



Institute  
and Faculty  
of Actuaries

# **A Cashless Society in 2018**

## **The Cashless World in Motion review**

An addendum to “A Cashless Society-  
Benefits, Risks and Issues”.

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## A Cashless Society in 2018- The Cashless World in Motion review

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## Reading pre-requisites

This is the continuation of the “Cashless World In Motion” section of “[A Cashless Society- Benefits, Risks and Issues](#)” and its [2017 addendum](#), published by the [Cashless Society Working Party](#) under the auspices of the Institute and Faculty of Actuaries (IFoA), and sponsored by the Finance and Investment board.

As this paper has avoided repeating developments observed for the topic in 2017, it is recommended that readers first consult the 2017 paper. The previous papers executive summaries have been reproduced below in order to provide a high level summary of earlier findings.

### **A Cashless Society- benefits, risks and issues- executive summary, 2017.**

This was the interim report from a volunteer working party sponsored by the Finance & Investment board at the IFoA, focusing on the “Cashless Society- Benefits, Risks and Issues”. Initiated on the backdrop of a demonetisation announcement in India in late 2016, a working group set out some original questions, yet soon revealed numerous layers of implications for the topic, as it grew its awareness about international developments.

Volunteers discovered the lack of a fundamental, neutral and holistic reflection on the cashless society, or one that pulls together the various strands of the argument from specialist organisations, as well as international events. This appeared all the more important as increased international media coverage exposed polarised opinions on the desirability to move towards a cashless society that appears to be already happening by stealth in many countries.

The rapid pace of change around the world has encouraged the group to communicate its initial findings, so the readership may reflect on the themes and developments in the first semester of 2017. This will lead to further engagement and discussions involving a broader range of stakeholders. This paper discusses sensitive topics and explores unique perspectives.

The digital economy and its nascent financial technology innovations prompt a review of the definition of money and its functions. A first section explores what seems to be replacing cash, defining and categorising a wide range of “new means of payments”. It extends into the world of Digital Currencies, with associated technologies such as Blockchain. The theme expands into a focused Bitcoin case study, and explores potential for Central Bank Currencies.

The paper then considers the potential benefits of a cashless society. Cash is an expensive business, from production to handling. Going cashless may also prevent some illegal immigration, and help reduce or resolve the tax gap and expose the associated shadow economy. Potential benefits and limitations in tackling various crimes and frauds point to the “Increase in Notes In Circulation” paradox and its multiple attempted explanations. In the context of a cashless society, meaning a total removal of cash, alternative tax reform such as an Automated Payment Transaction Tax may have potential.

Media coverage for various related events has revealed a number of sensitive topics, leading to extreme opinions, as well as resistance towards the removal of cash. We define, discuss and offer potential mitigations and solutions for 20 key risks and issues, and propose that these lay at the core of evolution towards a cashless society.

The group then chose to focus on specific areas of interest. The potential of a cashless society to enable Negative Interest Rate Policies is a relevant topic for all economists, and derives its existence from a totally cashless economy. This section analyses the mechanisms and impacts on deposit-

taking banks, the economy in general, the poor, and discusses considerations for life insurers and pension schemes.

A digital and cashless economy risks financial exclusion if the interests of the poor are not addressed. The glass is half-empty in western economies where technology can disrupt the social fabric by stealth. The glass is half-full in geographies such as Kenya where technology has been an enabler for financial inclusion for 10 years: a case study explores the impacts of M-Pesa.

The above draws us to a key point: the potential benefits or otherwise of a cashless society depends on the eye of the beholder. A Strength/ Weaknesses/ Opportunities/ Threats analysis offers an opportunity to comprehend polarised opinions taken from the point of view of different stakeholders. This section proposes that stakeholder management lies at the core of any successful future transition.

International events for the topic have underpinned many of the questions the group raised in the earlier parts of this interim report. Observations in the first semester of 2017 suggest the “cashless world is in motion”. This section outlines key topics per geographical region, identifies countries with relevant developments during the study period and focuses on some countries of specific interest, such as Sweden, the USA, the UK, Nigeria, Kenya, Australia, India and China.

The international section provides extensive observations for the key aspects of a cashless society: strategic questions, various types of fraud, data and physical crime, the cost of money, digital currencies, macro and micro-economics, financial inclusion, legal & regulatory frameworks, payment systems & technology, politics and data privacy. It also identifies key areas impacting future transitions towards a cashless society, to be further analysed in a future report.

Regional analysis unveiled key differences in the drivers for a cashless society. In western countries, convenience mainly drives a natural evolution towards cashlessness, with contactless payments now impacting trends on low transaction values, historically the ground for cash transactions. There seems to be little political interest in removing cash, other than high denomination notes in the fight against terrorism, tax evasion and corruption.

Meanwhile, Africa has become a mobile payments innovation powerhouse, out of a necessity to equip the unbanked with a means of payments. In Asia, India’s latest demonetisation exercise was aimed at restructuring the economy for a sustainable future, with corruption and tax collection in mind. In China and elsewhere in Asia, the digital economy and associated investments in infrastructure and payment systems, designed with financial inclusion in mind, drive cashless transactions. Innovations in Africa and Asia are now exporting to the western world.

[...] Trends<sup>1</sup> were confirmed during the second semester, 2017, with developing economies banking on the digital economy hence pushing for digital transactions.

In Africa, development and technology revolution go hand in hand with on-going Kenya centric payment ecosystem moves. In hindsight, has Nigeria’s failure to engage telcos led to the failure of its policy? Is the digital economy the new oil of the Middle East?

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<sup>1</sup> Selected extract: Executive summary from “A Cashless Society- Benefits, Risks and Issues Addendum- 2017 update”

Further studies focused on North America provide deeper insights into consumer attitudes towards cash and electronic payments, and the controversial yet slow progress towards a cashless society. Some points of view confirm earlier stakeholder findings, with conflicting industrial interests.

The Asia Pacific region continues leading the momentum with aggressive moves throughout the region at varying levels of maturity yet seemingly all in the same direction. Developments are intense, partially driven through public sector investments and industrial players, with expanding geographical coverage for Ali Pay and WeChat Pay to cater for the lucrative market of Chinese travellers.

In late 2016, India underwent a vast demonetisation exercise, followed by the introduction of the Goods and Services Tax. This addendum attempts to draw a snapshot of India a year on, and summarise the arguments behind the heated debates in the country relevant to the general economy, politics, public finances, technology, social and legal perspectives.

In Europe, additional studies on attitudes towards cash conclude that cash remains the favourite means of payment, with wide variations within the continent. Authorities reaffirm the intention to keep cash in circulation. What of the UK? The headlines are open for interpretation.

All outputs from the Cashless society Working Party can be found at:

<https://www.actuaries.org.uk/practice-areas/finance-and-investment/finance-and-investment-research-working-parties/cashless-society-working-party>



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I also wish to thank Talkwalker (Social Media Analytics and Monitoring Platform) support for their guidance when configuring topics to enable effective use of the tool and data collection.

I could not have completed this work without L.v. Beethoven, E.Grieg, R.Schumann and F.Schubert for their piano sonata companionship during hours of data analysis.

## Executive Summary

The Institute and Faculty of Actuaries (IFoA) is the UK's chartered professional body dedicated to educating, developing and regulating actuaries based both in the UK and internationally. The Institute promotes and supports a wide range of research and knowledge exchange activities with members, external stakeholders and international research communities.

The 2017 interim report from a volunteer working party focused on the "Cashless Society- Benefits and Issues". The chapter "Cashless World in Motion" reported on global developments for the topic of a cashless society during the year.

This is the 2018 version of the "Cashless World in Motion". It focuses on the trends of that year only. Only countries with substantial events or announcements are talked about, and only new findings are reported for the ones that featured in the 2017 copy. This copy was collated in the spirit of further developing knowledge, compared to last year.

The paper first identifies the driving trends for the year, pointing to structural disruption of the payments ecosystem from conflicting forces. It then reports on regional developments for the topic, with emphasis on India, Kenya, the UK and Australia.

The technology landscape was conducive to adoption of mobile payments, with notable progress for the use of QR code payments in Asia as part of national payment initiatives to improve the cost efficiency of payment solutions, and increase financial inclusion. However, multiple and high impact outages in payment systems related to the underlying systems or telecoms infrastructure raised concerns about our reliance on technology for critical economic functions.

Convenience continued to drive consumer adoption of contactless card and mobile payments for low value purchases, with regional preferences as seen in 2017. Data scandals, cyber crime and fears of totalitarian state highlighted security and privacy concerns.

Innovation continued to offer consumers increasing levels of integrated retail experience and expanded their choice of financial services suppliers to new and more competitive digital entrants. As the use of cash reduces, the cost of transactions continued to feed the commercial payment ecosystem, costing consumers and businesses. This is also an on-going challenge to the viability of the existing ATM infrastructure, and a threat to the free access to cash.

### **Key takeaways**

- Innovation remained buoyant in Asia and Africa.
- QR code payments grew popular throughout Asia.
- Developed countries were still reluctant to adopt mobile payments.
- The reliability of the payment systems infrastructure was under scrutiny.
- The cost of non-cash transactions was a global concern, whereas the cost of cash was seldom discussed.
- The viability of ATMs continued to drop as the use of cash reduces, with on-going concern for the needs of some demographic groups.

## Keywords

cashless society; cashless transactions; de-cashing; cashlessness; risks and issues of a cashless society; demonetization; demonetisation; digital economy; financial inclusion; America cashless society; Australia cashless society; Africa cashless society; Asia cashless society; Europe cashless society.

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## A Cashless Society in 2018

### Introduction

At the end of 2017, once the first copy of the Cashless World in Motion was completed, the author wondered if there would be much substance to comment on the topic of a cashless society in 2018. The author partly expected digital currencies to rise, and to observe more technology innovations, as well as advances in financial inclusion. With a fairly slow start of the year, events picked up pace in the spring, so the author felt compelled to continue following developments, and to find a more modern, effective and efficient process to analyse data, to deliver meaningful insights.

As the key concepts around a cashless society were explored in the working party's interim paper, this 2018 edition of a Cashless World in Motion focuses on the 2018 trends only. Only countries with substantial events or announcements are talked about, and only new findings are reported on for the ones that featured in the 2017 copy. This copy was collated in the spirit of further developing knowledge, compared to last year. It should also be read in the context of country specific circumstances and constraints, past and present. It remains neutral throughout: The author has clearly pointed out a couple of instances where a qualified view was raised.

Evidence supporting all statements and citations in this copy can be found in the extensive bibliography and references sections. The bibliography contains 80 items that are directly referenced within the text, and can be considered essential reading or watching for those with professional interest. The 461 (422 unique) citations that underpin the reported events are classified per section to keep the text user friendly, so can present duplications where relevant.

In addition to factual, chronological developments to inform readers, this copy introduces some public sentiment analysis from the collected data, with a view to provide some level of perspective on public reaction towards events in Australia, India and the UK.

The first section provides a summary of the key findings for the year. Disruption was the theme, all closely related to the unstoppable march towards a digital economy, dubbed the 4<sup>th</sup> industrial revolution. This year, all stakeholders were out of their comfort zones as tensions rose in some key areas:

- Payments technologies uptake vs reliability of underpinning technology infrastructure,
- Convenience of payments vs trust issues,
- Economics of Money vs politics.

These tensions played out in all regions, at varying degrees, times and for different reasons. The following sections deliver a summary of noteworthy announcements or developments. Depending on relevance, some countries are presented with a timeline; others are not.

The author has chosen to provide more comprehensive chronological reports for some countries where developments were significant, such as India, Kenya and the UK. Australia deserved some different insights, specifically to follow up on 2017 developments.

Let's now look forward to 2019 events, with optimism.

## **Methods, tools, data and scope**

The method used to deliver this paper is consistent with that of the earlier copies of the Cashless World in Motion, monitoring online content for the topics, analysing and synthesising findings.

### **Tools**

The data source used for the 2017 analysis, i.e. Google alerts, was continued for the first quarter in 2018.

From April 2018, data started being collected through Talkwalker's social media analytics and monitoring platform. Tool configuration was completed and monitored over a period of two months, in parallel to Google alerts to ensure continuation and consistency of outputs. Configuration was baselined for "go-live" on June 01, 2018. Google alerts analysis was then discontinued, although collection remained until December 31, 2018. The tools change led to a 80% saving of processing and analytical effort.

### **Data sets**

The data set used for this paper mainly comprises two topics:

- "Cashless society",
- "Contactless payments", later renamed "Payments technology",
- An early sample of "India demonetization" data (April-May) was referred to in the relevant section,
- The tool is also configured to collect other data sets, for topics that are not in scope of this paper.

### **Compliance**

The data underpinning the findings in this report can be audited up to May 31, 2018, with two exceptions, due to temporary settings prior to tool configuration baseline:

- The April 2017 to March 2018 historical sentiment data for India,
- The India demonetization social media and sentiment analysis included in the UK April content graphics.

All data was collected from the public domain.

In compliance with licensing agreements and data regulations, no Personally Identifiable Information (PII), or personal data, was consulted for any reason, or referred to in preparation or writing of this paper. No personal data access was granted to any third party. Nor was any report generated that contained any personal data.

### **Sentiment analysis:**

After some trials using sentiment analysis, some conclusions were reached on the low reliability of such analysis for the topic:

- The intended use of sentiment analysis is reputation management of commercial brands, i.e. a definite, and usually quite static target. The topic of de-cashing is essentially a moving

target made of complex messages that contain subjective, emotional information. As a result, sentiment analysis requires a very defined scope and in-depth analysis to address double negatives, and assess whether sentiment is associated to the message of the original content, or any other factor not immediately obvious through the numbers.

- The example of sentiment related to an article that went viral from the UK in July 2018 illustrates this particular scenario: positive sentiment was in support of the article itself and the author, whereas negative sentiment was targeted at the topic.
- The virality factor means amplification of some content, which distorts the sampling. Yet, sentiment analysis of each record would likely not provide a representative sample.
- As a result of these findings, data collection from social media was excluded from data collection, apart from two territories: France and the UK.
- A different approach, possibly using machine learning (AI) may be considered for 2019 to address the issue and develop further insights.

In August 2018, Facebook implemented changes required post the Cambridge Analytica data scandal. Due to the low value, in volume and quality, of the data for this topic, and decisions with regards to sentiment analysis, Facebook data was no longer collected. The impact of this gap can be measured for each content record, which indicates the number of Facebook shares. It can be addressed through a token in the future if the data is deemed necessary.

### **Approach:**

The purpose of the 2018 analysis consisted in identifying and analysing new developments and trends, as well as monitoring for any changes or events relevant to the 2017 findings, with a specific focus on stakeholders, risks and issues.

Data was reviewed on a weekly basis during the tools transition period, then gradually stabilised with a monthly analysis that resulted in a monthly Cashless World in Motion newsletter circulated within the cashless working party for research purposes, and to a few external contacts.

The researched topic, as demonstrated in the earlier paper, is emotive, hence leads to a requirement to filter out opinions, and validate the source data, especially in the case of any unusual claim, of either orientation. Care was taken to verify references as much as possible, although some content was kept for the value of, points or questions raised, rather than the numbers/ statistics put forward in the content.

Some opinion pieces have been referenced when they challenge, validate or augment prior knowledge of perceptions of events from various stakeholders, but without verifying or accepting any claimed facts into the body of this paper. When in doubt, a cautious “more likely than not” assessment has been made if the same piece has been referred to by multiple, reputable sources. This has been a particular challenge with data from India, where the highest level of caution was warranted on data sources.

In other regions, the power of virality facilitated the selection of the collected data, through cross referencing and the reputability of the medium.

### **Sampling and scope/ exclusions:**

- For all regions except North America, >70% of articles in English, French or Spanish were taken into account.
- A gap of this paper is the vast content from Indonesia, for some translation challenges. The low proportion of Indonesia related content in English or French this year mean analysis would not have been conclusive or valid, so that data has been parked for later use.

- Information compiled about China mainly originates from reputable international sources of information on developments in the country.
- Commercial reports on market assessments were excluded from analysis.
- Topic exclusions: wearable payments, Central Bank Digital Currency, Negative Interest Rates, cryptocurrencies, Blockchain unless specific mentions were required in the context of the country (Japan, Rwanda).
- Data from North America is distorted due to the role of US based agents in disseminating content from other regions (virality).
  - Through grouping data related to content from other regions, the examined sample range is estimated at 45-50%.
  - This leads to a disproportionate volume from the region, that however presents the advantage of disseminating useful content about some developing countries.



Figure 1: Talkwalker- Distribution of non-social media content for cashless society and payment technology- April 01- December 15, 2018



## Section 1: Disruptive forces in the payments ecosystem

This section aims to synthesise the main themes for a cashless society in 2018. Full referencing for country specific statements is found in the regional sections. Some bibliography items have been directly referenced within this section to guide readers with professional interest in the topic.

### 1.1 The 4<sup>th</sup> industrial revolution in motion

[Section 1.1 references](#)

Change in the payments ecosystem continued to be a key trend in 2018. A few examples illustrate the scale:

- The value of mobile commerce transactions in Kenya passed the KSh1 trillion (\$10 billion) mark for the first time in Quarter 1 2018, in spite of KSh billions lost through cybercrime in the region.
- Using smartphones to make payments is now common in many developing countries. Of the 25 economies surveyed by a UN body study, individuals are particularly likely to use mobile payments in China (94%), Indonesia (93%), India (83%) and Kenya (79%).
- Google Pay has now been installed more than one hundred million times. Globally, 1.6 billion people already use mobile payments, according to research. The forecast is to reach 2.1 billion in 2019:
  - *“After assessing the capabilities of nearly 20 offerings, Juniper [Networking and Cybersecurity solutions] believes that PayPal stands the best chance of developing a converged wallet on a worldwide basis, closely followed by China’s Alipay. What about QR code-based in-store payments? Well, they’ve seen huge adoption in China, though successful use cases in Europe and North America are likely to be limited to “closed loop” wallets like those deployed by Starbucks and WalMart, Juniper suggests. “QR code based payments are likely to have significant growth in markets such as India and sub-Saharan Africa, due to the negligible implementation costs”.*”

#### 1.1.1 The year of QR code payments

2018 was the year of the rapid adoption of QR codes, particularly throughout Asia with several countries integrating these within their settlement systems as part of their national payments strategies to address the issue of transaction costs. They are also available through most mobile wallets.



