

Peru

Advances in digitisation

November 2017



Key messages

- ◆ **A country's digitisation process involves its citizens, companies and government.** More digitised citizens have more tools available for their development. Digitised companies increase their efficiency. At the same time, the development of electronic government increases efficiency and benefits citizens
- ◆ **According to the DiGiX Digitisation Index drawn up by BBVA Research, Peru ranks below its regional peers,** largely because it falls short in Affordability and Infrastructure

Use

- ◆ **Peru has low internet usage compared with other countries in the region.** In spite of having improved in recent years, **only 45% of Peruvians use the internet**, and this figure hides considerable disparities:
 - In urban areas 54% of the population use the internet, whereas this figure drops to 14% in rural areas
 - Over 63% of the population in the province of Lima use the internet, whereas in Cajamarca, Huancavelica and Amazonas this rate is around 20%
 - Young people and those with a medium-to-high education level use the internet most

Key messages

- ◆ **The Internet is mainly used over the mobile phone and from the home PC.** The Internet is mainly used for communicating, obtaining information, and entertainment. **E-banking and the purchasing of products/services are less used but are becoming increasingly important**
- ◆ **Some 76% of formal private companies use the internet,** though in medium and large enterprises this figures rises to 97%. The main activities are communication, search for products/services and information and online banking. Consequently, **online transfers are the most normal method of payment for both purchases and sales on the internet**
- ◆ Moreover, **the internet is a business advertising tool.** Approximately 45% of the formal companies that advertise do so on the internet, while 30% have a website and use social media
- ◆ **The government for its part has also made advances in its digitisation in recent years.** At present, it has 59 web services and 87 apps for mobile phones, and it uses the State Interoperability Platform (which enables digital information to be shared among public institutions). Nevertheless, a comparison with its peers shows that there is still room for improvement in the online services offered by the Peruvian government

Key messages

Service provision

- ◆ In recent years, **the concentration of companies offering internet services has fallen**. In 2005, 95% of mobile phone lines were offered by two companies, whereas in 2017 these same operators account for just 73%. As regards fixed-line internet, the main operator has 76% of the market, whereas 10 years ago it had more than 90%
- ◆ **Average internet speed has improved considerably over the last 5 years**, reaching an average of 6.2 Megabytes per second. However, this is still low compared with other Latin American countries such as Chile, Mexico and Brazil
- ◆ As far as infrastructure is concerned, **the construction of the Fibre Optic Backbone Network and the implementation of regional infrastructure has enabled Peru to hold its own in this area when compared with its peers**. Nevertheless, there is still room to expand 3G and 4G mobile internet coverage

Key messages

Regulation and promotion of digitisation

- ◆ In Peru, **the regulatory and political environment for the development of ICTs is not well perceived** (Peru ranks 118th out of a total of 139 countries in this area according to the WEF). In line with this, there are legal inefficiencies as regards ICTs, on top of which software piracy is as much as 65%
- ◆ **As far as the efforts to achieve greater digital inclusion are concerned, some progress can be discerned in the public sector.** In addition to e-government and infrastructure support, some programmes have been developed, such as the Digital Kit for microbusinesses and permission to use electronic contracts and payments to comply with labour law
- ◆ **As far as the private sector is concerned, some companies have joined forces with the government to develop programmes to improve connectivity**, among which the following are particularly noteworthy: (i) the e-Wallet (an instrument that makes it possible to use e-money), (ii) help to improve the system for indicating at which polling station to vote in elections and (iii) some competitions that challenge citizens to get involved in digitisation and come up with solutions

Contents

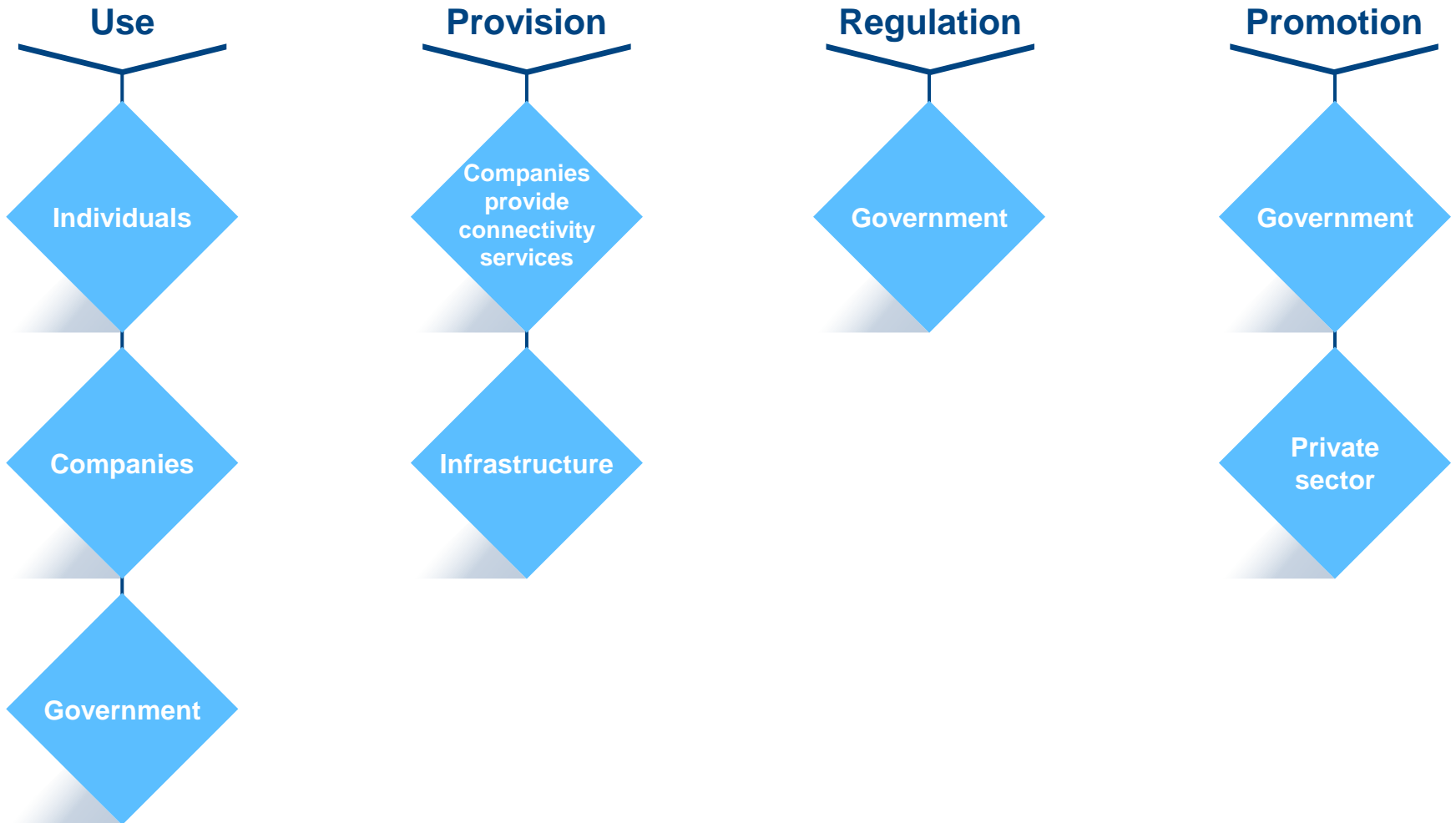
1. **Digitisation**
2. **Use**
3. **Service provision**
4. **Regulation and promotion**
5. **Annexes**

1. Digitisation



The digitisation process engages citizens, companies and the government.

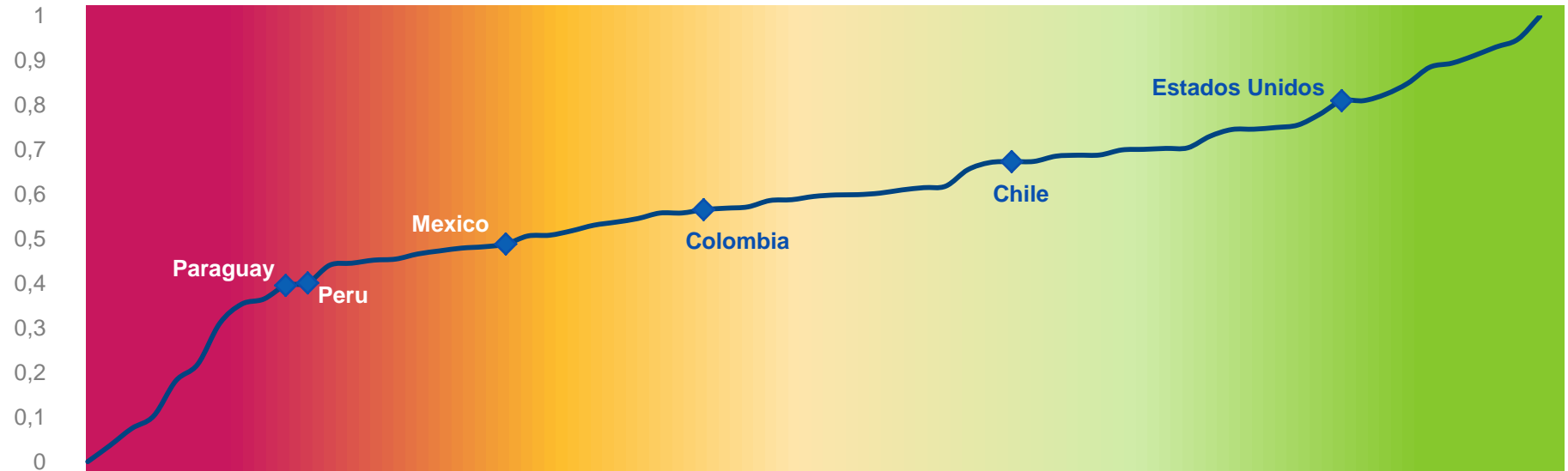
Agents of Digitisation



According to the DiGiX 2017 Digitisation Index, Peru is behind other countries in the region

The DiGiX 2017 Digitisation Index drawn up by BBVA Research assesses the behaviour of the agents and institutions that make it possible for a country to leverage Information and Communication Technologies (ICT) to improve competitiveness and well-being

DiGix 2017*



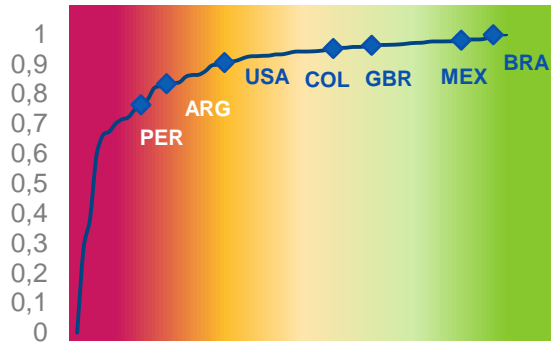
This index assesses the digital performance of 100 countries, including Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Paraguay and Peru.

* Please see Annexes for details of the composition.

