, we briefly discuss other countries regarding the phases that they belong to.

2 Theory

2.1 The Meaning of Money

To fully understand why cash may go extinct, we have to first understand why it came into existence.

"Money, like certain other essential elements in civilization, is a far more ancient institution than we were taught to believe some few years ago. Its origins are lost in the mists when the ice was melting, and may well stretch into the paradisiac intervals in human history of the inter-glacial periods, when the weather was delightful and the mind free to be fertile of new ideas - in the islands of the Hesperides or Atlantis or some Eden of Central Asia"

- Bernard Lietaer (1997)

Before currency systems such as rare materials or paper money existed, people exchanged goods based on their evaluation of the goods' value. Money performs three classical functions for most economists - it serves as a unit of account, a means of payment, and store of value. A unit of account allowed people to better establish fairer and more diversified trades, because they could evaluate the value of goods more accurately, and permitted spending in different granularity. A means of payment is essential for the increase of the overall productivity of society, meanwhile store of value is important for the development of wealthy institutions, which is an integral part for the advancement of society. These fundamental characteristics are unlikely to change in the near future, since money comes in a variety of forms, not all of which must fulfill all three of its fundamental functions. There is a considerable potential that present forms of money will be joined by new ones in the future, though the possibility of general acceptance is impossible to predict. Furthermore, during the next few decades, there will undoubtedly be a proliferation of monetary media or transaction methods, both physical and digital (Miller, R., Michalski W. & Stevens, B., 2002, p.11).

By allowing for specialization, barter replaced self-sufficiency and boosted efficiency. Then it was discovered that even more efficiency could be gained by employing an object as a medium of exchange, removing the need for a happy coincidence of wants in order for barter to take place. As a result, money emerges to facilitate exchange by lubricating a market mechanism that previously relied on barter: money is established to reduce transaction costs. The evolution of money and markets enabled the economy to reach its optimal position, which is defined by the lowest transaction costs (Wray, 1993).

Money is used to calculate total production, income, savings, and wealth, among other items and acts as a universal medium of trade for goods and services that would otherwise be exchanged by barter. This profit is classified as seigniorage, which refers to a substantial reduction in the information cost of comparing the relative prices of goods and services within a given economy. Furthermore, money acts as a store of value, allowing capital and assets to be accumulated. Finally, it provides for the exchange and payment of goods and payments at different times as a deferred payment standard. As a result of these features, whatever qualifies as "money" must be both fair and trustworthy.

In addition, it includes notes and coins, fiat currency (government-backed legal tender), electronic money (such as bank deposits), and, more recently, digital currencies (i.e. cryptocurrencies like bitcoins) (Achord, S., Chan J., Collier I., Nardani S. & Rochemont S., 2017).

By cashless society, it means coins and paper money would be replaced with virtual money, embodied NFC and other electronic chips (Sajter, 2013). New technology provides new opportunities for innovation. With digital central bank money, this is considered as positive which will be easier and faster. It also prevents sudden large withdrawals of deposits from banks in such cases if there were for example a financial crisis (Bache, 2020). Through digitization, the strongest driving force is reduced costs and increase in user-friendliness behind digital investments (Haaskjold, 2018). The crucial point of a cashless society is that cash will be reduced, and be replaced by computer systems in financial transactions (Snørteland, 2017).

2.2 Cashless Alternatives

In recent years, the digital payment system has gained focus which results in it affecting both consumers and suppliers. Providers are always striving to improve the technology on payment systems, it has resulted in diverse payment options in today's society.

Cashless alternatives to traditional notes and coins have been around for a long time and have developed in tandem with payment technologies and consumer financial maturity. Cheques, debit cards, and credit cards are examples of these. Each cashless option has its own level of security, consumer privacy, settlement time, ease of use, and cost and fee structure. Payment options in Norway include credit or debit cards and the use of electronic payments such as mobile payments.

The payment methods that can replace cash in parts or entirely can be roughly categorized into the following types, and we now briefly explain each of them.

2.2.1 Credit/Debit cards

Credit and debit cards remain the most common means of payment in Norway. One of the most important factors is trust in the system, the government and the bank of choice. Trust has certainly proven to be incremental to societal change. Merchants and service providers have realized that by going cashless allows them to save both time and money compared to dealing with cash (FinExtra, 2020). Most cards are used for contactless payment, also known as «Tæpping» in Norwegian. It has an NFC tapping chip that people pay by placing the card on the bank terminal for payment, and the transaction is made within a few seconds (Nordea, 2021).

In terms of authentication, contactless cards differ from conventional cards in two ways. Since no PIN code is needed for purchases under NOK 500, a lost or stolen card may be used to shop by someone who does not know the code. However, when the card is used for purchases totaling NOK 600 on the same day, the customer must enter the PIN code again, which is the maximum amount a customer can be defrauded of in this way. As a result, contactless card fraud is not especially appealing to criminals (Hautemaniere, 2016).

2.2.2 Electronic payment systems

Electronic payment methods are gaining popularity at a rapid rate. PayPal is one of the most well-known electronic payment providers in Norway. Furthermore, it also provides other banking and financial related services (Paypal, 2019). This international e-payment service provider has retained its position as the second most common payment system in the Nordic countries, with locally created solutions or contactless payment apps such as Google or Apple Pay frequently succeeding it (FinExtra, 2020).

As of 2021, Vipps is the most commonly used mobile payment service in Norway (Best, 2021). With this digital banking and fintech payment application, in particular, it provide a slew of advantages to consumers (Suazo, 2021):

- Customer service is a priority.
- Financial transparency at a high level.
- Internet and smartphone apps have easy access.
- Processor speed has been increased, hence, reduced service costs.
- The use of free application programming interfaces (APIs) and open banking (API).

It allows its users to make payments or transfer money within seconds, simply by knowing the receiver's unique business number or phone number. There are many systems that can be used, where people could pay for each other. If it is more than two people splitting a bill, there is a settlement option where people can input how much each has paid and divide on who has to pay for whom. Vipps also collaborates with other companies, where they recently merged with BankID and Bankaxept that delivers solutions within electronic in-store payment and ID (Vipps, n.d.).

2.2.3 Digital currency

Digital currencies are only available online. One cannot touch or feel this latest type of money because it is totally intangible and can only be found online. The issuance, transition, and record-keeping are all done digitally. As a result, people need an internet-connected computer to get their hands on these funds (Hamilton, 2021). It is worth noting that Bitcoin remains by far the most common digital asset in Norway, with Ethereum following closely behind and BCH, Ripple, and EOS accounting for the remaining market share (Bitgate, 2019).

Bitcoin operates without the need for a central authority or banks since it is based on peer-to-peer technology. The network manages transactions and issues bitcoins collectively. Bitcoin is open-source and uses blockchain technology, which means that no one owns or manages it, and anybody can participate. Bitcoin's many unique properties allow it to be used in ways that no other payment mechanism has been able to (Bitcoin, 2021).

2.3 Central Bank Digital Currency

A central bank digital currency (CBDC) is a digital type of central bank money for general-purpose users denominated in the official unit of account. Depending on its intended use, a CBDC may take on a variety of forms with various characteristics (Norges Bank, 2021). Such money is a claim on the central bank denominated in the official unit of account in the same way as cash. Norges Bank's research into CBDCs is motivated by low and falling cash usage and application of the precautionary principle. Cash provides the payment system with a number of attributes that may be relevant to retain and develop further by issuing a CBDC: An independent backup for payment solutions based on bank deposits, a credit risk-free alternative to bank deposits that can foster competition in the payments market and legal tender that can be used by anyone (Norges Bank, 2021).

Norges Bank will test technical solutions for central bank digital currency. At the same time, payment technologies have evolved at a rapid pace. The share of cash payments in Norway is now probably the lowest in the world (Norges Bank, 2021). Central bank cash provides the payment system with a number of important attributes that may be relevant to retain and develop further by issuing a CBDC. Norway initiated CBDC research due to a massive decline in cash usage. The Scandinavian nation is considered to be the world's most cashless country with only 4% of the country's payments conducted with banknotes and coins (Partz, 2021).

2.4 Stakeholder Model

A modified stakeholder model is being performed in order to discuss all parties' involvements and influences in a cashless society. Traditionally, a stakeholder model consists of a company in the center of the focus accommodating internal and external parties such as employees and suppliers, respectively. We make an adjustment in this model with the cashless society as in the middle of focus to examine what are the stakeholders in such a society. The main idea is to get a sense of what are the contributors or drivers to the cashless society by looking how the cashless society is

maintaining the relationships between the stakeholders for the benefit of the stakeholders. The model shows us the most significant stakeholders that should be taken into consideration.

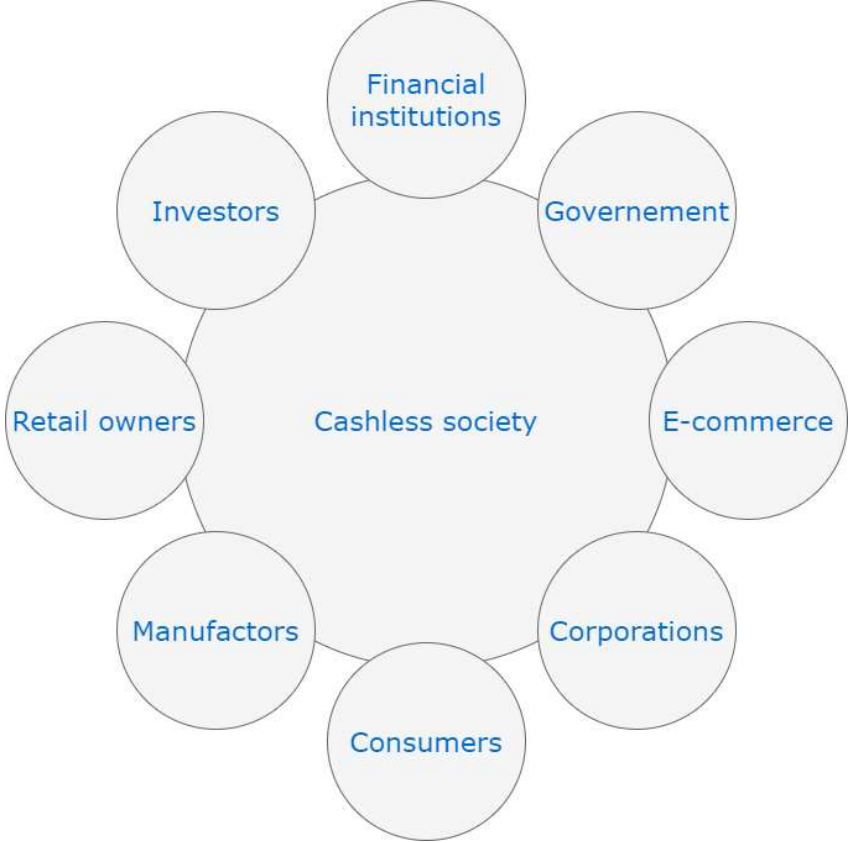


Figure 1: A modified stakeholder model constructed by the authors of this paper.

Financial institutions and the governments, more specifically the central banks want to minimize the financial instabilities. Long lasting issues with tax evasions, crime related activities, money laundering, funding of terrorist organizations, and corruption could be a driver for countries to recognize digital with trackable records of transactions (Singh, 2017). Commercial banks are in fact pushing the society to go cashless as it is easier for the banks to make profits. It is cheaper and easier for the government to track the spending and income of the people to get more tax out of people.