Figure 2: QR codes are used for payments throughout Asia. Currently in use (green) and in development (red). Source: *Cashless World in Motion, 2018*

### 1.1.2 Technology reliability challenges

Yet, a number of high impact technology incidents that resulted in disruption to payment services brought into the fore the known issue of reliance on technology for payment systems. A few key examples include:

- April: Australia- Payments disruption at the Commonwealth Bank.
- April: UK- TSB bank customers locked out of accounts after systems migration failures for several weeks, with on-going intermittent issues.
- June: UK, Germany- VISA payments outage.
- July: UK- several payment issues; Africa- Zimbabwe (Ecocash) and Kenya (M-Pesa, Chase Bank Kenya).
- September: Thailand- electronic money transfers, several banks.
- December: Kenya- M-Pesa outage.

### 1.1.3 Financial inclusion

Financial inclusion [52] remains a core driver for a number of countries “leapfrogging” past traditional banking infrastructure. Two thirds of the unbanked own mobile phones, yet half the world population still has no access to the Internet [50] [51].

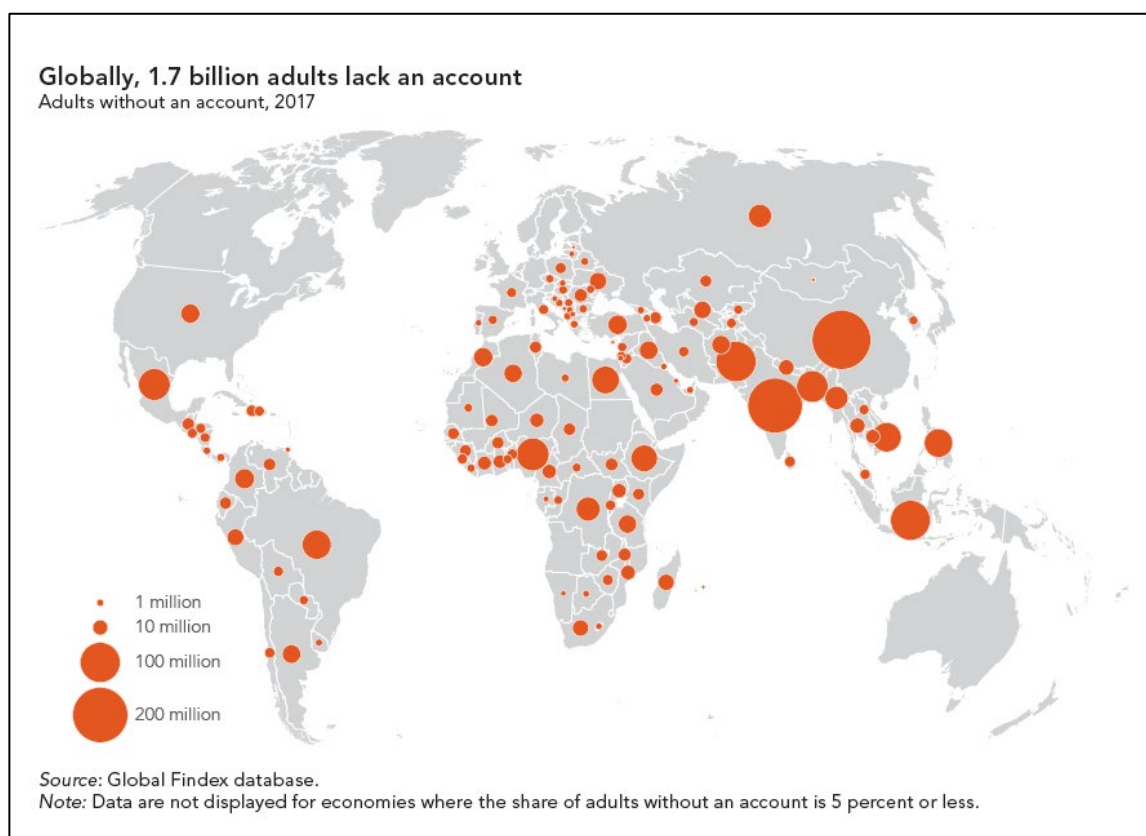


Figure 3: The Unbanked- The World Bank- 2018 [3]

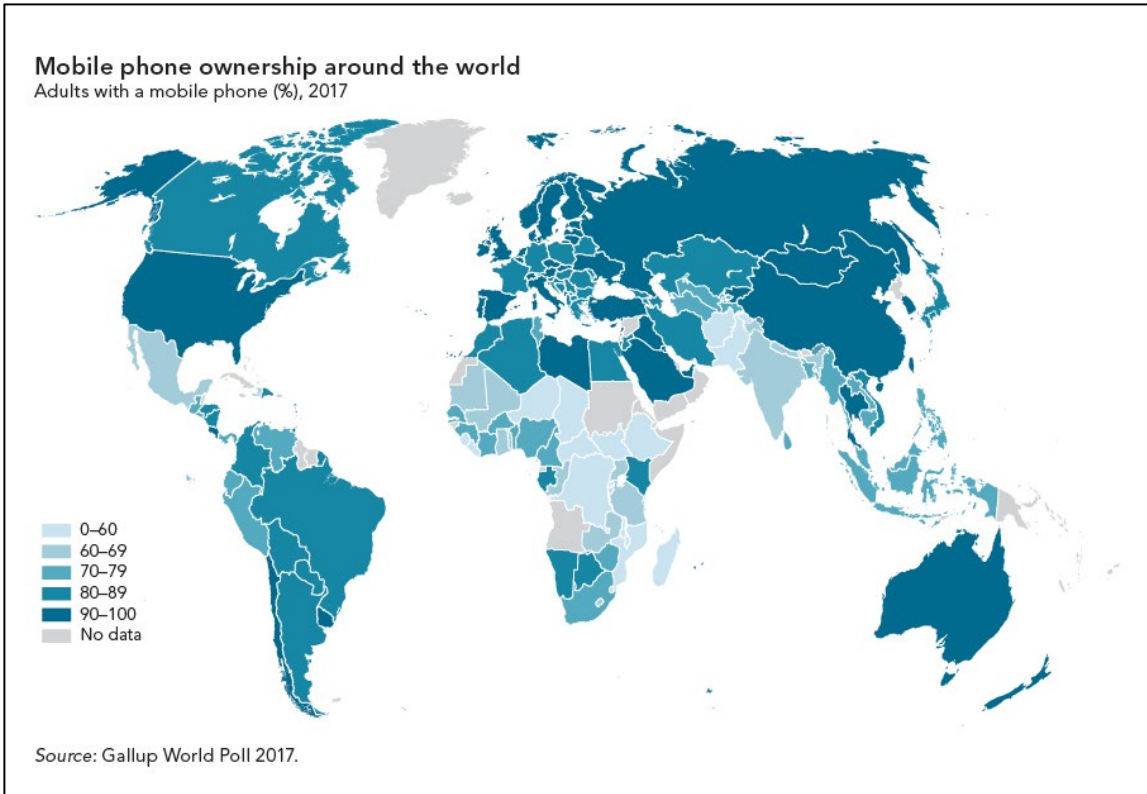


Figure 4: Mobile phone ownership, The World Bank, 2018 [3]

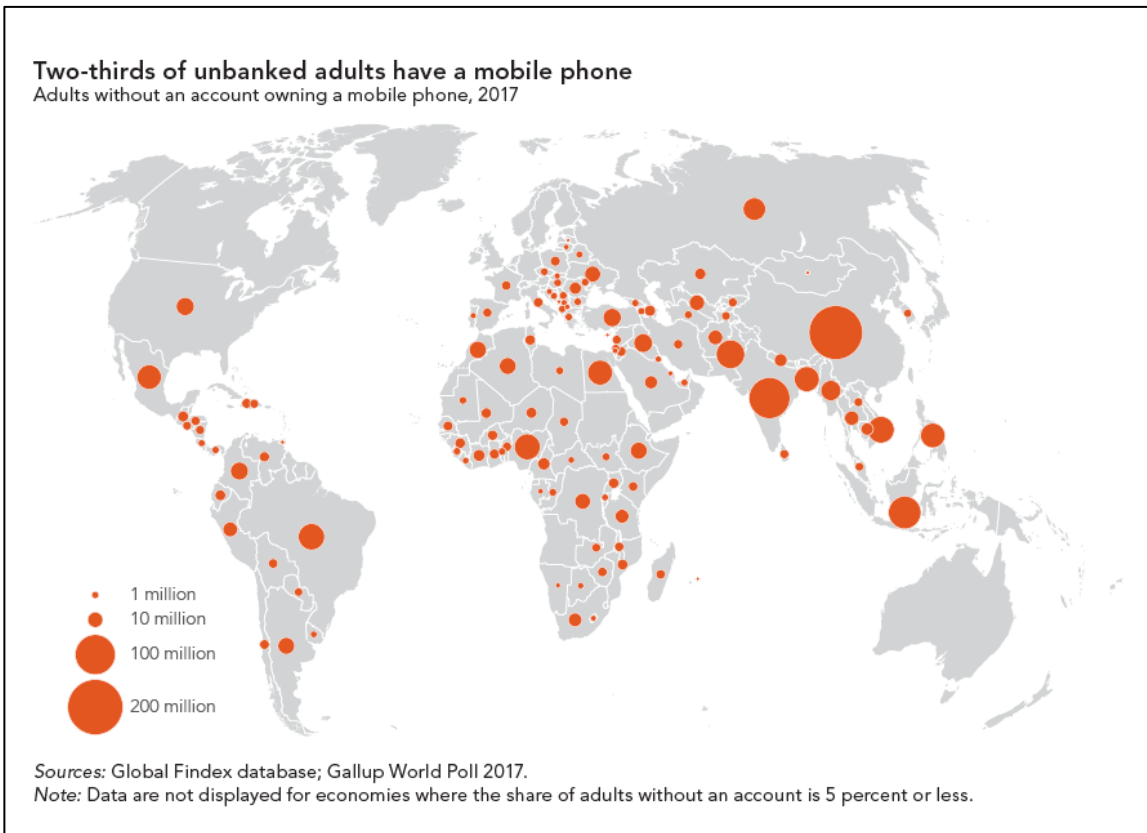


Figure 5: Mobile phone ownership of the unbanked, the World Bank, 2018 [3]

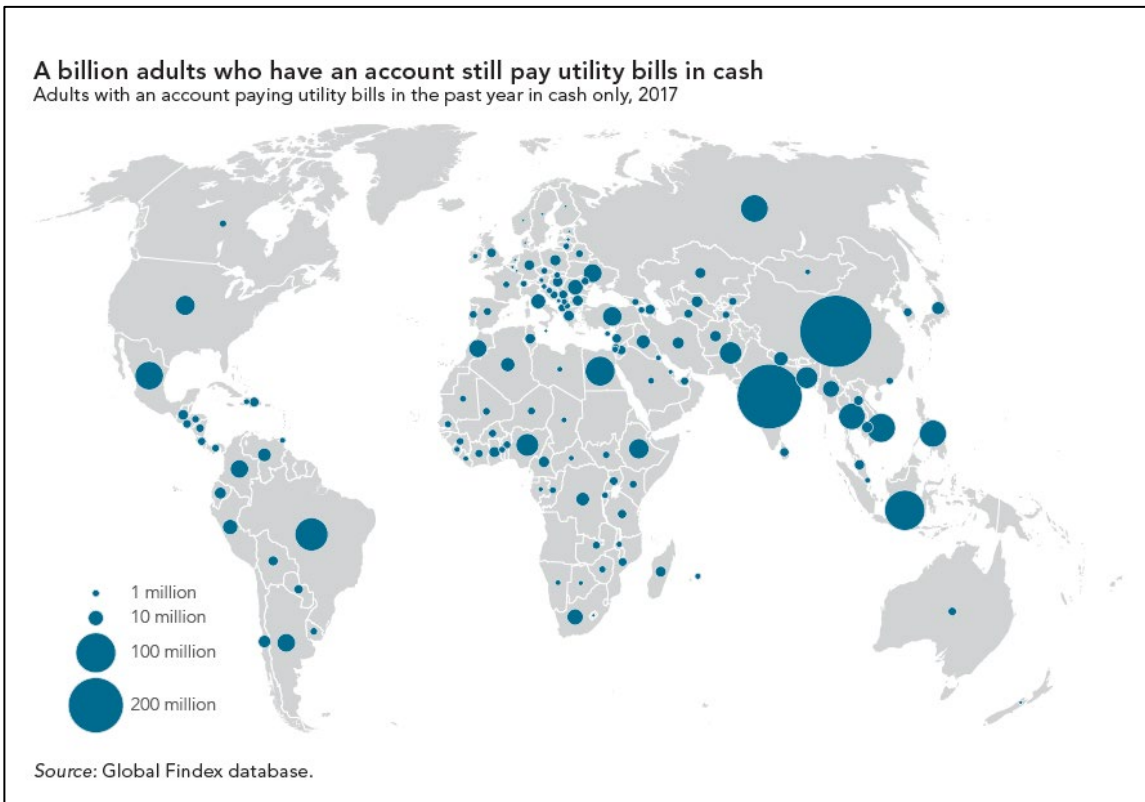


Figure 6: Utility bills cash payments, The World Bank, 2018 [3]

## 1.2 Convenience vs Security and Privacy

[Section 1.2 references](#)

### 1.2.1 Retail: Convenience factors

Convenience and the associated rise of e-commerce have been key drivers for the growth of non-cash payments and general innovation, with an underpinning drive for operational efficiency, especially in transportation systems. A few examples illustrate the level of innovation:

- Mastercard and HKTaxi team up for taxi mobile payments in Hong Kong.
- IRCTC ticket booking via the Railway debit Card: Indian Railways waive the transaction charge, and offers reward points. Train food services have also become cashless following passenger complaints of vendors overcharging.
- Indian cab hailing service Ola acquires Ridlr to digitise public transportation in India and compete against Uber.
- Bus users will be able to pay for journeys using contactless technology from this summer in Jersey— and travellers will receive a discount for not using cash.
- As more US toll roads go cashless amidst early transition issues, authorities go tough on motorists.
- In France, cash-back is now available from retailers, as trams go contactless in Dijon.
- UK: Fares in Aberdeen, Ipswich buses and Perth, Leicester car parks go contactless, while an Ayrshire community convinced RBS to keep an ATM operational.
- London's Oyster card model is exporting to the United States, as half of London's tube journeys are now made with contactless payments.
- Kenya: 50 more NYS cashless buses to operate on Nairobi routes, amongst controversy.

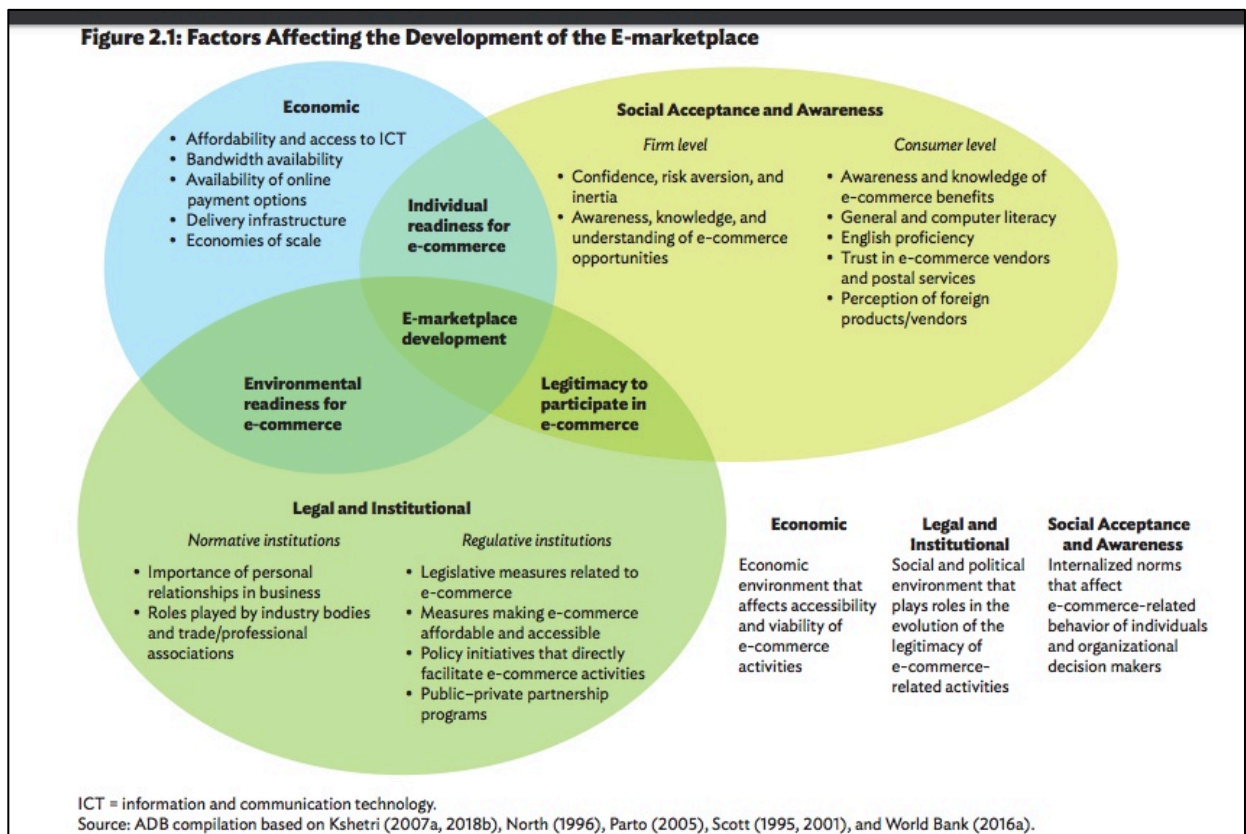


Figure 7: The ADB- ESCAP e-marketplace development framework, 2018 [16]

### 1.2.2 Security and privacy

Extensive surveys on attitudes towards technology and payments [4] [80] emphasise issues with trust, and concerns with privacy and security, mainly in the developed world. Data privacy [59] was at the core of the Facebook Cambridge Analytics scandal. The advancement and implications of China's national reputation system highlight the known issue of trust in governments, and risks associated with a totalitarian state in the event of a cashless society. A practical example of the consequences of such control of is the purposeful use of Internet shutdowns to control dissident activity.