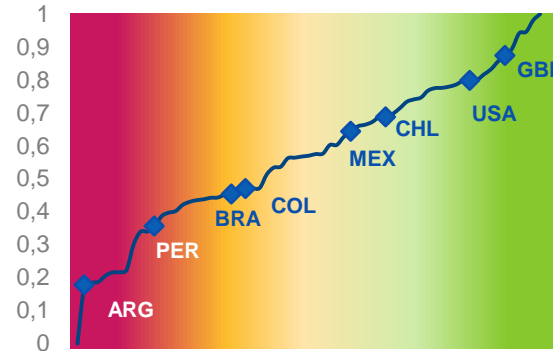
Source: BBVA Research

According to its dimensions it can be seen to be among the stragglers when it comes to Affordability and Infrastructure*

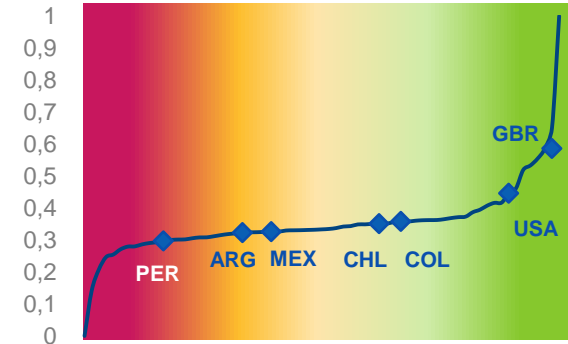
Affordability



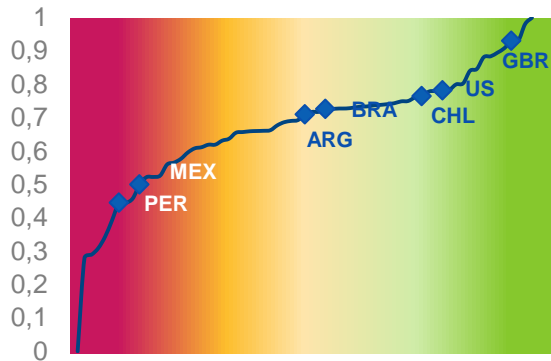
ICT Regulation



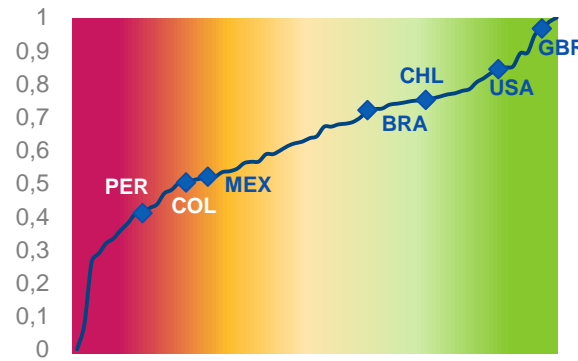
Infrastructure



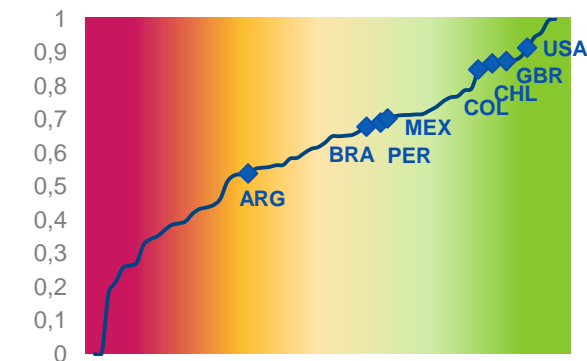
Use at individual level



Use at business level



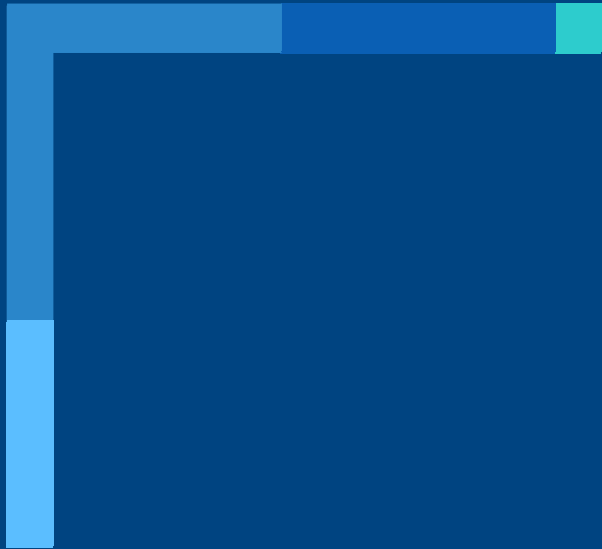
Content



* Please see Annexes for details of the composition.
Source: BBVA Research

2. Use





2.a Individuals

More digitised citizens have better tools available for their development

Increases skills

- ◆ More information improves decision making
- ◆ Reduces gaps in access to ICTs
- ◆ Obliges them to search for information themselves
- ◆ Tool to handle their finances

More efficient purchases

- ◆ Reduces search time
- ◆ Affords a greater variety of products
- ◆ Less cost by comparing prices

Provides a greater volume of information at greater speed

More digitised citizens have better tools available for their development

Educational tool

- ◆ Greater access to information for teachers
- ◆ Reduces restrictions on local educational opportunities
- ◆ Access to virtual libraries
- ◆ Use of forums and access to more opinions (more critical attitude).
- ◆ Access to online courses

Enhances the search for job opportunities

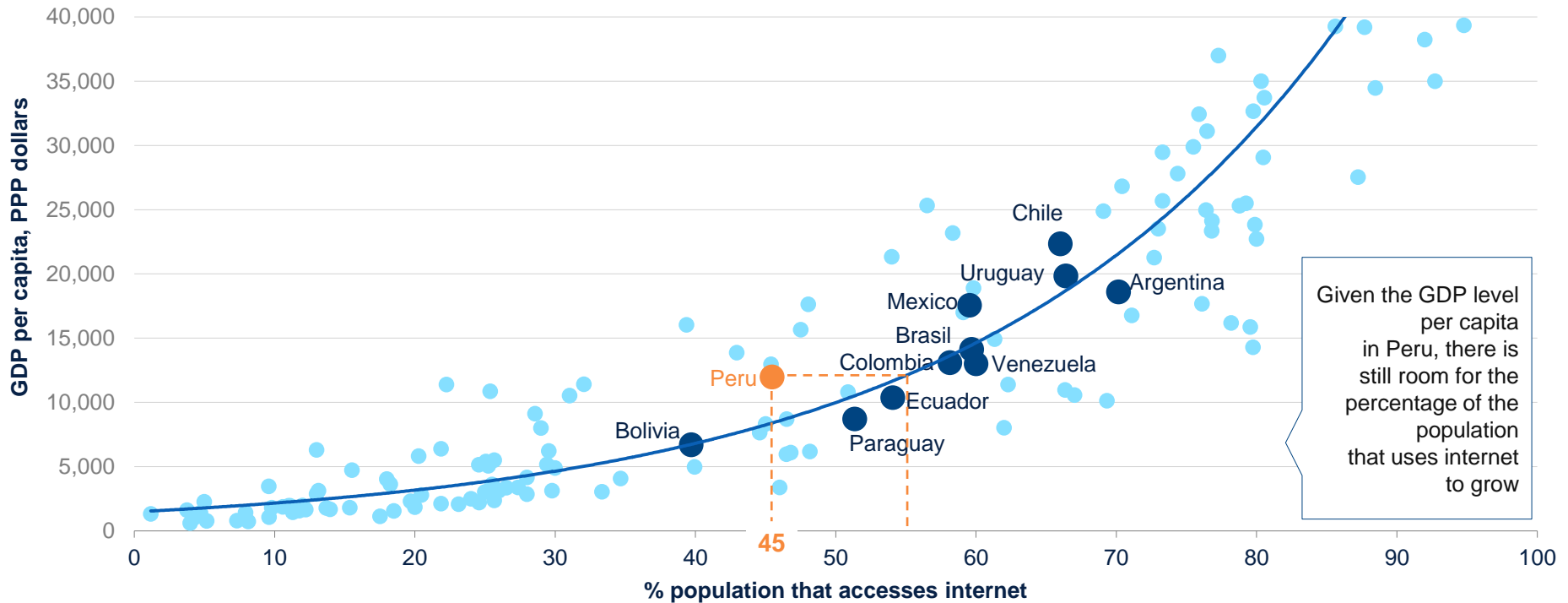
- ◆ Reduces search time
- ◆ Chance to find more job offers
- ◆ Reduces the time involved in contacting and sending personal information

Provides a greater volume of information at greater speed

Peru has low internet usage compared with other countries in the region

Internet users and GDP per capita

(% population and purchasing power parity in dollars)



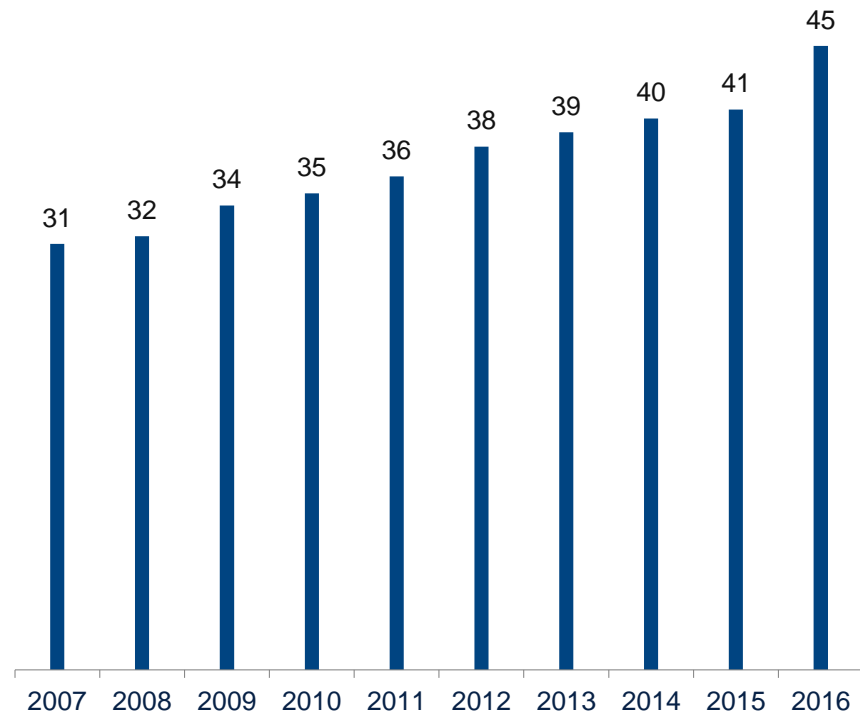
*Different measurements are used depending on the country. In some countries the ITU makes its own estimate, in others the official figure is taken, which is the case as regards Peru. Information for 2016.

