

# Digital Economy Outlook

July-August 2015  
Financial Inclusion Unit

- [E-commerce in Spain: What we buy and why](#)
- [EU General Data Protection Regulation: Trilogues underway after Council agreement](#)
- [Turkish banks' digitalisation: At the forefront of innovation](#)
- [Blockchain technology: The ultimate disruption in the Financial System](#)
- [E-money: Just an African thing among emerging?](#)

## Index

Summary	3
1 E-commerce in Spain: what we buy and why	4
2 EU General Data Protection Regulation	6
3 Turkish banks' digitalisation	7
4 Blockchain technology	9
5 Electronic money	12
Digital news	14

## Summary

---

### E-commerce in Spain: what we buy and why

**Online shopping for goods and services.** The fact that e-commerce has burst onto the scene as regards the demand for certain products is self-evident, yet knowledge about what goes into the online shopping basket and the characteristics of consumers is scarce. An initial inspection reveals differences among consumers who buy services, durable goods and non-durable goods online.

### EU General Data Protection Regulation

**Trilogues underway after Council agreement.** The new regulation aims to overcome the existing fragmentation and modernize the principles of the 1995 directive. The European Parliament and the Council have already started the Trilogue negotiations. Main points under discussion are related to the definition of consent, the requirement of a data protection officer, the "one-stop shop" mechanism, the joint liability for controllers and processors and the limits to administrative fines. The co-legislators aim to agree on a final text by end-2015.

### Turkish banks' digitalisation

**At the forefront of innovation.** Mobile phones have evolved from pure communication handsets to tools that consumers use for banking, payments, shopping, entertainment and socialising. Their increasingly widespread use and their ubiquity are changing the way that consumers access financial services, the way they make payments and make financial decisions in general. Turkey is in a privileged position to embrace digital financial changes, given its large young population, with high mobile penetration and a healthy financial sector which has been at the forefront of financial innovation by quickly changing from channel orientation to prioritising the customer.

### Blockchain technology

**The ultimate disruption in the Financial System.** Blockchain ledgers bypasses centralized financial infrastructure. This leads to the development of new businesses and the overhaul of existing ones. For the financial sector it could imply the biggest disruption to date

### E-money

**Just an African thing among emerging?** E-money is a financial instrument that can be managed with a basic mobile phone. Now, even the most poverty stricken resident of a remote village can become "financially included". However, only 15 per cent of adults (individuals over 15 years old) in the world are using e-money, and all of them live in developing countries. This resulting electronic currency ecosystem could improve the lives of the estimated 2 billion of unbanked by facilitating more secure, accessible and reliable ways to store and transfer money than are currently affordable for them.

# 1 E-commerce in Spain: what we buy and why

---

## Online shopping for goods and services

**The fact that e-commerce has burst onto the scene as regards the demand for certain products is self-evident, yet knowledge about what goes into the online shopping basket and the characteristics of consumers is scarce. An initial inspection reveals differences among consumers who buy services, durable goods and non-durable goods online.**

### Consumers and e-commerce

What personal and family-related characteristics determine the decision to shop online? The figures from the Survey on Equipment and Use of ICT in Households reveal that four out of every ten Spanish people shopped online in 2014, which is double the figure for 2008.

The results of a study carried out by BBVA Research indicate that the use of e-commerce is greater among males and the employed, and increases with age (up to 35 years old), educational level and income.<sup>1</sup> For example, over half of the people with higher educational qualifications have shopped online, compared with 15% of those with only a basic educational level. Likewise, skill in utilising new technologies that are associated with the presence and use of Internet in the household has a positive correlation with the propensity to consume online. Thus, 43% of individuals with internet access at home have shopped online in the past year, compared to only two out of every ten among those who do not go online at home.

### Personal factors in online shopping for goods and services

Following this line of enquiry, the study takes the process of finding out more about online shopping with an analysis by product type of what personal factors prompt consumers to buy them.

A brief classification of goods and services (such as travel or tickets for shows) is proposed, with a distinction made between consumer durables (such as consumer electronics items, IT equipment or furniture) and non-durables (food and medicine). The distribution of online consumption by product type shows a certain unevenness between the consumption of goods and services. Over time, the buying of services has predominated over goods. In the case of goods, there has been greater consumption of durables relative to non-durables.

The explanatory factors of online demand differ according to the product considered. The likelihood of acquiring services online is higher, the greater the individual's educational level and income. Nevertheless, the effects of educational level and purchasing power on the demand for goods online seem to work in the opposite direction. These results do not necessarily imply that goods are 'inferior', i.e. that consumption of them diminishes as income rises, but that the preference of individuals for buying them through traditional channels (instead of online) increases with their income level.