Trust in the security of new payment systems also seems a barrier to de-cashing, with suspicion towards mobile wallets and indications that thieves target new payments such as contactless card payments and through mobile SIM fraud, justifying the push towards biometric identification.

As the world reflects on the 10-year anniversary of the 2008 banking crisis, the lingering lack of trust [7] in banks arouses interest in payments outside the commercial banking system, with appeal for decentralised digital currencies, whether or not within the control of central banks [13].

### 1.3 Economics of money

[Section 1.3 references](#)

Physical cash [22] emitted through national infrastructure is financed through public funds [2]. De-cashing, defined as transferring to card and electronic payments has implications for:



- The equilibrium of the national money infrastructure, from the cash supply chain up to revenue from seigniorage [27].
- The sustainability of per-transaction cost transfer onto businesses and consumers, due to the proportional growth of commercial players in the payments ecosystem.
- The ability to sustain the drive towards financial inclusion [10].

### 1.3.1 Transaction costs

Transaction costs [7] for non-cash payments were a global concern in 2018, expressed by governments, central banks [38], the public and retailers. In Africa, the priorities between tax collection and economic development required a fine balance. The cost of cash [27] [47] still does not seem part of the public debate to balance the argument.

A number of Asian countries, including South Korea [21], have placed the issue at the centre of their national payments strategies.

*“A multilayered process for payment and settlement will be minimized, so that commission fees can be lowered,” said Lee Jong-yeol, director of the e-finance division at the BOK, adding the commission fee from merchants is projected to be lower than 1 percent. [...] The credit card networks’ “convoluted settlement system” has led to “higher social costs,” said Lee Byoung-mok, head of payment and settlement systems department at the e-finance planning team of the BOK.*

*“Heavy use of credit cards (in Korea) has caused inefficiencies in a payment process, so that the rise in the social cost will lead to a decrease in social welfare,” he said. “*

### 1.3.2 ATM networks

The second economic theme of the year, affecting developed countries and a new theme in India, was the concern over the viability of ATM networks’ current operating model [10] [76]. As cash use declines, unit costs of maintaining cash services are likely to have risen [27] [69].

This concern is related to the closure of bank branches in many countries, as bank users manage their accounts online and through Apps. In some countries (UK, Germany, Japan), some banks provide a mobile branch service [36]. In Europe, cash-back through retailers provides an alternative.

### 1.3.3 The payments marketplace

The year has sharpened the picture of the payments marketplace:

- Established, regulated commercial players still dominate the payments ecosystem, investing to digitise their operations [23] [75] [77].
- Mobile Network Operators fill banks’ underserved market segments [48] [60].
- New entrants, dubbed FinTech, mostly unregulated, eat into the banks’ traditional markets. [24]
- Technology giants, dubbed BigTech, acquire banks’ customers through mobile wallets [33].

Developments in China may provide predictive value for the payments ecosystem in 2019, as regulators are clamping down on FinTech compliance. According to McKinsey’s Joe NGai,

*“A stepped-up regulation is a boon for banks as fintech companies, once perceived as a headwind to the lenders, will have to consolidate their ties with the established and licensed financial institutions to survive the crackdown.*

*“They developed financial technologies, only to find that they are not allowed to offer financial services (due to heightened regulatory requirements),” said Ngai. “By the end of the day, big banks will come out and buy them over to boost their digitalisation drive.”*

## 1.4 Politics of money

[Section 1.4 references](#)

In 2017, the topic of a cashless society was that of market opportunities [5] [65], with a political agenda towards financial inclusion in Africa and Asia. 2018 brought politics of money [62] to the fore, starting with observation of the volatility of Bitcoin and other crypto-assets [70], and a concerted effort to assess feasibility of Central Bank Digital Currencies [13] [79], not in scope of this paper, but worthy of contextual awareness.

The broader picture of geopolitical tensions, the anniversary of the 2008 banking crisis and nervous withdrawal of loose monetary policies seem to have drawn focus back to the risks towards financial stability.

In this context, the power of BigTech and other associated developments such as Fintech open up the question of sovereignty and the ability to regulate effectively, without impeding on innovation [56].

2019 may be the year of RegTech, the crossroads of financial services, regulation, compliance, and digital.

*“Technology change is fast, and accelerating. The widening gap between the two is loaded with risk for consumers, the financial system, and regulators themselves. One official has said that if regulators hold still today, they’re actually “accelerating backward.”*

## Section 2: The Americas

Online content data for both the “Cashless Society” and “Payment Technology” topics in North America is a mirror of key developments, or interpretations thereof, in the rest of the world: most major stories are relayed and often turn viral from US media.

It is therefore a vast echo chamber that presents the advantage of referencing some resources from developing countries: these would be otherwise under-referenced, possibly for lack of search engine optimisation capabilities. However, these present a risk of misinterpretation, so any such information needs cross checking with original data.

In particular, caution must be exercised when reading North American articles on contactless payments, as these tend to include mobile wallet payments, whereas the European definition is strictly confined to contactless card payments, and mobile payments are referred to as “digital payments”.

### 2.1 USA

#### [Section 2.1 references](#)

Business and ecosystem matters dominate US originated content, for the dominance of US payment giants in their own right, or through acquisitions of challengers such as iZettle. Interest in investments in Asia and Africa also feature. Coverage is however mainly concerned with reporting on success of US based payment companies. Such content tends to exclude new entrants in the payments ecosystem, apart from US related cryptocurrency or Blockchain innovators.

In terms of consumer behaviour, trust in the security of mobile wallets is a key barrier to changing payment habits. We note numerous commentaries or videos relaying dystopian views on the topic of a cashless society. Personal privacy and its associated freedom themes appear the main contrarian opinion concerning the US public, as well as concerns about financial education.

|   | US  | US trend vs 2016/17 | Canada | Canada trend vs 2016/17 | Total (25 countries) | Total trend vs 2016/17 |
|---|-----|---------------------|--------|-------------------------|----------------------|------------------------|
| % Consumers more concerned about their online privacy than previous year                | 52% | ↘                   | 44%    | ↘                       | 52%                  | ↘                      |
| % Consumers more concerned with own government  | 78% | ↗                   | 62%    | ↗                       | 63%                  | ↗                      |
| % Consumers more concerned with foreign government                                      | 77% | ↗                   | 62%    | ↗                       | 58%                  | ↗                      |
| % Consumers more concerned about Internet companies                                     | 83% | ↗                   | 75%    | ↗                       | 74%                  | ↗                      |
| % Consumers more concerned about cybercriminals   | 89% | ↘                   | 82%    | →                       | 81%                  | ↗                      |
| % Consumers more concerned about employer   | 48% | ↗                   | 45%    | ↗                       | 48%                  | →                      |
| % Consumers more concerned with other Internet users                                    | 64% | ↘                   | 67%    | ↗                       | 66%                  | →                      |
| % likely to make online payments using mobile phones in next year                       | 45% | ↘                   | 36%    | ↘                       | 60%                  | ↗                      |
| % who do not make online purchases citing not being able to make online payments        | 4%  | →                   | 13%    | →                       | 16%                  | ↘                      |
| % who agree that new technological advances often lead to more problems than they solve | 45% | ↗                   | 43%    | ↗                       | 36%                  | ↗                      |
| % who agree that technological advances increase income inequalities                    | 22% | •                   | 25%    | •                       | 31%                  | •                      |

Figure 8 North America- Source data: CIGI-Ipsos Global Survey on Internet security and trust- 2018



The 2018 CIGI-IPSOS global survey delivers insights on attitudes of consumers in the US and Canada, in the above selected data.

April saw the most significant change on the US market, as card payment signatures were no longer required from that time, and the EMV (chip and pin cards) rollout continued. This challenged the “card present” status of contactless payments, and made banks reflect on their new risks in their payment processor capacity. 59% of US Point of Sale systems now accept EMV cards.

The Federal Reserve has reaffirmed the role of paper money and coins in our wallets as necessary. Some report from the Secure Technology Alliance Payments Summit, US Payments Forum Member Meeting:

*“Discover addressed the value of building Discover’s digital payments network, Google laid out their strategy on the convergence of digital payments across all Google consumer platforms; and Visa shared positive news on the U.S. EMV migration and what it means for the expected future of contactless EMV and NFC payments.”*

Apple Pay struggles to meet heady expectations however, due to a fragmented US payment market, as well as consumers who see no reason to switch from card payments. Mobile wallets are not trusted yet, and are not perceived as being more convenient than cards or cash. Venmo, the Paypal owned peer-to-peer market leader, has deemed it necessary to launch a debit card to enable its customers to spend their balances on the retail market.

Payment innovations on the US market appear more moderate than other regions, apart from the implementation of cashless toll roads, as seen in many countries.

Retailers bank on impulse buys, and challenge customers on tipping for over the counter service, possibly in response of the StickaTIP, a new retail tipping app. Amazon is pressing ahead with retail advancements, opening more cashless convenience stores on the west coast.

However, consumers are taking interest in more convenient alternatives being deployed in developing countries, such as QR codes. Some bloggers wonder: “why aren’t QR code payments available in the US yet?”

## 2.2 Canada

[Section 2.2 references](#)

Access to cash is a concern in Canada for the disappearance of ATMs, so community owned tellers are being piloted to ensure cash is spent in local businesses rather than from shops near distant bank ATMs. Financial education for the young in the context of electronic payments and the ability to spend fast is a general concern.

Card payments keep growing, with varying statistics that emphasise the increase of contactless payments (cards and mobile). Real time payments are expected a reality by the end 2019. Retail

payment solutions such as Easy Pay, as seen in other territories, seek to simplify payment processes, and therefore threaten to disintermediate much of the processing industry.

Bank of Canada staff have been discussing the potential implications of de-cashing, from a central bank perspective, as well as retail operations and the provision requirement for a safe store of value in the case of an extreme financial crisis.

## 2.3 Latin America

### [Section 2.3 references](#)

Latin America observes general developments on the cashless society, with some media relaying international content on the topic in the English language, commenting generally on the payments disruption that is taking place, and its associated issues and risks.

The continent has potential through Fintech innovation. Poor infrastructure may limit the leapfrogging opportunities linked with mobile phone penetration levels, unless it is seen as an incentive to fast forward to smart cities.

The 2018 CIGI-IPSOS global survey delivers insights on attitudes of consumers in Brazil, in the following selected data:

|  | Brazil | Brazil trend vs 2016 | Total (25 countries) | Total trend vs 2016 |
|--|--------|----------------------|----------------------|---------------------|
| % Consumers more concerned about their online privacy than previous year   | 63%    | ↘                    | 52%                  | ↘                   |
| % Consumers more concerned with foreign government   | 61%    | ↗                    | 58%                  | ↗                   |
| % Consumers more concerned about Internet companies  | 76%    | ↗                    | 74%                  | ↗                   |
| % Consumers more concerned about cybercriminals  | 86%    | →                    | 81%                  | ↗                   |
| % Consumers more concerned about employer  | 59%    | ↗                    | 48%                  | →                   |
| % Consumers more concerned with other Internet users   | 79%    | ↗                    | 66%                  | →                   |
| % Count on reliable access service (easier)  | 38%    | ↗                    | 37%                  | →                   |
| % who distrust the Internet citing own government as contributor   | 70%    | •                    | 61%                  | •                   |
| % who distrust the Internet citing e-commerce platforms as contributor   | 69%    | •                    | 57%                  | •                   |
| % who distrust the Internet citing online and mobile banking platforms as contributor                              | 67%    | •                    | 53%                  | •                   |
| % Likely to use mobile payment systems on smartphone in the next year  | 69%    | ↗                    | 60%                  | ↗                   |
| % who do not make online purchases citing not being able to make online payments                                   | 2%     | •                    | 16%                  | •                   |
| % who disagree that the benefits of new technologies outweigh the costs citing "they increase income inequalities" | 47%    | •                    | 31%                  | •                   |

Figure 9: LATAM- Source: CGI-Ipsos Global Survey on Internet security and trust 2018

So far, most countries in the region are only making moderate progress towards the digital economy:

- Chile, Costa Rica, Uruguay, Mexico and Columbia are leading the way, both in current state and momentum.
- Over a third of the region is yet to experience the Internet; women, young adults, and the poorest 40% in the region are among the unbanked.
- With the right mix of digital-first policy interventions, supply infrastructure stimuli, and a push to improve digital and financial inclusion, the region can unlock its true digital potential.

2018 saw a rise of contactless payments, through an increase use of self-checkout in shops, which drive up card payments, mainly in capital cities. Local content raises issues consistent with the existing issues and risks log, esp. freedom and cyber risks.

Cash scarcity associated with spiralling inflation in Venezuela is fuelling a boom in digital payment apps like Vippo and Tpage, whilst the country came up with a crypto coin.

Peru's BIM mobile wallet is an example of stakeholder cooperation to build an interoperable national money scheme. This may help formalize the economy. Would this work in the mostly underbanked Mexico?

## Section 3: Africa

### 3.1 General themes

[Section 3.1 references](#)

#### 3.1.1 Technology

##### Market entry smartphones

Whilst Safaricom continued to lead the headlines with their network innovations, another, discreet player has been unlocking the market potential for smartphones in Africa: Transsion, a little known Chinese smartphone maker, has been successful in marketing its market entry devices and enabling access to e-commerce apps.

##### Interoperability

Interoperability transformed money transfers in the region in 2018, leading to a growing web of facilities across territories for international remittances, to and from mobile networks and banks.

Technological innovations in Africa throughout 2018 have been deployed to address Africa's challenges. As telecoms giants now team up on mobile money accessibility, strong home economic growth is likely to be facilitated in 2019.

##### Cyber security

Various technology challenges have arisen through the year. Financial crime risks undercutting African economic growth gains: cyber crime loss has been valued at \$3.5bn a year in Nigeria, Kenya, Ghana, Uganda and Tanzania.

Zimbabwe and Kenya also experienced nervous times through technical glitches from market dominant EcoCash (Zimbabwe), Safaricom and Chase bank Kenya, echoing concerns from events in other regions over the reliance on technology.

#### 3.1.2 Financial inclusion

There is also a realisation that technology cannot fix all African challenges. Mobile money has facilitated some financial inclusion, yet does not yet seem sustainable until improved levels of financial education are achieved: sudden access to "easy money" has brought on the downsides of gambling, debt, and other irresponsible financial behaviour.

Business education and coaching will also help innovators thrive whilst making the right business decisions, and selecting the appropriate financial products to meet their needs.

The development of financial skills seems a prerequisite for improving of living standards through providing access to solar power, healthcare services, and delivering financial services in the region.

### 3.1.3 Role of governments

As Africa's economy has traditionally been informal, governments have been keen to promote electronic payments, as a means to collect tax in the future. Tax on mobile money has been a thorny topic amongst lawmakers.

As Kenya increased its tax rate on money transfers in July, it faced opposition from Safaricom and criticism that this would slow adoption of electronic payments, financial inclusion and economic development. Uganda decided to drop most of the levies it had imposed in order to encourage take up of mobile money.

In Ghana, Mobile money won't attract taxes, for now. The Ghana Interbank Payment and Settlement Systems has been urging the public to resort to more electronic forms of payment in order to reduce their exposure to armed robbery and related risks after two separate armed robbery attacks, whilst preparing to update its payments regulatory regime.

### 3.1.4 Investor sentiment

As part of the "Forum Innovation Made in Africa 2018", questions were raised on the challenges of African startups to thrive, apart from the English speaking South Africa, Kenya and Nigeria. These three countries raised \$400m of the total \$560m capital investment in Africa in 2017, of which \$100m is thought to have financed the Fintech sector.

Yet there is good ground for optimism, as 92% of international investors are positive about the economic future of the African continent for the next five years, driven by emergence of a middle class, an improved business environment and demographics.

## 3.2 A Kenyan diary

[Section 3.2 references](#)

Kenya was the centre of regional developments throughout 2018, with far reaching ecosystem moves. Here is the diary.

### January/ February

The Kakamega county government is planning to introduce a cashless revenue collection system to help meet its targets of taming corruption. Governor Wycliffe Oparanya said "the cashless system would seal loopholes that had seen his government fail to meet its Sh1 billion revenue target last year".