Source: International Telecommunication Union (ITU) and International Monetary Fund

Despite improvements in recent years, only 45% of Peruvians use the internet

Internet users

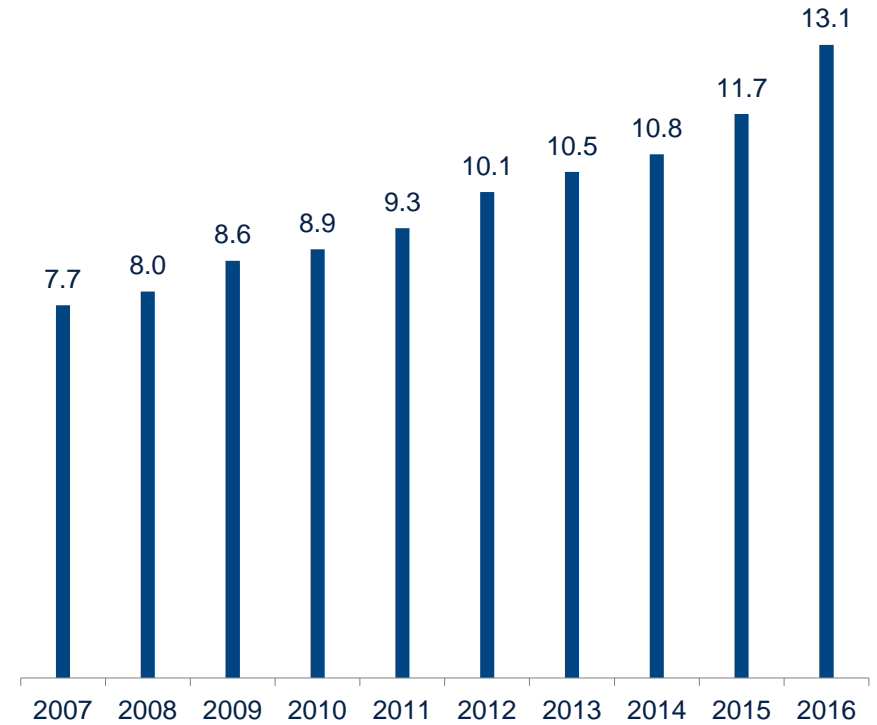
(% population 6 years old and over)



Source: National Household Survey - INEI

Internet users

(millions of people)

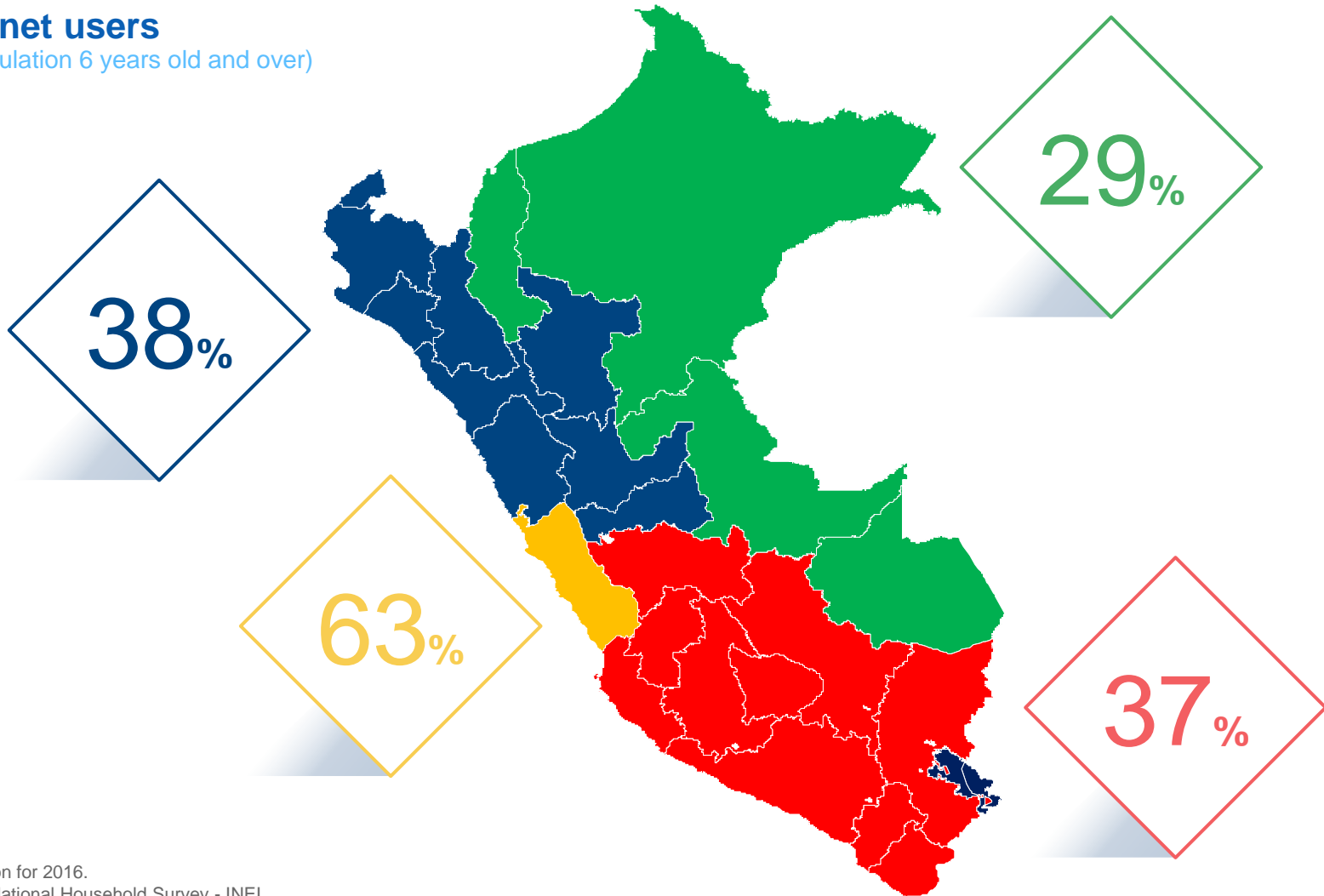


Source: National Household Survey - INEI

There are regional disparities in the use of the internet

Internet users

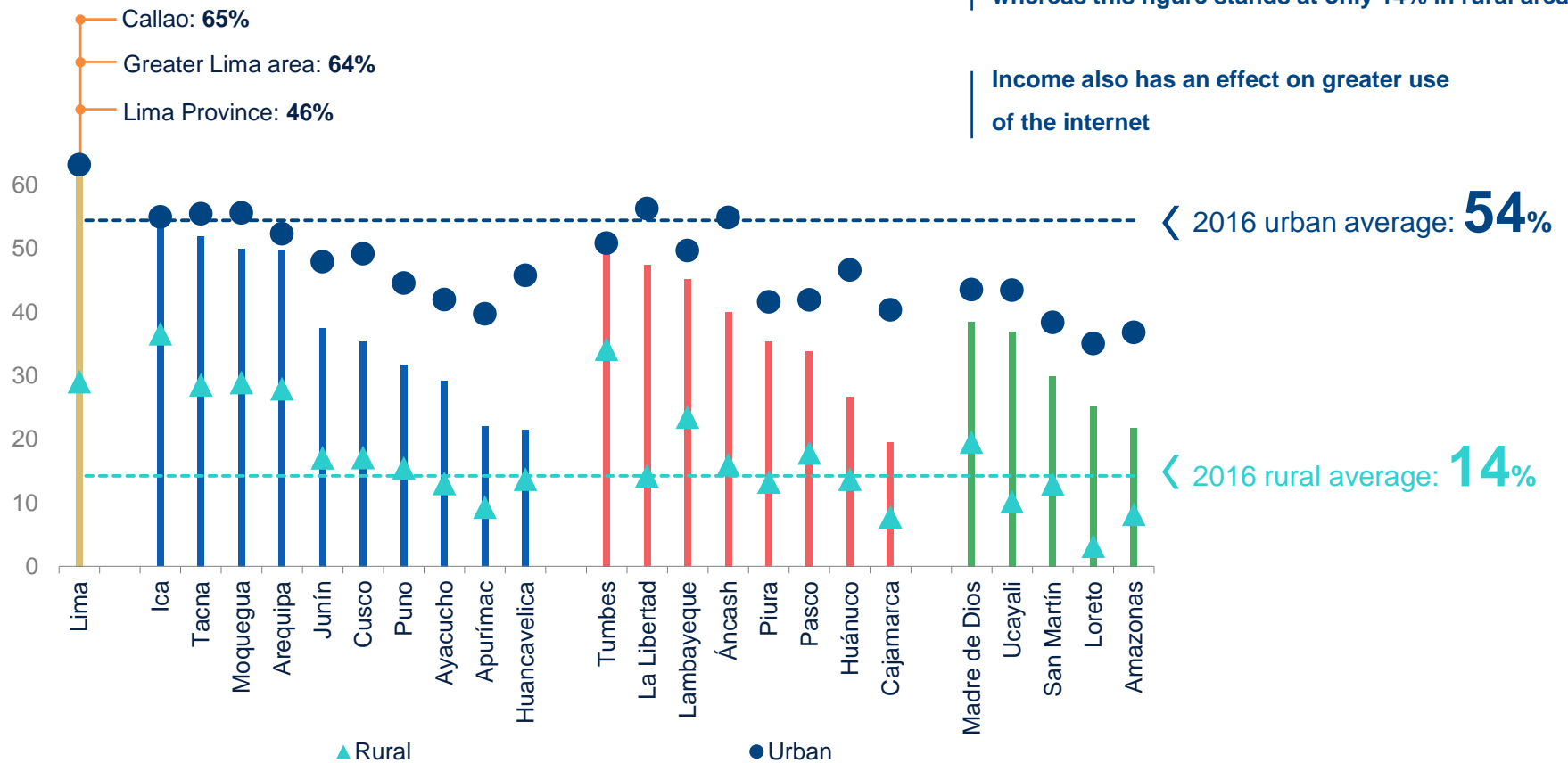
(% population 6 years old and over)



Over 63% of the population in the province of Lima use the internet, whereas in Cajamarca, Huancavelica and Amazonas this rate is around 20%

Internet users

(% population 6 years old and over)



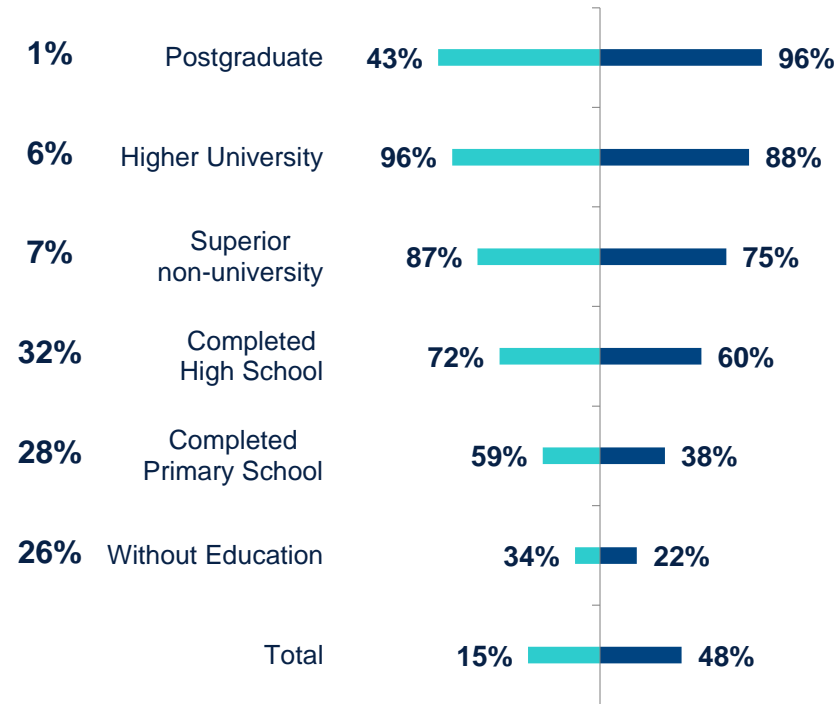
Information for 2016.
Source: National Household Survey - INEI

The use of the internet is linked to educational level and age. Young people and the more educated use the internet most

Internet users according to level of education

(% population 6 years old and over)