The gender of the buyer appears to play a decisive role, which might be indicative of a certain degree of specialisation in product-buying within the household. In this sense, the use of either a traditional channel or the Internet is not the decisive factor in how buying takes place. Irrespective of the person's income and educational level, the likelihood of a female buying perishable goods or services online is greater than for males. On the other hand, online demand for durable goods is higher among males.

The person's age also affects the decision to buy goods online, although it seems that the same thing occurs with services. The effect is negative for durable goods and positive, as well as greater, for non-durable goods.

---

1: For further details, see Box 2 of the BBVA Research *Spain Consumption Outlook: First half 2015*, available in Spanish at: <https://www.bbva.com/en/public-compuesta/spain-consumption-outlook-first-half-2015/>

### Contextual factors in buying goods and services online

Family size barely influences the likelihood of buying a product online, while the presence of children at home does have significant effects. The results from the study reveal that the online demand for services diminishes when the household includes members under 16 years old, due to a lower level of online buying of travel and other leisure products. On the other hand, the presence of minors appears to inspire online goods purchases.

Finally, buying services online tends to increase with the size of the place of residence. Nonetheless, living in a small population cluster seems to raise the likelihood of buying durable goods online compared to living in a nucleus with over 500,000 inhabitants. One explanation for this is the narrower range of products in traditional shopping outlets.

## 2 EU General Data Protection Regulation

---

### Trilogues underway after Council agreement

The new regulation aims to overcome the existing fragmentation and modernise the principles of the 1995 Directive. The European Parliament and the Council have already started the Trilogue negotiations, aiming to agree on a final text by end-2015.

#### A single and updated set of rules valid across the EU

The General Data Protection Regulation (GDPR), a single set of rules valid across the EU, will replace the 1995 Data Protection Directive, whose transposition into national laws has led to market fragmentation within the Union. The change from a directive to a regulation will therefore facilitate cross-border business activity. Moreover, the GDPR aims to update the regulatory framework, given the profound changes that have taken place in the way that personal data are collected, stored and processed. In this regard, the regulation will address new issues - such as profiling or pseudonymisation – and will incorporate the principles of risk-analysis approach and “privacy by design”. The scope of the GDPR will extend beyond the frontiers of the EU as it will affect companies that, although not established in the EU, offer goods or services to individuals residing in the EU or monitor their behaviour.

#### Three years since the Commission’s proposal

The European Council reached an agreement (“general approach”) on the General Data Protection Regulation (GDPR) on 15 June, three years after the European Commission made its legislative proposal. Trilogue negotiations between the Council and the European Parliament, which set out its position in March 2014, have already begun. They aim to agree on a compromise text by the end of 2015.

#### Points under discussion

The following are some of the most relevant points of disagreement between the Parliament’s position and the Council’s general approach. They will have to be discussed during the Trilogue negotiations to reach a common position of both co-legislators.

- The **definition of consent** that organisations are required to obtain from the data subjects if seeking to rely on consent as the legal basis for processing personal data. The European Parliament backed the Commission’s proposal, in which the consent has to be *explicit*, whereas the Council changed the requirement to *unambiguous* consent. The Council’s draft only requires the consent to be explicit for processing special categories of personal data (such as ethnic origin, political opinions, religion or beliefs).
- The requirement of a **data protection officer**. The Commission and the Parliament established certain conditions under which data controllers and processors would be required to designate a data protection officer. Instead, according to the Council’s draft, that position would only be mandatory “where required by Union or Member State law”.
- The **“one-stop shop”** mechanism for supervision. The Council’s general approach strengthens the role of the concerned supervisory authorities other than the lead authority (the one of the main establishment of the controller or processor). Indeed, when a possible infringement relates only to a jurisdiction, the authority of that jurisdiction would be competent over it. In general, the Council’s draft waters down the “one-stop shop” mechanism in comparison with both the Commission’s proposal and the Parliament’s position.
- The **joint liability** for controllers and processors, proposed by the Commission and broadly supported by the Parliament, is watered down in the Council’s general approach, with the controllers liable for any damages, unless the processors did not comply with their specific obligations.
- The **administrative fines** that supervisory authorities will be able to impose. Whereas the Parliament’s amendment raised the limit on possible fines (up to EUR100mn or 5% of turnover), the Council backed the limit proposed by the Commission (EUR1mn or 2% of turnover). Moreover, the Council’s draft introduces an additional provision specifying that, in case of violation of several provisions, the total amount of the fine may not exceed the amount of the gravest violation.