Kenya's Communications Authority also announces the Mobile Financial Services Interoperability Network: customers are now able to send money to each other, regardless of the payments services institution they use on their mobile handsets. The e-money will be sent directly to the subscriber's e-wallet account, on the three mobile network operators, M-Pesa, Airtel Money and Telkom.

Startup BrilliantPay launched its payment APIs and tools for e-commerce companies.

## **March**

We note yet more partnerships in Kenya's ecosystem, including Google's acceptance of payments through M-Pesa, and Opera entering the mobile micro loan market. Kenyan bank KCB Group plans to set up its own mobile payment platform this year to handle the jump in transactions via phone.

## **April**

The value of mobile commerce transactions in Kenya has now passed the KSh1 trillion (\$10 billion) mark for the first time in Quarter 1 2018, in spite of billions lost through cybercrime in the region.

M-Pesa scores, achieving GSMA Mobile Money Certification, and Paypal partnership for cross border payments. Interoperability rollout with Airtel and Telkom Kenya is expected to drive transaction costs down. Time is money: a University of Nairobi School of Business Associate Professor reviewed mobile transaction costs.

50 more National Youth Service cashless buses are to operate on Nairobi routes, amongst controversy.

## **May**

A new regulation has been voted to combat cyber crime: Failing to reverse an M-Pesa transaction done by mistake will see Kenyans pay a Sh200,000 fine or be jailed for two years, or both. M-Pesa records are also helping detect corruption.

Regulators may next turn on Safaricom's market dominance, as the Telco pilots messaging app linked to mobile money. M-Pesa users will be able to message each other on Bonga in three ways: user-to-user, user-to-business and fundraising through "social groups" much like the group function on WhatsApp.

## **June**

Safaricom, the operator of M-Pesa, opposed a tax rise on mobile cash transfers but eventually reviews its M-Pesa tariffs upwards, applicable from July 01, to comply with the Finance Bill regulation.

A mobile loan crisis looms: Blacklisted borrowers increase from 150,000 to 500,000 in three years: The number of those blacklisted has gone up due to many apps providing loans. There are currently more than 50 mobile phone loaning apps. This appears due to a lack of education on the consequences of defaulting on a loan, and lending platforms not utilising information from the credit bureau.

Chinese expatriates are driving the rise of Chinese centered services in Kenya. This is extending to payments, with a new partnership with Equitel to bring Alipay and WeChat Pay to Kenya in the next month:

*“Once the service goes live, anyone with an Alipay or WeChat Pay account will be able to make seamless payments to Kenyan businesses that will have signed up for the service, through their respective platforms. The long-term plan, according to Equitel, is to allow Kenyans to be able to hold Alipay and WeChat Pay accounts through them and thus facilitate international payments.”*

## July

Safaricom is in advanced talks to take M-Pesa to Ethiopia, a market of 100 million people under new leadership and support from trans-national organisations. The trade name will be licensed to an Ethiopia based bank, Ethio Telecom will carry the service, and Safaricom will host the infrastructure in Nairobi.

This market expansion is required to compensate for loss of market share in Kenya to competitor Airtel, presumably following recent regulatory requirements to open up its network to competitors, maybe also due to rising M-Pesa fees. Some early technical challenges lead to queries on Safaricom's fairplay.

Safaricom looks under pressure to resolve security issues leading to SIM swap fraud in Kenya, especially if it is an inside job. Is this also a financial education issue? Following recent integration, it appears Paypal may be cautious and blocking some M-Pesa linked accounts. Identity verification has become an issue for mobile operators.

## August

Safaricom is rewarded through the Fortune “Change the world” listing, recognizing the impact of M-Pesa on the lives of millions of people, Inc. 8 million rural retirees in India. M-Pesa also inspired other providers along the way, such as MTN “Mobile Money” service in Congo in 2012.

Challenged for its alleged market dominance, returning CEO Collymore argues it is due to the regulator's failure to enforce investment requirements from smaller competitors in return for their licenses, leading to a large disparity in the number of base receiver stations owned by Safaricom. Operational maturity and efficiency gains through relocated infrastructure have also enabled the company to save 40% on its royalties to Vodafone Plc.

The Telco may face further competition through neighbouring interoperability systems, such as Tanzania's Tigo Pesa, though it may gain from the resulting network. A new partnership with WorldRemit should further strengthen M-Pesa's market position through remittances. Money transfer fees remain under pressure from the regulator.

Meanwhile, the Kenya Banking Association competitor Pesalink has signed up 30 banks for person-to-person transfers without going through intermediaries such as M-Pesa, Airtel or Orange Money. Since launched in February 2017, it has moved Sh81 billion.

Identity and security remain challenges for mobile money, as cases of theft, Inc from bank employees, bribery attempts and scams are unveiled. As the clean up progresses, a new cyber crime law is being drafted to protect data collected through M-Pesa. Safaricom is planning the introduction of a fingerprint based biometric system to resolve on-going security issues such as SIM swap scams.

## October

Interoperability: mySafaricom app update adds a mobile money interoperability menu, on route to a comprehensive ecosystem.

## November

- Safaricom seeks approval to increase M-Pesa's daily transaction limit,
- introduces transaction overdraft Fuliza.
- asks government to reconsider mobile tax.
- and goes global with Western Union.
- M-Pesa is to send cash direct to China's WeChat users.
- Accessibility: M-Pesa is now available in Braille.

A **December** M-Pesa outage caused outrage, with the public and media realising the reliance of the economic and social construct on Safaricom: "M-Pesa is a critical resource that should never fail".

## 3.3 Rwanda

### [Section 3.3 references](#)

In Rwanda, 90% of international money transfers through World Remit are through mobile wallets. As local Telcos are preparing to rollout cross network services for interoperability purposes, consumers will gain in convenience and lower transaction costs.

A first Blockchain based payments platform is available in Rwanda, SPENN, as a route to financial inclusion, was reported across multiple media:

*"SPENN was developed by Blockbonds, a Norwegian financial technology company that is working to formally financially include the unbanked population which remains relatively high in the country.*

*The application allows smartphone users to transact and pay for goods and services. Unlike many other Blockchain technology platforms, SPENN uses a different model whereby it removes the need for cash by digitalising national currencies. With Blockbonds partnering with I&M bank, it means that they are the first financial technology players to digitalise the Rwandan franc.*

*It also means that people, regardless of whether they are customers of I&M, can now own a SPENN account. As a user, after downloading and registering with the app, you immediately have a digital account and the ability to transact and interact with others in the financial system. All services through the platform are free. Blockbonds CEO Jens Glaso said that their firm is trying to create a way of transacting legal tender using a blockchain-based accounting system, which they believe will enable more people to get financially included.*

*"What we are doing is financial inclusion. This is what SPENN is. We are going to markets to enable people to easily transfer money from one another as well as pay for bills," he told the press at I&M bank offices in Kigali. Using Blockchain technology, Blockbonds is bringing ease in transacting as SPENN account holders are able to keep track of the transactions and funds on their accounts. Rwanda is their first marketplace, but Glaso told The New Times that they were in advanced stage to launch in Kenya, Tanzania, Mauritius, Namibia, and Botswana among other potential markets.*

*Robin Bairstow, the bank's managing director, the bank is working to replace physical cash with digital cash, which they say is critical in realising the country's bigger vision to achieve the cashless economy by 2020."*



### 3.4 Zimbabwe

[Section 3.4 references](#)

#### January

Electronic money hits 96% of transactions: While the use of electronic forms of payment came as a result of cash shortages, it puts the country ahead of other countries across the globe that are working towards achieving a cashless society.

#### April

Fee and commission income will propel banking sector's profitability as the cash-starved economy resorts to more cashless transactions, research has said. In its report, Zimbabwe Economic Review and Outlook, Economist Global Capital said the continued use of bank transfers and card payments will support deposit growth. Mobile payments grew substantially in 2017 as a result of cash shortages.

#### July

Will Zimbabwe's election resolve the cash crisis? The reserve bank has been increasing cash imports, as well as promoting a cashless society. The country also experienced nervous times through technical outages from market dominant EcoCash.

#### August

A nearly cashless Zimbabwe tests the limits of mobile money, while EcoCash launches its Scan-and-Pay service.

#### September

First Money microfinance launches a debit card. Key features include: no minimum salary, no monthly service fees, monthly transaction limit of \$3,000, and access to Ecocash mobile wallet services, Mobile app and online banking services.

### 3.5 Nigeria

[Section 3.5 references](#)

Nigeria learnt from its earlier lack of Telco engagement. In April 2018, The Nigerian Communication Commission (NCC) and the Central Bank of Nigeria (CBN) signed a memorandum of understanding (MoU) on mobile money payment systems.

By July, electronic payments recorded a 38.4% year on year rise, showing increasing adoption, along with National Identification Numbers, and "leading to optimism with a renewed push on financial inclusion and the improved stability of the payment system."

By September, the growth was 56% year on year, as "banks, Fintechs and Telcos intensify efforts to deepen financial inclusion". These are still early days, as the ecosystem needs to mature and investor support is needed. WePay has now launched its e-commerce platform in Nigeria.

Next is the launch of the Payment Service Banking License, enabling non-banking institutions to provide financial services, following the steps of Kenya.

### 3.6 Payments ecosystem developments

#### [Section 3.6 references](#)

Africa kept up its reputation as a payments innovation powerhouse throughout 2018. Whilst Kenya seemed the hub for key developments, below is a selected list to illustrate dynamism throughout the region.

- MTN new venture intending to create Africa's equivalent of Amazon, Netflix and Alibaba combined.
- Uganda: In partnership with Standard Chartered bank, MTN launched MoMoPay, a payment solution free from customer transaction charges: the retailer pays the fee, but has access to more features such as supplier payments.
- Tanzania: the Bank of Tanzania congratulated NMB bank for digital innovation as they launch a mobile phone account package, and NIC bank launches the first account opening without cash deposit to aid penetration of financial services.
- Ghana: Mobile Money interoperability (between mobile operators and banks) started in May. Kenya's BitPesa takes its Blockchain-based Payments Business to Ghana, one of Africa's countries with the lowest level of ATMs per capita.
- South Africa: Tappit, a specialist in cashless experiences at events and festivals, has signed an agreement with multiple partners to form a joint venture company in South Africa. It will provide seamless radio-frequency identification.
- In South Africa, Nedbank launched "Scan to Pay", enabling App payments to vendors who offer Masterpass, Snapscan, Pay@, or Zapper QR codes as a payment option, and added new features to the banking app.

## Section 4: Australia

### [Section 4 references](#)

Talk about the future of cash in Australia has been ambiguous. On one hand, credit card cash advances reached a 20 year low, as claims abound that “Australia will soon be cashless”, it is “accelerating and inevitable”, and “Cash is no longer king” (80% prefer to pay by card, according to payment provider study). There are also calls to scrap the \$100 note. The Reserve Bank of Australia estimates that cheques will completely disappear within 2 years.

However, demand for notes has never been higher, possibly driven by international demand. The \$2 coin, celebrated its 30<sup>th</sup> birthday and looks to meet its long lifeline potential of 40 years, although the future of 5 and 10-cent coins seems uncertain. Amidst industrial stakeholder interests in various claims, the NAB monthly cashless retail index provides reference data to follow trends. The RBA head of payments frames the evolution as a walk rather than a run towards cashlessness, despite the impact of the New Payments Platform and adoption of contactless technologies. There is no plan to stop producing notes.

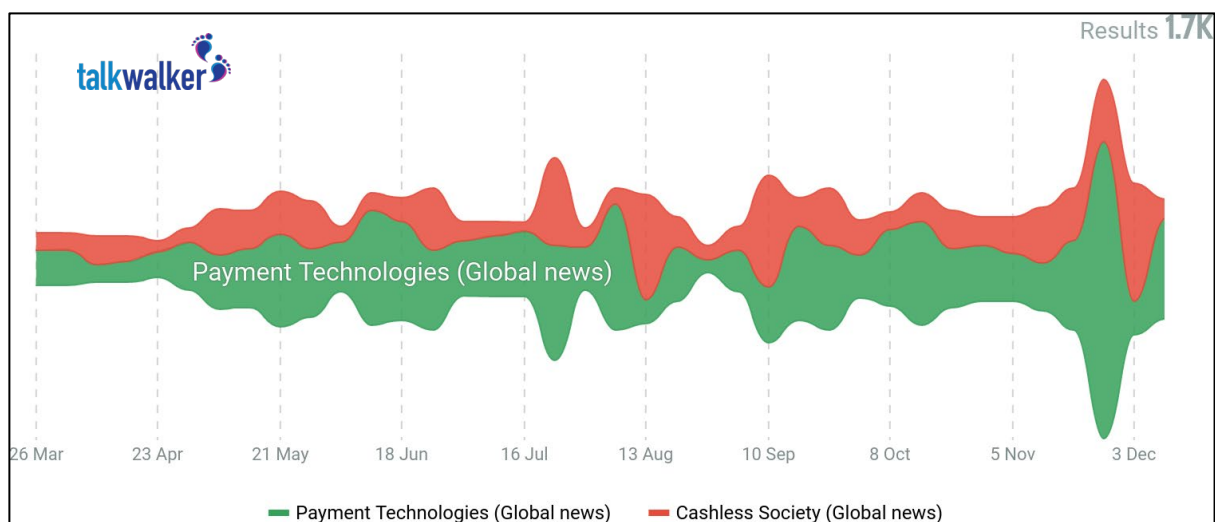


Figure 10: Talkwalker- April 01 to December 15, 2018- Two topic mentions excluding social media. Sample: 1,700 mentions.

### 4.1 The payments ecosystem

Paradoxically, new technology also makes access to cash more convenient, as ANZ enables mobile wallet users to withdraw cash from ATMs. How long for? As the demand for cash dwindles and ATMs no longer seem viable, the asset base seems ripe for consolidation. This raises an operational model question: will banks outsource the function to a country wide utility?

Amongst innovations, we pick the launch of “Beem it”, a peer to peer app from an Australian startup backed by the Commonwealth bank, NAB and Westpac, with no transaction fees. Other noteworthy launches include:

- Suncorp signing up to ApplePay.
- ANZ brings ApplePay to leading Australian charities.
- Alipay launches a “Tap n Go” QR codes payments trial for Melbourne buskers.
- Bank of Queensland launches a “Tap n Go” (Square) reader aimed at small businesses.
- Many businesses are adopting WeChat in a bid to offer chinese residents and visitors convenient payments.
- Victoria to trial smartphone payments for public transport.

## 4.2 Reserve Bank of Australia stance

Philip Lowe, governor at the RBA, delivered three messages in his November address:

- *“The first is that the shift to electronic payments is occurring quite quickly and it is likely to continue. This shift is a positive development that should promote our collective welfare.*
- *The second is that if we are to realise the benefits of moving to a near cashless payments system, the electronic system needs to offer the functionality, safety and reliability that people require. People need to have confidence that the electronic payment system will be operating when they want to make their payments and that it will deliver the payment services that they need.*
- *The third point is that as we undertake this journey towards a near cashless payment system, there will be a greater focus on the cost of electronic payments. If almost all payments are electronic, then the cost of making these payments matters more than it used to. The electronic system needs to be as efficient as it can be and to be characterised by strong competition. In my view, there is further work to be done here.”*

## 4.3 Cashless welfare card status

Controversy continues to stir debate over the cashless welfare card, a system that restricts welfare recipients' use of cash. The senate committee says the scheme should be expanded, with parts of Queensland targeted the next roll out sites. Reports of side effects of the scheme are numerous, although some situations seem to point to communication and education issues.

The debate is likely to continue, for the monitoring and evaluation of the program is inadequate, says the auditor report: *“It is therefore not possible to assess if the scheme has led to a reduction of social harm, or if it is cost effective, due to key flaws in data collection, and lack of understanding about the limitations of the trial to test its scalability.”*

## 4.4 On-going debates

Australia took a stance on the role of cash payments with tax evasion and the black economy, as it introduces an economy-wide cash payment limit at AUD10,000 when purchasing goods or services, to apply from 1 July 2019.

The announcement, applying pressure to the cash economy, has given rise to debate on the reality of the link between cash and crime, and known trust related issues.

The second most debated topic was an intervention from the Australian Taxation office (ATO) addressing cash businesses in a view to encourage adoption of electronic payments, using customer perception over convenience. This apparently led to a backlash from businesses, mainly due to the cost of electronic transactions, linked to a debate on consumer Tap-and-go surcharges, and a rise in retail theft. The ATO may have wished to provide details on its claims that “Tap-and-Go payments cost an average of nine cents less than cash payments”, and details of their poll samples for legitimacy.

The cost burden remains an issue post deployment of the National Payments Platform. Functionally was ready late 2017, its first public facing services, PayID and Osko, launched in February 2018. The New Payments Platform should be spurring the banking sector into competitive

action to reduce merchant fees. NAB customers can now use Google Pay to make contactless payments.

Banks are being slow at deploying EftPoS, a retail payment systems technology that enables least cost routing. As a number of banks are not expecting completion before 2019, the RBA is being firm about considering regulation if progress remains slow.

Other discussions include the role of parents in teaching financial skills and keeping track of incidental spending, especially the implications of deferred payment. Also, the Police urges businesses to reduce “tap and go technology” to prevent crime.



Figure 11: Talkwalker- Australia Cashless society mixed word cloud- top 50 noun phrases- April to December 2018. Sample: 1,700 mentions.

## Section 5: Asia

### [Section 5 references](#)

News and reports pinpoint the key themes underpinning transition towards digital payments:

- Financial inclusion: a substantial percentage of the world's unbanked population lives in Asia, of which 60% have access to a mobile phone.
- Interoperability cuts costs, saves time and presents a huge opportunity for enhanced intra-regional trade and business activity:

***“What’s required is coordination among multiple stakeholders, a conducive legal and regulatory framework, the support of policy-makers and overseers, commercially viable business models and technological solutions, ideally based on international standards”*** (Bank, Thailand)

Using smartphones and QR codes to make payments is now common in many Asian countries. Of the 25 economies surveyed by a UN body study, individuals are particularly likely to use mobile payments in China (94%), Indonesia (93%), and India (83%).