Consumer behavior and habits are the elements that need to be addressed. One aspect that is in the interest of consumers in a cashless society is how it is benefiting the consumer. Aside from efficiency and conveniences of not needing to carry cash, a safer way of keeping their wallets as well as the trust of their government is directly

indicating whether the cashless society is welcomed by the consumers. According to Pew Research people's trust in their government in the US decreased since the mid 1960s (Pew Research Center, 2021). And this has been reflected in their cashlessness progression, despite being the country that has innovated revolutionary transaction methods such as Visa credit and debit cards, Apple Pay, PayPal, Venmo, Google Wallet, the list goes on, people still highly rely on cash. That is all due to the fact that people generally do not trust their government in the US. The trust toward one's government is a key factor in turning cashless.

With the rise of big *e-commerces*, online services and online shopping is becoming the norm to many people. Cashless payment systems are inevitably vital means of making an online purchase. The growth of the ever-expanding e-commerce giants such as Amazon and Alibaba drives the usage of cashless payment further as there are usually no cash payment alternatives. It increases the use of bank cards, digital wallets and other-payments. By 2021 May, Jeff Bezos the CEO of Amazon remained the world richest man due to a soaring market price of Amazon and its net worth accounted to about \$177 billion USD (Moskowitz, 2021).

3 Methods

In the last few years, digital payments came into the spotlight of the media. Buzzwords like digital money, digital currency, cashless, mobile payments, cryptocurrency and beyond, stole headlines across various financial newspapers. It sparked countless discussions regarding the benefits and drawbacks about the complete disposal of physical cash and banknotes. The population is also heavily interested in the means to achieve the said goal.

3.1 Model of Cashlessness in Society

An article in 2013 by Mastercard "Measuring Progress Towards a Cashless Society" has introduced a model of de-cashing stages. The four stages are Inception, Transitioning,

Tipping Point, and Advanced stage. 33 countries are considered by the study. Countries where cashless transactions contribute to less than 10% of the country’s total number of transactions are in the inception stage. Countries where over half of all payments are cashless, are considered to be in the final stage.

The main issue with this framework is that the final stage only requires a country to have more than 50% cashless transactions, which is already achieved by numerous countries, and therefore, it provides no additional information about them. This is a consequence of the author’s failure to foresee the drastic growth of cashless payments short time after the publication. When applied in 2021, nations are not evenly distributed into different stages in the model. Therefore, we have decided to expand and modify the model such that this will be compatible and practical in examining the current world as well as for the near future.

In this paper we will be working out a new framework for the progress of moving toward a cashless society. This new framework is a model that consists of five phases as shown in Figure 2.

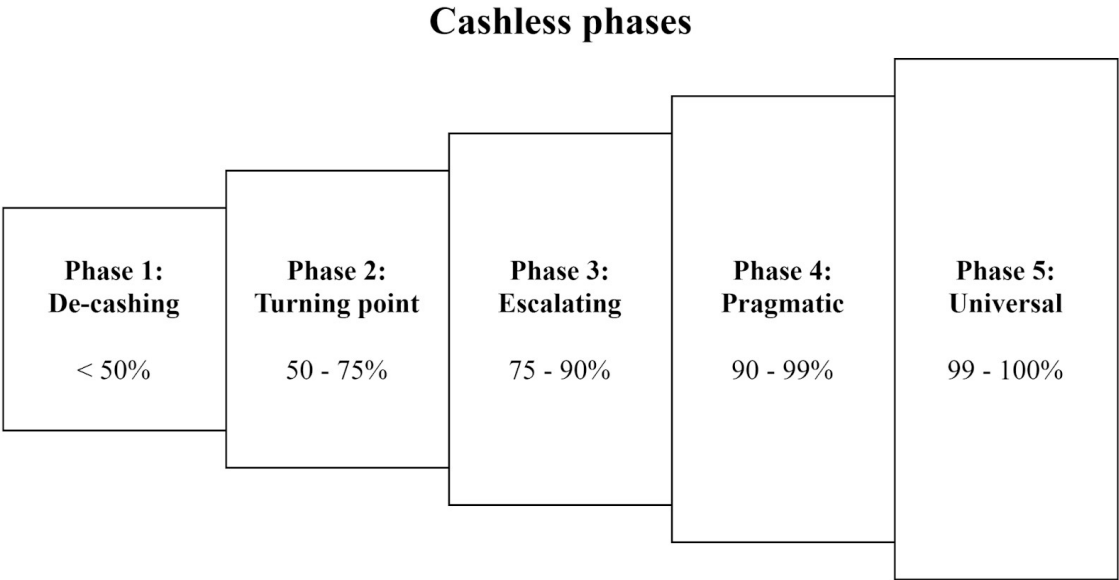


Figure 2: Five phases of cashless society. The approximated percentage values denote the percentage of non-cash transactions.

Phase 1: De-cashing

Cashlessness: Less than approximately 50%

Countries or societies will be placed into one of the cashless phases moving from left to right based on the percentage of non-cash transactions out of the total number of transactions made. It is also assumed that these societies will not be moving backwards in phases in normal circumstances. Countries that are in phase 1 will still rely heavily on cash transactions which account for more than 50% of total number of transactions. These countries consist of mostly developing and emerging economies, where average income is still relatively low and internet infrastructure not up to par with the developed countries. The first stage in our model is identical to the combined de-cashing stages proposed by Mastercard.

Phase 2: Turning Point

Cashlessness: Approximately 50% - 75%

Countries that are in Phase 2 of the MCS model are those countries that non-cash payments together will make up a bigger share of overall transactions made. This phase is called Turning Point, because we believe that the population of nations within this phase will experience an abrupt change in the trend of payment methods in their daily lives. Cashless transactions that are mostly B2B (business to business) in phase 1 will now start to extend to B2C (business to consumer) as well. The online shopping market will also see a surge due to increased digitization of retail. Currently, most of the countries in this phase are developed countries where cashless payment systems have existed for a long period. These systems are generally older and don't involve technologies developed in the last decade such as smartphones, blockchain, facial recognition... Yet, we can start to see new development in new cashless solutions from the private sector that tries snatch a piece of the developing market. Cash payments accounts between 25% and 50%.

Phase 3: Escalating

Cashlessness: Approximately 75% - 90%

In this phase, the government of the country starts to notice the growing trend of new cashless solutions and may introduce new regulations to control and guide the market. The authority will also come up with plans for when and how the cashless systems should be managed going forward. Only about 10% - 25% of transactions in countries

of this phase are made using cash, meaning many businesses will not need to concern themselves with cash-based transactions for the business to function properly. Thus, we will observe many new businesses that only accept cashless means of payment appearing in major cities to minimize the operating costs of handling cash payments. As a result, cash paying consumers will start to experience inconveniences that previously barely existed. At the same time, resistance from conservative buyers will question the security of the systems, and debates about how to implement the systems will emerge. Currently, only a select few countries are in this phase, these countries rank amongst the best countries in cashless infrastructure.

Phase 4: Pragmatic

Cashlessness: Approximately 90% - 99%

A country in phase 4 would notice a huge transformation in the money system. At this point, cash is only used for 1% to 10% of all transactions and cashless is becoming a part of the daily life of most people. Only a small number of elderly will hold onto physical cash as it is sometimes hard to change decades old behavior.

The most significant characteristic of this phase is the development of new secure purchasing systems like fingerprint and facial recognition. These technologies increase security and provide reassurance to the general populace, which enhances the usage of cashless medium. At the same time, a cashless system also requires the development of secure technologies. This positive feedback loop further accelerates the progress of the country's cashlessness. Another notable retail development for countries in this phase includes self-service stores, where a customer can scan and pay for their own items. Normally, the customer will go through a cashier to pay, but a cashless system eliminates this process and saves the business owner operating cost in hiring cashiers.

By the time of writing this paper, Norway is the only country in this world reaching phase 4 with an estimation of 96% transactions are made by cashless payments. But this can be due to the effect of the pandemic which we will discuss later in the paper.

Phase 5: Universal

Cashlessness: Approximately 99% - 100%

Phase 5 is the final phase for a country in the MCS model, where less than approximately 1% of the transactions within the country is made by physical cash. Countries that reach this phase achieve universal cashlessness, and we expect to see a society where cash is almost completely replaced by other types of medium of exchange. Only in very limited areas or situations will physical cash be accessible, and people will most likely find it weird when that happens. To prevent monopolistic corporations taking advantage of the system, the government has to introduce even more regulations or systems such as digitized national currency.

3.2 Subcategories of the cashless phases

Notice the triangle model framework with expanding rectangles (see figure 2). This is to represent the fact that cashless societies will come in many forms as the society progresses in the MCS (Model of cashlessness in society), for instance it could be bank cards, cryptocurrencies and as well as a mixture of different combinations. The idea with this model is to examine comparable countries that are placed in the same or adjacent phases with the country of focus to see what the countries have in common.

P	E	S	T	E	L
Political	Economic	Social	Technological	Environmental	Legal
<p>Governmental actions: the government may make initiatives to support cashless alternatives.</p> <p>Past and future plans: Possibilities by developing new solutions such as digital currencies.</p> <p>Focus on digitalization</p>	<p>Markets of cashless alternatives.</p> <p>No longer need physical cashier system to store money at grocery stores.</p>	<p>Consumer behavior: A cashless society is a society where consumers generally use cashless alternatives for monetary transactions.</p> <p>Cultural aspects: Differences in culture may cause differences in usage of cashless alternatives.</p>	<p>Disruptive innovations: New technology gives new cashless alternatives.</p> <p>E-commerce: Online shopping trend. People have to use digital payment systems.</p>	<p>Reduce environmental footprint by using non-physical cashless alternatives.</p> <p>Reduce hygiene issues and prevent spread of diseases.</p>	<p>Privacy concerns: Cashless alternatives may introduce issues on privacy, security and surveillance</p> <p>Criminal activities: may increase because of cryptocurrencies, and may decrease because of traceability.</p>

Figure 3: PESTEL analysis for cashless society conducted by the authors of this paper. Factors of interest are highlighted with red color.

We have conducted PESTEL analysis to give an overview on how different key factors influence a cashless society. Figure 3 shows an extract of the analysis, and some keywords are highlighted and chosen to base our analysis on. These keywords are picked to limit the scope of the work. Below, we have further details about each of the highlighted keywords. We suggest analysis based on the following aspects: *Consumer behavior, disruptive innovations (technology), E-Commerce (online shopping), governmental actions (central banks), cultural aspects, privacy concerns and past and future plans.*

3.2.1 Consumer Behavior

We advocate that consumer behavior is the most crucial category that affects countries' progress towards cashlessness. Intentions are thought to capture the motivating variables that impact a behavior; they are indicators of how hard someone is willing to try, and how much work they intend to put in to complete the behavior. The higher the desire to engage in an activity, the more likely it is to be carried out. However, it should be obvious that a behavioral intention can only be shown in conduct if the conduct is under volitional control, that is, if the individual may choose whether or not to conduct the activity (Ajzen, 1991). The components for consumer behavior towards cash-free society could be the usage of electronic devices such as mobile or bank cards for payments. Furthermore, in this case it is defined as a unified tendency and attitude on making e-payments. This unified behavior is directly reflecting on how people perceive the implementation of cashless systems since many consumers rely heavily on digital platforms.

3.2.2 Disruptive Innovations

New technology helps shape the cashless environment. Technologies like near field communication, virtual reality, and bank card chips need to be discovered, polished and widely implemented to bolster an environment that incentivizes people to prefer cashless payment methods. It can be a novel technological discovery or an incremental improvement to existing ones, which in this paper will go under the disruptive

innovations category as each of these innovations will disrupt the market, and in other cases it could replace the contemporary technology, and potentially create brand new markets. Understanding how each nation is adapting to those innovations and its agility in the implementation in terms of speed and growth is fundamental to our model.

