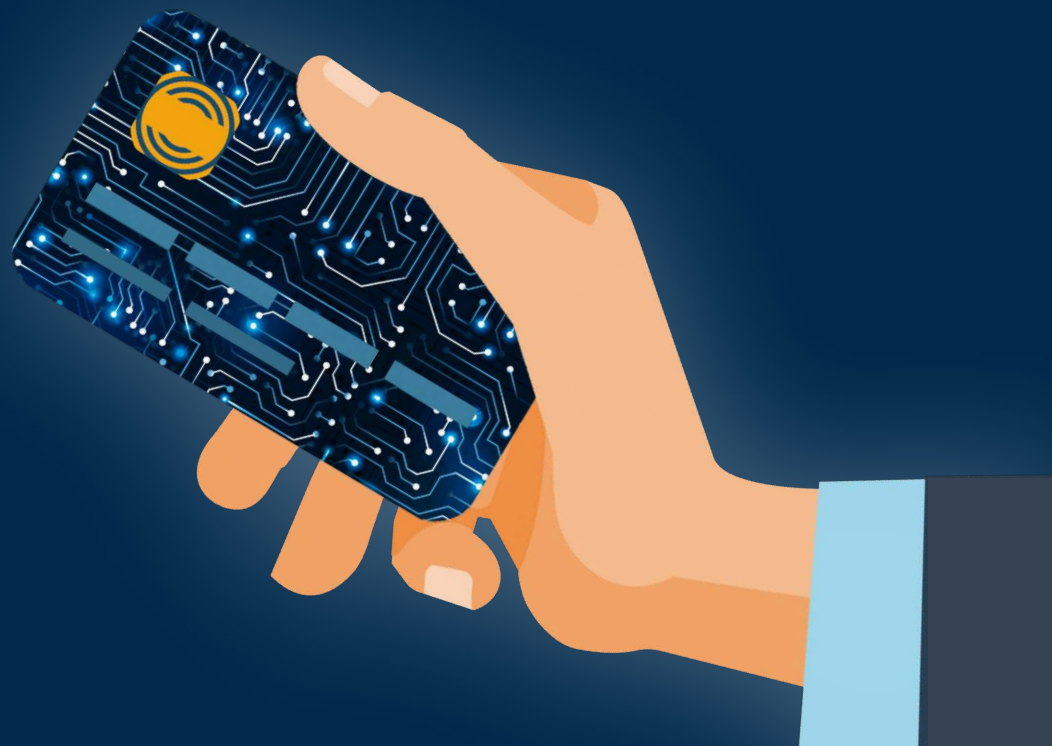




The Impact of Going Cashless

White Paper November 2020



Overview

Over the past several decades, there has been a slow but driven trend towards cashless transactions – from debit and credit cards to contactless cards and now completely digital wallets. This trend has been given a significant boost by the COVID-19 crisis, but while people scramble for less physical contact in their transactions, they may well be overlooking more fundamental flaws of a completely cashless society. From a gap in accessibility to financial services to hidden merchant costs and data-security concerns, there are many aspects we must consider and alternatives that should be explored. This paper will look at the different types of cashless payment, how they have grown, and how COVID-19 has affected this growth. It will then reflect on some of the issues of a cashless future before looking at possible alternatives and compromises.

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Introduction

Cashless transactions are becoming more common for a number of reasons. Technology has made it convenient for us to pay for goods and services with a tap of a card, a phone or even a watch. Due to the COVID pandemic people are examining how we interact with the people and objects around us, which includes how we deal with physical cash. This has made cashless transactions far more common, but how valid are the health concerns surrounding hard currency and what are some of the issues we could face by going completely cashless?

Throughout this paper, we are going to examine the current situation regarding cashless payments globally by looking at:

- What cashless payment actually is
- How cashless payment has grown in popularity
- How COVID-19 has led to an increase in cashless transactions
- The truth behind some coronavirus-related cash claims
- Some of the risks of moving to a cashless world
- How the future of payment could and should look