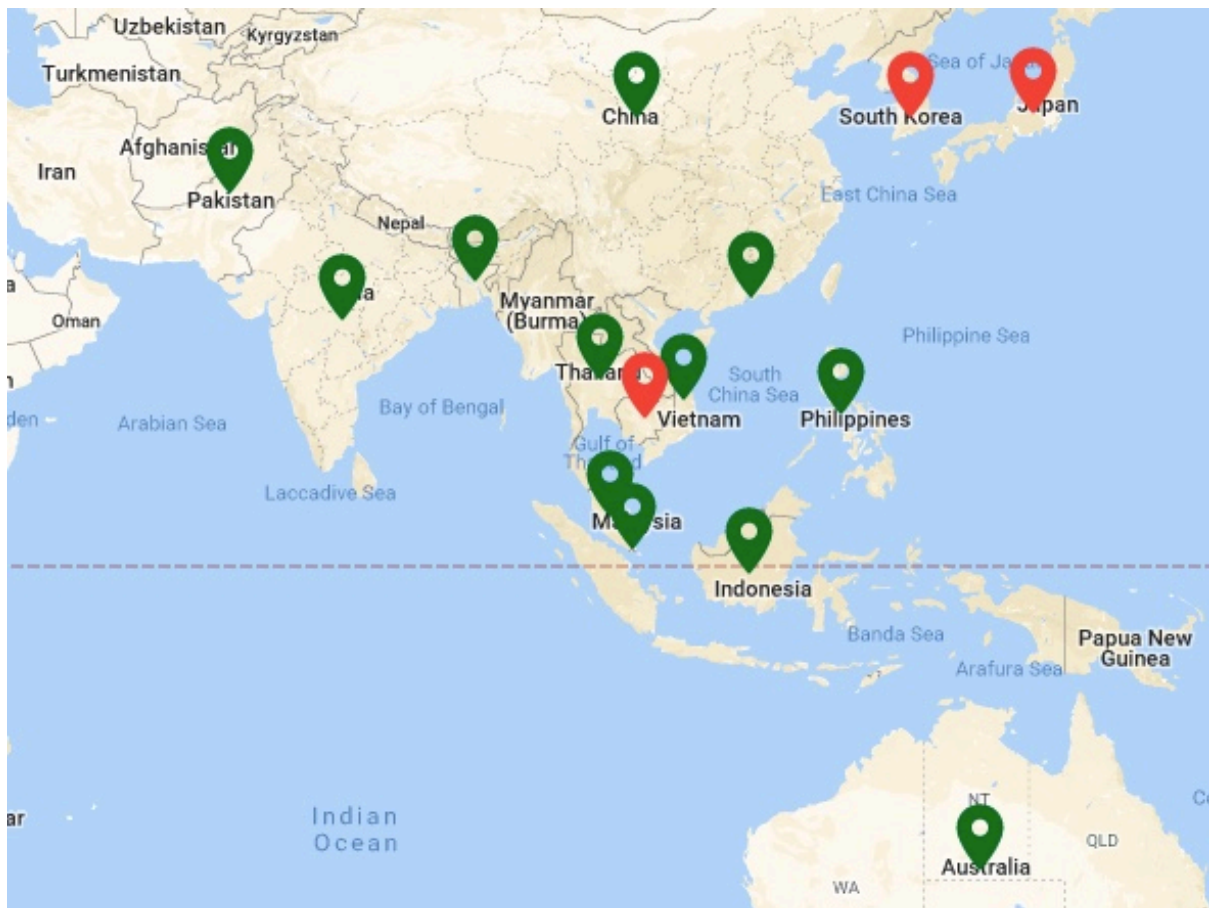


Figure 12: QR codes are used for payments throughout Asia. Currently in use (green) and in development (red)- Source: *Cashless World In Motion 2018*.

Google Pay has now been installed more than one hundred million times. Globally, 1.6 billion people already use mobile payments. The forecast is to reach 2.1 billion in 2019.



*“After assessing the capabilities of nearly 20 offerings, Juniper [Networking and Cybersecurity Solutions] believes that PayPal stands the best chance of developing a converged wallet on a worldwide basis, closely followed by China’s Alipay. What about QR code-based in-store payments? Well, they’ve seen huge adoption in China, though successful use cases in Europe and North America are likely to be limited to “closed loop” wallets like those deployed by Starbucks and WalMart, Juniper suggests. **“QR code based payments are likely to have significant growth in markets such as India and sub-Saharan Africa, due to the negligible implementation costs”.**”*

## 5.1 China and Hong Kong

[Section 5.1 references](#)

### 5.1.1 The year of China

2018 was the year of China, on the 40th anniversary of its reform and opening-up.

*“China has always actively invested in technological advancement and innovation to bolster macroeconomic growth and improve people’s lives. Since opening up 40 years ago, China has transformed into a country that is at the forefront of various technological advances, such as cashless mobile payments.”*

China is synonymous with innovation, even launching unmanned banks, as payment giants shifts banks into obsolescence. China leads the way with face recognition gaining momentum, and now commonplace at its airports.

Brick-and-mortar banks are under heavy pressure from financial technology, with bank branches closing and ATMs decreasing nationwide.

***“China has leapfrogged the developed west, going from cash to mobile payments, skipping traditional plastic payment cards.”***

Cultural differences may be at the root of an Artificial Intelligence revolution in China, where every citizen will have a rating score by 2020:

*“In 2014, China issued a national reputation system that requires monitoring the behavior of its population. By using both government and personal data, citizens in the mainland are assigned a score that rates their credibility in commercial, social, judicial, and government affairs.*

*The Party offers an incentive to obtain a good score. People with high scores are offered rewards, which can include favorable interest rates, better jobs, and even the best matches on dating sites. Having a bad score may result in travel restrictions, throttled internet speeds, or being restricted from elite schools.”*

### 5.1.2 Giant powers

Whilst the PBoC expects cash to disappear as payments go digital, the Central Bank clamped down on merchants rejecting cash payments.

Financial giants Tencent (WeChat Pay) and Alibaba (Alipay/ Ant Financial) continued to grow their services and power on the Chinese market, though they now face tighter regulation over their mobile payment apps.

- Tencent has launched its own credit business, Tencent Credit, to all Chinese nationals who use WeChat or QQ.
- Ant Financial, the Chinese online payment platform, raised US\$14bn in funding round ahead of next year's IPO, and a move to Blockchain technology.

### 5.1.3 Exporting innovation

Chinese customers' preference for mobile payments is likely to spread acceptance abroad, as Chinese tourists exhibit stronger purchasing power than non-Chinese tourists. A group of Chinese travelers spent their first ever cashless journey to Finland, with all transactions throughout their trip made via their Alipay accounts.

The unsung Chinese hero is Transsion, the phone giant that beat Apple to Africa through the supply of entry, accessible smartphones.

Chinese expatriates are driving the rise of Chinese centered services in Kenya. This is extending to payments, with a new partnership with Equitel to bring AliPay and WeChat Pay to Kenya:

*"Once the service goes live, anyone with an Alipay or WeChat Pay account will be able to make seamless payments to Kenyan businesses that will have signed up for the service, through their respective platforms. The long-term plan, according to Equitel, is to allow Kenyans to be able to hold Alipay and WeChat Pay accounts through them and thus facilitate international payments."*

### 5.1.3 Hong Kong

Making HK economy "cashless" is no easy task, says the Hong Kong Monetary Authority. Cashless mobile payments have taken off more slowly than in mainland China, due to initial figures of those already using credit cards being higher, and also the popularity of the widely used Octopus Card, now integrated with Samsung Pay. 70% of Hong Kong city shoppers have not yet used a smartphone to pay for goods or services.

Hong Kong is banking on QR code payments, planning to implement QR codes for fare collection on its rail network, in the steps of China and Taiwan. The Monetary Authority launched a new platform on Sept 30: 450,000 bank customers are able to transfer money, shop and pay bills by scanning QR codes in both Hong Kong Dollars and Chinese Renminbi. AliPay and WeChat users are supported.

## 5.2 Japan

[Section 5.2 references](#)

Japan's cashless vision is a clear statement of intent: Industry ministry report urges Japan to shed its cash-dependent custom and double the ratio of cashless payments by 2025.

*"A panel of experts told the annual New Economy Summit in Tokyo that Japan would need greater government intervention, like there had been in Singapore and India, to push a society so used to cash towards adopting cashless payments..."*

*Dr Beh Swan Gin, chairman of Singapore's Economic Development Board, in discussing Singapore's approach, said the government intervened "where the market is failing" - including getting major banks to agree on a backend system to allow peer-to-peer transfers of money via mobile numbers. It is also working to reduce the number of point-of-sale (POS) terminals needed by each merchant to accommodate different forms of cashless payments."*

A new dynamic is evident as a result of the political intervention: Banks are rushing to turn Japan cashless. Lenders around the country have recently announced a flurry of initiatives designed to grab a slice of the \$50 billion market for electronic settlements. Projects are under way to develop platforms using everything from QR codes to Blockchain technology and digital currencies. Japan is also a step closer to rolling out biometric payment cards. In parallel, the Bank of Japan and the Hong



Kong Monetary Authority (HKMA) will enable real-time settlement of Japanese government bonds and Hong Kong dollars.

*“Japanese banks, long content to foster the nation’s love for cash, are now diving into digital payments thanks to a regulatory change that threatens to usher in new rivals.”*

*“Japanese banking giants Mitsubishi UFJ Financial Group Inc. (MUFG), Sumitomo Mitsui Financial Group Inc. (SMFG), and Mizuho Financial Group Inc. (MHFG) are collaborating on smartphone payment and remittance services that make use of two-dimensional barcodes.”*

Neighbours have also heard the invitation, with Singaporean Startup Jewel Paymentech forging a capital alliance with GMO Japan, the largest payment processor. Globe telecom Inc (Philippines) have teamed up with Japanese retailer Daiso to offer QR code payments, using the GCash scan to pay feature. Small change can now be exchanged at Tokyo airport for electronic money or gift vouchers.

Japanese banks are assessing options to keep ATM maintenance costs down, amidst profitability issues in a sector impacted by the Negative Interest Rate Policy. Mobile branches, subcontracting and using convenience stores are options, alongside a drive towards a cashless economy.... Or will WeChat Pay fast local growth drive down the requirement for cash?

### 5.3 An Indian diary

[Section 5.3 references](#)

Keeping track of developments in India post the November 2016 demonetisation announcement remains a challenge; this diary attempts to keep a balanced perspective.

#### International interest in the demonetisation events

The first key observation stemming from global media (news and social media) in the year leading to April 01, 2018, was the international interest in the developments, and overall negative perception after the demonetisation announcement from November 08, 2016. It gradually improved then further deteriorated in the light of new ATM cash shortages.



Figure 13: Talkwalker- India demonetisation global net sentiment- all media- April 01, 2017 to March 01, 2018. Sample >100,000 mentions monthly.

The second key observation is the extent of related international commentary on social media on the topic. This can be largely attributed to reactions to coverage of Indian media based abroad, and their cultural followers. An example is UK originated mentions on the topic, compared to the other cashless society themes.

- Twitter was the most used media in April for the topics (68.4%), with highest participation on 17/04 matching India's events.
- Online news was the second highest media (14.8%) with a peak on 13/04 mostly originating from a single India related media source.
- The "India demonetisation" topic attracted 42% negative sentiment over the period, compared with 18.6% "contactless payments" and 16.5% for a "cashless society".
- Patterns of mentions appeared to be tracking news events. UK originated coverage in related Indian media suggests associated cultural communities held a negative perception of these events in India.
- Levels of negative sentiment were comparable between "contactless payments" and "cashless society". However, contactless payments also had a comparable level of positive sentiment (16.8%), versus 4.5% for a cashless society over the same period.

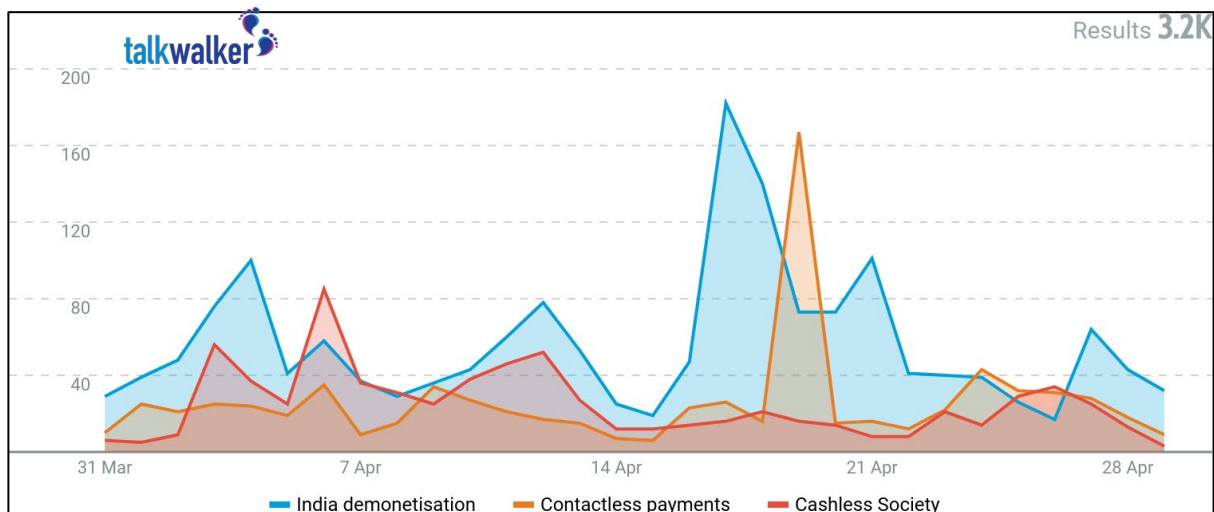


Figure 14: Talkwalker- UK mentions throughout April 2018-three compared topics- all media. Sample: 3,200 mentions.

In May, India's demonetisation topic still dominated media, compared to the cashless society and contactless payments/ payments technology themes. The highest mention volume was related to the results of opinion polls in India.

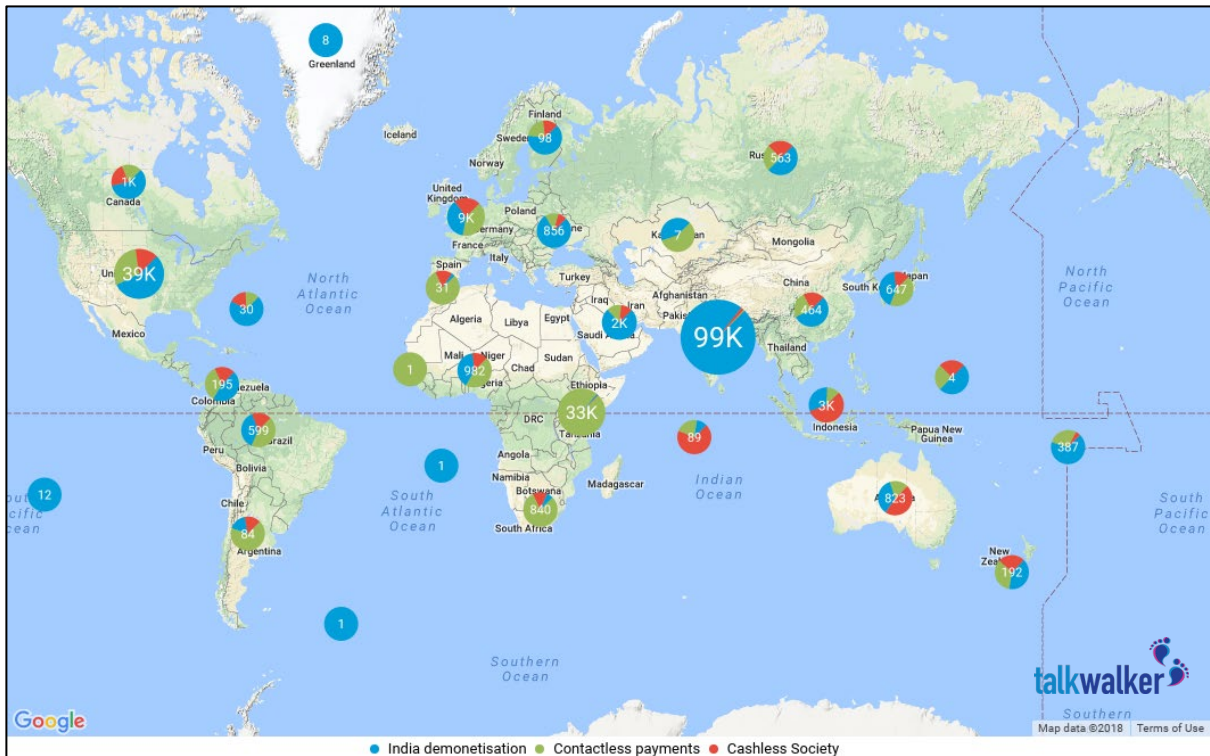


Figure 15: Talkwalker: India demonetisation vs cashless society vs contactless payments- May 2018. Total mentions.

