

Digital Economy Outlook

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Financial Inclusion Unit

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Summary

Digital Economy

A first overview

The Information Age began in the middle of the last century with the adoption of the first computers that started the shift from analogue to digital. However, during the last two decades the radical changes brought about by information and communication technologies (ICTs) have led our society to a truly digital revolution.

Economic development and digital banking

Different realities condition the digital banking process. Digital banking is a global process that takes different paths of development across the world, depending on the structural characteristics of each reality. Beyond these differences, there are common elements which are likely to converge in the future.

E-money in Latin America

A digital tool to foster financial inclusion. In developing countries, e-money has the potential to reach millions of unbanked individuals with transactional services, providing a first step towards financial inclusion. Having flourished in Sub-Saharan Africa, e-money services are also emerging in Latin America, where several countries have recently introduced specific regulations. The general approach is allowing non-bank institutions to issue e-money while setting specific rules to protect customers' funds.

Faster payments

The need to upgrade current payment infrastructures. Nowadays it is normal to receive immediately an e-mail sent from the other side of the world. Yet it still takes more than two days to transfer funds, even without that being a cross-border transaction. The digital age demands an acceleration of payment processes.

Measuring the Digital Economy

The 'Networked Readiness Index' by the World Economic Forum. This index, calculated since 2001 by the World Economic Forum, aims at measuring countries' ability to take advantage of the Information and Communication Technologies (ICTs). It comprises four sub-indexes that measure, respectively, the political and business environment for ICTs; the readiness of a society to use ICTs; the actual usage by individuals, business and governments; and the economic and social impacts.

1 Digital Economy

Carmen Cuesta

A first overview

The Information Age began in the middle of the last century with the adoption of the first computers that started the shift from analogue to digital. However, during the last two decades the radical changes brought about by information and communication technologies (ICTs) have led our society to a truly digital revolution.

Digital economy refers to how the widespread use of ICTs may contribute to the real economy either directly, with the development of new ICT industries, or indirectly, fostering the development of new businesses and introducing efficiencies to traditional ones. Thus, when aiming to understand and measure the digital economy, several topics may be considered, such as the evolution of the ICT industry, the emergence of new digital businesses, the development of e-commerce, the necessity for new skills, regulation and new threats. Those will be some of the topics we will explore in this and further editions of BBVA Research's Digital Economy Outlook.

ICT sector

Communication networks and broadband infrastructure, as well as the latest generation of data processing and transmission technologies, are the underlying platforms on which the digital revolution relies. The evolving technologies such as broadband and fibre systems, wireless, mobile devices, grid and cloud computing, artificial intelligence algorithms, etc. are therefore becoming the new fuel of economic growth. Thus, apart from ICT manufacturing, trade and services sub-industries and their direct contribution to growth and jobs creation - facts that have been widely disclosed in macroeconomic studies - are also enablers of an increasing efficiency and productivity in companies, as well as a widespread transformation of business, government, culture and lifestyle.

New digital business

New purely digital business models are thriving on the Internet, offering online services such as social networks or email services without payment and basing their business plans on alternative means of obtaining profits, such as advertising. These new technologically-driven business models are leveraging data and technology to provide better customer experience, make better decisions and lower operating costs.

The digital environment has also fostered the emergence of disruptive innovations in the way that traditional businesses are being conducted. Virtual currencies, collaborative platforms, crowdfunding and new payment instruments and channels are just a few examples of how financial services are being transformed. Other industries such as media, music, video and photography have also suffered from an irreversible digital transformation that has even humbled large companies.

Electronic payments and e-commerce

Internet and mobile channels have also enhanced the traditional means of payments and the evolution of e-commerce. The effects of e-commerce on the economy are extensive: on the one hand, it reduces the cost of distribution and enables entry to a worldwide market, while on the other hand it lowers online prices and widens the variety of products, improving the service to the consumer.

Digital literacy and new skills

Digital literacy refers to the technological, cognitive and sociological skills needed to unleash the full potential of the digital economy. The rapid evolution of new technologies demands new professions and individuals with ICT knowledge to interact with digital services.