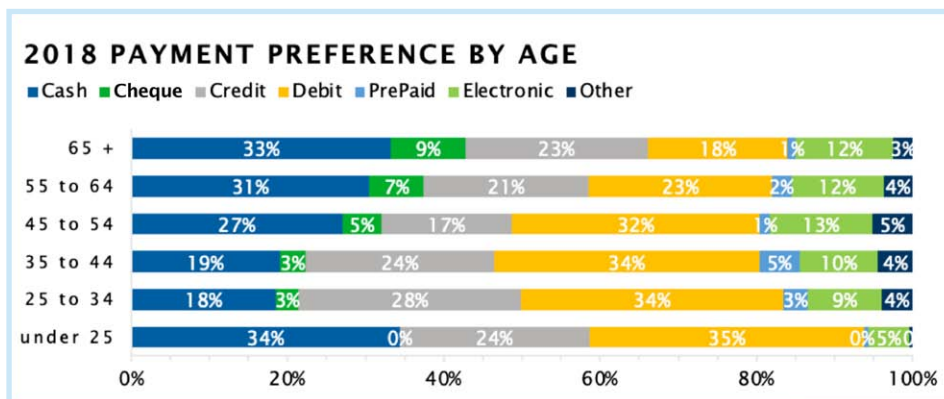




What is Cashless Payment?

Let's begin by examining what "cashless" actually means. In the simplest terms, a cashless payment is any transaction that doesn't use traditional, physical currency. There are numerous ways these transactions can take place, but in order to compare it to the use of traditional cash, let's look at those methods that can be used in a physical POS situation rather than in e-commerce. Some of the most common types of cashless payments in the physical environment are as follows.¹

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Bank Cards

Probably the most widely known, debit and credit cards have been in use for decades and are trusted by millions around the world. They offer secure payment for those who hold a bank account as well as having the ability to be integrated with other cashless solutions such as mobile wallets. Several large financial institutions create the infrastructure for the use of these cards, which are themselves issued by individual banks.

Contactless Cards

Contactless cards, a modern extension of the traditional bank card, have seen an upsurge in recent years, especially in the United Kingdom, Europe and the United States. They generally have the same infrastructure and users as traditional bank cards but rely on NFC (near field communication) or RFID (radio-frequency identification) technology to communicate with merchants as opposed to EMV (Europay, MasterCard and Visa) chips or magnetic strips. This same technology is utilized by mobile payment systems which can use their NFC capabilities in place of the cards.


¹ Please note that this is not an exhaustive list of cashless payment types, with other common protocols including USSD, ECS and more not being mentioned here.


² <https://www.frbsf.org/cash/publications/fed-notes/2019/june/2019-findings-from-the-diary-of-consumer-payment-choice/>

Digital Wallets, E-Wallets and Mobile Wallets


Mobile wallets, digital wallets and e-wallets are the latest iteration of cashless transactions and are very much driven by younger generations of consumers, for whom a phone is already part of their daily lives.

Whilst sometimes used interchangeably, there is a distinction between these three cashless solutions. Digital wallets allow users to store information from credit cards, debit cards, vouchers and more electronically. A user's money stays in the bank account associated with that information, and the digital wallet replaces the physical cards. An e-wallet on the other hand acts as a prepaid wallet, which requires money to be loaded into it prior to transactions as well as withdrawn to a bank account proper, when required, for transactions outside of that e-wallet's use. The final type are mobile wallets, which are apps that can be either of the previous models (or a mixture of both) and utilize a phone's NFC capabilities or QR-reading abilities to make cashless payments in the physical world. Two of the most prominent mobile wallets are Apple Pay and Google Pay.

 **Apple Pay** One of the most popular mobile wallets is **Apple Pay**, which allows in-person and online payment through the use of Apple devices, most commonly an iPhone. It utilizes NFC technology to allow for in-person transactions through any contactless payment terminal.

 **Google Pay** Another popular mobile wallet is **Google Pay**, an amalgamation of the earlier Google Wallet and Android Pay. It has similar functionality to the Apple offering but is used across a wide range of Android devices.

It is worth noting that while mobile wallets, e-wallets and digital wallets can be considered distinctive, many applications blur the lines. An example of this is **PayPal**, which allows users to add and withdraw funds (as with an e-wallet) but also to save card and bank account information that enables users to pay directly, without the extra step of loading funds.

 **PayPal** is one of the most famous names when it comes to electronic payments thanks to its early entry into the market in the late 1990s and acquisition by eBay in 2002. Since that point, it has grown to be one of the largest payment platforms in the world, arguably laying the foundations that make people so comfortable with cashless payment today.

Gift Cards, Vouchers and Pre-Paid Cards

Often overlooked, these make up a significant number of transactions in physical retail outlets and are a cashless transaction. These can be generally split into two main types: open loop and closed loop cards. The former includes cards that imitate normal bank debit cards, allowing users to spend money in multiple stores and often include the ability to recharge or top up the card. Closed loop cards, however, are designed to be used with a specific retailer and rarely allow clients to recharge them.