## April

India seemed to have recovered from the 2016 demonetization exercise, although emotions have been stirred during ATM cash shortages in the spring. Possible explanations are cited throughout the media:

- Changed patterns of withdrawals due to behavior changes (reversal to old habits),
- Effect of Hawala transactions,
- Rumours about changing conditions for deposit guarantees under the FRDI bill,
- Effect of changes to denomination over time (lower denomination),
- Loss of trust in banks following series of bank scams,
- Reaction to political Internet shutdowns,
- Withdrawal of incentives to support electronic payments,
- Farmer payments (crop season).

What do numbers show? Is the issue seasonal or structural?

*“Let’s look at ATM withdrawals as a proxy indicator in this regard. The average level of cash withdrawn per debit card transaction at ATMs declined from Rs 3,029 before demonetisation (Jan-Oct 2016) to as low as Rs 1,347 after the government’s decision to withdraw 86 percent of the cash in the economy. The level of cash withdrawal picked up to an average level of Rs 3,182 in 2017 and as per the latest data stood at Rs 3,446 in February 2018 – that is even higher than the pre-demonetisation peak.”*

*“Another way to gauge the demand for cash is to look at the seasonal pattern of ATM withdrawals. Historical data for the period 2011-15 (excluding the demonetisation phase) shows that withdrawals tend to decline in the last quarter of a financial year... This time, due to higher demand for the cash, this decline has been much less... While data for March is not available yet, we won’t be surprised if, for the quarter as a whole, ATM withdrawals might even show an uptick”*

The Asian Development Bank has forecast the GDP to grow 7.3% this year, and 7.6% next fiscal year. The microfinance sector still lags with ongoing high levels of Non Performing Assets, probably linked to earlier loan waivers.

Despite ongoing internal arguments over process, the announcement that BHIM [Bharat Interface for Money] UPI transactions touch Rs 1 trillion in the financial year 17-18 is a boost towards a less-cash economy. Will the reversal of some incentives affect the trend? A new proposal to incentivize digital transactions is due on May 04.

Facebook may be recent winners after Whatsapp began peer-to-peer payment testing in February then added QR code payments in March. More products are under testing conditions, such as proximity payments.

Behind the scenes, tax officials continue to act on records of high deposit accounts post demonetization, as forensic experts keep a close eye on fake notes.

Politics seemed at play during an Internet shutdown to control a public protest in Mohali, leading to local chaos. Meanwhile, street criminals have been extorting Bitcoins from their victims.

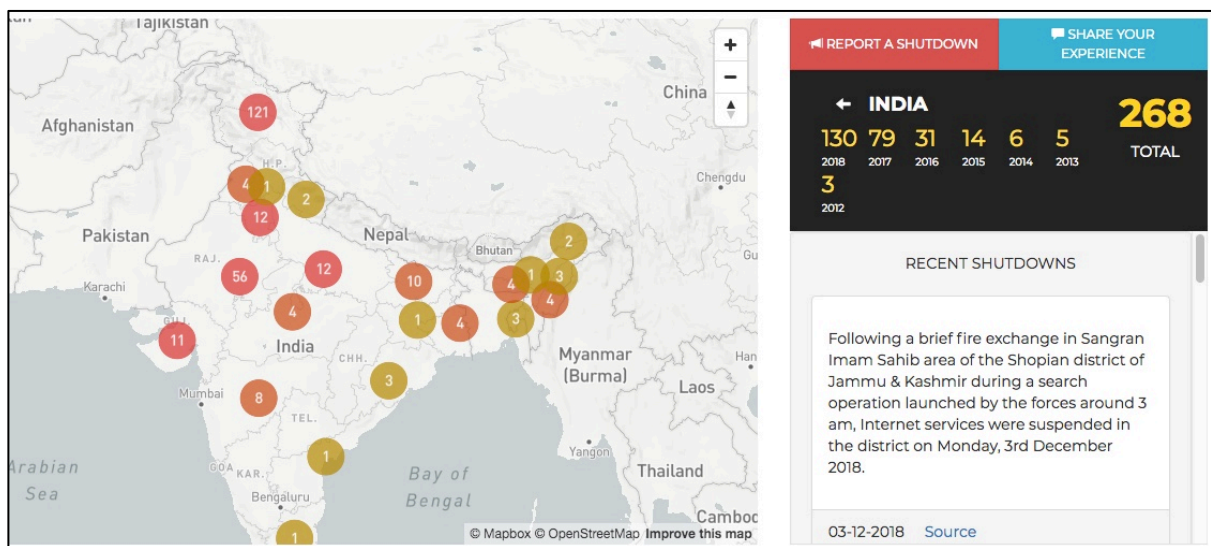


Figure 16: Internet shutdowns in India. Source: [www.internetshutdowns.in](http://www.internetshutdowns.in)

IRCTC ticket booking via the Railway debit Card: Indian Railways waive the transaction charge, and offers reward points. Train food services have also become cashless following passenger complaints of vendors overcharging.

Indian cab hailing service Ola acquires Ridlr to digitise public transportation in India and compete against Uber.

## May

Tax compliance: The tax effects of the demonetisation and GST implementations are now visible, as 10.1 millions filed income tax returns in the 12 months following the November 2016 shock move, compared to an average 6.2 m in the 6 years prior. This result is heralded as Modi's legacy, and a welcome source of funding for India's public services. India shows neighbours the way out of tax trap.

Are citizens disgruntled? It seems not, despite ongoing antagonistic media coverage: according to a media mega poll, 71.9% of Indians say they will vote again for Narendra Modi in 2019. Another

survey concluded 56% citizens believe the government is on track to deliver the promises made in its pre-election manifesto. Although no question directly queried perception of the demonetisation exercise, citizens perceive corruption and terrorism have reduced; they feel less harassed by tax inspectors; they strongly support the deployment of the direct benefit transfer scheme, enabled through improved access to banking services.

Technology innovations, such as BHIM, associated with the push towards digital payments, have been receiving international praise, from technology leaders as well as economists. The IMF predicts India will be the fastest growing country in 2018, at 7.4%. Implementation of GST, demonetisation, a monetary policy framework and a few other structural reforms define “Modinomics”.

The momentum marches on, with a 6-point formula to boost digital transactions:

- All cash counters in government offices should put up BHIM-UPI QR codes for accepting digital payments.
- Cash counters can send an indent to customers' phones to enable payment through UPI.
- Campaign to cover all merchants through BHIM-UPI.
- Getting more vehicles to accept FASTag (for electronic toll collection).
- All government utility bills to carry a QR code.
- Push to National Common Mobility Card in metros to cover common transportation needs.

## July

- India is now the world's 6<sup>th</sup> largest economy!
- Swiss banks show India is winning the battle against black money.
- The fiscal deficit has been pruned from 4.6% in 2013/ 14 to 3.6% in 2017/18.
- The Unified Payments Interface v2.0 is announced for a mid-august launch, as 246.37 million transactions amounting to ₹40,834.03 crore were carried out during June, which is an increase of 30% in transaction volume over the 189.5 million transactions worth ₹33,289 crore in May. This was a growth of 30% in the past 6 months.
- Yet the Cash-to-GDP ratio was estimated at 11.3% in April 2018, similar to pre demonetization levels of 11.5-12%.
- Challenges remain highest in rural areas.

## August

The Reserve Bank of India initiated the National Payments Corporation of India (NPCI) in 2007 with 10 promoter banks. The Bharat Interface for Money (BHIM) was launched in December 2016, shortly after India's demonetization announcement, to enable financial inclusion and drive digital payments.

It now counts 114 partner banks and enables people to make quick and easy payments using the Unified Payments Interface (UPI) to anyone on UPI (i.e. with a mobile linked to their bank account) using the UPI ID or scanning their QR with the BHIM app. The first version provided the following features:

- Sending money: using the recipient UPI ID or QR code.
- Requesting money.
- Scan and Pay: using QR codes for payments, and generating QR codes in the app.
- Account management, with access to transaction records and ability to raise complaints, manage QR codes and linked bank accounts.



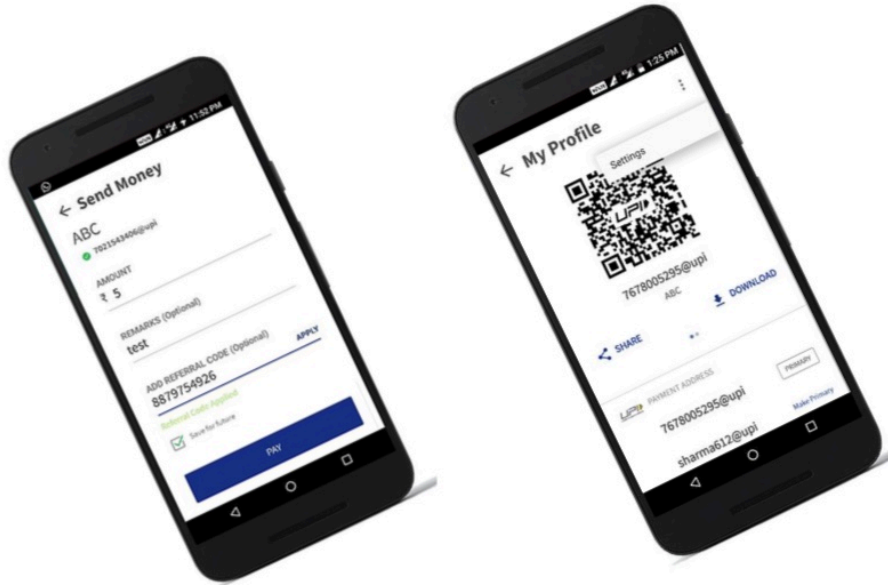


Figure 17: UPI Send money and QR code, Source: [www.bhimupi.org.in](http://www.bhimupi.org.in)

Launched in August 2018, UPI 2.0 released the following features through 11 banks:

- Linking overdraft accounts on UPI.
- Security improvements with signed intent and QR to resolve issues of tampering QR as well as non-verified receivers. Senders will be informed of non-secured QR. The process will also speed up transactions.
- Mandate for later one-time payments: commitment is made immediately, but money is transferred later.
- Invoice in the inbox: Ability to view and verify invoices in the UPI app before activating payment.

BHIM UPI recorded transactions worth Rs 45,845 crore and 235 million in value and volume in July 2018.

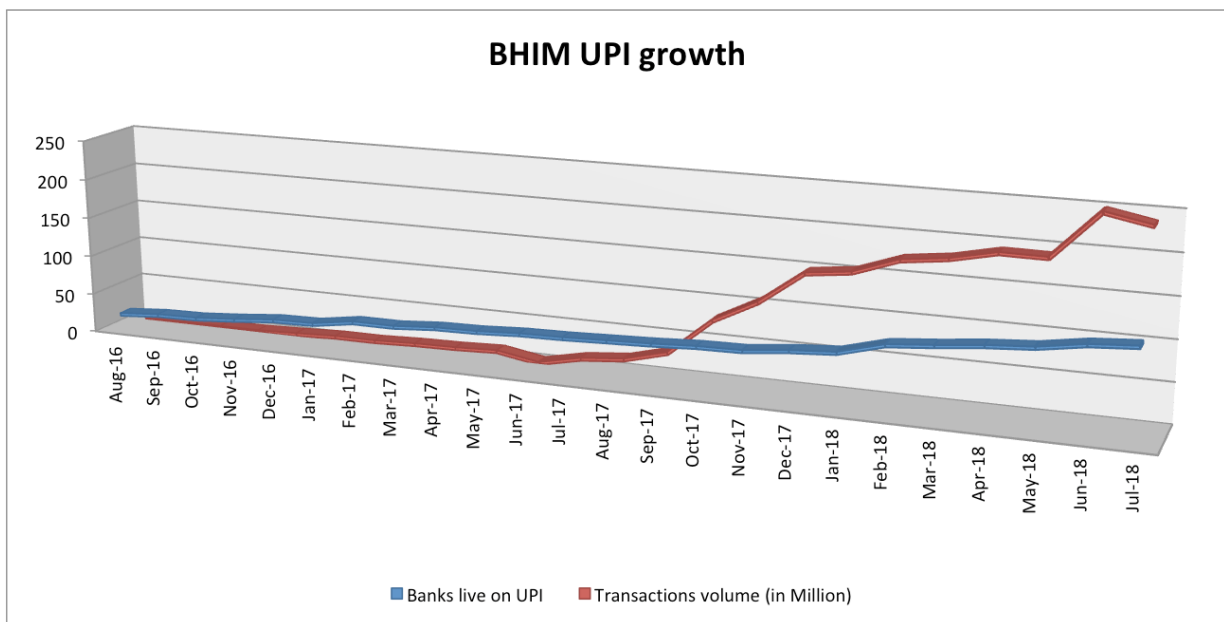


Figure 18: 2016-18 Growth in UPI transaction volumes. Source data: NPCI

## September

The Internet has been purposefully shutdown 113 times so far in 2018, out of 251 since 2012. In the light of a massive protest by students following the arrest of eighty students and six professors of the Manipur University, Internet services have been suspended for entire state of Manipur since Friday 21st September 2018 afternoon, for 5 days.

## October

- Indian economy: Post demonetisation economic review from the RBI 2017/18 annual report. Includes financial inclusion strategy.
- Bharat goldmine: Technology companies sitting on trillion of dollars of the untapped Bharat market.
- UPI 2.0 impact: the number of UPI transactions rise by 32% in a single month.

## November

India rebukes the World Bank report on the human capital index, which still ranks the country in 115<sup>th</sup> beneath some poorer neighbours: it seems not to have taken account of the recent structural improvements:

*“In pursuing with the agenda of financial inclusion, the Pradhan Mantri Jandhan Yojana [the financial inclusion programme] has provided access to formal banking to over 328 million persons [since the 2014 launch date]. The share of account ownership among rural adults has more than doubled from 33% in 2011 to 79% in 2017, significantly bridging the rural-urban gap” it said.*

*Financial inclusion and the Adhaar identification system has enabled India to make direct cash transfer of about \$64 billion to citizens, thus improving governance and social protection, it said”.*

Some commentators argue that further progress is hindered through:

- The informal nature of the economy [CWIM: a known key driver for the demonetization decision].
- Credit bureau coverage and thin file cases (lack of credit history).
- Inadequate infrastructure (hinterlands).
- Weak contract enforcement.

These structural changes gradually translate into economic results: The World Payments report noted the adoption of mobile payments increased in India by 33% in 2016, with debit card transactions rising by 76%.

## December

As the country reflects on a 2-year anniversary since the demonetization announcement, the Cashless World in Motion suggests the following capture the moment:

- Anniversary: 2 years on, India’s demonetisation announcement is still controversial.
- Red flags: RBI approved the scheme just 4 hours before the demonetisation announcement, but with red flags ...
- The point was... Confiscation of currency wasn’t demonetisation’s objective! Economic formalisation is the outcome.
- 1 billion: India to have 1 billion debit cards soon, from just 84 million 10 years ago. 20 million of which are contactless Visa cards. Over 3.3 million merchants in India now accept cashless payments.
- ATM viability: Half of existing ATMs in India may shut down by March 2019, due to cost of compliance requirements and stagnating revenue.

- Conclave 2018: India walks the talk: Financial inclusion at the core of the banking reform agenda. Note stakeholder engagement levels.
- Financial stability: as India's growth is solid, the IMF warns against the temptation to manipulate the central bank's policies.

## 5.4 Malaysia

[Section 5.4 references](#)

Counting on the national PayNet to foster innovation and competition, the central bank is driving the cost effectiveness and security of e-payments: InterBank Fund Transfers (IBFT) are now free of charge for transfers up to RM5,000 for individuals and small businesses. However, the cheque fee will be increased from January 2021 to reflect the higher processing cost.

The bank is also aware that tightening regulations makes Fintechs easy takeover targets for banks stepping up their digitalization drive.

Convenience appears to be driving force behind new services, with GrabPay for transportation. Fumai convenience stores are going cashless.

## 5.5 Thailand

[Section 5.5 references](#)

The Bank of Thailand believes a cashless society would improve Thailand's global competitiveness. Reducing transaction costs through e-payment systems, provided they are stable, will benefit all sectors of society.

Consumers have a positive attitude towards a cashless society, apart from younger Thais (18-21) who "do not have the purchasing power of the older generation and are less aware of the mobile payment methods."

Cash still dominates payments, ahead of QR codes, and P2P transfers.

*"Thailand is accelerating its journey towards a cashless society and mobile payments are becoming a pivotal part of this journey with QR code being the best performer in mobile payment as 75% of respondents have used this type of payment," said Mr Pakee Charoenganaporn, Director of Consumer Insights, The Nielsen Company (Thailand) Ltd*

***"We believe that with the collective steps taken by the key stakeholders and industry players, we can expedite the process of going cashless to less than 12 years. UnionPay believes that our push to enable QR Code for payments will also play an important role in enabling a more inclusive cashless society, as this form of payment allows consumers and merchants to adopt it easily without the need for costly devices or infrastructure."***



## 5.6 Cambodia

### [Section 5.6 references](#)

In a country where 80% are unbanked and rely on cash, switching to digital payments is a cultural challenge. Yet Cambodia's PiPay is proving popular in urban areas, and local dynamism leads to new partnerships for transportation and digital content. Getloy is a step ahead of Paypal.