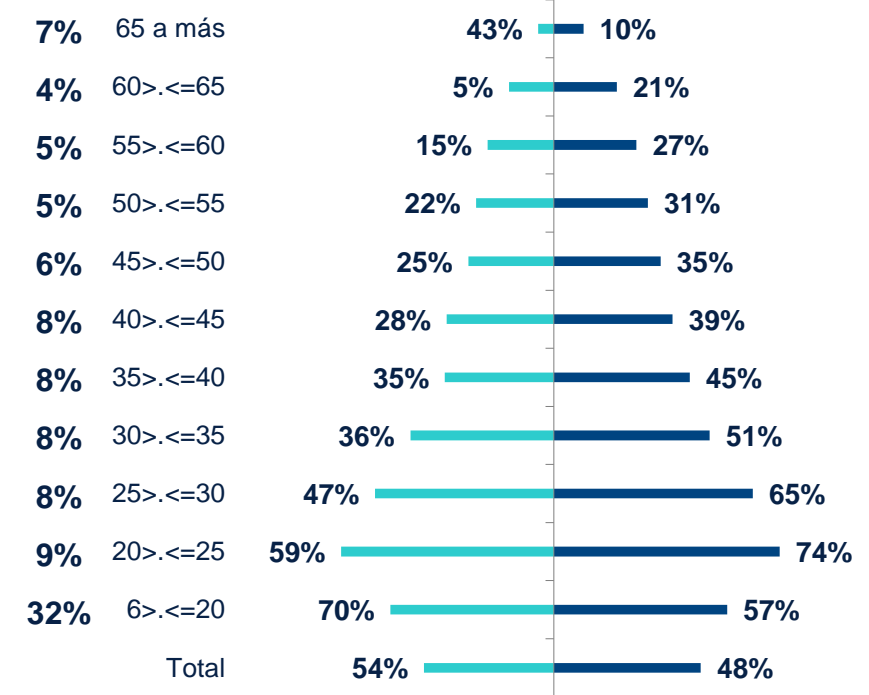
Population



Internet users by age

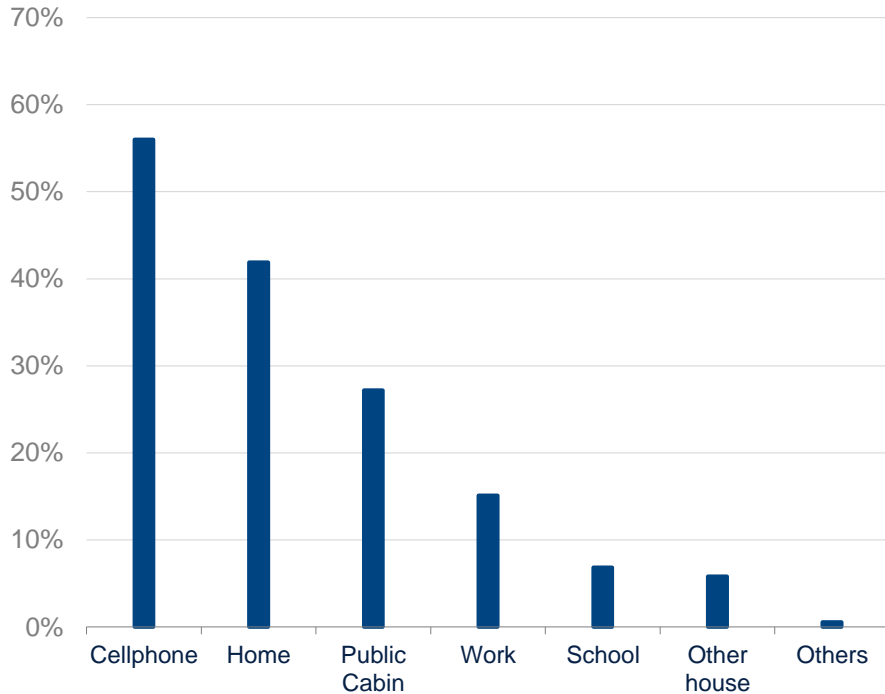
(% population 6 years old and over)

Population



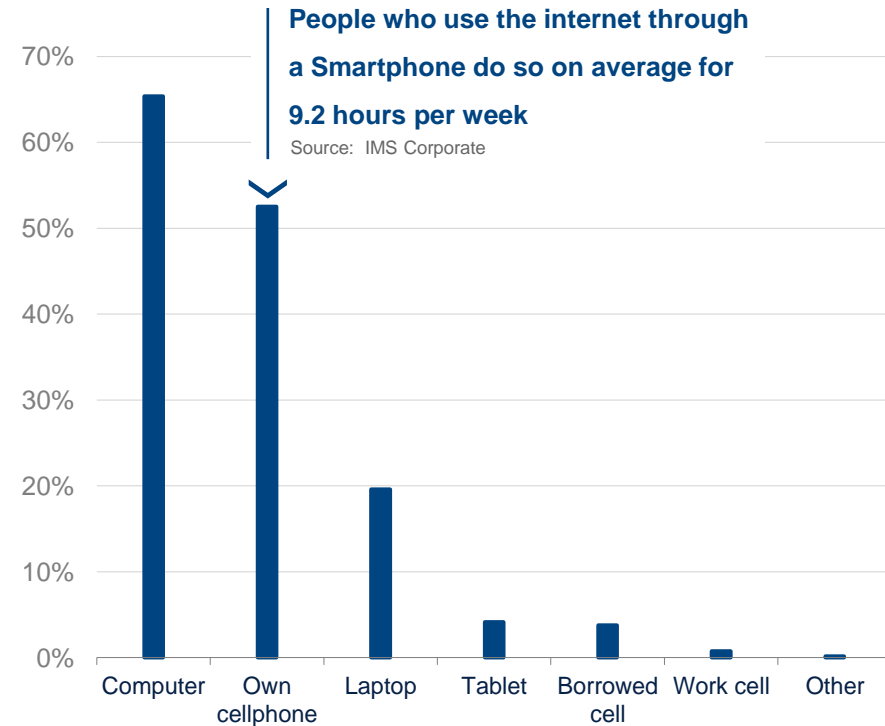
Internet is mainly used over the mobile phone. Use from the home PC comes in second place

Place where the internet was used*
(% of total number of users)



* Multiple option.
Information for 2016.
Source: National Household Survey - INEI

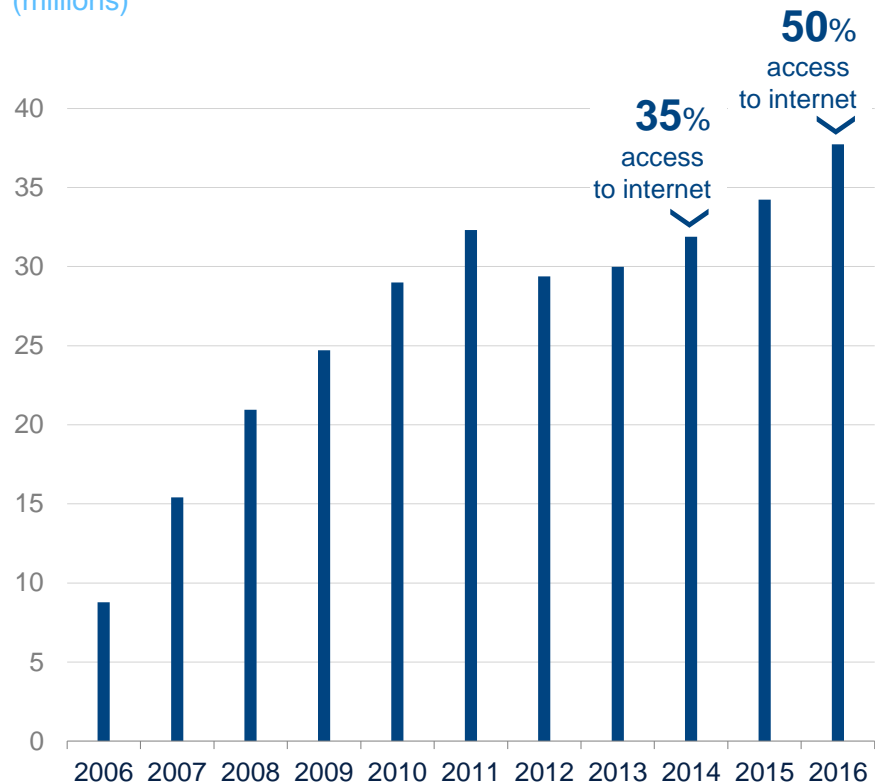
Device used to connect to the internet*
(% of total number of users)



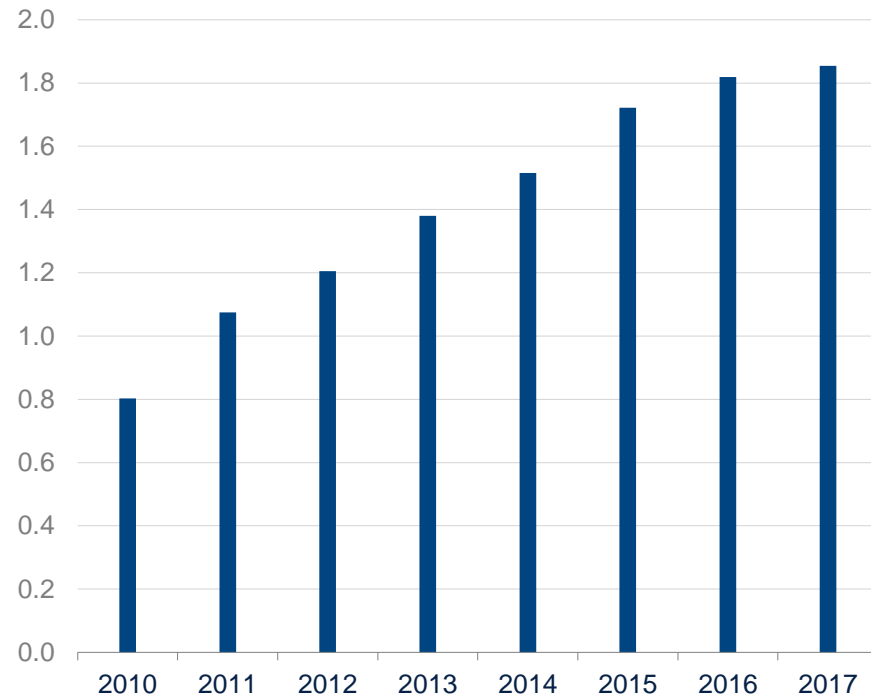
* Multiple option.
Information for 2016.
Source: National Household Survey - INEI

The foregoing is in line with the greater use of mobile telephones and the use of the internet on them. Fixed internet lines are also on the rise

Mobile phone lines
(millions)



Home fixed internet connections*
(millions)



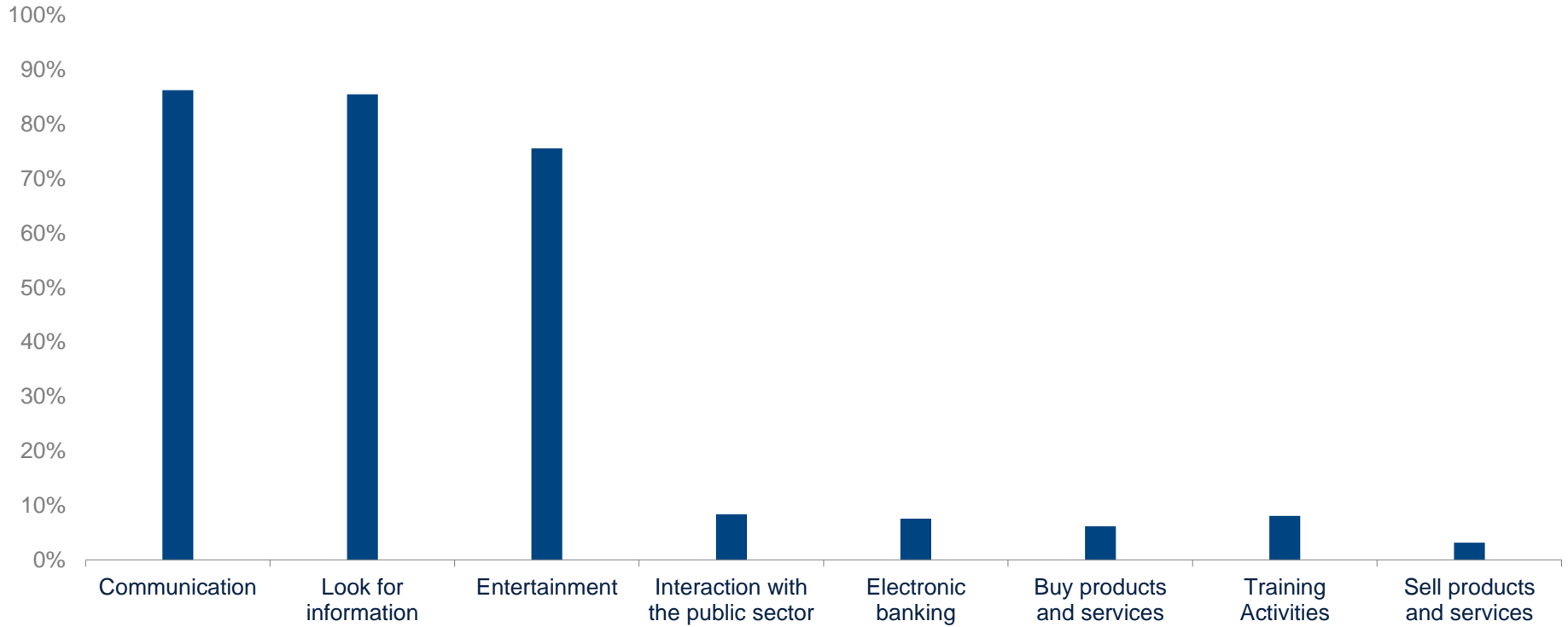
Source: Osiptel

* Does not include commercial use.
Source: Osiptel

The Internet is mainly used for communicating, obtaining information, and entertainment.