### 3 Turkish banks' digitalisation

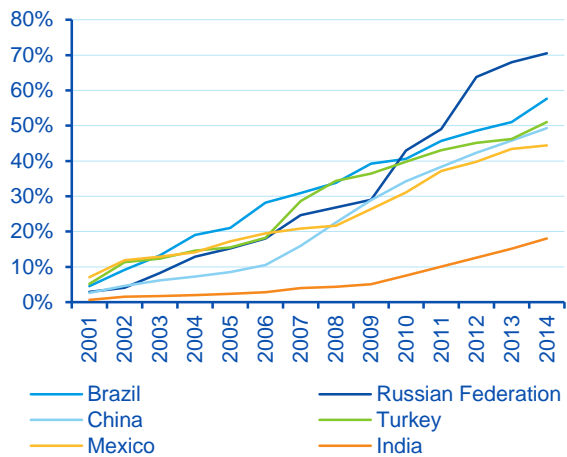
#### At the forefront of innovation

Mobile phones have evolved from pure communication handsets to tools that consumers use for banking, payments, shopping, entertainment and socialising. Their increasingly widespread use and their ubiquity are changing the way that consumers access financial services, the way they make payments and make financial decisions in general. Turkey is in a privileged position to embrace digital financial changes, given its large young population, with high mobile penetration and a healthy financial sector which has been at the forefront of financial innovation by quickly changing from channel orientation to prioritising the customer.

#### Turkish digital generation

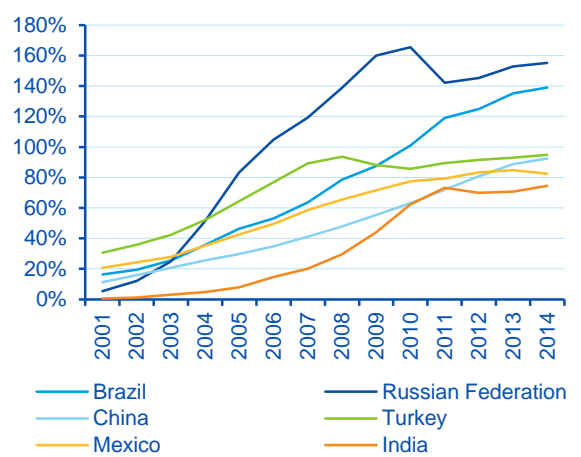
Turkey has a favourable environment for the adoption of new technologies and embracing digital changes. Despite the recent economic slowdown, Turkey's GDP is growing at around 3%. It is a large country with more than 81 million inhabitants, and about 40% of its population is under 25 years old. Turkey enjoys high mobile penetration (the number of mobile subscriptions was 95% of inhabitants at end-2014 vs. 120% in developed markets<sup>2</sup>) and the number of internet users is increasing over time (51% of inhabitants at end-2014) although still below those in developed markets (79% at end-2014). The usage of smartphones is also picking up, with smartphone penetration close to 40% at end-2014. The use of online social media is also very popular, with Facebook taking the lead with a 26% penetration rate. E-commerce transactions continue to increase significantly. In Europe, Turkey ranks second in the number of credit card transactions, making the country an attractive market for the payments industry. Therefore, the potential for e-banking and mobile banking is high, with customers receptive to enhanced customer experiences.

Figure 3.1  
Percentage of individuals using the internet



Source: BBVA Research based on ITU

Figure 3.2  
Mobile subscriptions per 100 inhabitants



Source: BBVA Research based on ITU

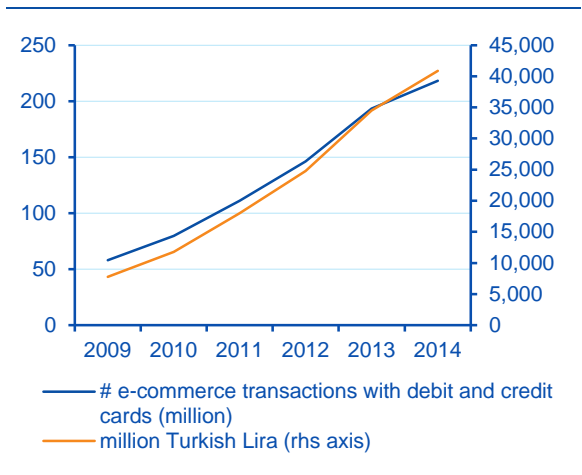
#### Digitalisation is revolutionising the global banking and payment industry

The internet has changed the way we search for information and shop for products. Mobile technology has a far more wide-reaching impact, though, as in the developed world almost everyone has a mobile and in the developing world the usage of mobile is not only increasing quickly but it enables banks and businesses to reach rural and unbanked populations, accessing new customers. Increasing customer demands (they want things quickly, easily and right now) combined with on-going competition from non-bank providers are driving

2: Based on the United Nations classification, which basically includes Northern America, Europe, Australia, New Zealand and Japan.