3.2.3 E-Commerce

Time spent on e-commerce or online shopping is directly affecting the level of cashless progression. Analyzing the efficiency of transportation and delivery of parcels and the nature of the e-commerce environment to make conclusions on the relative impacts on people's purchasing habits. Cash is inevitably in no use in this case.

3.2.4 Governmental Actions

Issues concerning should the central banks control the digital currencies and should the government simply let the economy run by itself without any interference arise. These are some of the few questions that need to be brought up while discussing its cashless progress. Good and effective governmental actions will have a significant impact on implementing its cashless goals efficiently. Some governments may also introduce regulations to prevent them from turning into completely cashless.

3.2.5 Cultural Aspects

Group of individuals that share the same cultural view can react differently to the other categories. This category is regarding how the cultural background of people influences their approaching characteristics of disruptive innovations, governmental actions etc. Cultural differences will be discussed deeply in this category.

3.2.6 Privacy concerns

Data leaking, private information accessibility, surveillance, and cyberattacks are few of the many keywords that often show up in cashless related topics. Privacy concerns take

us into issues that could not be ignored. Failing to notice and identify these issues turns out to be vital to the implementation of a cashless system.

3.2.7 Past and future plans

Develop nation digital currency by central banks (e-kroner) which many countries are already in development. Sweden is looking at it, the UK is looking at BritCoin, and the EU is also looking at digital currency. Most of the central banks in the world are looking at the potential implementation of digital currencies.

4 Data collection

When it comes to cashlessness, certain countries are ahead of the curve, while others are behind. In this segment, we've chosen a few countries with advanced technology as well as some that are still developing.

4.1 Norway

Norway is at the very top of the list, with the largest number of cashless transactions per capita and the fewest ATM withdrawals. Cash accounts for just 11 percent of in-store purchases, according to a recent survey conducted by Norges Bank (Norway's central bank). Cards reign supreme in these cases, accounting for 86% of all transactions, while smartphones account for just 2%. When it comes to peer-to-peer transfers, cash does not account for a significant portion of the total. Cash accounts for 15% of peer-to-peer transfers, while up to 80% are made via phone or laptop (58 percent via app/mobile wallet and 22% via mobile bank/online bank). The number of phone manufacturers providing biometrics as a method for authentication and protection for facilitating mobile payment transactions has increased dramatically due to its simplicity. The use of fingerprint authentication and identification has grown in popularity and market penetration among the majority of telecommunications transactions. The majority of the

customers polled use biometrics to unlock their devices or approve payments (Deloitte, 2019).

One of the reasons why Norway has a high level of confidence in institutions such as banks is because of the openness and trust to emerging new digital technology. The rise of mobile payment apps such as Vipps reflects this openness to accept new modes of payment. This app was created by banks as a peer-to-peer payment option, but it can also be used for instore and online transactions (Bambora, n.d.).

4.1.1 E-commerce

In the Nordic region, Norway has the greatest per capita e-commerce turnover. The image is that the majority of Norwegian online shoppers (six out of ten) choose to pay with credit cards and that almost one-third of them are able to accept an 8-day delivery period. To escape the high domestic prices, many Norwegian shoppers shop in international markets. The most common goods or services that are purchased are home appliances, clothing/footwear, and books (Omikron, 2018).

With the usage of the internet, Norway has one of the world's highest internet penetration rates. E-commerce in the country is well established, as evidenced by the fact that about 80% of major retailers have an ecommerce app and a mobile-optimized ecommerce website (eTail Nordic). eBay, Komplet, Prisjakt, and Amazon are the most popular online stores in Norway, while Dustin Home is the most popular online retailer. The quality of IT and infrastructure, which makes it simple and quick to deliver orders, is one of the factors driving the growth of e-commerce in Norway (Nordea Trade, 2021).

When it comes to paying for online purchases, many Norwegians choose to use their credit cards. This form is preferred over VIPPS, invoices, and PayPal. Card purchases account for 52% of all preferred payment types, with VIPPS coming in second at 21%. Invoices are preferred by more Norwegian women than men, but PayPal and ApplePay are preferred by more men (E-Commerce News, 2021). Digital payments, such as the

rising number of e-wallets, are becoming increasingly popular among younger consumers.

4.1.2 Cultural aspects

In comparison to younger generations, the elderly prefer cash, and the very young are unable to use cards or mobile wallets due to age restrictions. Specially tailored programs for the young may be a possible solution. Consider the introduction of Vipps, which has no lower age restrictions but does impose certain restrictions and parental control on users under the age of 15 (Deloitte, 2019).

By removing cash, it would cause problems for certain groups, especially the older generation, who are less likely to have access to cash-alternatives in the digital realm (Bambora, n.d.). Furthermore, concerns have also been expressed about the difficulty or inability of elderly people to adjust to electronic banking, given that many of them still do not own computers or smartphones. Some also have trouble recalling pin codes, seeing numbers on small screens, and comprehending how mobile technology works (Berglund, 2017). Which is why, for the elderly, adaptation is difficult (NorwayInsight, 2017). It was argued that a cashless society might lead to more digital inequality, and that children growing up in a cashless society would not learn the value of money because there isn't any to count and keep in their hands (Berglund, 2017).

4.1.3 Privacy and Security concern

The threat of cyber attacks and electronic banking failures, which have afflicted many Norwegian banks, including the country's largest, DNB, remain the most pressing concern and impediment to a completely cashless society (Berglund, 2017). Computer glitches, power outages, and hacking are all examples of how fragile the digital society can be (Hovland, 2017). For instance hacking, private information of people can be shared across the internet, steal personal information or possibly money. Furthermore,

power outages can occur for a variety of reasons, including weather or natural disasters, which can cause the technology to fail (NorwayInsight, 2017).

Datatilsynet, the Norwegian government's privacy agency, is concerned that requiring Norwegians to use electronic banking and transactions would build and leave records of all they buy. To prevent leaving any electronic footprints or details for marketing experts, some people also prefer to pay with cash at places like the grocery store, pharmacy, and Vinmonopolet (Berglund, 2017).

4.1.4 Past and Future plans

Since cash is becoming scarce in Norway, the central bank, Norges Bank, is working to create a digital currency for the country's people. In the same way that cash is a claim on the central bank, such money is a claim on the central bank denominated in the official unit of account. Low and falling cash consumption, as well as the precautionary principle, are driving Norges Bank's CBDC study. Cash offers a range of benefits to the payment system that may be essential to keep and grow further by issuing a CBDC: An independent backup for payment solutions focused on bank deposits, a credit-risk-free alternative to bank deposits that can promote payments industry competition, and legal tender that can be used by anyone (Norges Bank, 2021).

4.2 Sweden

Sweden has gained attention as having the fastest and greatest decrease in cash around the world for quite a while. They have this development as one of the countries in which the digitalisation of society as a whole has come furthest (Riksbank, 2019). Furthermore, Sweden is considered as the first mover or early adopters driving for electronic payments using smartphones with a valid number to make a transfer instantly. Studies have claimed that by 2023, it will become a norm that many shops will no longer accept cash as a means of payment meaning that it will be the first country taking digital and card payments only (High, 2020).

Regardless of whether cash does not totally vanish, a circumstance wherein cash is not, at this point commonly acknowledged as a method for payments would be tantamount to a cashless society. The Swedish Riksbank considered whether cash should be modernized to find a way into the advanced economy (Riksbank, 2019). The exploitation of notes and coins has been declining in Sweden for a quite long time and instant mobile phone payments and other new technologies implies it has now dwindled to practically insignificant levels (Staff, 2018).

4.2.1 E-commerce

Sweden is the fifth most connected country in the world, with 94.8 percent of the population connected to the internet. After South Korea, the country has the world's second highest average internet link speed. Fast fibres networks are available to roughly two-thirds of homes. In rural areas, however, three out of every four households still use antiquated technology to access the internet (Nordea Trade, 2021).

Payment by invoice is the most common online payment method in Sweden (E-Commerce News, 2021). In 2017, invoices (37%), debit and credit cards (26%), direct bank payment (17%), Paypal, Payson, and similar (8%), and Swish (8%), a local app-based payment system were the most common payment methods in the nation (8%). It's particularly common among online-shopping by using an invoice for Swedish seniors, while Swish is more common among young people (Nordea Trade, 2021).

Despite the fact that e-commerce is widely available across Sweden, the most active online shoppers are concentrated in inland municipalities in the north. Although desktop and tablet visits are expected to decline, smartphones are expected to become increasingly popular, accounting for 64 percent of all e-commerce traffic in Sweden. One of the key reasons why Swedes prefer to shop online rather than in stores is that they can shop at any time. A larger and greater range of items, as well as lower costs, are all attractive aspects of online shopping (Nordea Trade, 2021).

4.2.2 Cultural aspects

Sweden's culture of creativity and early technology adoption, as well as the country's high quality of life, have all aided the transition. Banks and the Swedish government encourage citizens to adopt the cashless economy. Swish is on its way to becoming the Swedish mobile payment standard. In Sweden, more than half of the population uses the application. In Sweden, cash is used by just around a quarter of the population.

Transitioning children are also a part of the process. Many of them would never experience what it was like to live in a world where cash was generally accepted. The majority of Generation Alpha children in Sweden will only see printed money in pictures, videos, and museums. Debit cards are issued by Swedish banks to people aged seven and up (with parental permission), accounting for more than 97 percent of the population. This familiarizes these young people with the cashless world that will be a part of their lives in the future (Fourtane, 2020).

There are concerns for older people with dementia. They could have a problem using smartphones. That's something that needs to be addressed. Then we have groups of immigrants that are not tech savvy. They will be at a disadvantage. If you don't have the Swedish central registration number, you can't get mobile payment solutions. It will also be more difficult for beggars (Savage, 2017).

4.2.3 Privacy and Security concern

The technology system is susceptible to being tampered with or manipulated, which could lead to identity theft, rising consumer debt and cyber-attacks. By cutting off the payment system, people could be totally helpless since there aren't any options to pay if cash can't be used (Savage, 2017). The privacy information when people use digital payment options is that everyone can be traced. The privacy will be lost (Knowledge Wharton, 2018).

4.2.4 Past and future plans

The Riksbank began a task in the spring of 2017 to look at the degree for the Riksbank to give a central bank digital currency (CBDC), an ‘e-krona’. An e-krona would give the general public access to a digital complement to cash, where the state would ensure the estimation of the money (Riksbank, 2019). In today’s date, 2021, the Riksbank is trying to find a solution on how people are going to get access and test the digital currency. The test consumer will be able to store e-krona in a digital wallet in the test environment. Deposits and transfers, as well as making and receiving payments, will all be possible via this digital wallet, which will be accessible through a smartphone app. The user will also be able to pay with wearables like smart watches and credit cards. The technology must be user-friendly and accessible to everyone. E-krona will be available 24 hours a day, seven days a week, and payments will be instant. The pilot will also look at developing a technology that allows the e-krona to be used offline (Riksbank, 2021).

4.3 Japan

Japan is one of the rare examples of a developed country that still uses cash extensively.

4.3.1 Consumer behavior

Cash has been a primary source of payment and the most commonly used payment methods as it accounted for 82% of payments (Cheng, 2021). However, in recent years a higher tendency towards cashless payments was encouraged by several investments especially in the mobile payment sector.

In 2019, about 21,5% of the country’s population is using mobile payment and it is expected to rise (Kats, 2020). In 2019, around 38% of smartphone users in Japan observed that they paid with their mobile phone in a store making an increased proportion of 25% compared to the previous year (Kats, 2020). Therefore, according to

the statistics from 2019 more people have used electronic payments via credit or debit card and mobile payments while the use of cash has declined by almost 10% (Kats, 2020). However, a large amount of the payers are still using cash and credit and debit cards and not new technologies.