*"Financial services have to be more accessible, affordable, and convenient for the unbanked".*

The reward? An Asian Development Bank led study has assessed financial inclusion potential to offer GDP growth potential in the Philippines and Indonesia by as much as 3 percent and Cambodia's by 6 percent. Existing players have recently been cleaning up their act:

*"Solutions such as PayPal or Stripe are not available in Cambodia, let alone offer any support for Khmer localisation. For a long time, the only way to do e-commerce in Cambodia was to use a mix of expensive cross-border transfers and personal accounts outside of Cambodia. But things have changed rapidly. Over the last few years, payment solutions from Cathay, Canadia and Acleda Bank appeared. In 2017, ABA Bank launched their PayWay service, extending their award-winning banking attitude to online credit card payments, offering faster deposits, lower rates, and a modern payment experience...()*"

This was an open invitation to new entrants WorldRemit, and

*"Singapore-based MatchMove, is poised to set up an office in Cambodia within three months and go online for business in September. MatchMove has been on an aggressive growth path with a presence in India, Philippines, Vietnam, Thailand and Indonesia. It aims to penetrate the Cambodian market soon to facilitate new financial tech solutions."*

## 5.7 Singapore

### [Section 5.7 references](#)

The Government Technology Agency of Singapore (GovTech), has pointed out that cash transactions do also incur significant costs (S\$2 billion per year), amongst concerns about the cost of cashless transactions; a survey suggests Singaporean consumers still prefer cash and cards as the primary methods for transactions.

While driving the transition towards digital payments, the Monetary Authority has released e-payment guidelines that are aimed at protecting consumers and driving wider adoption of such platforms in the country. The balance between innovation and regulation has become a focus area to protect consumers, all the more important after a major data breach that affected health records.

We have taken note of the following substantial ecosystem developments in 2018:

- Financial services and Fintech companies seem to be leading adoption of fingerprint and voice biometrics.
- Singapore Telecommunications is expanding its mobile wallet service across Southeast Asia and India.
- Launch of the unified (SGQR) QR code payment system, also enabling international contactless payments through UnionPay/ Nets.
- Expanding QR codes through a UnionPay/ LiquidPay tie up.
- A new mobile app for withdrawing cash from shops.

## 5.8 Pakistan

[Section 5.8 references](#)

Digital payments and QR codes are gaining ground in Pakistan, through the Pakistan Real-Time Interbank Settlement Mechanism (PRISM).

*“During the second quarter of FY18, 0.4 million transactions amounting to Rs93.6 trillion were processed by Pakistan Real-Time Interbank Settlement Mechanism (PRISM),” stated SBP’s ‘Payment System Review-2QFY18’...“The average value of paper-based transaction has increased as against previous quarter, which shows that for small transactions, people prefer e-banking channels,” said the report.*

Conclusions about the impact on financial inclusion would be premature.

## 5.9 Bangladesh

[Section 5.9 references](#)

Strategies for financial inclusion deliver benefit in the long term for Bangladesh, where microfinance initiative Grameen Bank has been hailed as a financial inclusion booster and a key enabler for the country to catch-up with its neighbours. Further programmes with the World Bank keep up the momentum.

The country has now launched its first online payment ecosystem iPay, as part of the on-going drive towards a cashless society, focused on tax revenue collection and currency printing cost reduction. However, bankers asked the central bank to ensure interoperability and offer several transaction routes to prevent single points of failure.

## Section 6: Europe

### 6.1 General themes

[Section 6.1 references](#)

Sweden remains the referenced country for the cashless society theme globally, with relentless reports of its achievements throughout the year. Swedes trust their government. Is this a clue to the high status of cash in Switzerland? Discretion and privacy, core values in Switzerland, date back from the 17<sup>th</sup> century Huguenot plight, leading to political dissidents hiding their cash in Geneva.

#### 6.1.1 Concern over the on-going access to cash

The declining use of cash is challenging the viability of ATMs, while the general digitization of finance with online and mobile banking is challenging the viability of bank branches. The result has been a closure of facilities in the UK, Germany and France, leading to concern over the on-going access to cash, particularly in remote areas. Mobile branches operate in Germany and Scotland.

#### 6.1.2 Success of contactless cards

The convenience of contactless cards has won over the European continent and expanded eastwards. Over the past two years, contactless card payment grew from 2% to 40% of Russian transactions, according to Visa.

Contactless payment is a compelling solution, in particular when volume and speed of transactions are key, such as in the stadia during the FIFA World cup: VISA reported the share of contactless payments in stadiums was 50%, inclusive of purchases made by fans from Russia and abroad by card, mobile devices and wearables.

Visa now insists that all new or replaced ATMs in Russia are NFC (Near Field Communication) enabled, ie contactless. This is a growing trend, with introduction seen earlier in the year in Latvia, and gaining ground in Asia.

The UK was the uncontested champion of contactless card payments in Europe in 2018. Hungary saw substantial gains in contactless payments. France totaled 1.2bn contactless transactions in 2017.

#### 6.1.3 A slow start for mobile payments

Mobile payments have yet to engage European customers. Swiss consumers shun smartphone payments, possibly unconvinced of their increased convenience over cards, unless Swiss banks are resisting the technology challengers. Ireland seems keen, and UK mobile payments quadruple in two years.

Google Pay is now available in France, though with digital banks N26, Revolut and Lydia only. Apple Pay makes a slow start in France, but has recently signed up BNP Paribas and la Banque Postale. French banks are not keen on the Apple Pay business model, due to the fixed platform fees: banks miss out on fees for small transactions as a result, and risk losing the customer relationship to Apple. Consumers will need convincing too, as they prefer payment cards.

#### 6.1.4 A sample of ecosystem moves

- Deutsche Bank acquired an equity stake in US-based Modo Payments LLC, in line with its strategy to extend payments to non-bank payment platforms such as mobile wallets and peer-to-peer networks.
- French supermarket chain Carrefour rolls out NFC enabled “Carrefour pay”.
- German mobile bank N26 now offers Google Pay to its customers in 4 European countries.
- Boom in card and mobile payments fuels a rush of deals. Buyout funds are eyeing potential acquisitions of payment companies buried deep within banks in Spain and France, amid a boom in card and phone payments.
- Fire.com became the first Irish based payment firm to be authorized as Payment Initiation Service Provider under the PSD2 directive.
- The Paris Métro is going contactless.
- London’s Oyster card model is exporting to the United States, as half of London’s tube journeys are now made with contactless payments. Metrolink are planning London transport style fares in Manchester.
- Monzo has paired with Paypoint to enable cash deposits in the UK.
- 90 contactless giving points will be available in London this winter to help the homeless-proceeds will be shared between a number of charities.

#### 6.1.5 Real time payments infrastructure

The European TARGET Instant Payment Settlement system (TIPS), enabling real-time payments, went live in November, and is likely to further the trend of electronic payments across Europe.

#### 6.1.5 Political direction

In the shadow of the Facebook scandal, Sweden fears data privacy risks, and considers new regulations to safeguard the privacy of consumers in a cashless age. The Swedish central bank urges lawmakers to protect cash payments,

*“Sweden’s transformation into a cashless society is going too fast and new regulation is needed to make sure cash remains accepted and the central bank retains some control over payment systems”,* Riksbank Governor Stefan Ingves wrote. A survey confirms Swedes want to keep cash as an option.

Less under the spotlight, Norway may have become the first cashless country, with fewer than 10% using cash. However, regulations are in place to keep cash as contingency.

Denmark may be the EU leader for digital payments: fewer than 25% of transactions in Danish shops now involve cash. Mobile payments seem responsible for this evolution. Some argue against banning cash in order to prevent the Euro from becoming a parallel currency in Denmark.

The Dutch central Bank (DNB) released its 2018-2021 payments strategy, paving the way towards a less cash society.

## 6.2 France

[Section 6.2 references](#)

### 6.2.1 Innovation

As cash-back becomes available from French retailers as part of the PSD2 directive, French banks are preparing to deploy fingerprint authentication for card payments.

French banks introduced Peer-to-peer payments Paylib:

“Paylib, the mobile wallet developed by a consortium of French banks, is set to introduce person-to-person payments utilising customer phone numbers... BNP Paribas is the first bank to roll out the P2P option, enabling users to send cash to friends by simply keying in a phone number... Instant payments will come online when France switches over to a real-time payment network at the end of the year.”

Rollon, the first local 100% digital currency in France, launched in Saint-Lô late June, prior to rollout through the Normandy region in the summer, with a timid reception. The name refers to a IX century Viking chief that founded the Normandy region.

France already counts around 40 local currencies, within a 2014 legal & regulatory framework that fits within a social enterprise model. Rollon is the first 100% digital example, exchanged at a 1:1 parity with Euros through an app. The converted Euros are deposited with the partner regional branch of Crédit Agricole.

Music festivals in France, as internationally, started adopting cashless payments through wristbands, spectacles or smartphone apps some six years ago. But the slightest technology breakdown brings chaos to festival operations. One example cited a 3.5 hour outage costing €30,000 ... due to convenience, operators choose to accept the risk as these incidents are quite rare. Insurance solutions are expected for the 2019 season.

### 6.2.2 Political interest in de-cashing

A government state reform committee, CAP22, considers the direction towards a cashless society amongst 21 other proposals, and recommends three phases to “transition towards a cashless society to simplify payments while addressing tax fraud”:

1. Remove cash, cheques, and fiscal stamps for tax payments within two years,
2. Compulsory acceptance of cashless payments for all purchases, with no minimum threshold, with an app for consumers to report issues,
3. Gradually reduce the availability of cash towards complete removal, starting with 1 and 2c coins.

While the CAP22 proposal is not approved for implementation, the on-going use of low value 1 and 2 cent coins is up for discussion in France, on the footsteps of Ireland, Finland and Belgium. Many articles discuss the proposal to transition towards a cashless society (proposal 16), with the usual themes but for a higher emphasis of the social role of cash.

### 6.2.3 Payments in France

The cash in circulation paradox also applies to France: Cash in circulation (notes and coins) increased by 4% in 2017; it is estimated that some is kept as precautionary savings, some is part of the ATM float, and 1 in 3 Euro bank notes are kept outside the Eurozone: the role of the Euro in international transactions is not yet well understood. The Banque de France was the leading printer over the period, with the resulting seigniorage.

### Key stats

- In volume, 55% of transactions in France are cash, and only 5% of total value.
- 68.3 million payment cards in France.
- €564.6bn transacted by card in 2017.
- €1.23bn worth of contactless payments in 2017.
- The average card payment value in 2016 was €45, down €4 compared to 2015 (due to rising contactless payments).
- The average cash withdrawal value was €87 in 2016, compared to €84 in 2015.

## 6.3 The UK diary

[Section 6.3 references](#)

Most European developments on the topic originated from the UK throughout 2018. Recurrent topics included:

- The future of bank branches and ATMs.
- Cyber security/ payments infrastructure/ operational resilience.
- Charities fundraising.
- Buskers collections.
- Rise of till free stores.
- Cashless transport ticketing.
- SMEs adopting mobile payments.

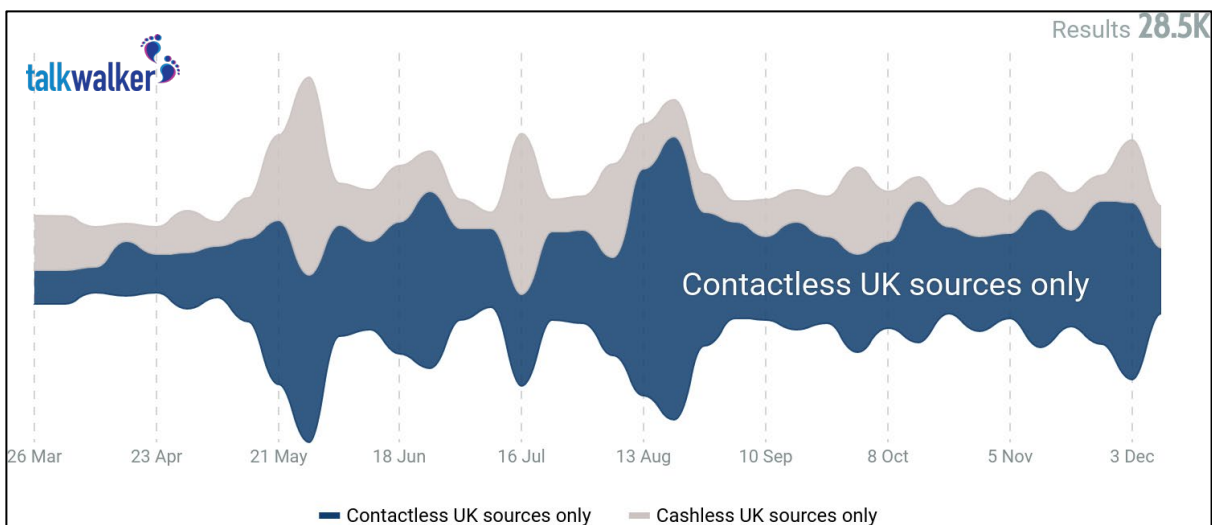


Figure 19: Talkwalker- UK mentions 2 topics all media, April 01 to December 15, 2018. Sample: 28,500 mentions.

### February/March

The cashless society topic was in the news in March following the HM Treasury call for evidence on cash and digital payments in the new economy, while updating the position paper on corporate tax and the digital economy.

Banks have admitted to a weakness in the contactless payment system, whereby thieves can still use cards after their cancellation. The change to a zero floor limit for all contactless transactions may therefore leave retailers exposed to fraud, as the machine beep does not mean a transaction has been authorised.

An Equifax survey found that only 16% of people feel that contactless payments are more secure than carrying cash.

## April

TSB bank troubles started on April 20, as an IT systems migration turned into an operational and public relations disaster that will embroil the bank for many months, with 1.9 million customers locked out of their accounts at one point.

Investment is strong in the Fintech sector. iZettle extends its offerings. Revolut is looking to lead the way in the UK being cashless within 10 years.

*“Revolut is a new breed of banks that has replaced the corner branch with a robust smartphone app that reduces cost while providing superior services. Revolut has grown rapidly, jumping from zero to 1.5 million users in less than three years. A cashless (or at least less cash focused) is near and according to Revolut co-founder and COO Vlad Yatsenko, Revolut is going to lead the way.”*

Contactless payments deal an extra blow to British use of physical cash, as February 2018 figures showed that the annual growth of notes and coins in circulation dropped to 0.2 per cent, its lowest level since 1963. Closure of bank branches continues to spark discontent in Scotland.

## May

Some London buskers will be paid with contactless cards, following a Mayor of London initiative with iZettle (recently sold to Paypal) for performers to receive card readers.

Square launches its stand in the UK:

*“The product which allows small businesses to turn their iPad into a fully fledged cash register complete with contactless payment, is capable of accepting any card or contactless payment option, as well as accounting for cash - it can even be linked to a lockable cash drawer... The concept, which was brought to the UK last year is part of the move to decouple card merchants and point-of-sale machines making it possible for pop-ups and other small businesses to take cards.”*

## June

On June 01, the country's retailers were most affected by a 10-hour VISA payments partial outage in Europe, mainly affecting the UK and Germany. Cash withdrawals were not impacted, however many ATMs soon ran out of cash in the UK and Ireland as shoppers sought the workaround to settle their purchases.

The event affected 5.2 out of 51.2 million card transactions during the outage, half of which were in Britain (2.4 million British transactions failed to process, out of 27.6 million during the outage). The impact would be related to Visa's historical market dominance in the UK's debit card market.

A switch (hardware) partial failure at its primary UK data centre caused the issue, and did not trigger a failover to the secondary switch. Once fixed, a backlog of transactions gradually cleared before normal service levels were restored.

As the VISA fever cooled, another intermittent failure, affecting point of sale transactions payments at the Bank of Ireland nearly went unnoticed. An extensive article on the reasons for business to avoid cash leads to numerous negative comments, reinforcing the emotive nature of the topic.

Simultaneously, some major studies provided insights on the penetration of contactless payments in the UK.

Paysafe provided analysis from data collated from the US, Canada, the UK, Germany and Austria in April 2018, albeit from a modest sample. It confirms the ongoing dichotomy between the UK and US markets. Contactless is strong, but it is highly localised: The UK leads the world in contactless shopping, with 54% of consumers using it in the last month – compared to just 3% of US shoppers. Contactless payments are confirmed challengers to the use of cash. 6% of UK respondents also noted a rise in fraud, which remains a concern. Charities are experiencing a decrease in cash donations, yet most have not yet engaged with contactless donations, the cost of contactless technology being a key barrier to adoption.

Another report led to viral media coverage globally, as it provided a detailed analysis of the UK's payment landscape, and informed us that the transition to a less cash economy is happening faster than anticipated in the UK. It confirmed the declining use of cash, and the rising engagement with contactless payments throughout age groups, leading to debit cards overtaking cash as the most popular means of payment, in terms of transaction volumes.

Smartphone app innovations may overtake card payments at supermarkets in the future, as Tesco trials a "Shop and Go" app in a till free store. A lower key Verifone report provides further insight, assessing that 29% of UK's small and medium businesses now offer payment through an in store app, following on the success of Apple and Google Pay. The research also identified transaction cost as a key factor in exploring payment solutions. Elsewhere, Equifax reported a third of Brits expect the UK to be cashless in 10 years.

Transport For London is said to be holding on to £321m from dormant Oyster cards, as balances on the pre-paid cards have not been utilised for over a year. The figure is thought to be partly due to consumers switching to making contactless payments with their bankcards.

As the month draws to a close, the underlying fever persists, as reports from Which cause further alarm on the access to cash through closure of ATMs, ahead of reductions to interchange fees (the fee card issuers pay ATM operators), that are being phased in from July 01.

*"A spokesman for Link said: "Over the last 10 years cash payments have fallen by 33%. During the same period free ATM numbers have grown 18,000 (50%). This disconnect is not sustainable and needs addressing now to protect Link and future access to cash for consumers. Which? Has suggested that ATMs have fallen by 1,500 in the period between November and April, however Link can confirm that during this period the number of free-to-use ATMs actually increased. More importantly, coverage of free-to-use machines improved over this period as forecast by Link, with the net number of postcodes with free access across the UK increasing by five, including one in Scotland."*



### The VISA outage, as it happened in the UK.

UK broadcast News coverage during the VISA outage time window. 598 news items over a 12 hour window, 93.5% relating to card payments with minor overlap with the 6.2% on contactless payments. News outlets sentiment was 49% negative overall, with fear and sadness the dominating emotions\*.