General Shift to Cashless Transactions

As can be seen from the above section, there are numerous types of cashless payments in use today. The number of options, as well as the frequency with which they are used, has been steadily increasing. For example, a European Central Bank report from 2018 shows a general upward trend in card payments across the EU with an increase of 7.9% compared with the previous year.³ While cards are still very dominant in the cashless payment sector, the evolution of cashless transactions has gone from swipe cards, to EMV cards, to both contactless cards and, increasingly, to e-wallets.

Cashless transactions in the form of bank cards have actually been around for more than half a century⁴, but really started to take off a few decades ago. The technological developments of these cards have been spearheaded by a handful of major financial companies, who have created the means to pay cashlessly as well as the infrastructure necessary for their use. The clearest example of the dominance of these companies in the sector is that EMV, the technology used in “chip and pin” cards, originally stood for “Europay, MasterCard, and Visa”. The latest of these developments has been contactless card payments, which were first developed in 2007 and have become common in many countries. These require contactless-enabled cards and the release of NFC-enabled POS machines.

³ <https://www.finextra.com/pressarticle/79342/european-central-bank-publishes-2018-payment-stats>

⁴ <https://www.creditcards.com/credit-card-news/history-of-credit-cards/>

In more recent years, many people have begun exploring alternative cashless payment methods, many of which utilize the new NFC payment capabilities of merchant terminals supplied by the major card producers. Mobile payment apps are common on smart phones and wearable technology such as smart watches, with offerings such as Google Pay, which was arguably the first mobile wallet launched by a major company back in 2011, and Apple Pay rising in prominence in recent years, which was itself developed in collaboration with American Express, MasterCard and Visa, among others.

The uptake of contactless payment technology has been far higher in some sectors than others, such as on public transport networks. London's Underground and bus networks, for example, now allow passengers to tap in and out for journeys with their contactless cards, as they once would have with the network's own travel card. This can arguably increase the speed of these networks, since cash is no longer being passed hand-to-hand, but also comes with its own challenges, which we'll explore later in this paper.

Payment Methods Differ According to Country

While most cashless transactions fall into the broad, previously mentioned categories, as well as generally following the outlined evolution of usage, the type of cashless payment being used also varies from country to country. For example, card transactions are by far the most popular form of non-cash payment in the UK, whereas in the Netherlands iDeal (a form of online bank transfer) is frequently used⁵. This difference is even more pronounced when looking outside of Europe to countries such as China, where more than 2 billion people regularly use e-wallets⁶ through services such as WeChat and AliPay, or Kenya with the highly popular M-PESA mobile payment system (actually established by telecoms companies in 2007). This variance in the types of cashless transactions seems to fall outside of the gradual shift to mobile e-payments that are seen in Europe and the United States and could in part be due to infrastructure causing technological leapfrogging.

TECHNOLOGICAL LEAPFROGGING refers to a phenomenon when a country "jumps" certain stages of technology to more modern offerings. For example, skipping credit cards to use mobile payments.

However, it's not just the payment type that differs from country to country, but also how frequently these cashless methods are used.

According to the latest data from the European Central Bank, for example, cash still dominates when it comes to payments⁷ in Europe with about 80% of POS sales being made with hard currency. However, this is a European average and there are vast differences in the frequency of cash payments between different EU countries, with some showing a predominance of cash transactions while there are others, such as Sweden, where "cash transactions accounted for less than 2% of the value of payments in 2018".⁸

The relatively slow nature of this shift towards cashless transactions seems to extend to the United States as well, with a 2019 report from Javelin finding "that just 39% of cardholders own at least one contactless payment card" and Mintel finding that as of "September 2019... only a little more than a quarter of people made a mobile payment in the past year," according to *The New York Times*.⁹

This would suggest that while people are using cards, the evolution of contactless payment is slow. However, one thing that may have changed this slow evolution is the onset of the coronavirus pandemic in early 2020, which has forced the hands of many companies and resulted in a huge surge in cashless transactions.

⁵ Payment Methods Report 2019, Innovations in the Way We Pay, The Paypers

⁶ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649341/EPRS_BRI\(2020\)649341_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649341/EPRS_BRI(2020)649341_EN.pdf)

⁷ <https://www.finextra.com/pressarticle/79342/european-central-bank-publishes-2018-payment-stats>

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⁹ <https://www.nytimes.com/wirecutter/money/credit-cards/contactless-payment/>



How COVID-19 Has Affected Cashless Payments



With the outbreak and rapid spread of COVID-19, populations around the world have become more attuned than ever to the things they are coming into contact with – including cash. The fear around this was brought to a head when the UK newspaper *The Telegraph* published an article entitled “Dirty banknotes may be spreading the coronavirus, WHO suggests”¹⁰ which urged people to use contactless payments and to wash their hands following transactions with cash.