Activities carried out using the internet*

(% of total number of users)



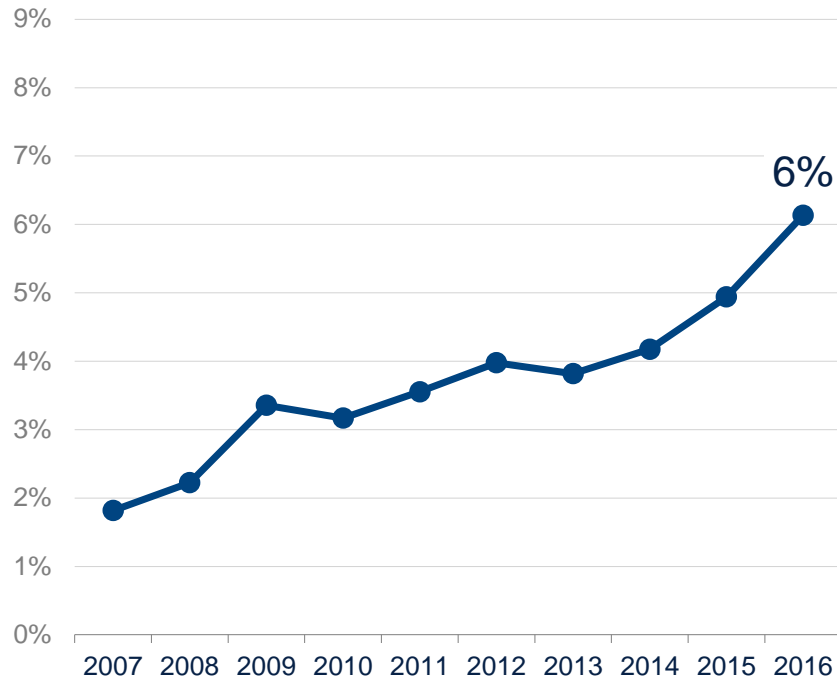
* Multiple option.
Information for 2016.

Source: National Household Survey - INEI

E-banking and the purchasing of products/services are less used but are becoming increasingly important

People that used e-banking

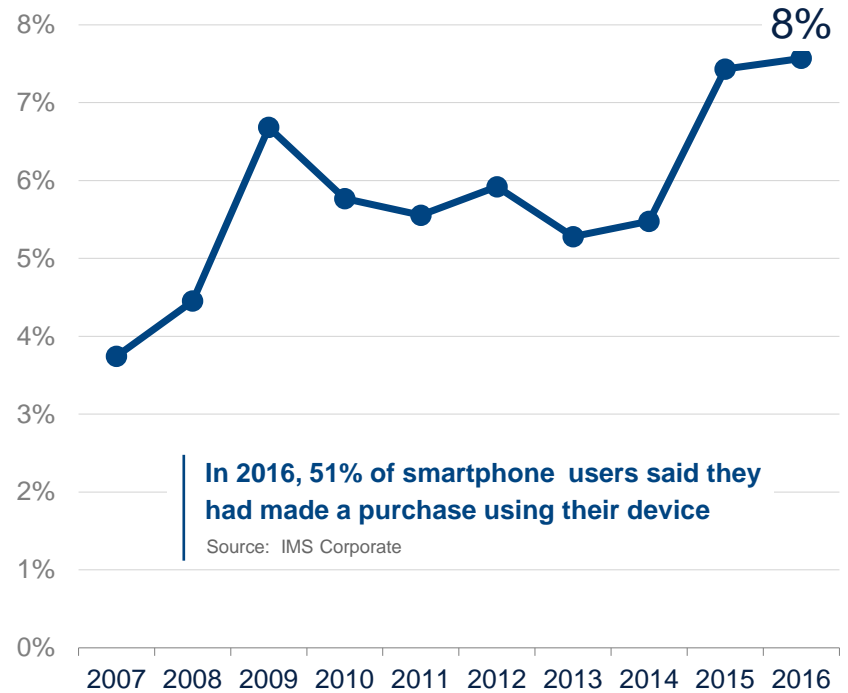
(% of the total of internet users)



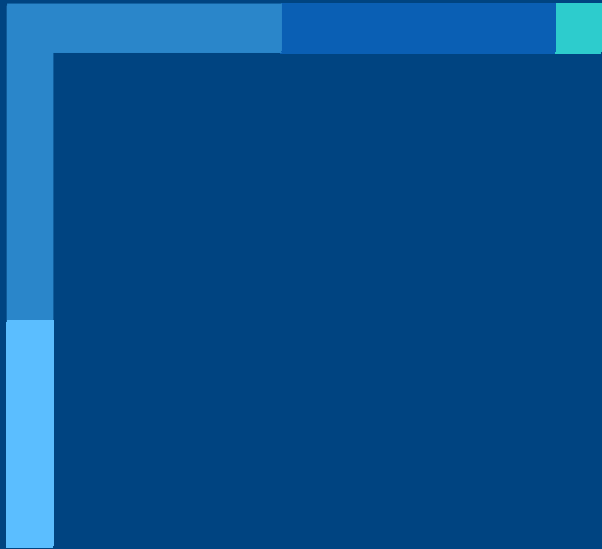
Source: National Household Survey - INEI

People that bought products and services

(% of the total of internet users)



Source: National Household Survey - INEI



2.b Companies

Digitised companies increase their efficiency

Transfer of information

- ◆ Digitised information is easier to transfer among company areas

Digitisation of the supply chain

- ◆ Improved competitiveness in the world market. Integrates external suppliers and makes it possible to see product quality in real time

Facilitates international trade

- ◆ Enables communication between companies from different countries

Ease of financing

- ◆ Digitised information takes less time to assess (it goes hand in hand with bank digitisation)

Digitised companies increase their efficiency

Marketing

- ◆ Digital campaigns and targeted marketing improve customer satisfaction and increase brand awareness, which has a positive impact on sales

Speed in marketing

- ◆ Process automation and digital strategy integration make it possible to bring products to market more quickly

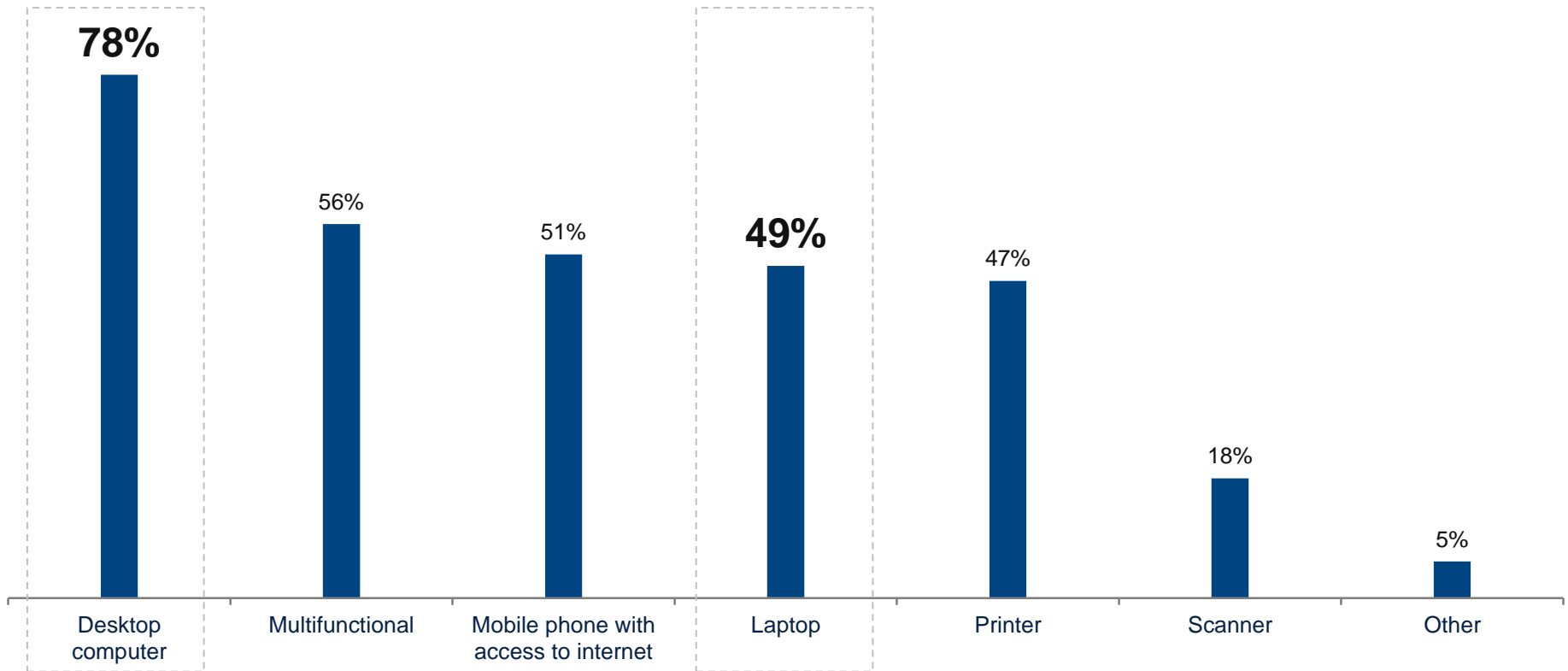
Encourages innovation

- ◆ Idea generation and accelerated development are enhanced by means of collaboration, interchange, remote meetings and conversations among employees

Nearly 85% of companies use a desktop PC or laptop

Availability of IT equipment in private companies

(% of formal private companies)¹



Multiple option.

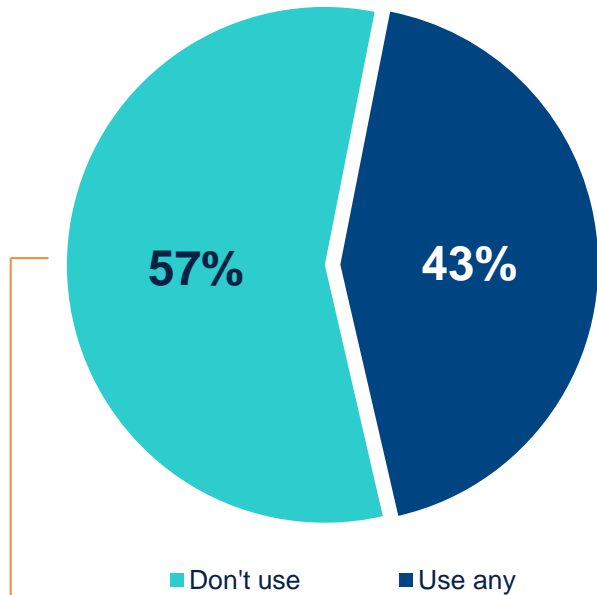
1. % of companies responding. 85% of companies responded. Information for 2014. Latest information available.