Regulation

The Internet and the digital environment are bringing many benefits to consumers and businesses. However, they are also raising new threats and risks. The potential of the digital world cannot be fully exploited unless a trustworthy market environment is defined, both for the ICT industry itself and for other markets affected by the development of the ICTs and their regulation. Security, privacy rules and competitiveness issues are being tackled by policy-makers and extracting the potential of the digital world, and its contribution to economic growth depends very much on their results.

2 Economic development and digital banking

David Tuesta

Different realities condition the digital banking process

Digital banking is a global process that takes different paths of development across the world, depending on the structural characteristics of each reality. Beyond these differences, there are common elements which are likely to converge in the coming future.

A global digital banking

The digital age has brought us the intensive use of information that dramatically improves economic agents' decision processes. This has occurred thanks to the progressive advances in data technology reflected into the exponential improvement in data processing and data storage; the explosive global adoption of mobile devices, and the extensive involvement in social networking. These combined factors have generated the digital transformation that is also reflected in the financial sector with the so-called "digital banking" which is progressively following different patterns depending on the economic development of each market.

Digital banking and development

In developed countries, where the access to and use of banking services is well extended, going digital has meant a rapid transformation in the way that a mature financial supply and demand interact. From the supply side, new players have started to offer innovative banking services using digital platforms, from enhancing payment methods, making them cheaper and faster, to the provision of a variety of crowdfunding platforms. From the demand side, customers in developed economies are learning fast, adapting to these banking innovations and gradually shifting from branch-banking to a more digital contact and cashless experience. All this is encompassed with demographic transition, high technology access and higher banking penetration.

In contrast, in Emerging Markets, digital banking has been interplaying with a very different context. These economies have been struggling historically with low banking penetration rates. Thus the rapid, global and extended digital economy has been an important complement to the process of financial inclusion that these geographies are undergoing. "Dumbphones" - or basic cell phones - have been a fundamental driver of financial inclusion in Africa. E-money services have been particularly successful in Sub-Saharan Africa, facilitating international remittance services, and have spread throughout all other developing realities.

Currently, governments in Emerging Markets are directly involved in this process of "digital financial inclusion". Broadly, most of these economies are opting for a strategy that combines three elements: i) facilitating the offer of e-money services through mobile devices, taking advantage of its important penetration; ii) outsourcing the most basic operations, such as cash in and cash out, to banking agents, aiming to increase the number of access points in a cost-efficient way, and iii) a more flexible regulation that simplifies banking processes for the unbanked and makes KYC and AML requirements proportionate to the risk involved.

Different processes but common elements

Digital banking is impacting both realities with different emphases. More "quality driven", in the case of already highly-banking-penetrated economies; and more "quantity driven", in the case of Emerging Markets where countries are urged to increase use and access whilst reducing structural barriers. Although the processes are different, innovation is outlining common patterns. One example is the current implementation of comprehensive electronic identification infrastructure in both markets, taking advantage of biometric technology that will ease interaction with the financial sector. On the regulatory side, digital banking is bringing an intensive debate in terms of competition and a level playing-field between incumbent banks and new players. Last, but not least, is the growing attention that policy makers are paying to the impact of new technologies on consumer welfare, consumer protection and financial literacy, considering the pros and cons of the probable intensive use of personal or pseudo-personal data. In a nutshell, it remains to be seen how these common and different digital banking processes will evolve in the coming years.

3 Electronic money in Latin America

Pablo Urbiola

A digital tool to foster financial inclusion

In developing countries, e-money has the potential to reach millions of unbanked individuals with transactional services, providing a first step towards financial inclusion. Having flourished in Sub-Saharan Africa, e-money services are also emerging in Latin America, where several countries have recently introduced specific regulations. The general approach is allowing non-bank institutions to issue e-money while setting specific rules to protect customers' funds.

What is electronic money?

Electronic money (or 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 means of payment by third parties other than the issuer, and may be transferred between users and converted back into cash. The value is stored on an electronic device that may be an Internet wallet, a pre-paid payment card or other smart cards such as a mobile phone card. In this latter case, e-money is sometimes referred to as 'mobile money'.