The latter piece of advice is very valuable, with consumers being recommended to thoroughly wash their hands following any interaction. The former, however, was not accurate with the World Health Organization reporting that they “did NOT [sic] say that cash was transmitting coronavirus”, and were “misrepresented”¹¹. Talking to Market Watch, WHO spokeswoman Fadela Chaib explained that they “were asked if we thought banknotes could transmit COVID-19 and... said you should wash your hands after handling money, especially if handling or eating food”. A standard precautioning and interaction, during times of COVID-19 or otherwise.

There is general evidence for the ability of viruses to survive on banknotes, such as the finding of a 2008 study, *Survival of Influenza Virus on Banknotes*¹², which found that various strains of flu could survive between 1 and 17 days depending on the conditions. And more relevant studies such as one that looked at the “stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on various surfaces”, finding that the COVID-19 causing virus could indeed survive on surfaces, especially solid ones such as plastic and stainless steel, but also on cardboard for shorter periods.

These studies seem to confirm that the virus can be transmitted on cash, but that said, scientists note that the “probability of transmission via banknotes is low when compared with other frequently touched objects”. What’s more, the findings of Doremalen et al would suggest that the likelihood of the virus surviving is actually higher on plastic objects, such as bank cards, terminals and phones, than paper currency. Of course, coins would also pose a risk, but the half-life of SARS-CoV-2 was shorter on stainless steel than plastic, and shorter again on copper.

Despite the realities and recommendations, however, there is still a prevalent belief that handling cash is a health risk. In fact, according to an “April survey by MasterCard of 17,000 consumers in 19 countries, 82% of respondents said they view contactless payments as ‘the cleaner way to pay.’”¹³ This has in turn created a rise in the use of cashless - specifically contactless - transactions. For example, “[In] South Korea... card and mobile payments grew 30 % between January and February 2020”¹⁴, which matches the timeline of the virus entering the country.

It’s not just consumers who are changing how they do business, however, with some shops simply refusing to accept cash¹⁵, which comes with numerous repercussions that we will discuss later. There has also been an increase in the number of online transactions with some consumers who wouldn’t normally use online services¹⁶, especially for groceries, being forced into it during lockdown.

There is a good chance that many people will continue some of their new shopping habits once COVID-19 has reduced in severity, but many more will be looking to return to some sort of normalcy even if they are concerned over the possibility of spikes.

¹⁰ <https://www.telegraph.co.uk/news/2020/03/02/exclusive-dirty-banknotes-may-spreading-coronavirus-world-health/>

¹¹ <https://www.marketwatch.com/story/who-we-did-not-say-that-cash-was-transmitting-coronavirus-2020-03-06>

¹² <https://pubmed.ncbi.nlm.nih.gov/18359825/>

¹³ <https://www.nytimes.com/wirecutter/money/credit-cards/contactless-payment/>

¹⁴ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649341/EPRS_BRI\(2020\)649341_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649341/EPRS_BRI(2020)649341_EN.pdf)

¹⁵ <https://www.theguardian.com/money/2020/mar/24/uk-cash-usage-halves-in-few-days>

¹⁶ <https://www.businessinsider.in/advertising/media/article/how-covid-19-has-redefined-shopping-habits-and-expectations-criteo/articleshow/76526340.cms>