Source: INEI-Companies Survey 2015

Over 40% of private companies use an IT system (software). They are mainly used for accounting-tax purposes

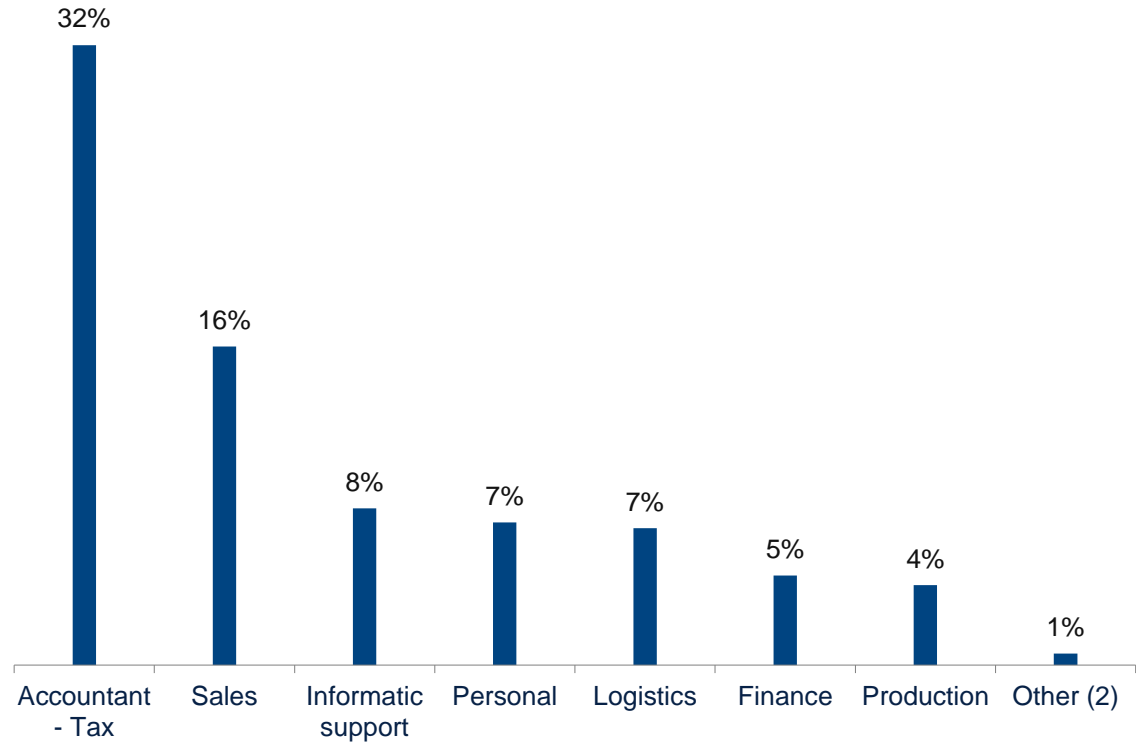
Use of a computerised management system (software)

(% of formal private companies)¹



Use none

- 72% of Microbusinesses*
- 34% of Small enterprises**
- 8% of Medium and large enterprises***



Multiple option.

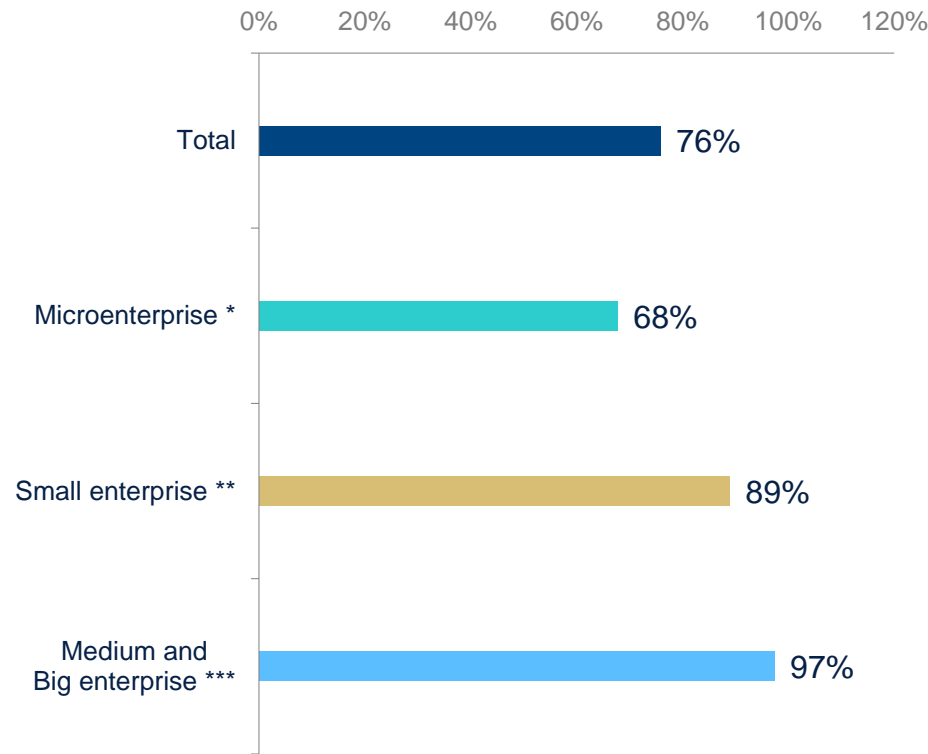
1. % of companies responding. 85% of companies responded.
 2. Other: Customs, maintenance, security, own software, others.
 Information for 2014. Latest information available.
 Source: INEI-Companies Survey 2015

* Sales under 150 Tax Unit Amounts (UIT): 570,000 new soles per year.
 ** Sales from 150 to 1,700 UIT: from 570,000 to 6,460,000 new soles per year.
 *** Sales over 1,700 UIT: 6,460,000 new soles.

76% of private companies use the internet. Nevertheless, only around one third of them have all their employees using it

Companies whose employees use the internet

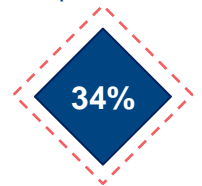
(% of formal private companies)



At most 25% of their employees use the internet
(% of companies that use it)



All their employees use the internet
(% of companies that use it)



* Sales under 150 Tax Unit Amounts (UIT): 570,000 new soles per year.
 ** Sales from 150 to 1,700 UIT: from 570,000 to 6,460,000 new soles per year.
 *** Sales over 1,700 UIT: 6,460,000 new soles.
 Information for 2014. Latest information available.
 Source: INEI-Companies Survey 2015

The main activities are communication, search for products/services and information and online banking

Use of the internet in private companies

(% of formal private companies that use the internet)



Multiple option.

* Sales under 150 Tax Unit Amounts (UIT): 570,000 new soles per year.

** Sales from 150 to 1,700 UIT: from 570,000 to 6,460,000 new soles per year.

*** Sales over 1,700 UIT: 6,460,000 new soles.

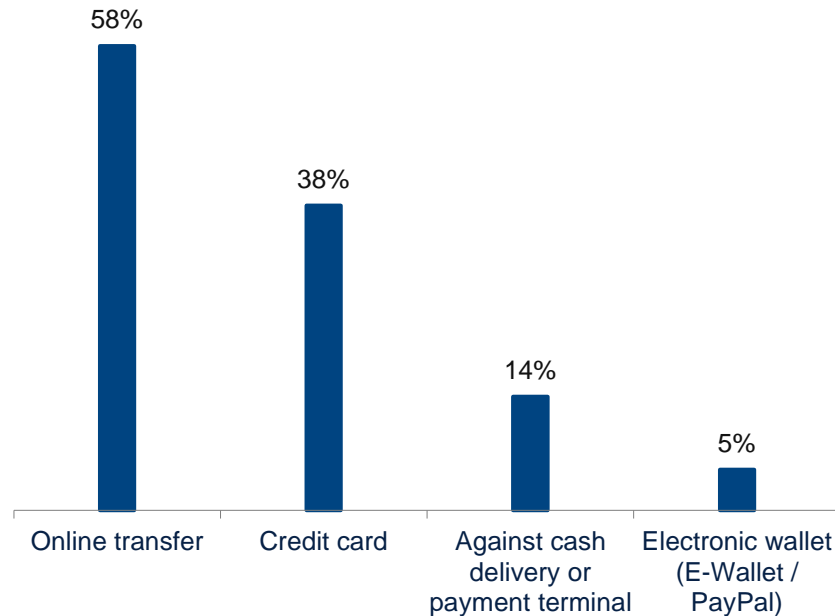
Information for 2014. Latest information available.

Source: INEI-Companies Survey 2015

Online transfers are the main method of payment for company purchases over the internet

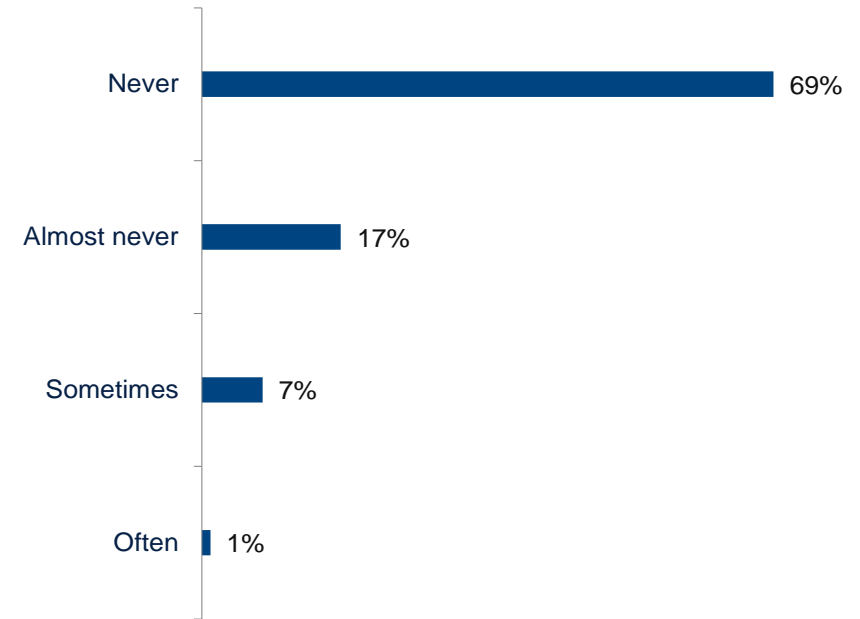
Methods of payment for purchases over the internet

(% formal private companies that purchase over the internet)



Multiple option.
Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015

Difficulties in purchasing over the internet



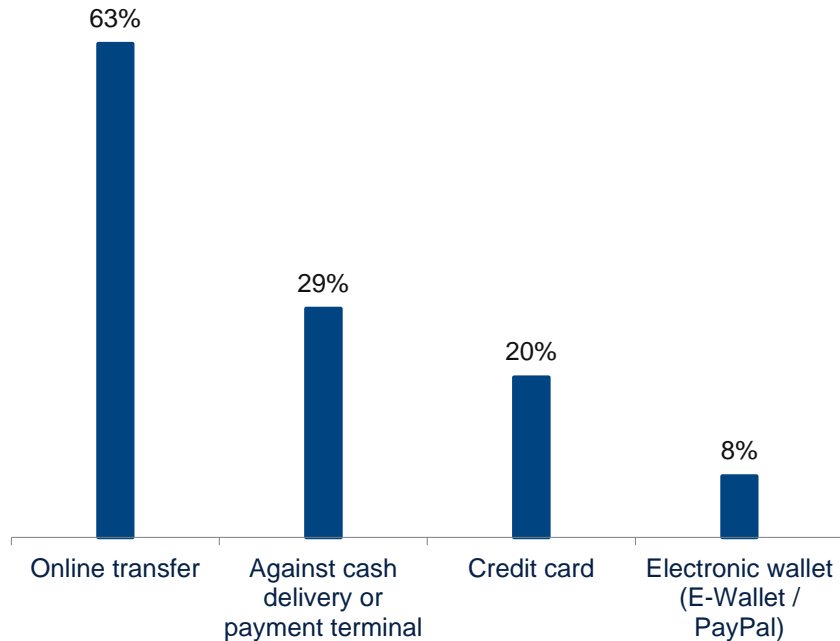
Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015