An early step to financial inclusion in emerging markets

In emerging markets, where millions of people do not use formal financial services, e-money products represent a first step for the financial inclusion of the unbanked. In those countries, mobile penetration rates have significantly increased in recent years, so mobile-based e-money products provide an attractive and easy access to basic financial services such as payments and money transfers. The potential of e-money to go beyond an early stage of financial inclusion depends on the involvement of banks in this activity, as it opens the door to offering credit and saving products. Yet, on the other hand, allowing non-bank institutions, such as mobile network operators (MNOs), to issue e-money has the potential to reach the unbanked population more rapidly. In particular, mobile network operators present two main advantages: i) millions of unbanked individuals are already part of their customer base, and ii) they have distribution agents in widely dispersed and remote areas. Given the complementary role of banks and MNOs, their partnership in the development of e-money products has the potential to foster financial inclusion in emerging markets.

Risks to be addressed

As e-money issuers take funds from the public, the risk arises of money being lost or unavailable when requested by customers. This risk is particularly relevant when the e-money business is opened to non-prudentially regulated firms, making the case for specific regulation to protect customers' funds. Moreover, financial system integrity could also be questioned if no proper anti-money laundering (AML) and combating the financing of terrorism (CFT) procedures were applied. Yet demanding 'know your customer' (KYC) requirements may hamper the access to financial services, particularly in developing countries, where documentation requirements are one of the barriers to financial inclusion.

Regulatory approaches in Latin America

E-money has been particularly successful in Sub-Saharan Africa, where there are more than 120 active services, but has more recently expanded to other emerging regions, including Latin America, with nearly 30 services in operation.¹ Since 2013, Latin American countries such as Peru, Paraguay, Uruguay and Colombia have specifically regulated e-money, creating a new legal status to allow non-bank firms to issue e-money. Those institutions are not allowed to intermediate with their customers' funds and must hold an amount of funds equivalent to the total e-money issued in certain types of liquid assets - generally bank deposits held in trust accounts. In addition, Peru and Colombia impose prudential capital requirements (2% of the customers' funds) as well as a minimum amount of capital to set up an e-money issuer firm. Regarding AML and CFT, as e-money accounts are generally subject to limits for balances and/or transactions, KYC requirements are proportionate to the risks involved. Indeed, Colombia and Peru establish two different types of e-money accounts with different limits and KYC requirements.

1: Data based on the 'Mobile Money for the Unbanked Deployment Tracker' developed by GSMA:
<http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/insights/tracker>.

4 Faster payments

Carmen Cuesta

The need to upgrade current payment infrastructures

Nowadays it is normal to receive immediately an e-mail sent from the other side of the world. Yet it still takes more than two days to transfer funds, even without that being a cross-border transaction. The digital age demands an acceleration of payment processes.

Faster payments demand

In recent years, payments have been one of the most significant areas of financial innovation. Advances such as virtual currencies and new retail payment services replacing debit and credit cards with “push” transfers in e-commerce are changing the traditional landscape. Most of these innovations offer low-cost and fast transfer of funds, even if cross-border transactions are involved. Furthermore, technology is rapidly evolving, offering tools to process information in real time and to consume it worldwide on sophisticated mobile devices. These capabilities are changing the consumer's expectations of payment services, meaning that delayed availability of funds is no longer acceptable.

Thus, traditional clearing and settlement platforms, in which retail payments are typically batched and then netted (usually on a multilateral basis) for settlement each day, are becoming obsolete (in spite of remaining in force for processes that do not require immediacy, such as pensions or payrolls).

On the other hand, faster payment initiatives are fostering the emergence of innovative means of payment. Most of them are related to “person to person” or “person to business” payments, and enhance mobile devices to become the new channel for payments. Innovative solutions also permit the use of an alternative and convenient identifier for consumers, such as e-mail or telephone number, that links to their bank account.