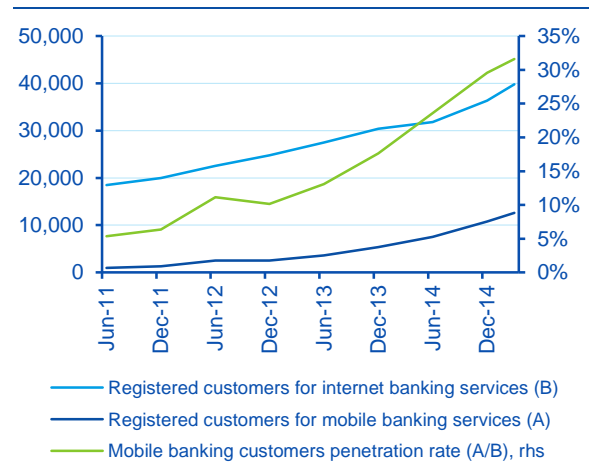
the changes in the industry. For banks, mobile should become another channel for doing business, as it is essential to combine branch offerings with integrated digital services. Several Turkish banks have already changed their mind-sets, providing value-added services to ease daily banking actions with a customer-centric approach.

Figure 3.3  
**Transactions with debit and credit cards (# million and TRY mn)**



Source: BBVA Research based on the Banks Association of Turkey

Figure 3.4  
**Registered customers for internet and mobile banking services (thousand)**



Source: BBVA Research based on the Banks Association of Turkey

### Turkish banks are leaders in the adoption of several digital technologies

The Turkish banking sector has experienced tremendous growth in recent years, with total assets increasing about tenfold in the last 10 years. Several Turkish banks grasped the opportunities posed by technology and innovation and have analysed their customers' behaviour, needs and expectations to offer personalised and value-added services. Here are some examples:

- Access to deposit and credit card accounts through Facebook – customers can access their accounts, see their account status, their assets and liabilities as well as send money to their friends on Facebook and apply for credit cards and loans.
- Biometric authentication at ATMs and in branches – customers can withdraw cash using their fingerprint.
- Credit cards with built-in authentication technology, completed with keypad and screen – customers enter their PIN on the card's keypad and the card displays a one-time password, to either access online banking or validate an online purchase.
- "Mobile branch" app for mobiles – in addition to core banking features, the app includes enhanced functionality, such as a simplified authentication process, the ability to live-chat with customer service representatives and a wallet that allows the customer to: i) send money to any mobile phone number; ii) shop on e-commerce sites, and iii) withdraw cash at ATMs.
- Customer experience through voice-based services – customers can talk to virtual assistants to enquire about their account details, transfer funds, get exchange rates or buy/sell foreign currency, instead of tapping their way through the app.
- Touch fingerprint log-in and mobile signature – it removes the need to type a PIN into mobiles, enabling a quick and easy log-in. The mobile signature eliminates the need for SMS validation in online banking proceedings. An interactive message is sent to the users' mobile phone during cash payments.

These innovations make it clear that Turkish banks are at the forefront of innovation in digital banking, and therefore developments in this market should be carefully monitored.



## 4 Blockchain technology

---

### The ultimate disruption in the Financial System

**Blockchain ledgers bypasses centralized financial infrastructure. This leads to the development of new businesses and the overhaul of existing ones. For the financial sector it could imply the biggest disruption to date.**

#### What is Blockchain

Blockchain is a peer-to-peer public ledger maintained by a distributed network of computers that requires no central authority or third party intermediaries. It consists of three key components: a transaction, a transaction record and a system that verifies and stores the transaction. The blocks are generated through open-source software and record the information about when and in what sequence the transaction took place. This “block” chronologically stores information of all the transactions that have taken place in the chain, thus the name blockchain. In other words, blockchain is a database of immutable time-stamped information of every transaction that is replicated on servers across the globe. This technology is the foundation of bitcoin, a crypto currency.<sup>3</sup>

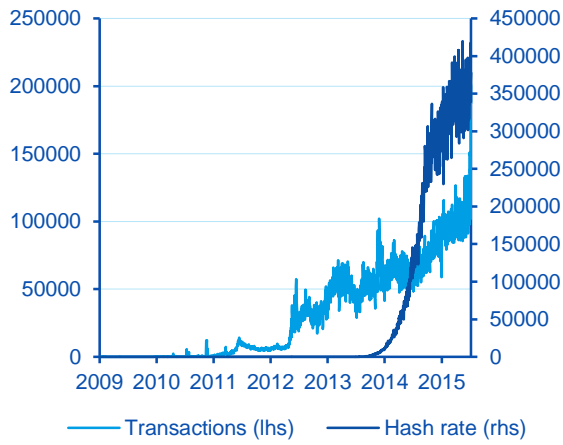
In traditional transactions such as money transfers or foreign currency, there is usually an intermediary or a centralized entity that records the transmission of money or currency that exist apart from it. In blockchain, the token or digital coin itself is what has value, which is determined by the market. This is what makes the system a truly decentralized exchange. When people buy or sell bitcoins, a secret key or token is broadcast to the system. “Miners” use nodes, computers or devices linked to a network, to identify and validate the transaction using copies of all or some information of the blockchain. Before the transaction is accepted by the network, miners have to show “proof of work” using a cryptographic hash function –a special algorithm– that aims to provide high levels of protection. Miners receive some form of compensation for their computing power contribution, avoiding the need to have a centralized system. New protocols such as Ripple rely on a consensus process that does not need miners nor proof of work and can agree on the changes to the blockchain within seconds.