14% of formal private companies purchase over the internet

Purchasing over the internet does not present difficulties for companies

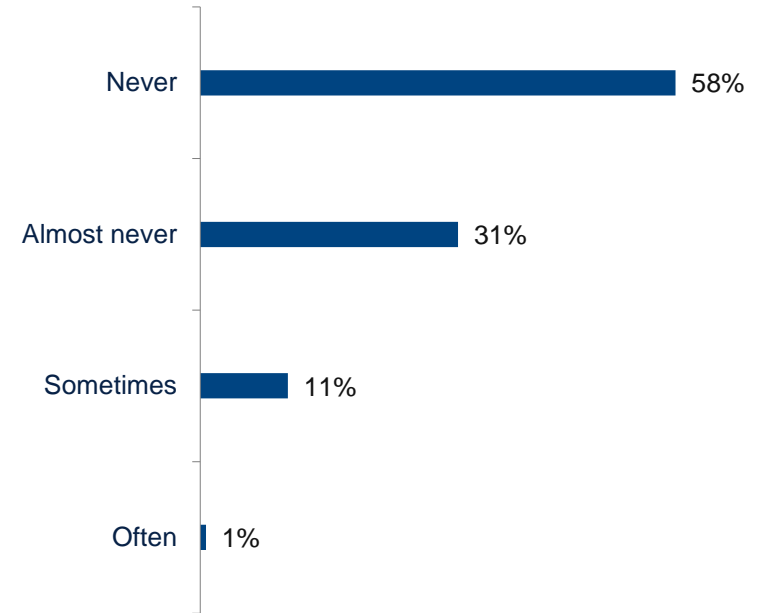
Online transfers are the main method of payment for company sales over the internet

Methods of payment for internet sales (% formal private companies that purchase over the internet)



Multiple option.
Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015

Difficulties in internet sales



Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015

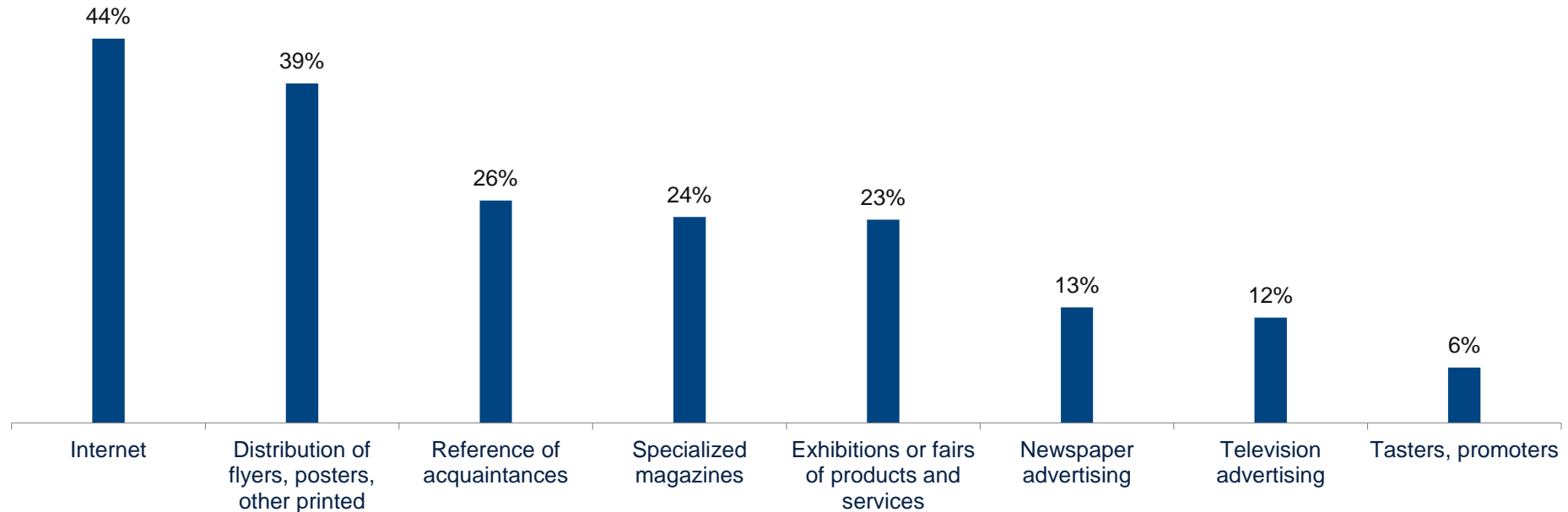
7% of formal private companies sell over the internet

Sales over the internet present no difficulties

44% of companies that advertise use the internet

Use of advertising media

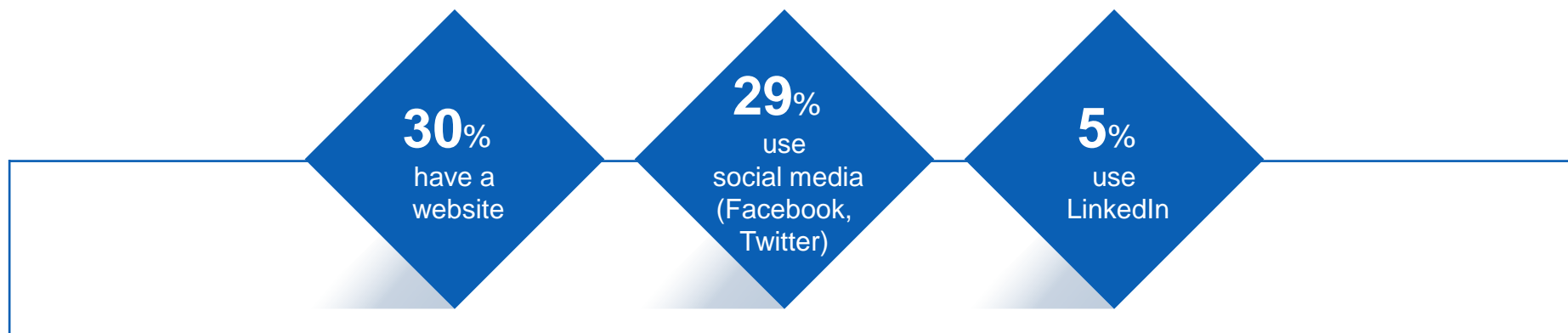
(% of formal private companies that advertise their business)



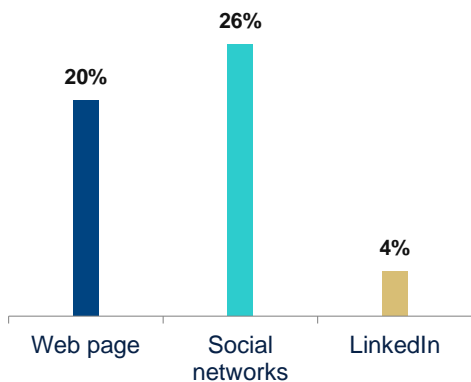
Multiple option.
 Information for 2014. Latest information available.
 Source: INEI-Companies Survey 2015

25% of formal private companies conduct sales promotion activities

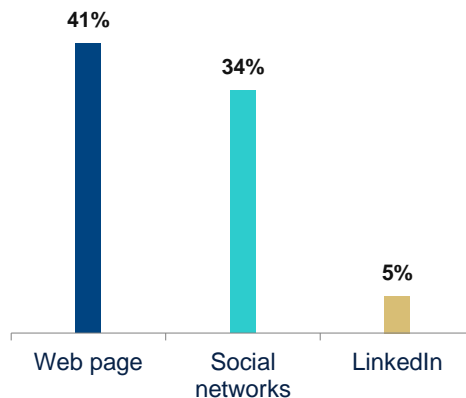
30% of private companies have a website and use social media



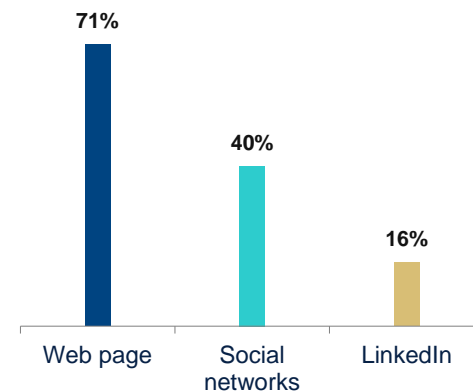
Microbusiness*



Small enterprise**



Medium and large enterprise***



* Sales under 150 Tax Unit Amounts (UIT): 570,000 new soles per year. Information for 2014. Latest information available. Source: INEI-Companies Survey 2015

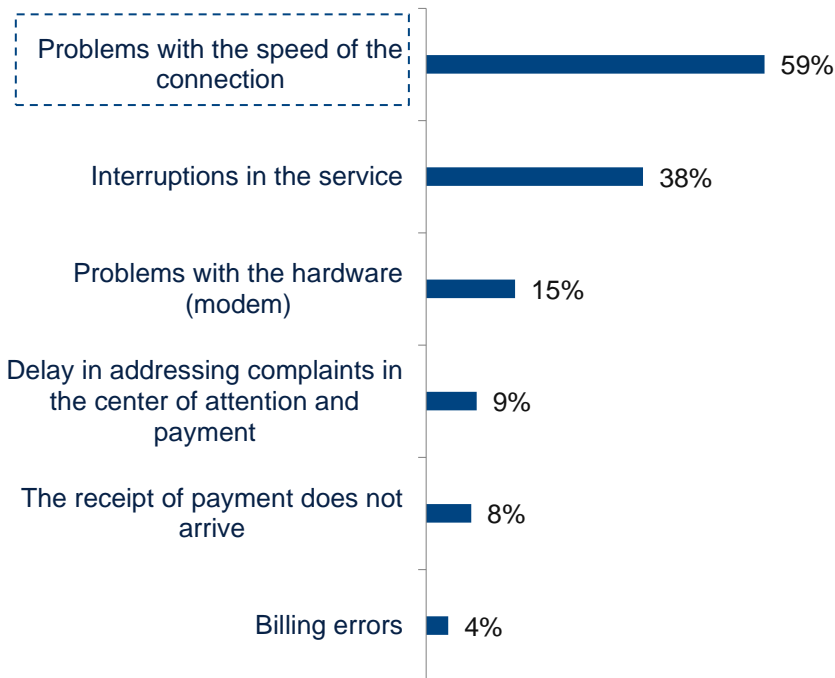
** Sales from 150 to 1,700 UIT: from 570,000 to 6,460,000 new soles per year.