4.3.2 Disruptive innovations

New technological innovations, such as paying by scanning the QR codes and includes PayPay and Line Pay are also on the way to becoming popular use of payment methods (Kats, 2020). As the consumer preferences are changing, it is more convenient for both the vendor with respect to cost-effectiveness and the payer by just scanning a code to pay. PayPay for instance has experienced a rise in their usage and has been the most used app on a daily basis for mobile payments in Japan (Sheikholeslami, 2020).

4.3.3 E-commerce

The main e-commerce companies currently consist of a domestic e-commerce company Rakuten and international e-commerce companies Yahoo! Shopping and Amazon Japan which make up more than half of the Japan e-commerce shares combined. In 2019, bank cards made up 65% of the payments in online shopping. While cash payment in e-commerce still made up around 13% of transactions (JPMorgan, 2019).

4.3.4 Governmental actions

The government has made initiatives to make paying without cash more cost saving and convenient such as discount programs which are supposed to offset the effects of the consumption tax increase in October 2019 (Kats, 2020). Thus, using cashless payments at certain stores, players are able to enroll into cashback offers or rewards points with a worth of 5% of the purchase (Kats, 2020). Furthermore, governmental support for mobile applications has boosted the cashless concept. A problem that the government in Japan tried to address by increasing the use of more cashless payments is the concern about tax evasion and to boost productivity - the aim for a more cashless society by 2025 with a rate of 40% (Oshikubo, 2019).

4.3.5 Cultural aspects

Although the demand for cash is still popular across Asia in particular for inclusive finance and consumer protection, it has become a challenge to pay for a taxi for example. During the pandemic in 2020, currency circulation and bank deposits even rose and households and businesses kept holding more cash (Cheng, 2021). Particularly, the elderly prefer to hold cash. Another aspect is that due to natural disasters occurring frequently, Japanese tend to keep cash in large amounts (Cheng, 2021). One of the explanations of the high use of cash is the strong feeling of public safety in this country. The occurrence of fake cash is rather rare, thus a high level of trust in banknotes and coins (Oshikubo, 2019). Another aspect of Japan is the frequent occurrence of natural disasters such as typhoons and earthquakes. This has rendered Japan cashless payment methods useless when getting hit by natural disasters. Nikkan Gendai, a Japanese daily newspaper reported that people could not access ATMs, could not use credit cards or any prepaid cards when the power was cut during those incidents (Kuchikomi, 2019). And there are cases where shops can not make change from large notes, therefore holding onto excessive coins and smaller bills is needed (Kuchikomi, 2019).

4.4 China

China is the second largest economy and home to more than 14 billion people, the largest consumer population in the world.

4.4.1 Consumer behavior

In China with Chinese Mainland in the focus, mobile payments are dominating the payment systems to a point that digital transactions have become a cultural norm. Mobile phone usage rate is significantly higher in developed countries, such as Japan, the US, the UK, and European countries, China's mobile payment adoption rate is significantly higher than these countries (Kennedy, S. I., Yunzhi, G., Ziyuan, F., & Liu, K., 2020). WeChat Pay and Alipay are the two mobile payment applications that have dominated the payment industry on a scale that is unprecedented in the world not only because of how many people are using it in China, but how quickly it has been penetrating the industry within a decade and how it has developed into this unique

payment system despite the average income for Chinese people is way below the standards of developed countries. Studies have shown that these applications are readily accepted by the rural households and low-income families and encourages them to open digital shops and sell products digitally due to the ease of use of those applications (Wang, 2020). In short, the implementation of those payment systems viewed from all angles is not only useful for general spending, but as well as helping the bottom tier of low income and poor families to improve their overall living standards.

4.4.2 Disruptive innovations

QR codes a squared patterned code that allows people to scan using their mobile phones to interact and make payments. This QR code was first implemented in Japan in the car producing industry, and later being widely used in China's cashless society as their most common payment method. This technology works in both ways, either a customer scans with their phone or the seller scans the QR code generated in the mobile phone. The latest disruptive innovation is the exploration of 5G networks in China, notably developed by Huawei. China has already surpassed not only the US, but the rest of the world in the 5g industry. As of 2021, China already installed more than 792,000 5G bases. and more than 260 million users are connected to this new network with a speed of 20 times faster than 4G networks (Alleven, 2021).

4.4.3 E-commerce (Online Shopping)

One of the main reasons that mobile payment systems were accepted by the Chinese population is due to the rise of the e-commerce giants in China. The number of online sales had long surpassed the combination of EU and the US. In 2019, there were more than 710 million online shoppers in China. The online shopping penetration amounted to 79.1% of 1.4 billion Chinese population (Ma, 2021). There are mainly 4 big e-commerce companies in China. T-mall and Taobao (owned by Alibaba), Jingdong, and Pinduoduo.

4.4.4 Governmental actions (Central Banks)

Despite the increasing progress of abandoning cash usage in every possible way, The People's Bank of China, the central bank of mainland China has somehow showed signs of pushing back this progression of completely getting rid of cash by fining companies who refused or failed to accept cash payments for more than 500,000 yuan, approximately 77,000 USD, in the beginning of 2021. Critics said that it could be a measure by the government and central banks to limit the power and market share from the mobile payment providers, WeChat Pay and Alipay (McGregor, 2021). In 2020 China issued and printed 8.98 trillion yuan, which was an increase from the previous year of 8.29 trillion yuan (Statista Research Department, 2021). These are the signs of governmental actions not wanting to completely throw away the rectangular paper notes in the short run.

4.4.5 Cultural aspects

One cultural norm in China is the tendency of saving. According to the World Bank, Chinese savings is up to 44% on average in 2019 (The World Bank, 2021). This makes China topping the list, just behind Ireland, Luxembourg, Qatar and a few African countries, as one of the countries where people make tremendous savings rather than spending. The economy starts to slow down when people stop spending, which is one of the current issues of Chinese economy.

4.4.6 Past and future plans

The Central Bank Digital Currency (CBDC) has made its appearance in China, the digital yuan, which is one of the newest plans by implementing a governmental backed digital currency nationwide (EconoGraphics, 2021). This newly added digital currency will eliminate all merchant fees that are paid by the businesses whenever WeChat Pay or AliPay is being used when making a purchase. This merchant fee varies around 1 to 2 percent in general and is paid to the provider of the mobile payment service. The digital

currency of China is tackling this problem by eliminating all merchant fees when using this digital currency. Ironically, this is a plan that will ultimately try to get rid of cash which China in other areas have signs of not wanting to go completely cashless yet. Digital currency with its technological innovation makes it possible for users to make transactions without being connected to the internet. This plan is currently being tested in a few cities around China and is expected to be rolled out nationwide in the coming years. By 2021, about 86% of all central banks around the world are looking at or in actual development of their own digital currency. Meanwhile China was the first one to make the pilot roll out in April 2020 (Cox, 2021).

4.4.7 Privacy and security concerns

Just like many countries around the world, people are worried about their privacy being tracked by others, especially the big companies and the government. Issues such as being tracked by companies to make personalized promotions based on one's consuming behavior is normal. The latest implementation of Chinese digital yuan also encounters similar privacy concerns as above, yet digital yuan can create more efficient monetary policy and counter criminal activities such as money laundering and tax evasions. The central bank of China claimed that the possibilities of making international transactions are considered.

4.5 The United Kingdom (UK)

Although recent improvements in the way people pay in shops in the UK have been brought on by the use of emerging technology such as smart watches, tablets, phones, and other savvy devices, the recent pandemic in 2020 has been a game changer. Paying with a contactless form has never been easier or more convenient thanks to the rise of various types of technologies, as well as improved affordability as such technology becomes more popular. Tablets, computers, watches, iPods, and other smart devices, as well as jewelry, clothing, and even fingerprints, are examples of such innovations. Now that masks are available in public areas, contactless payment could be one less thing for people to consider when they leave their homes (YorkMix, 2020).

4.5.1 E-Commerce

As the UK government implemented stringent lockdown measures in mid-2020 and 2021, UK shoppers who wanted to buy something other than groceries or medications were unable to do so in-store. In the United Kingdom, 55 percent of the population shops online, with clothing and sporting goods being the most common products. In 2020, 32% of UK online shoppers ordered food from restaurants, fast-food chains, or catering services. Bicycles, mopeds, motorcycles, and other spare parts were the least common services and items among online shoppers, with less than 10% of households opting to buy them online (Abbas, 2021).

PayPal is by far the most common payment method in the UK. In 2018, more than 40% of buyers used PayPal at least once. Prepaid cards are the most common (23.7%), followed by credit cards (23.7%). (17.2 percent). In 2019, 49% of shoppers paid with their PayPal accounts, compared to 37% who paid with a credit or debit card. Fashion and sporting goods are the most common product categories, followed by travel and household products. Movies and music, as well as books and magazines, are other common product categories. Amazon, Tesco, and eBay are the major names in the UK's online shopping industry. Asos, Argos, Play.com, Next, and John Lewis are some of the other major online retailers (E-commerce news, 2020).

More shoppers are using their mobile devices to perform a variety of activities, such as checking email and paying bills. Buying with a smartphone is becoming more convenient, thanks to dedicated applications and "order now" buttons on social media sites (Abbas, 2021).

4.5.2 Cultural aspects

Over eight million adults in the UK (17% of the population) depend on cash to make daily payments in 2020. People in rural areas, in particular, can find it difficult to pay for things digitally due to poor broadband and/or mobile connectivity. Furthermore,

approximately 1.7 million citizens in the United Kingdom do not have a bank account, with 90% of them having low wages and household incomes. The fall in cash threatens to push these already-disadvantaged people even further behind (Green, 2020).

4.5.3 Privacy and security concern

Rural areas will lose their viability and become more vulnerable to cyber-attacks. There would be less anonymity, and it would be more difficult for elderly people to do simple tasks like paying bills. By adopting a cashless society, vulnerable groups of people would be more likely to be scammed or defrauded. About 8 million adults, or around 17% of the UK population, will struggle to survive in a cashless society. Using cash is not an option, but rather a requirement. Digital payment methods aren't yet suitable for all. Many who are unable to provide proof of identification to a bank or other financial institution have few options other than cash. People new to the UK, those coming out of extreme poverty or homelessness, for nearly 1.3 million UK adults do not have a bank account for a variety of reasons. Furthermore, due to insufficient access to broadband, rural areas are among the slowest to move to digital (Cash Matters, 2020).

4.5.4 Past and future plans

Although it does not appear that the UK will go absolutely cashless anytime soon, the recent pandemic means that an increasing number of companies are opting to go contactless.

The decline in cash usage was initially expected to take five years, but analysts now expect it to happen in just two months, signaling a dramatic shift in society. While many people still prefer cash, it appears that contactless is the way of the future (YorkMix, 2020).

4.6 The United States (US)

While the United States lags behind Europe and Asia in terms of cashless transactions, advances in FinTech (financial technologies) and millennials' and GenX'ers' preference for mobile payments are prompting merchants and retailers to accept cashless payments at an increasing pace, in keeping with global trends. A variety of obstacles stand in the way of the United States going cashless. For one thing, some cities are resisting the move to cashless commerce. Cashless transactions are also prohibited in New Jersey, Philadelphia, and Massachusetts. Low-income residents are harmed by cashless shopping, according to lawmakers in these cities (Johnson, n.d.). However, in certain cities and states where proposed laws that prohibit cashless business, the choice of payment methods might soon be taken away from the business owner (Santana, 2019).