Faster payments initiatives

Most countries around the world have already faced the development of real-time payments infrastructure, such as in Japan or Mexico. In Europe, the most relevant European experiences came from Faster Payments UK (2008) or, more recently, the Danish Nest Real-Time 24x7 system (2014). Both initiatives are implemented on a deferred net settlement with three cycles per day, which is not exactly instant payment but provides a good start to it. It is important to take into account that faster and irrevocable real-time payments demand new risk management frameworks, in which real-time capabilities should be developed to review transactions for possible fraud, money laundering or terrorist financing. This is probably the most important hindrance to be faced in the development of faster payment infrastructures.

While domestic initiatives are more than welcome as they enhance local innovation, a global perspective is also needed to really modernise payment infrastructures and to compete with alternative networks that seek to disintermediate the banks.

Catalytic action of regulators and central banks

Regulators and central banks are urgently demanded to catalyse the development of faster retail payment infrastructures. Good news comes from the Federal Reserve, that is working to speed up and further secure the retail payments infrastructure in the U.S. Following a public consultation in September 2013, it has just released a paper with its Strategies for Improving the U.S. Payment System. Likewise, the ECB is chairing the European Retail Payments Board (ERPB), a multi-stakeholder group that is fostering the development of an integrated, innovative and competitive market for retail payments in the European Union. The ERPB has recently included in its agenda the topic of faster payments, and has invited stakeholders to present their first assessments in June 2015.

Both of them, the Fed and the ECB, are encouraged to seize the opportunity to modernise current payment systems by setting the incentives to develop schemes and standards needed to reach interoperability in a trustworthy global retail payments environment.

5 Measuring the Digital Economy

Pablo Urbiola

The ‘Networked Readiness Index’ by The World Economic Forum

The **Networked Readiness Index (NRI)**, calculated since 2001 by the World Economic Forum, aims at measuring the countries’ ability to take advantage of the **Information and Communication Technologies (ICTs)**. It comprises four sub-indexes that measure, respectively, the political and business environment for ICTs; the readiness of a society to use ICTs; the actual usage by individuals, business and governments; and the economic and social impacts. The latter, that was included for the first time in the 2012 edition of the index, can be regarded as the result of the drivers summed up in the other three sub-indexes (environment, readiness and usage).

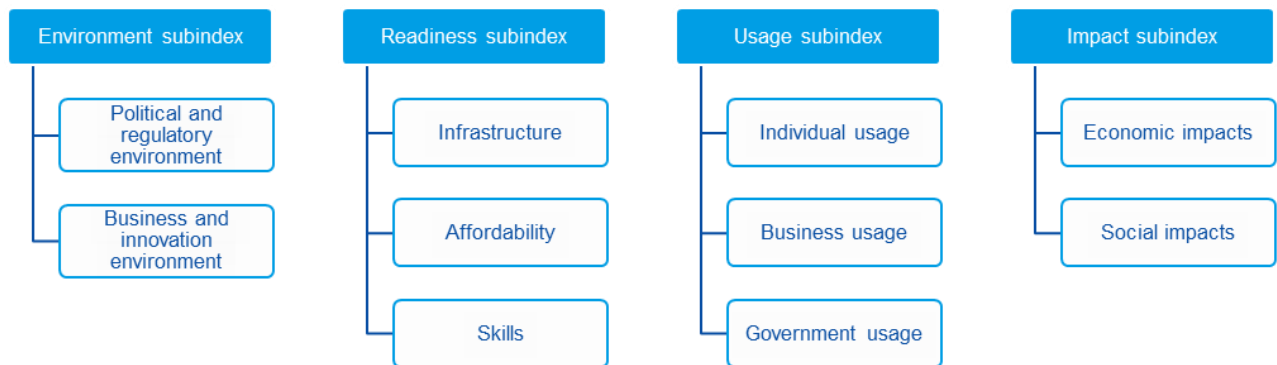
The theoretical framework

As ICTs interact with many sectors, they are argued to enable innovations, affect productivity and develop new skills beyond the ICT industry itself. They may also enhance citizens’ political participation and make governments more accountable. Given these broad effects, measuring the economic and social impacts of ICTs is crucial. For these impacts to occur, ICT readiness - affordable infrastructure and digital resources - and ICT usage are preconditions and key drivers. Besides, the capacity of an economy to benefit from the use of ICTs is determined by its regulatory and business environment. The networked readiness framework considers that all these factors interact and co-evolve within an ICT ecosystem. For example, a country with an enabling environment and greater readiness is more likely to present higher rates of ICT use and achieve more significant economic and social impacts. At the same time, those countries benefiting from positive impacts will be more likely to continue improving their framework conditions, leading to a virtuous circle.