The Limitations of Going Completely Cashless



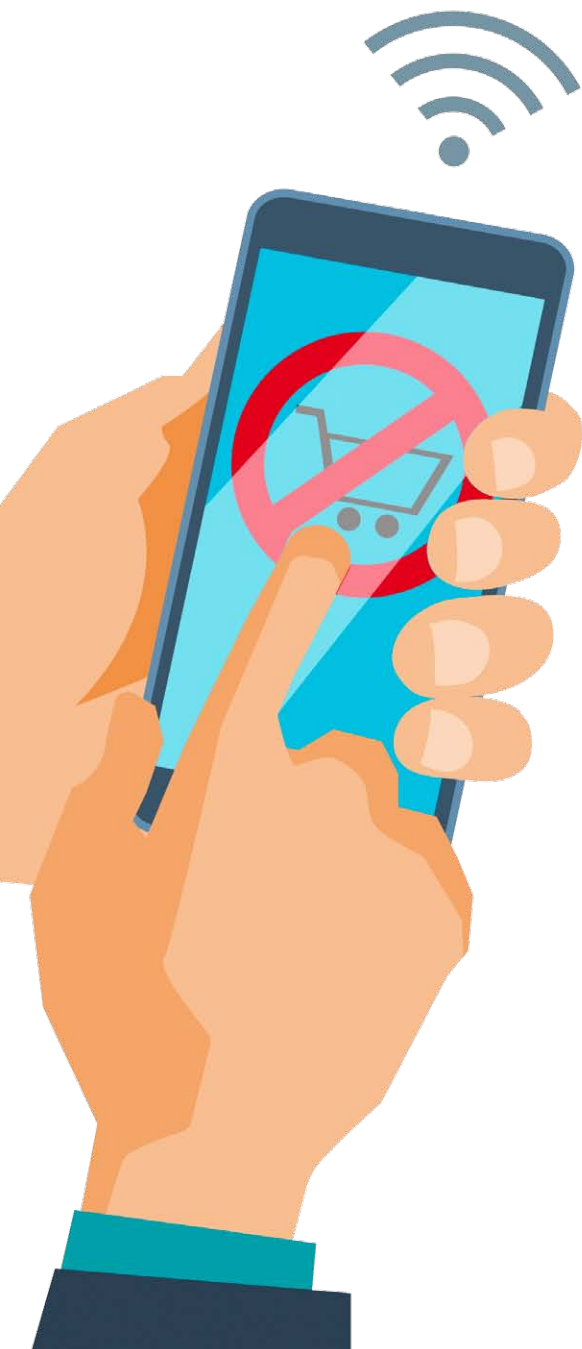
While there is no doubt a trend towards cashless transactions, that doesn't mean it is a positive trend for everyone (or anyone). There are numerous downsides to increasingly contactless retail, with one of the most pressing issues being cashless transactions negatively impacting the most vulnerable groups in society. And even beyond those most affected, there are likely to be repercussions to everyone's security and anonymity as well as small merchants being forced into potentially expensive contracts. Throughout the following section, we will explore some of these potential issues and how they have already been seen in some countries.

What are the concerns over security with contactless payments?

One of the obvious concerns over cashless transactions, and more specifically contactless transactions, is how secure they are. Overall, the actual physical security of these transactions is very good, with contactless cards and e-wallets utilizing numerous methods to keep customers' bank details safe. However, there are still concerns about the fact that contactless payments don't require a PIN, signature or any other confirmation of identity. There is the possibility that if a card is stolen, a number of transactions can be made before the card is blocked. Card issuers have tried to navigate this issue by only allowing a set number of consecutive contactless payments before a PIN is required, but this still leaves people open to significant losses. This is of more concern now that contactless limits have been increased to as much as €50 in the wake of COVID-19, meaning even a limited number of transactions could leave users hundreds of euros out of pocket.

That said, what is of more concern with these technologies is not necessarily the security of funds so much as the security of the data - an issue that has reached new prominence in recent years.

When using cashless, and specifically contactless, payment technology, there is the opportunity for merchants to collect and potentially exploit customers' data. As *The New York Times* wrote, when the "New York City subway system released its contactless payment system, the Surveillance Technology Oversight Project, a non-profit advocacy group that opposes discriminatory surveillance, released a report over its concerns about 'the project's weak privacy policy, its collection of a large amount of information, its ability to track users once they enter the system, and the possibility for it to be misused by government agencies for the surveillance of individuals.'" While the potential for operators to misuse the data collected from cashless transactions is obviously of concern, just the fact that data has to be given in a transaction in the first place should raise red flags. This extra step could also make it more difficult for charities, who rely on people dropping small amounts of cash into tins and boxes. While cashless collections are possible, they require more of an intent on the part of the giver - whereas donations can often be made because there are some spare coins in a pocket.



Cashless Payments Unfairly Impact the Most Vulnerable Members of Society

One of the most concerning aspects of a cashless world is the severe impact it would have on the most vulnerable people in society, including those who are unable to open a bank account, those without access to the technology or infrastructure needed for cashless transactions, and those unable to get to grips with the required technology.