4.6.1 E-commerce

In the United States, cards are the most common mode of online payment, accounting for 47 percent of all e-commerce purchases, or \$348.74 billion in annual online sales. Card penetration is one of the highest among the countries included in the survey, with 2.44 debit cards and 2.01 credit cards per capita. Credit and debit cards have been an enabler of digital wallets in the United States due to their widespread use. By seamlessly combining loyalty services and customized financing deals, digital wallets have the ability to expand the advantages of physical cards with smartphones (Paymentwall, 2021).

The Amazon Go stores, which use computer vision technology instead of cashiers to record what customers pick and then automatically charge their card, are the most high-profile example of a cashless company (Santana, 2019). This means that Amazon revenues accounted for almost a third of all e-commerce sales growth in the United States in 2020, accounting for 31.4 percent. That is a large amount of online sales growth, and it is one from the e-commerce giant. Amazon has accounted for a large portion of the growth of online shopping in the United States for years (even decades). However, by 2020, it is clear that the pandemic had brought a lot of people online—and

they were not all shopping on Amazon. According to Digital Commerce 360, at least some are shopping on other major online retail sites like Walmart, Best Buy, Target, and Kroger—all top 20 retailers on track to increase online revenue by more than 85 percent in fiscal 2020 (Ali, 2021).

4.6.2 Cultural aspects

With the exception of older baby boomers, who split their responses nearly evenly between credit cards (34%), debit cards (34%), and cash, cash was either the most popular or second-most popular payment form among all age groups (32%). People who are poor, disabled, or elderly, as well as those who live in rural areas where high-speed internet services are often unreliable or nonexistent, are among the most vulnerable. These groups may face increased risks of financial violence, loneliness, and debt if their country transitions to a cashless society too quickly (Jennings, 2019).

People in the United States tip cash to people who provide services for which a transaction is not needed, such as an airport shuttle bus driver. Americans also use cash to teach their children about money and budgeting, paying weekly allowances and rewarding children who are too young for bank accounts for chores and other activities (Moore, 2020). There are people of low income who do not have bank accounts or refuse to open bank accounts. But it is not just low-income Americans; many people simply hate banks or have had bad experiences with them in the past, so they have no inclination to open one (Holzhauer, 2020).

4.6.3 Privacy and Security concern

The U.S. government was secretly prying on ordinary citizens' lives in order to determine which companies should be cut off from the financial payment system. For all intents and purposes, these companies will cease to exist. When money becomes information, personal privacy is jeopardized. Cashless payments leave a digital trail that is much easier to monitor for government agencies. Cybercriminals and hackers would

have easier access to these cashless payments. Not only that, but government officials may, for example, opt to exclude any entity or individual from the global financial system based on their personal data (Lindsey, 2017).

4.6.4 Past and future plans

The pandemic will be a powerful force for reform in the payments landscape, but it will not result in the abolition of cash in the United States. Change would most likely come in the form of a drive for stricter regulations to protect consumer financial data, as well as a rethinking of the position of large fintech firms like Mastercard and Visa, and possibly even breaking up (Moore, 2020). For example, the U.S. is currently creating a new form of digital asset known as the digital dollar. This policy would undoubtedly have an effect on the global economy and result in significant change. They are currently developing a digital dollar wallet to store all of the digital currencies (Geroni, 2021). Despite the fact that it is a digital currency, federal banks will be in charge of controlling and retaining the currency's value. Regardless, the availability of new and exciting financial technology, Americans continue to rely on cash (Moore, 2020).

4.7 Emerging economies

Emerging markets, also known as developing countries or emerging economies, are countries that are increasing their productive potential. They are departing from their conventional economies, which were based on agriculture and raw material exports. Leaders of developed countries want to improve the lives of their people. They are increasingly industrializing and transitioning to a mixed economy or free market (Amadeo, 2020). Some well-known emerging market countries are for example India and Kenya.

4.8 India

India is the country most favorable to a cashless society, with 79% of Indians believing that going cashless will be beneficial to their country. The Covid-19 pandemic sparked a major change in India toward digital transactions, in line with the Prime Minister's vision of a Digital India. To transact financially online, Indian consumers can use e-wallets, United Payments Interface (UPI) systems, Unstructured Supplementary Service Data (USSD) applications, and more. During the lockdown in April and May in 2020, MobiKwik, an online UPI application, gained about six million new users.

Conventional banks started incentivizing customers to make digital payments from their own bank accounts after demonetization. Other players have started to encourage cashless transactions for individuals and companies as a natural move forward from here. Despite the fact that consumer spending in industries such as travel, fuel, retail, and entertainment has decreased in recent months, a more cautious lifestyle – prompted by the government's call to remain indoors and pursue a more “digital” way of life – has led many first-timers and inexperienced internet users to accept digital payments, such as for utility bill payments, OTT, and other services (Kaur, 2021).

4.8.1 E-commerce

In December 2017, India had 481 million Internet users, making it the world's second-largest country in terms of online population (Ghosh, 2021). The e-commerce industry has had a direct impact on India's micro, small, and medium enterprises (MSME) by providing funding, technology, and training, as well as having a positive cascading effect on other industries. Furthermore, the Indian e-commerce industry has been on an upward trajectory, and by 2034, it is projected to overtake the United States to become the world's second largest e-commerce market. Digital payments, hyper-local logistics, analytics-driven customer interaction, and digital ads are examples of technology-enabled technologies that will likely help the sector's growth. In the long run, the expansion of the e-commerce market would increase jobs, increase export sales, increase tax collection by ex-chequers, and provide better goods and services to

consumers. By 2022, smartphone use is projected to increase by 84 percent, to 859 million (IBEF, 2021).

4.8.2 Cultural aspects

The foundation for a successful cashless economy is the establishment of a digital infrastructure. However, the majority of Indians are poor and live in rural areas, and they lack access to smartphones and are unaware of the benefits of using simple handsets to make cashless payments. Despite the fact that India has the most bank branches in the world, rural India remains underserved by the banking system. They must travel long distances to access banking services. Urban India has 295 million internet users out of a population of 455 million people. This represents the major infrastructure imbalance between urban and rural life. As a result, rural India's internet penetration is extremely low. However, a country's digital payment system or cashless economy will struggle unless people participate actively at all levels (Ghosh, 2021).

4.8.3 Privacy and security concern

Cyber risks and stability are two major disadvantages to digital payment systems. Most banks and financial institutions are vulnerable to cyber-attacks. Hackers are coming up with new ways to steal money. There's a good chance that sensitive information will be compromised. Banks must ensure that their systems are well-maintained and updated in order to deter all forms of cybercrime (Ghosh, 2021).

4.9 Kenya

In terms of digital payments, Kenya is ahead of most other African countries. Nigeria, for example, is still so adamant about its banknotes that even some foreign hotels prefer cash. Kenya became a global leader in mobile payments with the launch of M-Pesa in 2007. This shifted Kenya's economic dynamics by reducing reliance on physical cash

and promoting financial inclusion. The percentage of the population with access to financial services has increased from 14% in 2006 to over 80% in 2020, owing largely to the availability of mobile money. M-Pesa technology has since been exported to more than a half-dozen African, Asian, and Eastern European countries (Staff, 2020). The Kenyan economy's competitiveness has improved as a result of this scheme. It has cut down on the time spent making frequent trips to the bank by allowing users to move funds with a single click of a button (Kane, 2016).

4.9.1 E-Commerce

Kenya has one of Africa's most vibrant e-commerce ecosystems, with steady growth. Electronic trade, also known as e-commerce, may be classified as either domestic or cross-border in Kenya. Domestic e-commerce occurs within a country's borders, whereas cross-border e-commerce occurs across international borders. By cross-border e-commerce, there is a strong demand for goods that are unavailable in Kenya. These items are often purchased via e-commerce sites like eBay, AliExpress, and Amazon. Also common in Kenya is e-commerce export; there is a strong demand from Europe and Asia for authentic African goods, which are mostly sold on eBay. Meanwhile the domestic e-commerce ecosystem has been gradually increasing, attracting more local players over the last few years. Consider how marketplaces adjust to their surroundings, but also how conventional brick-and-mortar businesses are embracing e-commerce.

Mobile connectivity has improved access to the internet in Kenya, with more than 4 million people connecting to the mobile internet between 2014 and 2017, rising penetration from 16% to 24%. Due to the low penetration of debit and credit cards such as Mastercard and Visa in the Kenyan market, the most common domestic e-commerce payment methods are M-pesa, Airtel Money, T-Kash, and Equitel. Despite the fact that online payment infrastructure is in place, with many payment gateways offering solutions for e-commerce players to accept payments online, cash should not be overlooked; businesses selling online often accept cash on delivery as a payment option (Clickpesa, 2020).

4.9.2 Cultural aspects

Six out of ten Kenyans do not have a regular bank account. The most common reason was lack of savings. Almost ten percent of those who take out a loan via such an app cannot repay it. With traditional bank loans, the figure is only two percent. Another problem is gambling, because that is booming in Kenya. More than three quarters of the young people gamble, half a million have already been unable to repay a loan according to government authorities. This huge increase would hardly have been possible without simple mobile money and quick loans (Henning, 2019).

4.9.3 Privacy and security concern

The leak of personal information through Safaricom, who also operates the M-pesa mobile payment system (Henning, 2019). Just like any other countries, by operating a cashless system for the country, personal privacy is jeopardized. For government agencies, cashless payments leave a digital trail that is far easier to track. These cashless payments will be more accessible to cybercriminals and hackers.

4.9.4 Past and future plans

The Central Bank of Kenya launched a new, modern, and visually appealing collection of Kenyan Shillings in 2019. This collection of Kenyan banknotes and coins is likely to be the last, and it appears that it will only be in circulation for a short time. Cash encourages criminal activity and poses a security risk due to its ease of theft. Not only that, but the expense of holding cash safe in transit is prohibitively high at the bank and merchant level (Kiruga, 2019).

While the pandemic has influenced the rise in digital payments, it also corresponds to a number of long-standing government policies in emerging markets that promote cashless development. The decision is focused on a number of factors, including access to digital payment devices and the cost of the transaction and payment solution. All of

these components must be broken down to ensure that the cost of digital transactions is low enough to enable more people to go digital (Oxford Business Group, 2020).

5 Analysis

In this section, we will apply the MCS on the collected data. We have constructed two figures showing statistics of different countries of interest and their corresponding percentage of cashless payment transactions. With the help of the stakeholder theory, we can use it for further explanation of different perspectives.

The percentages presented below come from polls conducted by central banks in different countries, as well as from the central banks released data. Furthermore, international organizations that investigated cashless payment methods in their respective countries. This allowed us to create a figure based on the numbers we discovered; which applies Figures 3 and 4.