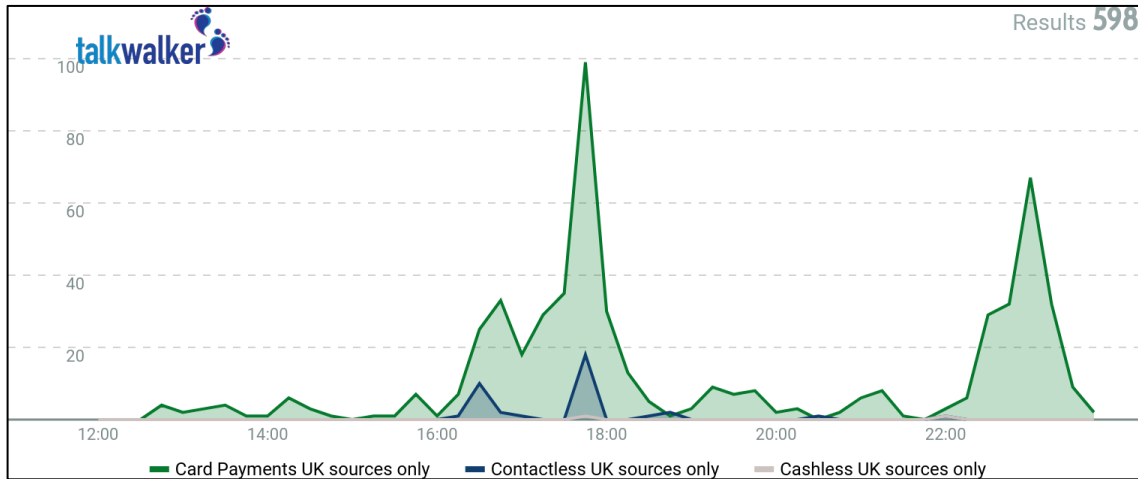


Figure 20: Talkwalker- June 01, 2018 VISA outage, news coverage only. Sample: 598 mentions.

The public took to Facebook and Twitter to express their reactions as the event unfolded. They primarily engaged with the topic of card payments (72.8%), before associating to the cashless society later in the day (21.8%). Note: it can be estimated that a proportional number of Twitter content was generated by UK news broadcasters\*.

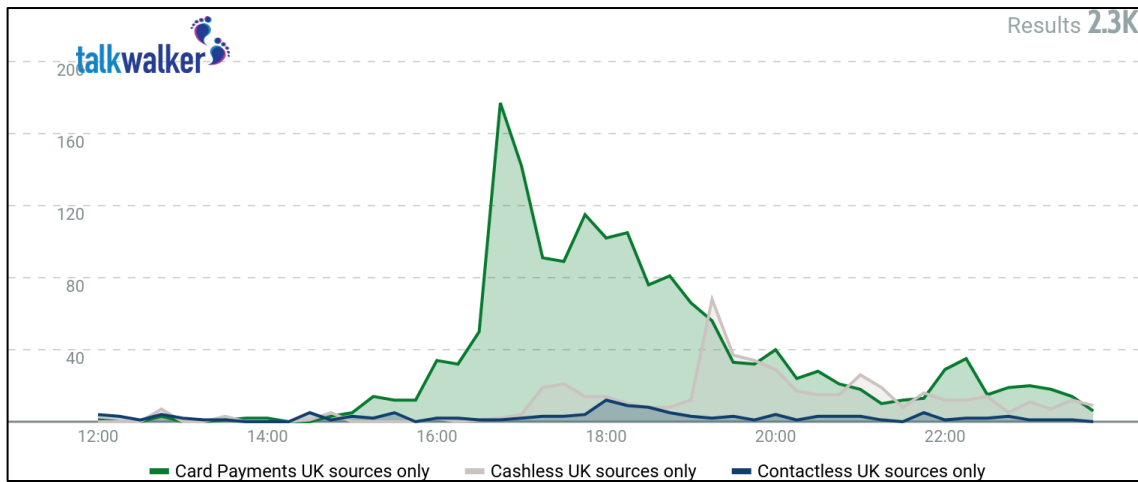


Figure 21: Talkwalker- June 01, 2018 VISA outage, Facebook and Twitter only. Sample: 2,300 mentions.

**The VISA outage, as it happened in the UK (cont'd).**

Although the overall sentiment over Facebook and Twitter was 39% negative, card payments related sentiment was circa 35%. The topic of a cashless society attracted a 55.7% negative sentiment: sadness and surprise were the dominating emotions over the period\*.

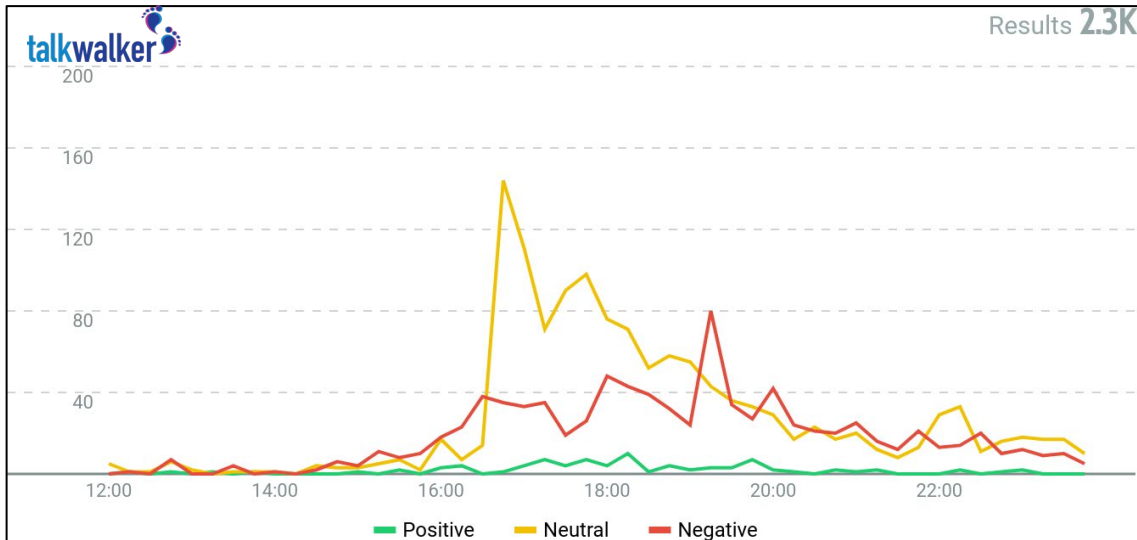


Figure 22: Talkwalker- June 01, 2018, VISA outage, Facebook and Twitter sentiment. Sample: 2,300 mentions.

2 word mentions over Facebook and Twitter during the period\*.



Figure 23: Talkwalker- June 01, 2018, VISA outage, Facebook and Twitter, 2 word mention cloud. Sample: 2,300 mentions.

\*Note on UK graphic June data: minor interference on both event data from other headlines such as ongoing early coverage for contactless payments for London buskers and Garmin smartwatch payments. Impact <5%.

## July

Payment outages and cyber-security are a key concern about the future of a cashless society: Britain's five biggest banks reported a total of 64 security or operational incidents that cut customers off from telephone, mobile or online banking in the second quarter of 2018. The situation continues, with IT issues such as:

- Ongoing TSB turmoil.
- A general Faster Payments backlog.
- A separate Lloyds Faster Payments problem.
- A Paypoint outage.
- As well as incidents with card payments at BP fuel stations.

Concerns over the ATM network led to a Link U-Turn over the network fee changes that started on July 01, and seemed to have generated a negative trail against the notion of a cashless society. Many call to keep an analogue alternative.

Beyond technology issues, financial exclusion, Inc. the plight of the homeless, is an on-going concern, as is household budget management. An independent review has been setup to look at the impact of the decline of cash on consumers. The "Access to Cash review" will look at the impact of new technology and examine future needs, taking account of the economics of cash.

However, hidden agendas, (lack of) trust in banks and authoritarian governments such as China's surveillance state are the key underlying fears.

Fraud issues with online transactions may improve once new security measures are in place. Meanwhile, Mastercard progress the security agenda through planning to bring biometric fingerprint cards in the UK, as driven by the EU's regulations to tackle banking fraud. The adoption of technology may also enable issuers to remove the 16 card digits as an anti-fraud measure.

The Payment Services Regulator is preparing to launch a consultation to review the card-acquiring services market, a move welcomed by the Association of Convenience Stores and the British Retail Consortium:

*"We're continuing to make the case for measures to tackle the alarming increase in card fees and charges at a time when the retail industry is facing acute cost pressures elsewhere [...] Retailers spend £1.1bn on accepting payments of one kind or another every year - the vast majority of which goes to the card payments industry - and our research shows card scheme fees are spiralling, which inevitably pushes up costs for ordinary shoppers."*

Competition from leaner payment solutions may however provide solutions that are more sustainable than regulation, possibly through Open Banking. Recent examples of iZettle, Square, are joined by MyPOS, as a payments-as-a-Service solution for UK real time payments.

**UK July media coverage: as it happened.**

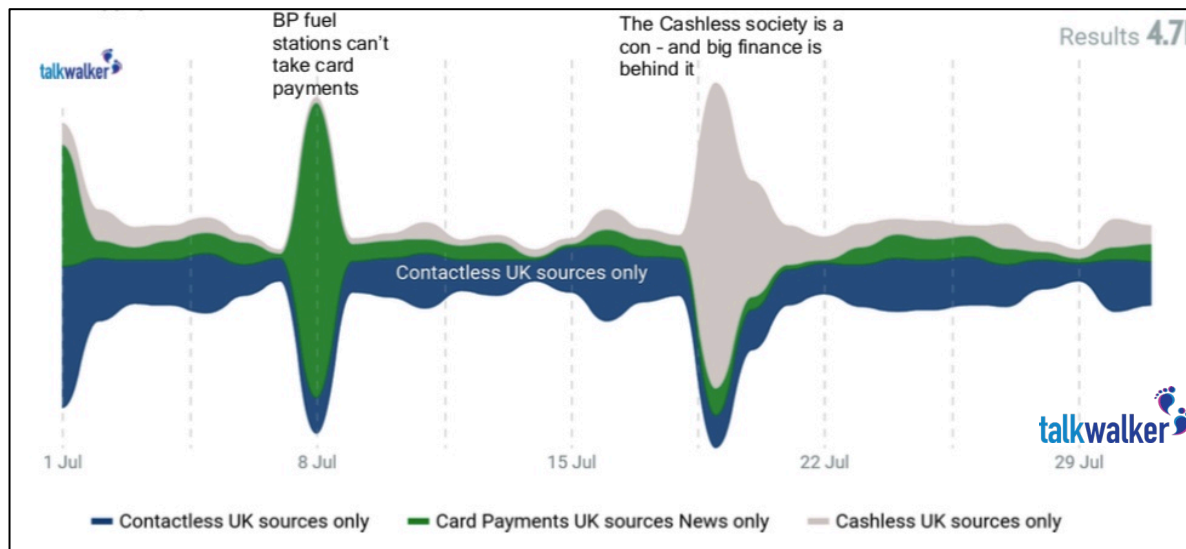


Figure 24: Talkwalker- July 2018, UK three trending topics streamgraph. Sample: 4,700 mentions.

Cashless Society (UK only sources), sentiment key drivers from 19/07 to 20/07, measuring sentiment post article “The Cashless society is a con- and big finance is behind it” article. Top 80 themes, 3 words, from 650 total mentions. 20% of mentions expressed some sentiment: 16% positive vs 4% negative. Themes suggest a local negative sentiment towards a cashless society.



Figure 25: Talkwalker- July 2018, 19-20th sentiment drivers. Three word themes. Sample: 650 mentions.

**August**

Holidaymakers were keen on using cash in coastal towns, possibly to help manage their holiday budgets. The Guardian investigated the cost of holiday money:

“Forget contactless payments while abroad because in many cases there’s a 50p-£1.25 fee each time you wave and pay, plus a currency conversion fee of typically 2%. The charges vary according to your bank/card provider. For example, use Santander’s debit card to make a €5 purchase, and it will cost an extra £1.37 - a £1.25 “purchase fee” and 12p currency conversion charge per transaction.”

Police Scotland are concerned about the increasing fraud over contactless cards. Card and account fraud has risen by 40% in a year generally, though Paysafe research concludes that UK consumers accept the threat of fraud as inevitable. The attitude of banks towards fraud claims is however under scrutiny.

An Oxford based social innovation project to help the plight of the homeless in a cashless society leads to multiple coverage: “Greater Change” letting the homeless crowd-fund using QR code technology resolves the issues of fast disappearing change: time might be up for 1 and 2p coins, prompting further articles about the prospect of a cashless UK society, generally warning about the total disappearance of cash.

## September

New payment service outages occurred at Barclays, Cashplus and RBS/ Ulster, as well as ongoing intermittent unavailability at TSB prompting further articles about the issues, and an academic concludes: “Cash is still the most liquid form of payment”.

The main issue affecting businesses is the cost of electronic transactions vs the cost of cash, with the BRC calling on a review of the market due to the rise of scheme fees, and money advice sites prompting businesses to consider more cost effective alternatives.



Figure 26: Talkwalker- UK all media Cashless Society and Payments Technology- April 01 to December 15, 2018. Sample: 28,500 mentions.

## October

UK coverage related to the loss of ATMs (Brits see ATMs as a public utility) and the resulting impact on the poorest continues, while the volume of contactless card payments overtake that of chip and pin payments for the first time while we are reminded about ATM related criminal activity.

As commentaries abound on the closure of bank branches and access to free cash withdrawal, what are the barriers to inclusive banking in the UK?



*“According to Mark Carney, governor of the Bank of England “In order to have competition, you need all of the banks to be healthy.” Since the crash, banks have focused on profitability. We expect world-class banking services for free, but the truth is it costs a traditional bank around £80 to service a basic account. Perhaps unsurprisingly, banks have concentrated on customers who make them a profit, either through large deposits or regular payment of overdraft fees. There is little incentive to reach out to people on low incomes, who struggle to use technology or understand financial information. As a result, the marketplace is sluggish and uncompetitive.”*

## **November**

The Bank of England calls on the public to nominate a scientist to feature on the new £50 note, it launched its Future Forum with the theme “Let’s decide the future of money”, with a challenge for the cashless to use only cash, and the cash users only to use card/ electronic payments for a week and report back. Participants opened conversations about most of the themes relevant to a cashless society that we have discussed in this and earlier copies of the Cashless world in Motion, and expressed enthusiasm for a Central Bank Digital Currency.

The concern about cyber risks is now prevalent amongst central banks (ECB and Nordics) and regulators.

The burning issue, identified as a probable cause of the next financial crisis by several central banks, lies with the management of IT services underpinning payment systems, following an increasing number of major incidents in 2018. The scope of regulation in financial services is now under scrutiny; this may include the resilience of telecom networks in the underlying infrastructure.

*“On the basis of the data that the FCA is currently collecting, we see no immediate end in sight to the escalation in tech and cyber incidents that are effecting UK financial services.”*  
(Megan Butler, FCA)

The recent FCA ruling against Tesco Bank for its failures in a 2016 cyber attack is a good case study. In the Cashless World In Motion’s view, the multiple failures in managing its IT services to international standards demonstrate the importance of adding compliance to ISO/IEC 20000 to all payment services, for both incumbents and new entrants. In the UK, this is a likely direction post a discussion paper on operational resilience, and a Treasury Select Committee public enquiry on the issue. Evidence letters submitted to the TSC from Barclays, Cashplus and Natwest further support the view.

The infrastructure risk is closely related to the complex web of supplier multi-sourcing in the sector. Governance and controls are therefore critical. Denis Beau, deputy first governor of the Bank of France, expressed his concerns:

*“3rd party dependency risk. Just to pick an example, cloud computing market is highly concentrated and Amazon Web Services has built a dominant position. As the core financial functions lift and shift to the cloud, the risk of a single point of failure will emerge, but yet, cloud providers are unregulated and to a large extent out of the reach of supervisors.”*

“With greater interconnections between technologies and the financial system, cyber-risk is moving from an idiosyncratic risk to a potential source of systemic risk.”

These issues risk deteriorating with increasing use of cryptocurrencies, as technical architectures crossing over from legacy to crypto and vice versa would pose substantial risks to settlement systems (akin to recent experience with pension transfers).

## December

In the season of goodwill, the Big Issue steps up to the mark of cashless payments, with an iZettle partnership to trial contactless payments before a nationwide rollout.



Figure 27: Talkwalker- UK Cashless Society and Payments Technology top 50 hashtags- April 01 to December 15, 2018. Sample: 28,500 mentions.

## Conclusions: A Cashless Society in 2018

This paper provided a review of developments for the cashless society topic in 2018, first with an overview of the key themes, then related key events in all regions, with some country specific focus.

This was a year when all stakeholders were out of their comfort zones as tensions rose in some key areas, to be placed in a context of geopolitical tension and economic uncertainty:

- Payments technologies uptake vs reliability of underpinning technology infrastructure.
- Convenience of payments vs trust issues.
- Economics of Money vs politics.

What's on the cards for 2019? Some observations this year point to a possible duo of marketplace consolidation and regulation to preserve financial stability. Will forces external to the topic disrupt the momentum?

Final thought: BlackRock co-founder Robert Kapito has warned that the Western financial services industry is risking complacency over the disruptive threat posed by large Asian tech companies such as Ant Financial... "This is a story that I do not think ends very well," for established western financial companies.



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