Index composition

The Networked Readiness Index (NRI) is a simple average of the four composing sub-indexes which, in turn, are simple averages of their composing pillars, according to the following structure:

Figure 5.1
NRI composition



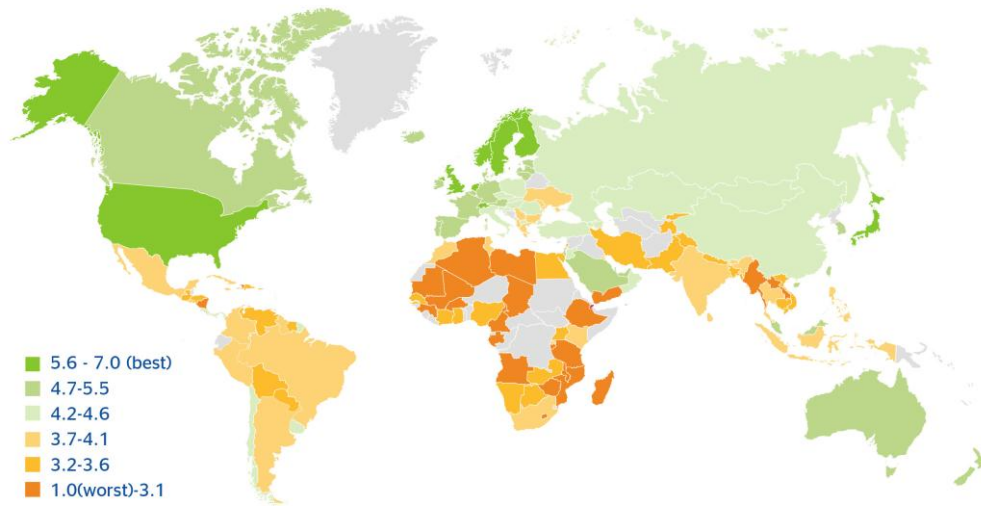
Source: WEF

The pillars are composed, in total, of 53 individual indicators: 27 are hard data, collected primarily by international organisations, and the remaining 26 variables are constructed from a survey to over 13,000 business executives in all economies included in the index (143 in the 2015 edition).

Results overview

As expected, advanced economies top the overall NRI ranking, with Singapore, Finland and Sweden occupying the first three positions. Moreover, 44 out of the top 50 countries belong to the high-income group. Among them, the United States ranks 7th and Spain ranks 34th. At the bottom of the ranking, most of the countries (26 out of the 30 worst-performing) are low-income or lower-middle-income economies. On the following page we show some selected results from the 2015 edition of the index.

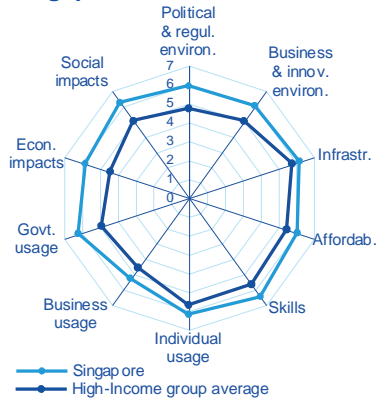
Figure 5.1
The Networked Readiness Index 2015



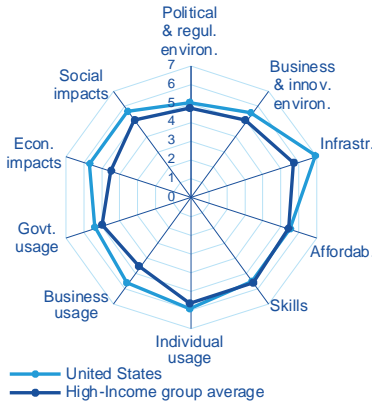
Source: WEF

Figure 5.2
The Networked Readiness Index 2015, by pillars (selected countries)