The figures below shows the number of transactions and volume of transactions (in percent), the use of cashless payments in various countries:

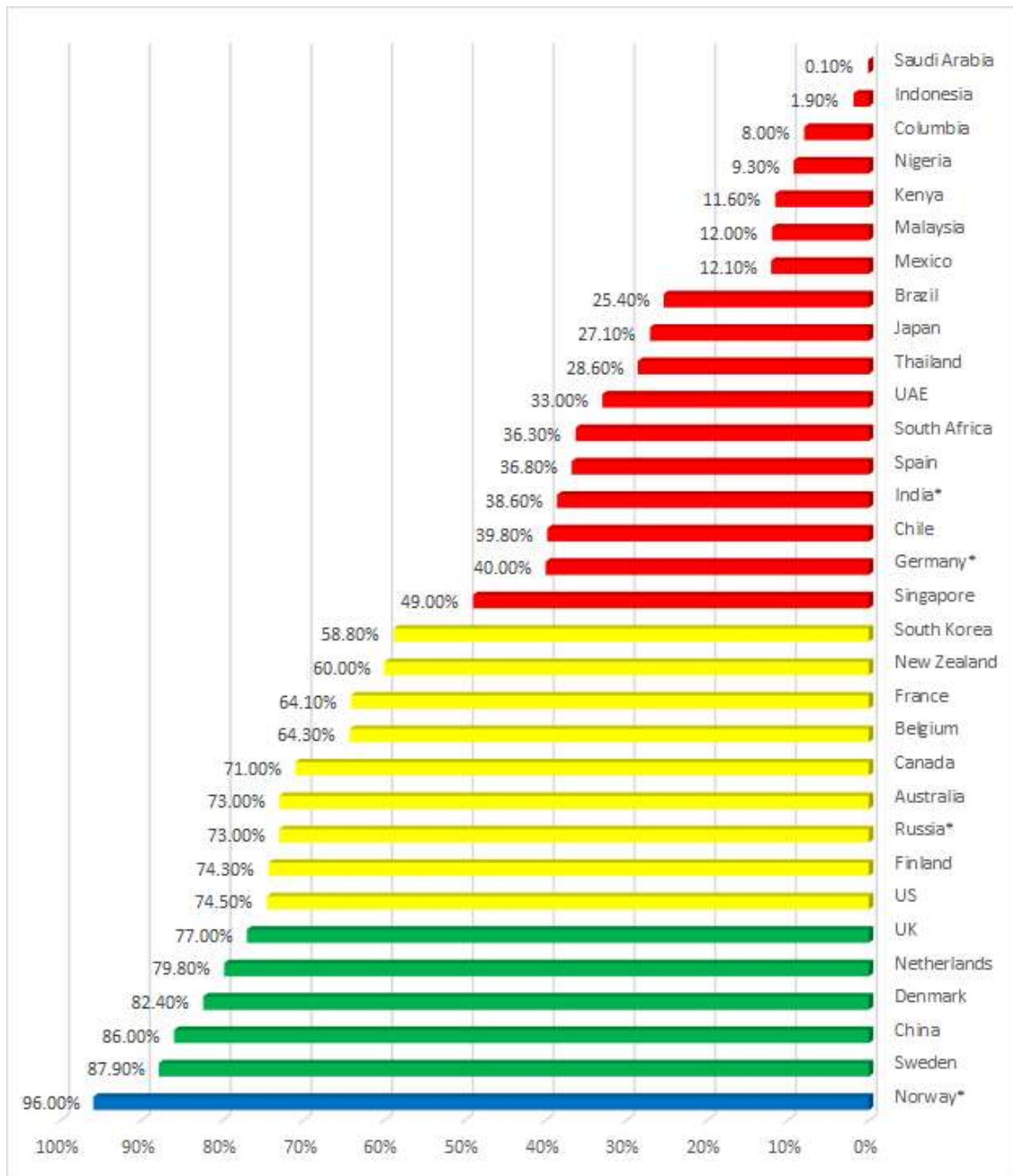


Figure 3: A chart of percentages of total number of transactions made by cashless payment methods in 2019 and 2020*. Source: Constructed by the authors of this paper through gathering data from corresponding central banks and an official survey conducted by the central banks and several organizations.

Note that some of the numbers are not accurately representing the countries' actual cashless versus cash payments as these numbers are mostly made by survey samples and could be misleading and misrepresent the actual population. For instance, there are speculations and articles that claimed Sweden could be well over 90%, which in fact is surely likely to be true with the addition of outer force during 2020, the pandemic. The

bars in the chart are colored into corresponding colors to indicate their current cashless phase in the MCS. As of 2020 from a survey conducted by the government of Norway it appears that in general about 96% of all payments made are by cashless methods. This makes Norway in the second last phase of the model, which is also the very first country to actually step into this phase, disregarding that most of the other numbers are from 2019. We believe this has to do with the fact that the year of 2020 is an unusual year. The chart would have been more different if the data were all taken in 2020.

Below we have another chart presenting us how much those cashless payment transactions are contributing to the total transaction by volume or worth of money. Clearly speaking, the sum of worth of money made by cashless transactions is always bigger than the number of transactions made by cashless transactions which is true to all the countries in our list. This also signifies that it does not matter which country it is, cash is mostly used in smaller purchases and costly purchases will always be of other payment methods. At the end of the day, it is uncommon for people to purchase a car by cash.

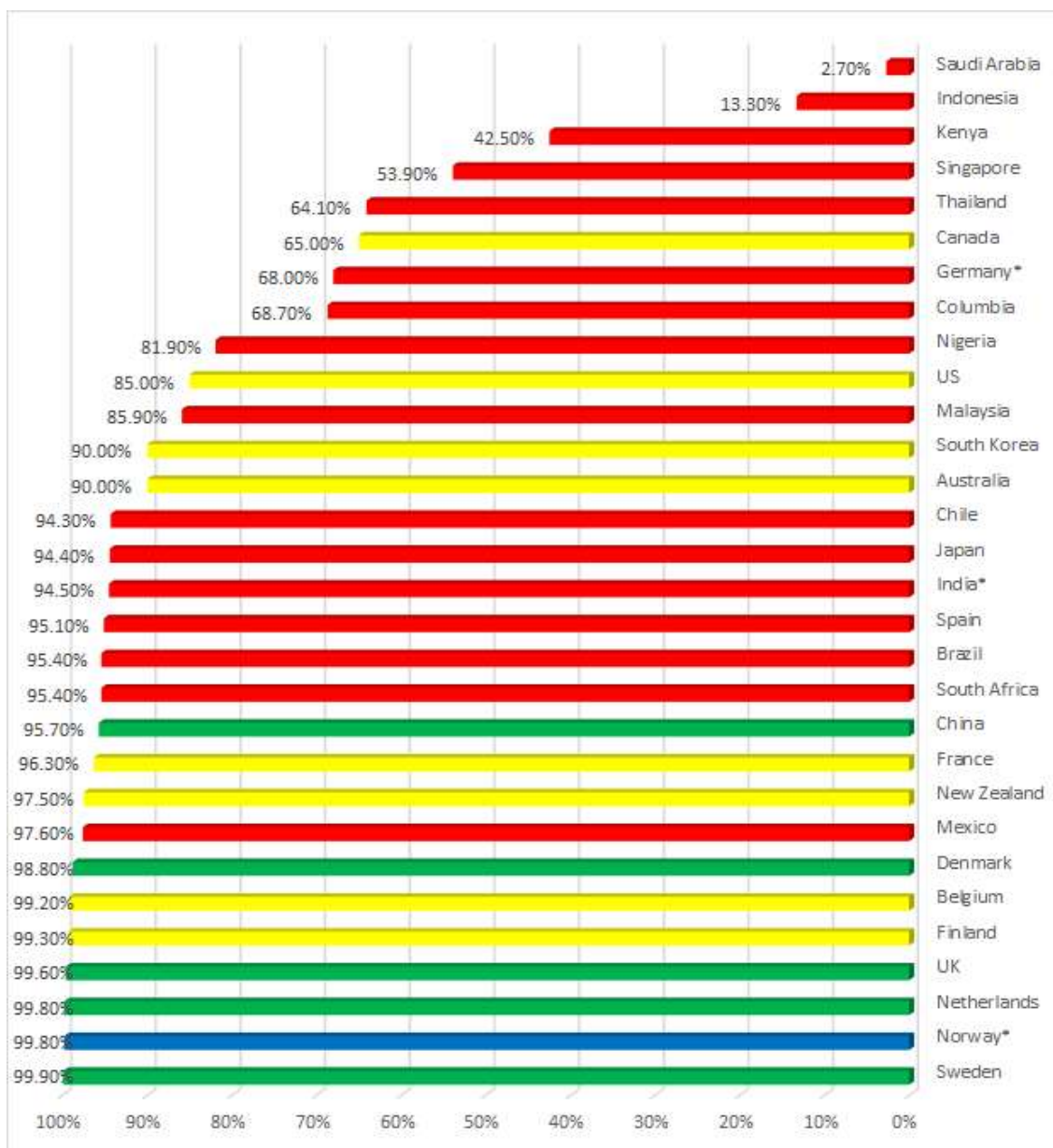


Figure 4: A chart of percentages of transaction volumes made by cashless payment methods in 2019 and 2020*. No data was found for UAE and Russia. Source: Constructed by the authors of this paper through gathering data from corresponding central banks and an official survey conducted by the central banks and several organizations.

What is worth mentioning is the fact that in Japan, a developed country with most of the cashless payment methods readily available in most circumstances, yet Japanese people generally prefer holding a good amount of cash due to the frequent occurrence of natural disasters in precaution (Kuchikomi, 2019). The U.S. is also another example of a high number of cash transactions which is believed to come from its tipping culture and the level of distrust towards commercial banks in the US. China on the other hand is a

developing country, mainly due to the fact that average income is still way lower than developed countries, yet it is extensively adopting the mobile payment system throughout the country and one study shows that Chinese people in urbanized cities no longer walk with their physical wallets including bank cards (VanEck, 2021). This is due to the well established e-commerce system and the ease of use in those scanning technologies. Norway in this case shows a strong tendency toward NFC technologies and is already favorably accepted by Norwegian people. This is also due to the trust in Norwegian banks and thinking that a bank card is the safest payment instrument out of many. Similarly, Sweden took this into the next level as there is already a trend of retailers in Sweden not accepting cash as a payment option, and critics said that we will see more of those retailers in the foreseeable future.

5.1 Stakeholder theory

The stakeholder theory is a collection of ideas, expressions, and metaphors related to the central thesis that a company's primary goal is to create as much value for its stakeholders as possible. On the one hand, the stakeholder theory contradicts the 'established truth' that good and efficient business operations are all about maximizing profits for the owners' benefit. On the other hand, the theory made the almost obvious point that good and efficient business operations in practice require balancing various considerations (Carson, S., Kosberg, N., Skauge, T. & Laudal, T., 2015, p. 179-181). With the stakeholders interests, we are going to look into Norway with perspective of this three groups:

- Government and central banks
- The public
- Businesses

5.1.1 The government and central banks

From what we have collected in the data section, we know that openness and trust in emerging new digital technologies is one of the reasons why Norway has confidence in

implementing a cashless society. The Norwegian central bank is therefore experimenting with the central digital bank currency that might be the future “cash” as a replacement for physical cash. By doing that, there would be cost reductions since it is expensive to produce banknotes and coins. Furthermore, with digital currency, the transactions can be performed immediately from anywhere.

In addition, it would be easier for the government or the authorities to trace the digital transaction to prevent crime, or check individuals for tax purposes. The government can have an overview in case something happens, such as hiding funds. With digitalization, it provides for fighting crime because physical cash is something people can steal and, but with technology it would be difficult for fraud and hindering criminal activity. It will be easier to enforce workplace standards, such as salary and job security, in a cashless society, and it will also be possible to fund costly social security programs. Overall, the tradeoff appears to be in citizens' benefit (Olson, 2018, p.321-337).

5.1.2 The public

Just like what we mentioned before, one of the most important factors is trust, as it certainly has proven to be an incremental to societal change. For example, most Norwegians use bank cards as payment, and one of the functions is tapping. If the amount is less than NOK 500, then there is no need to enter a code. Which is why this function is something that many people use because it doesn't take a long time, and they only need to place the card on the terminal device. This helps both the supplier and customer as it saves a lot of times. Moreover, most people prefer to use cards rather than cash because it is more convenient.

Through research, we also found that there are mixed reactions from the younger and older generation. The reason is that elderly use more cash compared to digital technologies, like smartphones and computers. The elderly are the most vulnerable when it comes to technology since their personal identity can be stolen when they are not good digital. Not to mention that it is harder for them to learn and use new technologies.