The Difficulty of Opening Bank Accounts

There are many groups in society who are unable to open bank accounts. The most obvious are those without a fixed address, who rely on cash transactions for basic needs such as food, water, and public transport. In certain countries the damaging effect of this can already be seen, such as in Sweden where some public bathrooms can only be accessed with a contactless payment¹⁷ - convenient for many, but devastating to those who arguably need them the most. Those with lower incomes will also be unfairly affected by a cashless society, primarily through the reduction in access to goods. Many low-income families rely on second-hand goods and person-to-person sales for what would be considered basics like white goods, school uniforms and furniture. These sales, whilst arguably able to utilize peer-to-peer e-payments, frequently rely on cash to complete transactions.

This concern hasn't gone unnoticed, with the UK newspaper *The Guardian* reporting that Gareth Shaw, Head of Money Content at Which? said "We are concerned this will leave many vulnerable people unable to pay for the basics they need." Continuing on, "Both the government and retailers need to find a way to ensure that the millions of people who rely on cash, and may not have a bank card, can still pay for essentials during this difficult time [COVID-19]."¹⁸

¹⁷ <https://www.npr.org/2019/02/11/691334123/swedens-cashless-experiment-is-it-too-much-too-fast>

¹⁸ <https://www.theguardian.com/money/2020/mar/24/uk-cash-usage-halves-in-few-days>



Managing Money in a Cashless Society

Those on lower incomes also frequently use cash in order to more easily monitor spending and income, using the physical currency to track what comes in and out. As transactions move to cashless and even contactless payments, money becomes ever more abstract and harder to manage for those who need to most.

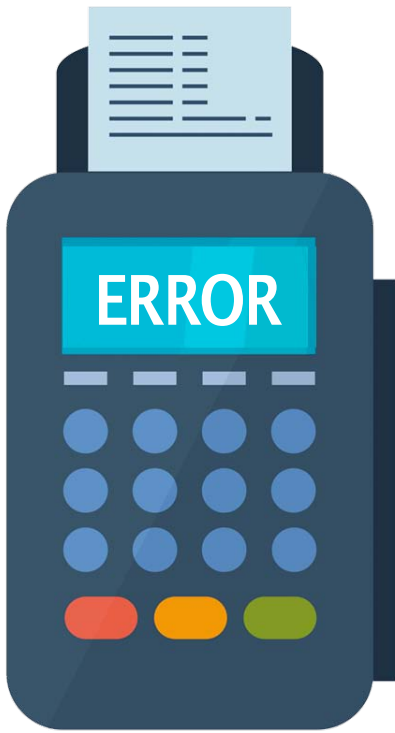
However, it isn't just those struggling to manage their money that this could have a negative impact on. Having purely cashless payments limits everyone's ability to track transactions and redress problems if and when they occur. Returning to the example of a public transport network that uses tap-in cashless payments for travel, if you are charged a higher fee when using this service, the chances are you would never even notice. And, if you are one to review statements and happen to find the discrepancy, the chances are, such an amount of time will have passed and for so small an amount of money, it would be hard or not worthwhile to address the issue. It is, of course, possible to be overcharged when paying in cash, but it's easier to spot when you're making a physical transaction, rather than simply tapping a card with no indication of payment amount or frequency. And, if noticed, it is immediate and can be addressed by simply handing back the cash – however small the amount. This enables fast, trusted transactions while maintaining healthy relationships between customers and businesses.

A Strong Grasp of Tech is Needed for Basic Payments

Another group likely to struggle if the world transitions to cashless transactions are those unable to get to grips with new technology and systems as easily. Many banks already operate almost exclusively online, and if groups are unable to operate with cash, they may lose the ability to live a normal life. The group most at risk of this is the elderly, and this problem has already been seen in Sweden, which is one of the first almost cashless countries. In Sweden, the *Pensionärernas Riksorganisation* (PRO) - National Pensioners Organization - a civil rights organization representing older Swedish citizens is concerned that "among other reasons... a societal shift towards digital excludes many older people who may not possess the same tech-savviness as their Gen X and Millennial counterparts". This resulted in a group of "PRO-testers" handing the Swedish Finance Minister Per Bolund a petition with "139,064 signatures in favor of keeping physical money and in doing so, highlighting the extent of those who fear the consequences of a cashless utopia".¹⁹

Another group that would suffer are the very young. Whilst they probably won't have any issues with the technology, they may not have the means to use it. Children are frequently given small sums of money as they grow up, which can be a valuable way to build financial skills and responsibility. As physical cash decreases, this will become increasingly hard to do, possibly resulting in future generations relying on apps, rather than themselves, to monitor their money.