In any case, the blockchain offers an inherent level of trust for the user, eliminating the need for the middleman and mitigating the risk of human error. In this public ledger, the data is protected against tampering and revision, and individuals cannot replace parts of the blockchain as the cost of doing so is significant – hypothetically one would need to control more than half of the “nodes” to surreptitiously alter the block chain. This ensures no double-spending. However, some research shows that defrauding the system by creating false transactions may be possible depending on computing power, position of the attacker and the timing of the attack.

---

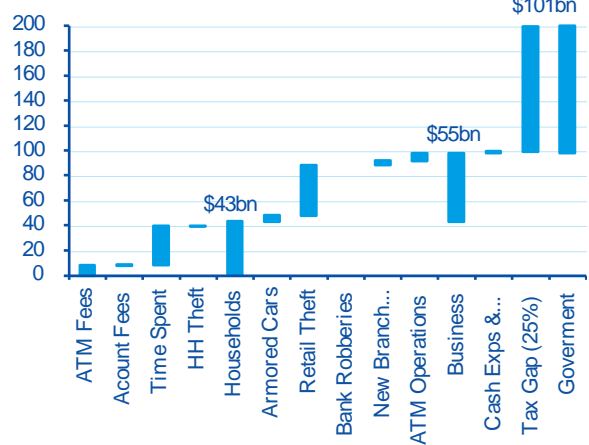
3: For more information on Bitcoin see [Bitcoin: A Chapter in Digital Currency Adoption](#)

Figure 4.1  
**Bitcoin: transactions per day & hash rate (TH/s)**



Source: blockchain.info

Figure 4.2  
**Cost of cash in the U.S. (\$bn, annual)**



Source: BBVA Research and Fletcher Institute

**The disruption**

While bitcoin itself has received a lot of criticism, the blockchain technology is thought to offer great potential, attracting the attention of governments, businesses and venture capital at a rapid pace. Some ideas developed in recent years include a pay-as-you-go system that allows users to stream live video; a structure that allows sharing space-program information; or ways to record business information such as audits. In most cases, these options are thought to offer greater security, speed and reliability at a fraction of the cost of more traditional infrastructures.

Other ideas include the possibility to rent out excess storage capacity; create digital identities that could substitute dozens of usernames and passwords while offering greater security features; and “smart contracts” with self-executing properties that would make the contract “unbreakable”. In addition, there have been significant advances in creating a highly secure digital voting system. Voters register online and receive a unique electronic vote or vote-coin. The electronic votes are recorded in the blockchain, reducing the possibility of fraud while allowing quick and reliable verification by the network. This could be attractive considering that significant anomalies have occurred even in well-established democracies (for example, the 2000 U.S. Presidential election), as each voter would be able to verify its decision. This could increase participation and reduce costs.

In the financial industry, institutions were slow to recognize the potential of blockchain technology; however, dozens of large banks have now invested significant amounts of money in this technology. The attention is likely the result of how disruptive this technology is to the financial sector, particularly if it allows massive simplification of banking processes and significantly reduces costs.

The first levels of disruption seem more likely in the payments space where traditional transactions such as money transfers, credit and debit card payments, remittances, foreign currency and online payments, require an intermediary such as a clearing house or a financial institution. In these cases the transaction would occur directly between the buyer and the seller without any intermediary and the validation of the transaction would happen in a decentralized way or “distributed ledger”. This would result in significant infrastructure savings for banks by allowing them to bypass payment networks that are oftentimes slow, cumbersome, and expensive.

However, the biggest potential impact of a public ledger may extend beyond the payment system. Given that the majority of financial assets such as bonds, equities, derivatives and loans are already electronic it may

be possible that someday the entire system is replaced by a decentralized structure. In fact, the latest innovations are using tokens to store and trade assets like shares, bonds, cars, houses and commodities. These so-called “colored coins” attach additional information on the asset, generating “smart property” or the ability to record and transact these assets using “smart contracts”, which are enforced by complex algorithms, through distributed platforms without a centralized register, thereby increasing efficiency. In this environment, the current system where financial institutions record individuals’ accounts in a centralized fashion and the banks’ reserves are stored by the central bank (i.e. Federal Reserve) would be replaced by the “internet of money” or the “internet of finance” –a fully decentralized financial system.