5.1.3 Businesses

Merchants and service providers have realized that going cashless allows them to save both time and money compared to dealing with cash (FinExtra, 2020). More leaner and more efficient, and lower transaction costs for most businesses. When it comes to suppliers and businesses, they are constantly looking for innovative ways to assist customers. It saves time and money, as well as making things easier to implement for both businesses and customers (Berglund, 2017).

5.1.4 Other countries

As previously stated, there are common aspects for all countries when it comes to digital payment systems, so both the older and younger generations are affected: first, there is an age requirement for registering in an app. Elderly having a hard time coping and learning the new technology as they are not used to it (Cashless Economy, n.d.).

This is relevant not only for Norway, but also for other countries. Sweden, for example, is one of the Nordic countries going toward a cashless society since the usage of technology has expanded in terms of payment method, and they are aiming to implement the 'e-krona,' as described in the thesis. It turns out that the authorities make the public feel comfortable with payment and that the populace trusts the system, which means that fewer people use cash and prefer to utilize modern technology instead. Furthermore, most countries' spending on money has fallen as a result of the pandemic, resulting in most countries investing more in digital. The United Kingdom is an example of this; because currency is deemed unsanitary, the public was asked to pay for things using a card or a mobile phone. Something else happened that caused the public to shop more online than before (YorkMix, 2020).

5.2 Concurrent trend: Central Bank Digital Currency

This is often being compared with the cryptocurrencies. But unlike cryptocurrency with its goal to create a decentralized currency with no control by the government and the central bank using blockchain technology, CBDC is centralizing the currency with full control and trackable record of transactions being made (Atlantic Council, 2021). A survey from the Bank for International Settlements in 2020 has indicated that almost every central banks in the world are looking into the possibility of CBDC, and about 60% of the central banks are working on concept testing, and about 14% of the central banks are in development of CBDC or already launched a pilot program (Cox, 2021). This will most likely push the progress of cashless society further (Cox, 2021). The reason that central banks around the world are trying to implement this is due to all the benefits this technological innovation will provide to society. Credit card usage of the US for instance, a study from the Bank of International Settlements showed that the fact of owning a credit card itself will greatly increase the spending of credit cards, which will indeed lead to more people not able to pay back their credits in time thus ending up with financial difficulties. Other studies said that this extra spending could be as high as 83% increase in spending, and the reason behind this is that people focus on benefits over costs (Peterson, 2019). Cash on the other hand struggles with high cost of maintenance and the circulation of coins and banknotes.

5.3 What Norway should be doing based on the model

We analyze the achievements as well as the drivers and resistances of other nations to draw a conclusion and make suggestions of what Norway as a country should carry out in order to achieve fully cashless.

5.3.1 Achievements of other nations

Worth mentioning is the disruptive innovations of many countries. The appearance of Credit cards like Visa and Mastercard in the US has changed the world of payment systems altogether (Kalyanaraman, 2020) enabling people to pay by credit instead of cash. The introduction of digital transactions like Paypal and other digital transfer methods. The implementation of mobile payments in China despite being a developing country. M-Pesa, the mobile wallet has brought the digital revolution in Kenya despite

being poorer in terms of economic growth. The anticipation of Sweden going completely cashless by 2023 from the efforts of government and banks to promote cash-free payments only (Fourtane, 2020).

5.3.2 Norway's benefits and drawbacks

Despite the fact that Norway is one of the countries that are almost cashless, there are always drawbacks and benefits that keep the country from becoming entirely cash-free. One of the main reasons that the population in Norway is positive towards digital payments is the trust from authorities. The benefits of Norway becoming a completely cashless society include cost savings due to the elimination of the need to print banknotes and coins. Moreover, considering that physical cash could be unhygienic and inconvenient to carry around, digital payments would be more practical. Furthermore, international transactions become easier as there is no need to concern about the withdrawal of their cash for conversion, since the conversion of foreign currencies with its exchange rate takes place automatically in digital. Another point is that authorities can use information from digital payment systems to find out tax purposes in case of illegal activities such as financial frauds since the digital transactions will leave footprints on records (Olson, 2018, p.321-337).

Meanwhile, the drawbacks of Norway were to achieve phase 5, digital transactions are not anonymous and all transactions are traceable. Personal information would be stored on the internet, which could lead to cyber-attacks as people could steal the information (Daily Management Review, 2019). There's also the risk of technology malfunctions like power outages or internet outages. What's more, because information is so important in our lives, it is critical that children learn about money at a young age. Cashless payments have an impact on children's perceptions of money and attitudes toward saving. They also deprive youngsters of crucial communication skills, which may have long-term effects. Coins and banknotes have a significant symbolic meaning in addition to their financial value, which helps children grasp how money works (Daily Management Review, 2019). These drawbacks need to be tackled by Norway accordingly in order to freely move into the final phase of MCS.

5.3.3 Drivers and resistances from most countries

Inevitably, progressing towards a truly cashless society is something happening everywhere because there are many drivers. The expansion of e-commerce in recent years has led to an increasing number of online-shoppers. Governments' aim to deal with thefts, money laundering thefts, tax evasions etc. The economy wants efficiency with fast movement of money. And all the benefits mentioned previously are also the drivers that push countries to head toward a cashless society.

5.3.4 Other significant factors

The other significant factors that will reinforce the cashless society are that a country has a strong digital payment infrastructure and favorable regulations from the governments. The infrastructure such as internet coverage, and payment options availability. Another significant factor worth mentioning is the fact that not everyone has a bank account. This is crucial to the concept of cashless society as most of the cashless payments are built upon using bank accounts to make payments. Lastly is the mission of building smart cities of the future. The prerequisite of making those smart cities is to make cash inaccessible.

6 Discussion

We will discuss the advantages and disadvantages of creating a cashless society in this section, as well as the pros and cons of the model of cashlessness in society.

Furthermore, what kind of research limitation there is and to explore the consequences of Covid-19 has been given to other countries.

6.1 Benefits and costs in achieving cashless society

From the analysis section about benefits and drawbacks in Norway, by comparing it general for all countries, we can see that there are similarities of the advantages and

disadvantages of achieving a cashless society. The benefits would be faster transactions, more hygienic if the banknotes and coins were to be removed, and if all countries were to have a cash-free society, it would be easier to find out the currency through the internet and the need for withdrawing cash would be unnecessary. Furthermore, there would be lower crime rates since it would be possible for the governments to track down the transactions if something were to be suspicious and the crime rate can be reduced.

Developing countries might find it difficult to implement a cashless society. However, it is even more important that the key factor, that is the acceptance and trust in order for a society to function well. It will be difficult to go cashless if the public does not trust the authorities. Another issue is privacy concerns, as the government has the ability to monitor people's transactions. As a side effect, this may not be applicable to all countries, as some developed countries have poor regions. Which could lead to international currency would be unavailable to some countries since some could still use cash and not digital payment systems. Furthermore, occurrences such as no internet connectivity or technology failures, such as internet and power outages are also a possibility. In addition, creating a bank account could be impossible for the poor. Children's attitudes on money are influenced by cashless payments as they could have a hard time grasping the value of money since there is no physical cash to count.

6.2 Advantages and disadvantages of the model

We have observed some advantages and disadvantages using MCS as the base for our analysis. The benefit of the MCS model is that it allows us to see how far a country is, in terms of cashless advancement in comparison to other countries. It could also be used to compare similarities and differences in addition from the subcategories. The model can also be used to predict a country's future plans in regard to the money system, and then make adjustments accordingly.

The disadvantages of this model include the difficulty in obtaining data on the percentage of cashless, particularly in nations such as developing countries or countries

that are poor. Without good and reliable data, the model may not represent the actual state of the country.

Another disadvantage of the model to be noted is concerning the momentum of change in the state of a society's cashlessness. When a country is accustomed to the use of mobile phones, the rate of which the country will turn into cashless is greatly increased. Although the country may have a relatively low percentage of transactions being cashless, the situation may change within a few years. The model fails to take this into account which is a weakness in the MCS model.

6.3 Research limitation

There are limitations to how the research was conducted because it was difficult to obtain data from various nations to compare, particularly from developing countries. However, there are possibilities for further research as there could be other options for data collection methods or there are some potential subcategories that have not been taken into consideration. This will certainly become much easier to perform as cashless is becoming more impactful. Another limitation of this paper is the other potential subcategories of the model that are not included to cover every aspect of this concept. Therefore this model is expected to be improved synchronously as new concepts appear along the line in the future.

6.3.1 The Impact of the Covid-19

The COVID-19 pandemic has adjusted people's habits in most countries, not only in terms of personal hygiene, but also in terms of financial transactions. During the pandemic, cash usage has plummeted dramatically. People prefer to stay at home and use online channels such as e-commerce and mobile payments (Jia, 2020). The People's Bank of China began disinfecting banknotes in virus-infected areas. The Federal Reserve of the US implemented a method of quarantining money. People were advised to use electronic payments by the Reserve Bank of India (Filipiak, n.d.).

Consumers and small business owners in Germany have long believed that “cash is king,” but this is gradually changing because to Covid-19. Despite the introduction of

new payment systems such as Apple Pay and Google Pay in recent years, cash remains the preferred payment option for many German company owners. Cash payments, on the other hand, have been actively discouraged in Germany for the first time since the start of the pandemic (Bambora, 2020). To speed up the transactions, certain establishments in Singapore were going completely cashless during Covid-19. More businesses are implementing cashless payment methods as a result of reduced human contacts and the opening of self check-out kiosks (Kwee & Kok, 2021). Meanwhile in Southeast Asia, according to the National Bank of Cambodia, customers and retailers urged to use e-wallets and apps to help limit the spread of Covid-19 (Xinhua, 2021). In addition, more people in Vietnam opt for e-payment over traditional payment methods to limit the physical contacts because of the pandemic (Ngoc, 2021). In Norway, digital menus are used in many restaurants and in some places there are no other options available for ordering food (Tennøe, 2021). There is a trend of people using digitized payment solutions as a result of the pandemic.

Sweden is one of the countries that does not use much cash and has banned the usage of cash in most stores. The pandemic resulting in the usage of digital payment methods has expanded even more in Sweden (Staff, 2018). Another example is the United Kingdom, where people were unable to visit physical stores due to lockdown, online shopping gained in popularity and the usage of cash dropped. Many people bought products online, such as food or other daily essentials, leading to the use of more cashless payment systems in the UK.

As a result of the pandemic, most countries are beginning to adopt new attitudes and behaviors toward digital payment methods. Furthermore, because people are unable to visit physical stores due to the lockdown, online shopping has risen and become popular among the consumers.

7 Conclusion

Cashless society is a widespread term in the modern world. The introduction of new technologies has refined the way of making transactions, thus galvanizing the world to

examine the possibilities and opportunities of implementing a cashless society. Norway is by far the most cashless country in the world during the time of writing this paper. Nevertheless, there are still obstacles that need to be tackled by Norway as a whole before moving into a completely cashless society as our definition of complete cashless society is that cash only accounted for less than 1 percent of the number of transactions.

This paper has proposed a model of cashlessness of a society by characterizing the phases of MCS and further investigating the subcategories that has substantial influence in the progress of becoming a cashless society. Particularly the research about its consumer behavior, disruptive innovations, e-commerce, privacy concerns, governmental actions, cultural aspects, and past and future plans. In general well-developed countries have a higher degree of cashlessness mainly due to the well-established payment systems, and with the subcategories properly managed.

Unlike Sweden, Norway still needs the little extra push from governmental actions, which currently has shown that the Norwegian government still does not prefer to fully phase out the physical cash any sooner. We anticipate to see a growing number of research on this topic of cashlessness onwards. This paper including the model is going to serve as a groundwork of progression toward cashless, not only Norway but any countries around the world.