¹⁹ <https://mag.n26.com/a-tender-subject-what-is-the-cost-of-swedens-cashless-society-ac84338752f9>



Tech Fails, Metal Doesn't

Another possible downfall of a cashless society is that technology inherently has flaws. It is, if not prone at least susceptible, to glitches and failures, which could cause major issues if there is no alternative. Being locked out of your phone because of a bad passphrase is currently a hassle, but if you controlled all your finances from it, the situation could be far worse. Another inherent issue is that the networks required for many cashless transactions to operate still aren't available in many regions, even within countries that are quickly moving away from cash. For example, those living and working in rural locations – many of which lack even basic mobile phone signals – could struggle with daily tasks. This is especially true of those trying to operate retail businesses in those areas who, without cash, could not take payment.

Fees and Hidden Costs

It won't only affect merchants that are unable to access the payment network, however, but every single small business owner. Payment terminals for cards and e-wallets cost merchants money, generally at three different stages.²⁰ The first is a percentage of each transaction which often ranges between 0.25% and 2.5% and even up to 3.5%²¹ or more for mobile solutions. In addition, many terminals require a standing fee that can vary massively, with retailers regularly paying up to £35 a month in the UK for a card reader. The cost of the monthly fee depends largely on the length of contract, which typically last around four years, locking merchants in for considerable amounts of time. In addition to the per transaction percentage and monthly fee, there are also authorisation fees that can exist as a “penny per transaction (PPT) charge” for every payment accepted as well as compliance costs depending on the volume of transactions. Not only can working with cashless technology become very costly for merchants, it can also be highly confusing to figure out exactly which fees you will be subject to as a small business. This is especially true when it comes to smaller transactions, which is why some retailers are hesitant to complete card transactions for low-cost purchases despite the major card operators requiring them to do so.^{22 23}

There are, of course, also fees for businesses wishing to deposit cash into business bank accounts, but these are often considerably lower²⁴ than for card transactions and under greater control of the merchant who can choose to retain cash.



²⁰ Based on UK figures. <https://cardmachine.co.uk/choosing-merchant-service-provider/>

²¹ <https://www.paypal.com/us/webapps/mpp/merchant-fees#point-of-sale>

²² <https://www.mastercard.us/en-us/business/overview/support/rules.html>

²³ See section 1.5.5.1; <https://www.visa.co.uk/dam/VCOM/download/about-visa/visa-rules-public.pdf>

²⁴ <https://www.which.co.uk/money/banking/bank-accounts/business-bank-accounts-a6ncf6r8jqz1>

Future Alternatives to Going Completely Cashless



As we come out of lockdown, many people are likely to continue to fear close interaction with others, groups of people (such as those found in shopping queues), and multiple people handling the same currency in a row. What's more, merchants are going to have to prepare for the very real possibility that there is going to be another spike in COVID-19 cases – or an entirely new virus – which will force them to re-introduce distancing measures.

However, as we've explored above, doing so by simply making things cashless is not the answer. It affects those in the most vulnerable position, opens up various data security concerns, and leads to fees for merchants, amongst other problems. The key is in finding a middle ground on which to move forward. Some advocate for so-called frictionless commerce, which could remove many of the concerns that people have regarding COVID-19 without removing cash. "Frictionless commerce was emerging on numerous fronts prior to the pandemic, but shelter-in-place [aka stay-at-home] and social distancing measures have significantly increased the demand for retail experiences that minimize time in-store and proximity to other people."²⁵ What's key about this is that frictionless commerce doesn't have to mean cashless commerce, with automated cash solutions making the shopping experience just as seamless whatever your method of payment, the most common of which being automated kiosks which have been used at self-checkouts for some time and are increasingly being seen at staffed POS. When used as part of standalone self-use stations, they allow for individuals to distance themselves while not excluding those who prefer to use cash.

²⁵ <https://www.emarketer.com/content/frictionless-commerce-2020>

The concern of handling cash does not only exist in customer-facing situations, however, with those running back offices also needing to deal with large amounts of hard currency that has passed between hands. This is especially true in industries such as gaming, where large numbers of people handle a large amount of cash at all times. As mentioned before, the answer is often finding a middle ground, through technological solutions such as front-end kiosks with smart note recyclers and cashboxes, as well as note recyclers in the back-end which take the risk of withdrawing, counting and depositing cash out of the hands of staff. Another solution is the implementation of cashless systems within businesses like these. This can be done by having a single point (kiosks) at which customers use cash in exchange for tickets and then ticket in ticket out (TITO) machines throughout the rest of the operation.