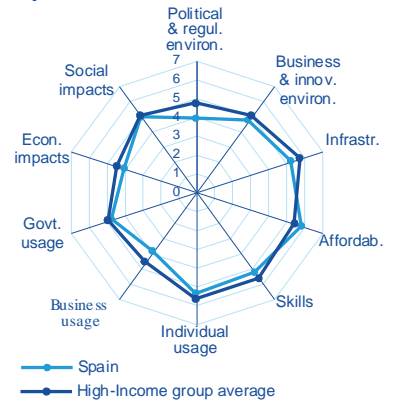
Singapore



United States



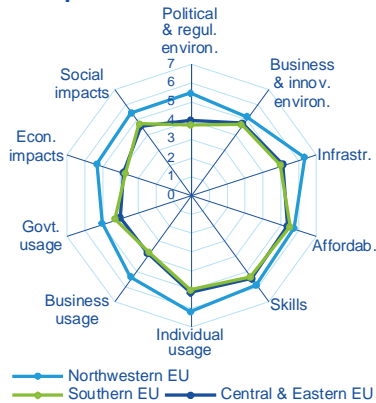
Spain



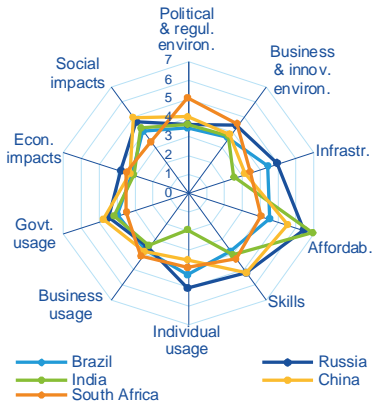
Source: WEF

Figure 5.3
The Networked Readiness Index 2015, by pillars (selected countries and regions)

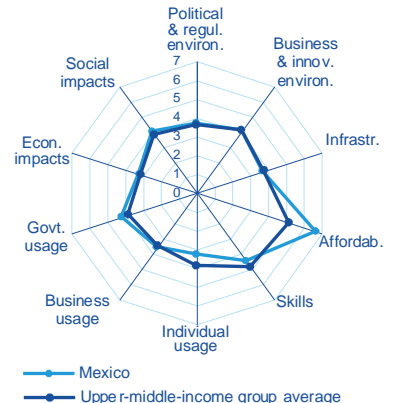
European Union



BRICS



Mexico



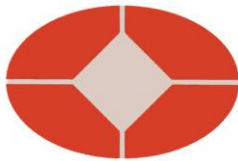
Source: WEF

Digital news



Consumers and Mobile Financial Services 2015

The [Federal Reserve](#) reports on the findings from its 2014 survey on consumers' use of mobile technology to access financial services and make financial decisions. Topics include consumer access to banking services using mobile phones ('mobile banking'), consumer payment for goods and services using mobile phones ('mobile payments'), and consumer shopping decisions facilitated by the use of mobile phones.



Range of practices in the regulation and supervision of institutions relevant to financial inclusion

The [Basel Committee on Banking Supervision](#) explores the extent to which supervisory and regulatory practices are evolving in response to the developments in digital financial inclusion. In different jurisdictions, new institutions, financial products and intermediation channels are emerging to service poor and low-income customers. The report sets out findings from a survey of over 50 Basel Committee members and non-members.



Opinion of the EBA on lending-based crowdfunding

The [European Banking Authority](#) identifies a series of risks of lending-based crowdfunding and evaluates how to address them in the EU legislative framework. The opinion paper calls on EU legislators to clarify the applicability of existing EU law to lending-based crowdfunding, so as to ensure that all participants can have confidence in this new market segment. The EBA also highlights the desirability of convergence for the supervision practices of crowdfunding.



Virtual currencies schemes – a further analysis

Following its first study on virtual currencies published on October 2012, the ECB has released a new report on the topic, in which it offers a comprehensive description of the current landscape. The ECB recognises that, besides their drawbacks and disadvantages, virtual currencies could also have some advantages over traditional payment solutions and specifically for payments within virtual communities/closed-loop environments and for cross-border payments.

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