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Appendices

A - Detailed table of non-cash transactions in countries

Country:	Year:	Volume (money spent)		Number of transactions (counts)	
		Cash	Cashless	Cash	Cashless
Norway	2020	0,20 %	99,80 %	4,00 %	96,00 %
Sweden	2019	0,10 %	99,90 %	12,10 %	87,90 %
China	2019	4,30 %	95,70 %	14,00 %	86,00 %
Denmark	2019	1,20 %	98,80 %	17,60 %	82,40 %
Netherlands	2019	0,20 %	99,80 %	20,20 %	79,80 %
UK	2019	0,40 %	99,60 %	23,00 %	77,00 %
Finland	2019	0,70 %	99,30 %	25,70 %	74,30 %
Finland	2019	0,70 %	99,30 %	25,70 %	74,30 %
US	2018	15,00 %	85,00 %	26,00 %	74,00 %
Russia	2020			27,00 %	73,00 %
Australia	2019	10,00 %	90,00 %	27,00 %	73,00 %
Canada	2019	35,00 %	65,00 %	29,00 %	71,00 %
Belgium	2019	0,80 %	99,20 %	35,70 %	64,30 %
France	2019	3,70 %	96,30 %	35,90 %	64,10 %
New Zealand	2019	2,50 %	97,50 %	40,00 %	60,00 %
South Korea	2019	10,00 %	90,00 %	41,20 %	58,80 %
Singapore	2019	46,10 %	53,90 %	51,00 %	49,00 %
Germany	2020	32,00 %	68,00 %	60,00 %	40,00 %
Chile	2019	5,70 %	94,30 %	60,20 %	39,80 %
India	2020	5,50 %	94,50 %	61,40 %	38,60 %
Spain	2019	4,90 %	95,10 %	63,20 %	36,80 %
South Africa	2019	4,60 %	95,40 %	63,70 %	36,30 %
UAE	2019			67,00 %	33,00 %
Thailand	2019	35,90 %	64,10 %	71,40 %	28,60 %
Japan	2019	5,60 %	94,40 %	72,90 %	27,10 %
Brazil	2019	4,60 %	95,40 %	74,60 %	25,40 %
Mexico	2019	2,40 %	97,60 %	87,90 %	12,10 %
Malaysia	2019	14,10 %	85,90 %	88,00 %	12,00 %
Kenya	2019	57,50 %	42,50 %	88,40 %	11,60 %
Nigeria	2019	18,10 %	81,90 %	90,70 %	9,30 %
Columbia	2019	31,30 %	68,70 %	92,00 %	8,00 %
Indonesia	2019	86,70 %	13,30 %	98,10 %	1,90 %
Saudi Arabia	2019	97,30 %	2,70 %	99,90 %	0,10 %

B - Discussion Paper

I Reflection note - Jimmy Chan

As part of the University of Agder's five-year Master of Science in Business Administration degree, the master's thesis was written in collaboration with Nina Nguyen. The thesis is primarily concerned with the cashless society in many countries, with a particular emphasis on Norway. We know that payment methods have evolved throughout time, from actual cash to digital payment possibilities. A cashless society is designed to allow for rapid transactions, which benefits both customers and merchants. As a result, costs are reduced and there are more payment options available.

Our research aims to determine where Norway is in its cashless transition and whether it will go completely cashless in the future. We also want to compare Norway to other countries to see where they are in terms of development. As a result, the following is our research question: "Which phase is Norway in terms of being completely cashless compared to other countries?". We believe this is a significant topic to investigate in our research. The providers, or suppliers, are continuously attempting to stay on top of the latest technological payment options so that the consumer may utilize them conveniently. We also know that most businesses are focused on technology as a result of Norway's move toward a cashless society, as seen by the lack of use of real cash.

The reason why we picked a cash-free society for this paper is that we discovered that individuals in Norway prefer to pay with digital payments, particularly bank cards, rather than cash. Young people, who are always eager to try new things, are likewise affected by modern technologies. This becomes a trend, and younger generations, in comparison to older generations, develop the practice of using bank cards rather than cash. Because providers are always developing new and convenient payment methods, individuals can now simply place their card on the bank terminal and wait a few seconds for their payments to be approved.

Most businesses, including grocery, electrical, and clothes businesses, follow this rule, although if the payment exceeds NOK 600, they must insert the card and enter the code on the bank terminal.

There are parallels and contrasts to be found when comparing Norway to other countries. Older generations struggle with new technology since it is unfamiliar territory, whereas newer generations are always enthusiastic about it. Another factor to consider is that each country is continuously attempting to improve its technology in order to make citizen transactions easier, eliminate tax fraud, and present a clearer image in the event of a crime. The fact that these countries do not operate in the same way sets them apart. There is a cultural difference when it comes to digital technology, as some countries embrace it while others do not. Before a cashless society can be adopted, the people of a country must support it.

Innovation

Innovation can be seen in a cashless society as technology is the major point. With the advance of digital payment solutions, there are always innovative ideas that suppliers are working with to make improvements and make it accessible to the consumers. An example is Sweden who has a mobile application that is called Swish, where it is used for payments or bank transfers. Another example would be Norway, who also has a mobile application that was first used to send money between individuals but with innovative ideas, it was updated to where people can pay invoices and scan QR-code for payments. Additionally, where central banks in Norway are testing on central digital bank currency to use it as digital money instead of physical cash (EconoGraphics, 2021).

Responsible

Although digital payment methods have numerous advantages, such as faster transactions and lower prices, it can be an ethical concern for some groups. This can affect the older generation since they are accustomed to spending physical cash rather than digital payment options. Furthermore, the older generation has limited awareness of digital platforms, is not up to date and learning it gets more difficult because they do not use mobile phones or computers that often compared to the younger generation. This can also be a problem for the poor; if a country has a high level of poverty, they will have fewer options since they cannot afford bank cards or cell phones. As a result,

there is a significant disparity between rich and poor people in terms of what they have and do not have access to.

Personal information is another issue that can arise. Nowadays, we can see that both young and old people use a variety of social media platforms. It displays personal information such as your name, personal hobbies or pictures for instance. It's critical to be aware of what you share and don't share on the internet; if sensitive material is shared, it could be stored indefinitely and be viewed by others. Furthermore, due to security difficulties and data hacking, privacy may be jeopardized.

Digital payment solutions have the advantage of reducing tax avoidance and reducing crime such as theft. This makes it easier for the authorities to learn more about digital transactions if they happen. The issue here is that the government has a comprehensive perspective of the population's consumption. As a result, individuals who use bank cards have no privacy, as banks have access to personal information, and hacking is a concern.

Given the importance of knowledge in our lives, it is crucial that children learn about money at a young age. Children's perceptions of income and attitudes toward saving are affected by cashless payments. They also deprive children of important communication experience, which may have long-term consequences. Coins and banknotes help children understand how money works and have a strong symbolic importance beyond their financial value (Daily Management Review, 2019). That is why it is crucial, and it shows how important currency is in most countries. Our master's thesis could be a part of this, as it may require additional research. As researchers, it is our job to share our findings with the public and raise awareness about the consequences of a society going fully cashless.

II Reflection note - Nina Nguyen

The master's thesis was written in collaboration with Jimmy Chan as part of the University of Agder's five-year Master of Science in Business Administration program. The thesis is mainly about the cashless society in various countries, but with the focus in

Norway. Throughout the years, we know that the payment methods have changed, from physical cash to digital payment options. The idea behind a cashless society is to have quick transactions, which is why it benefits both customers and vendors. As this gives costs reduction and the availability of payment methods.

One of the main reasons why we chose a cash-free society in this paper is because we noticed that people in Norway don't use cash, but instead digital payments when they pay, especially bank cards. We also see the impact of digital technologies around young people, who always want to try new things. This becomes a trend, and because of that it leads to a habit to use bank cards rather than cash among younger generations compared to older ones. As the suppliers are always working on a new and convenient payment, nowadays people can just place the card on the bank terminal and wait a couple of seconds and the payments are approved. This usually applies to most stores, such as grocery, electronic or clothing stores, but if the payment is over NOK 600, then they have to insert the card and enter the code.

Our study focuses on determining which phase Norway is at and whether it will go entirely cashless in the future. Furthermore, we want to compare Norway to other countries to evaluate where they are in their development. Which is why our research question is: "Which phase is Norway in terms of being completely cashless compared to other countries?". A topic which we think is important to find out in our analysis. The providers, or the suppliers are always trying to be up to date on the best possible payment solutions within technology, so that the consumer could use it easily. We also know that most businesses are also focusing on technology as they see that Norway is leaning toward a cashless society as the lack of use of physical cash.

When comparing Norway to other countries, there are parallels and contrasts to be found. Older generations struggle with new technology because it is not something they are used to, while the younger generation are always positive with new technology. Another point to consider is that each country is constantly working to enhance its technology in order to make transactions easier for citizens, eliminate tax fraud, and provide a better picture in the event of a crime.

What sets these countries apart is that they do not operate in the same way. When it comes to culture, there is a divide since certain countries embrace digital technology while others do not. A country's populace must be supportive of a cashless society before it can be implemented. The benefits and drawbacks of a cashless society are listed below. A cashless society minimizes the danger of violent crime, minimizes tax evasion, makes it more difficult for criminals who rely on cash payments, allows for faster transactions, lowers worthless extra change, and lessens the burden that cash places on banks and businesses. Meanwhile, the drawbacks are that there will be privacy concerns as governments gain greater control over citizens, as well as the possibility of technological failures such as power outages or internet outages.

International trends

We've seen a lot of changes in how people spend money in different countries over the years, from actual money to digital payment networks. Card use and smartphone payment options are now two of the most often used techniques. Young people tend to use a lot of mobile phones, which has become a trend. Many people were skeptical when Vipps was introduced in 2015, but in a few years, it became one of Norway's most popular applications (Vipps, n.d.). Its popularity has expanded to the point where stores now accept it as a means of payment. For example, if a customer forgets his or her credit card at home, they can use their phone to scan or enter numbers at the store's checkout.

Many countries' technological growth has broadened, resulting in more options for payment methods in most countries. When we looked at the data and compared it to other nations, we discovered that there are a lot of people that use mobile payments. Sweden is an example of this, as it is one of the most cashless societies and spends less cash. Physical expenditure is decreasing as retailers and businesses begin to engage in digital platforms. Sweden, like Norway, has an app called Swish that allows them to send and receive money from others. Something that is well-liked by the Swedish people.

Another example is China, where mobile phones are widely used to make payments. China has set up a QR-code, which means that anyone may scan the code with their

camera and it will automatically connect to payment, completing the transaction. Furthermore, because it is accepted everywhere in China, this is a popular payment option. If you go to a market, a shopping mall with a variety of stores, or a regular grocery store, you will see that the QR-code is one of the payment options.

Japan is an exception to the rule, given the fact that cash may be not so popular in most countries. Despite that Japan is one of the most technologically proficient countries in the world, many individuals choose to pay with cash since it is more convenient and in case there would be occurrence of natural disaster. As a result, this is also an international trend when it comes to cash use, as other countries are not as technologically evolved and still rely on cash.

Innovation

Our research may be considered innovative because it concerns a cashless society in which technology is the primary means of adopting digital payment choices. As technology advances, suppliers are continually seeking to improve it with innovative ideas to make it more accessible and to make transactions faster and easier. Even if bank cards are still widely used in Norway, the Vipps app has been popular among the people because it can be used to pay invoices, send money to friends and family, and even pay in stores. The analysis in our thesis shows the types of impacts that introducing a cashless society would have, as well as raising awareness of the benefits and costs that the country could face. Additionally, another topic is also important since some of the countries, such as central banks in Norway, are still testing and making their central digital bank currency as an option instead of using physical cash (EconoGraphics, 2021).

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