Conclusion



What seems to be the most realistic way forward is neither an exclusively cash or cashless world, but rather one that accommodates all options, leveraging technology that brings the positives of both to every transaction. It is not about keeping cash so much as “defending the option to retain hard cash alongside digital forms of payment, on the grounds that this isn’t just a matter of inclusivity; it’s a sensible precaution against the dangers of relying on an entirely online currency system.”²⁶

In this way, merchants and consumers are able to negate the negative costs of complete cashlessness while adapting to a more streamlined and virus-conscious world.

²⁶ <https://mag.n26.com/a-tender-subject-what-is-the-cost-of-swedens-cashless-society-ac84338752f9>

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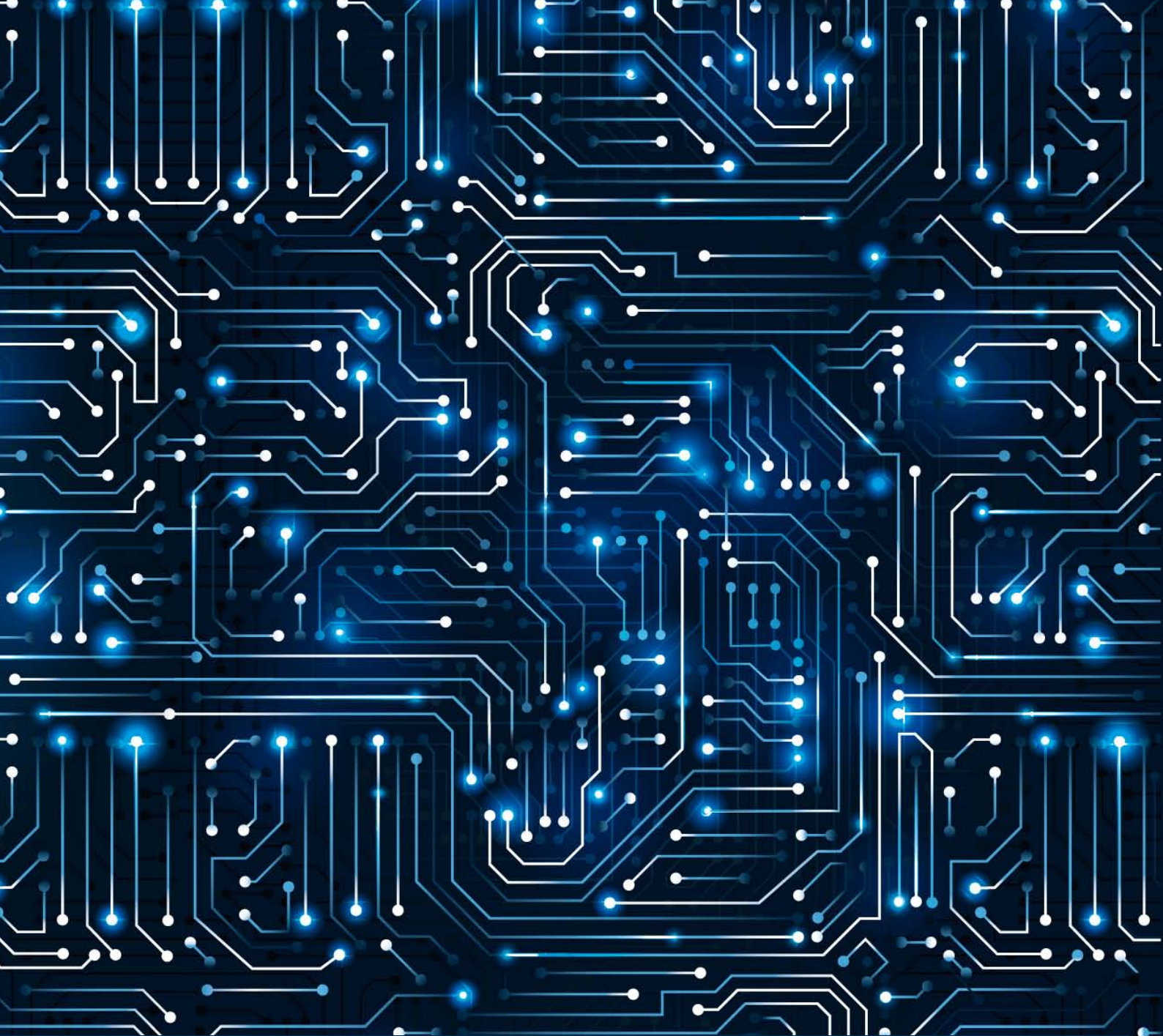
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