### Risks and challenges

The likelihood of a decentralized system to become commonplace is not obvious as it would have to offer the same or higher level of trust and protection than the current one. For this to happen, the system would have to possess a massive amount of computer power and efficiently cope with the enormous energy consumption required to support it. In addition, it is not clear how this system would deal with legal and regulatory concerns, as well as with matters of national security, such as money laundering, fraud, tax evasion or terrorism. Moreover, digital currencies would not be exempt from potential crashes; like the current system, if their usage reaches substantial levels, these shocks could generate systemic risk and severe economic downturns. In this scenario, monetary policy would not be able to respond effectively if it fails to boost demand among a large share of economic agents that use digital currencies.

Nonetheless, improvements and modifications in blockchain technology could overcome some of these obstacles and lead to broader acceptance. Therefore, the key question is not how, but when the disruption will become far-reaching. As other industries that have been transformed by new technologies and digitization, blockchain technology could reshape the financial industry well beyond the payments system.

## 5 Electronic money

---

### Just an African thing among emerging?

**E-money is a financial instrument that can be managed with a basic mobile phone. Now, even the most poverty stricken resident of a remote village can become “financially included”. However, only 15 per cent of adults (individuals over 15 years old) in the world are using e-money and, all of them live in developing countries. This resulting electronic currency ecosystem could improve the lives of the estimated 2 billion of unbanked by facilitating more secure, accessible and reliable ways to store and transfer money than are currently affordable for them.**

Over the past decade, the emergence of “e-money” or “mobile money” – the practice of sending, receiving, and storing money using mobile phones – has rapidly increased in the developing world. However, levels in some countries remain very low or the option does not exist in many others. E-money is a financial instrument that stores value electronically against the receipt by the issuer of the equivalent funds. It is accepted as a payment instrument by third parties other than the issuer and can be converted back into cash. The value is stored on an electronic device that may be an Internet account, a prepaid payment card or other smart cards such as a mobile phone card. This resulting electronic currency ecosystem could improve the lives of the estimated 2 billion of unbanked by facilitating more secure, accessible and reliable ways to store and transfer money than are currently affordable for them. The development of this ecosystem requires a network of agents to conduct cash-for-electronic value transactions and vice versa.

Using data preloaded on the SIM card, the mobile money system utilizes a SMS based interface to transmit money virtually to other phones. To load money into one’s virtual account, a customer visits one of agents and exchanges currency for e-money that is automatically deposited into his or her account. Customers can transfer money to anyone who owns a mobile phone. This generates a seismic shift in how money is managed and payments. The operation is built around convenience, security, and low prices. E-money reveals the new opportunities and reduction in risk a competent mobile service can provide to those excluded from traditional financial products and services that the residents of developed nations take for granted. As such it represents a preliminary gate for financial inclusion.

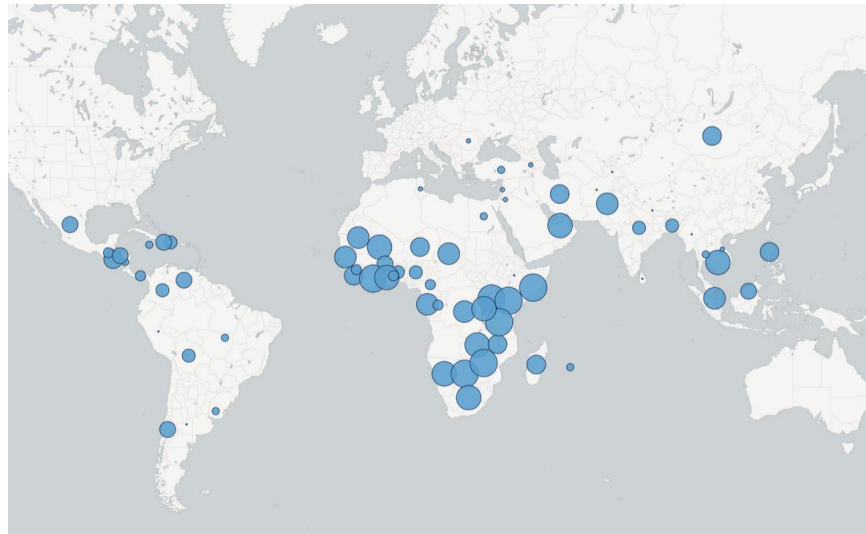
The lack of financial inclusion in developing world is fuelled by an array of adverse policies and conditions. Many people live in isolated, rural areas, locations where banks see traditional establishments as extremely unprofitable. The marriage between technology and behaviour of the poor population, a large percentage using a mobile phone, makes e-money a good candidate to provide individuals with an instrument to manage their personal finance. It is an environment where even the most poverty stricken resident of a remote village can become “financially included”.

From the consumer’s point of view, e-money is a financial instrument that can be managed with a basic mobile phone, easy to understand, without heavy documentation requirements and easy to access, since e-money is not an exclusive service of the financial system but telecommunication companies are very active in the mobile money business. According to the Global Findex (2014), only 15 per cent of adults (individuals over 15 years old) in the world are using e-money and, all of them live in developing countries (Figure 1). Figure 2 shows differences in mobile account holding among different groups. A gender gap shows up, with more males than women having a mobile account, 12% and 17% respectively. Although we find no differences in mean by age (old adults against young ones), the biggest gaps are determined by education and income levels. People with secondary education or more have double of mobile accounts (20%) than people with primary education or less (10%). Likewise, 18% of the richest people (in income quintiles 3, 4 and 5) have a mobile account compared to 10% of the poorest (in the income quintiles 1 and 2). The distribution between rural and urban areas shows that e-money is still an issue of cities since only 13% of people in rural developing areas are using it.

Finally, without and doubt, we find the most outstanding difference among regions. Low income countries account for 70% of the total mobile accounts in the world (15%). In addition, these figures are very evenly distributed by geography; Sub-Saharan Africa is where e-money is more extended, accounting for nearly 80% of the existing e-money accounts. A far second position is for Latin America and the Caribbean with 12%. It seems to be that there are some region-specific features that condition the e-money success. E-money, which started working in Kenya and spilled over the region, operated in uncharted regulatory territory. Was the issuer a financial or a telecommunications company? Although Safaricom operated as a telecommunications company, an early, mutual relationship was struck up with the financial regulators, which served as prototype to many countries in the region. This financial regulator set up certain ground rules to ensure that customers would be protected against a potential default. Another potential reason for the e-money success in Africa may be the lack of a widespread financial industry to satisfy the financial service demand. Finally, the strong dependence on domestic and foreign remittances in the region may be also a good reason for the e-money to succeed.

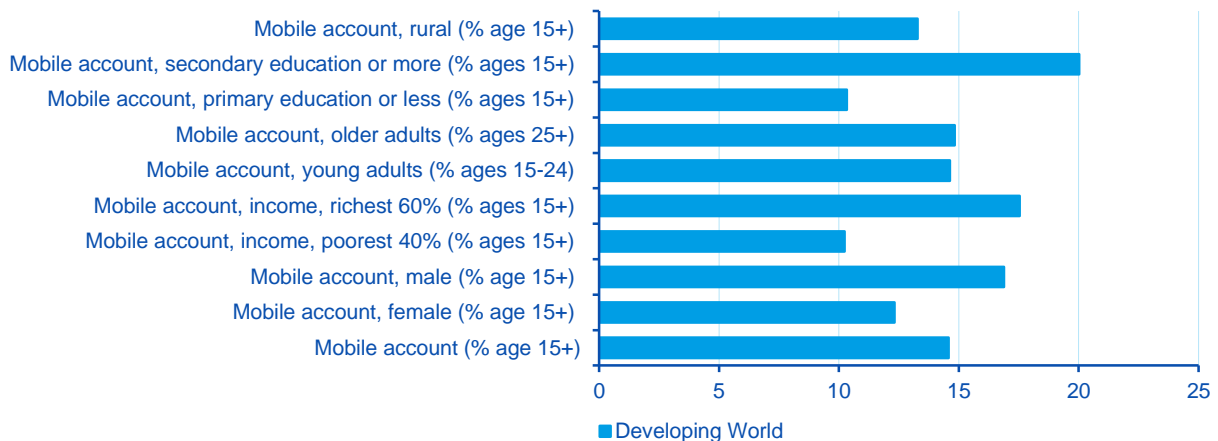
To the best of our knowledge, there is no much empirical evidence about the factors that made African money going to digital. The very interesting question that we pose is whether African e-money will spill over other emerging markets.

Figure 5.1  
**Mobile account distribution around the world**



Source: Global Findex (2014)

Figure 5.2  
**E-money**



Source: Global Findex (2014)

## Digital news

---



### EU Court of Justice: Advocate General's opinion on Bitcoin VAT exemption

On July 16, [Advocate General Juliane Kokott](#) issued an opinion urging the Court of Justice of the European Union (CJEU) to opt for exempting Bitcoin purchases and sales from VAT, following her interpretation of the EU VAT Directive. The Supreme Court of Sweden turned to the CJEU on June 2014 after the dispute between the Swedish tax agency and a citizen wanting to sell bitcoins on his website.



### FED announces steering committees of new Payments Task Forces

On 21 July, the [Federal Reserve](#) announced the members of the steering committees of both the Faster Payments Task Force and the Secure Payments Task Force, created after the release in January of the paper *Strategies for Improving the U.S. Payment System*. Authorities, banks, new players, credit card brands, consumers and merchants are all represented in the steering committees.



### Report on the competitive conditions of the Mexican financial system

The Mexican [Federal Competition Commission](#) (Cofece, by its Spanish acronym) published an exhaustive report on the competitive conditions of the financial system, formulating some regulatory and policy recommendations. Some of these are related to mobile payments: to avoid discriminatory access by the mobile network operators and to foster interoperability between the services of different banks.



### WEF reports on the future of financial services

The [World Economic Forum](#) (WEF) analyses in a report the transformative potential of different innovations, from crypto-currencies to big data to crowdfunding, as well as the risks and opportunities involved. The outcomes result from a series of multi-stakeholder dialogues.

**DISCLAIMER**

This document, prepared by BBVA Research Department, is provided for information purposes only and expresses data, opinions or estimates pertinent on the date of issue of the report, prepared by BBVA or obtained from or based on sources we consider to be reliable, which have not been independently verified by BBVA. Therefore, BBVA offers no warranty, either express or implicit, regarding its accuracy, integrity or correctness.

Estimates this document may contain have been undertaken according to generally accepted methodologies and should be considered as forecasts or projections. Results obtained in the past, either positive or negative, are no guarantee of future performance.

This document and its contents are subject to changes without prior notice depending on variables such as the economic context or market fluctuations. BBVA is not responsible for updating these contents or for giving notice of such changes.

BBVA accepts no liability for any loss, direct or indirect, that may result from the use of this document or its contents.

This document and its contents do not constitute an offer, invitation or solicitation to purchase, divest or enter into any interest in financial assets or instruments. Neither shall this document nor its contents form the basis of any contract, commitment or decision of any kind.

With particular regard to investment in financial assets having a relation with the economic variables this document may cover, readers should be aware that under no circumstances should they base their investment decisions on the information contained in this document. Persons or entities offering investment products to these potential investors are legally required to provide the information needed for them to take an appropriate investment decision.

The content of this document is protected by intellectual property laws. Its reproduction, transformation, distribution, public communication, making available, extraction, reuse, forwarding or use of any nature, by any means or process, are not permitted except in cases where it is legally permitted or expressly authorised by BBVA.

This report has been produced by the Financial Inclusion Unit:

**Chief Economist**

David Tuesta  
david.tuesta@bbva.com

Javier Alonso  
javier.alonso.meseguer@bbva.com

Noelia Cámara  
noelia.camara@bbva.com

Pablo Urbiola  
pablo.urbiola@bbva.com

Isabel Vegas  
isabel.vegas@bbva.com

*With the contribution of:*

Alfonso Arellano Espinar  
alfonso.arellano.espinar.contractor@bbva.com

**Financial Systems**  
Olga Cerqueira  
olga.gouveia@bbva.com

**Spain**  
Juan Ramón García  
juanramon.gi@bbva.com

**US**  
Nathaniel Karp  
Nathaniel.Karp@bbva.com

## BBVA Research

**Group Chief Economist**

Jorge Sicilia Serrano

**Developed Economies Area**  
Rafael Doménech  
r.domenech@bbva.com

**Spain**  
Miguel Cardoso  
miguel.cardoso@bbva.com

**Europe**  
Miguel Jiménez  
mjimenezg@bbva.com

**US**  
Nathaniel Karp  
Nathaniel.Karp@bbva.com

**Emerging Markets Area**

**Cross-Country Emerging Markets Analysis**  
Alvaro Ortiz  
alvaro.ortiz@bbva.com

**Asia**  
Le Xia  
le.xia@bbva.com

**Mexico**  
Carlos Serrano  
carlos.serranoh@bbva.com

**LATAM Coordination**  
Juan Manuel Ruiz  
juan.ruiz@bbva.com

**Argentina**  
Gloria Sorensen  
gsorensen@bbva.com

**Chile**  
Jorge Selaive  
jselaive@bbva.com

**Colombia**  
Juana Téllez  
juana.tellez@bbva.com

**Peru**  
Hugo Perea  
hperea@bbva.com

**Venezuela**  
Oswaldo López  
oswaldo.lopez@bbva.com

**Financial Systems and Regulation Area**  
Santiago Fernández de Lis  
sfernandezdelis@bbva.com

**Financial Systems**  
Ana Rubio  
arubiog@bbva.com

**Financial Inclusion**  
David Tuesta  
david.tuesta@bbva.com

**Regulation and Public Policy**  
María Abascal  
maria.abascal@bbva.com

**Recovery and Resolution Strategy**  
José Carlos Pardo  
josecarlos.pardo@bbva.com

**Global Coordination**  
Matías Viola  
matias.viola@bbva.com

**Global Areas**

**Economic Scenarios**  
Julián Cubero  
juan.cubero@bbva.com

**Financial Scenarios**  
Sonsoles Castillo  
s.castillo@bbva.com

**Innovation & Processes**  
Oscar de las Peñas  
oscar.delaspenas@bbva.com

### Contact details:

**BBVA Research**  
Azul Street, 4  
La Vela Building - 4 and 5 floor  
28050 Madrid (Spain)  
Tel.: +34 91 374 60 00 and +34 91 537 70 00  
Fax: +34 91 374 30 25  
bbvaresearch@bbva.com  
[www.bbvaresearch.com](http://www.bbvaresearch.com)