*** Sales over 1,700 UIT: 6,460,000 new soles.

The main problem for companies that use the internet is the connection speed. While most companies that do not use the internet do not feel it is necessary

Problems detected when using the internet

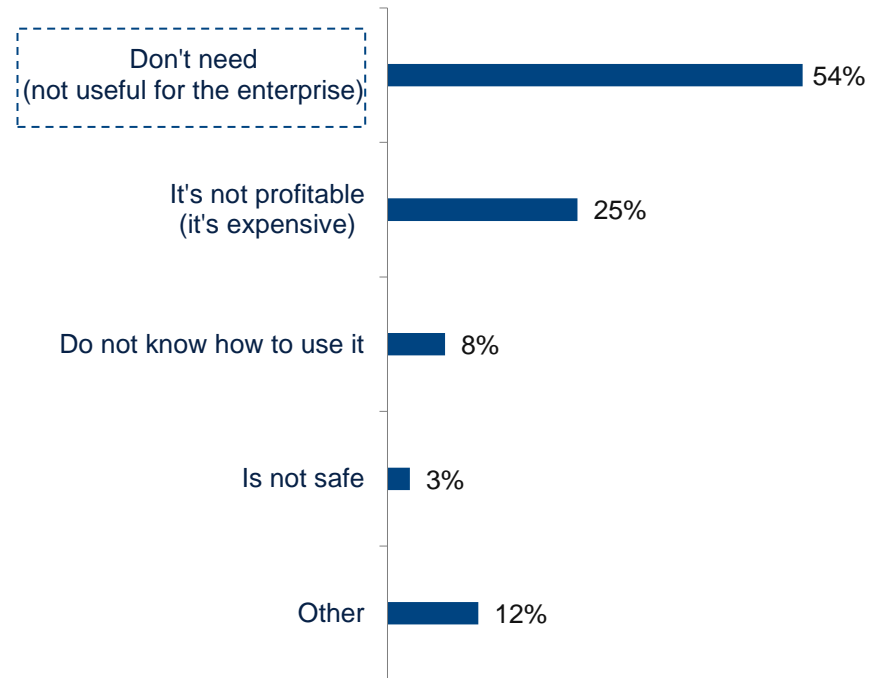
(% of private companies)



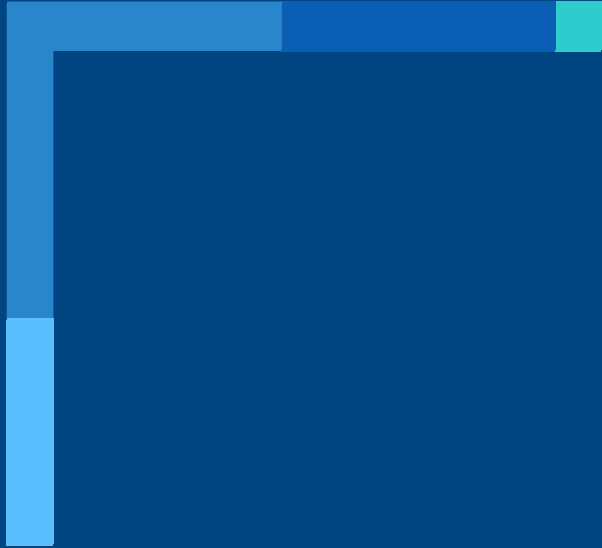
Multiple option.
Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015

Reasons why they do not use the internet

(private companies)

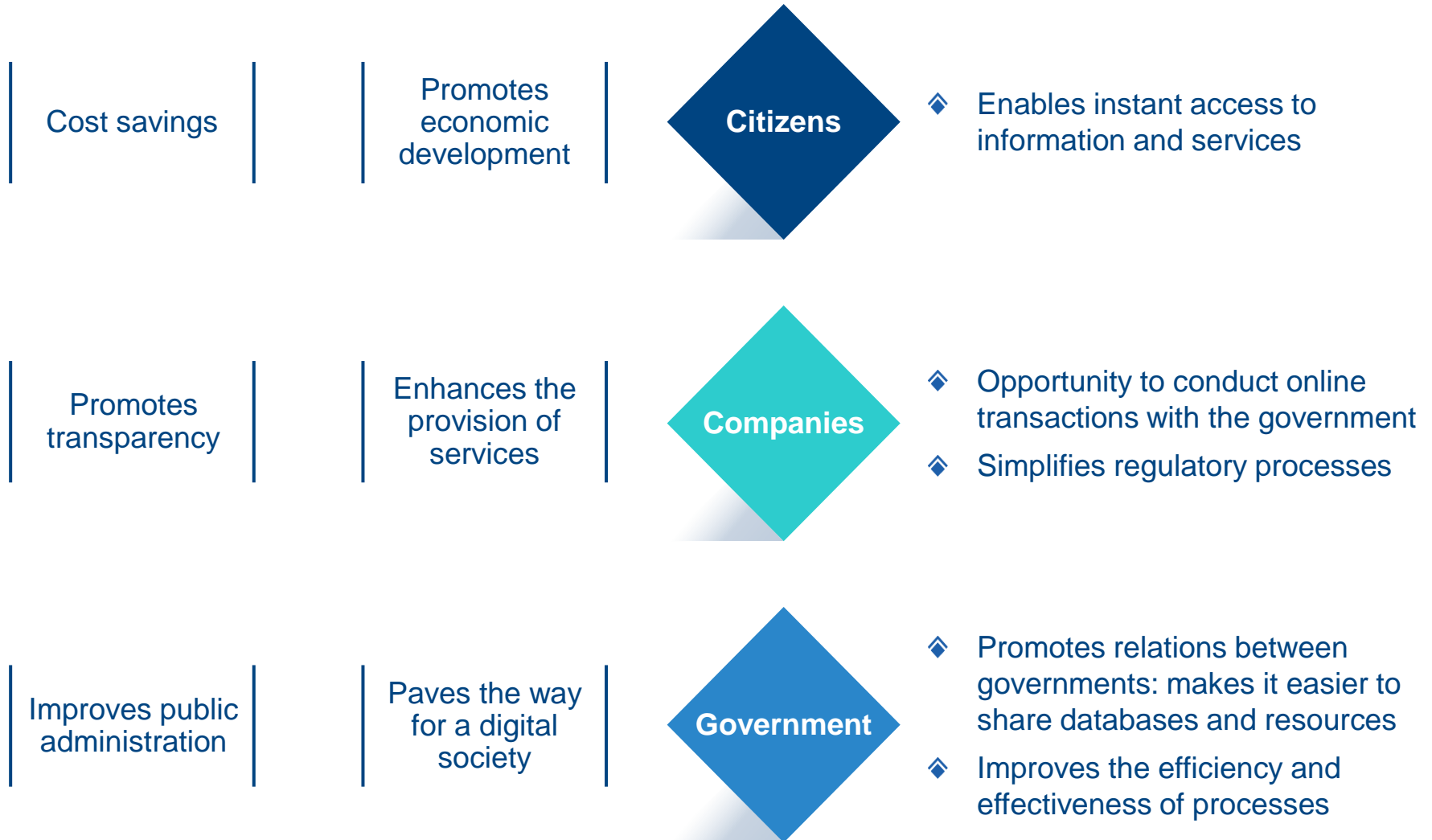


Multiple option.
Information for 2014. Latest information available.
Source: INEI-Companies Survey 2015



2.c Government

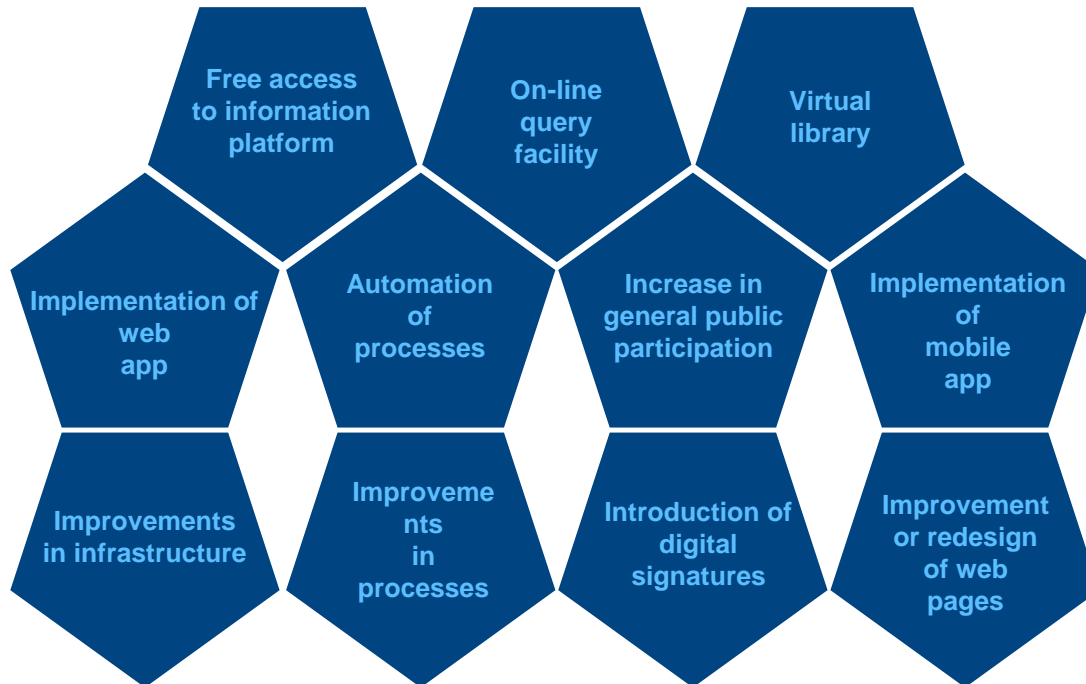
The development of electronic government increases efficiency and benefits citizens



There has been progress in government digitisation in Peru over recent years

The E-Government Secretariat (SeGDi) is the body in charge of formulating and putting forward national and sector policies, national plans, standards, guidelines and strategies in e-government and IT matters

Achievements in E-Government



59 web services

87 Mobile apps available that have been developed by public institutions

213 public institutions use the State's Interoperability Platform*

28 Institutions provide information on the Platform

* Enables access to general public identification, civil status, legal and criminal records, educational certificates, among others.

Source: E-Government Secretariat

Nevertheless, the online services provided by the government and their perceived benefits still lag its peers

Index Ranking for Online Government Service

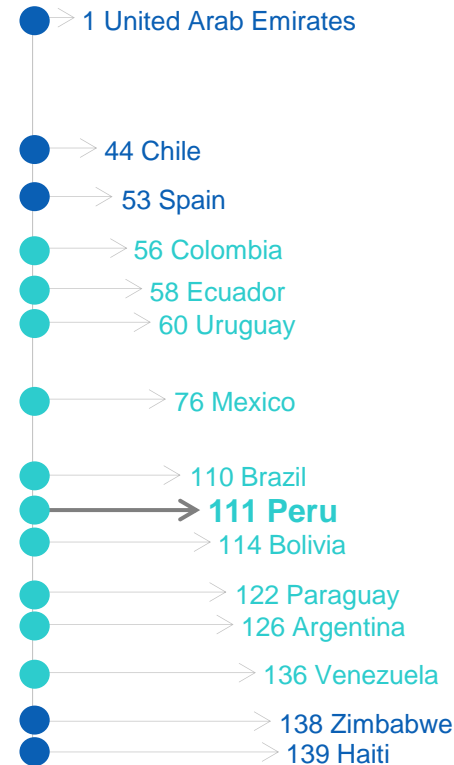
(total of 193 countries)



An assessment is made to see if the average user is able to find information and functions quickly and intuitively

Impact of the use of ICT on government efficiency*

(total of 139 economies)



The following aspects are considered: speed in delivery time, error reduction, implementation of new online services, increase in transparency, among others

Ranking drafted on the basis of the Online Service Index. The national portal of each country in its mother tongue is assessed. The national portal and government department websites are included.

Source: United Nations, E-Government Survey 2016

* The ranking is based on: How does the use of ICT by a country's government affect the quality of its services for its citizens? [1 = no improvement; 7 = there have been considerable improvements].

Source: World Economic Forum 2016

3. Service provision

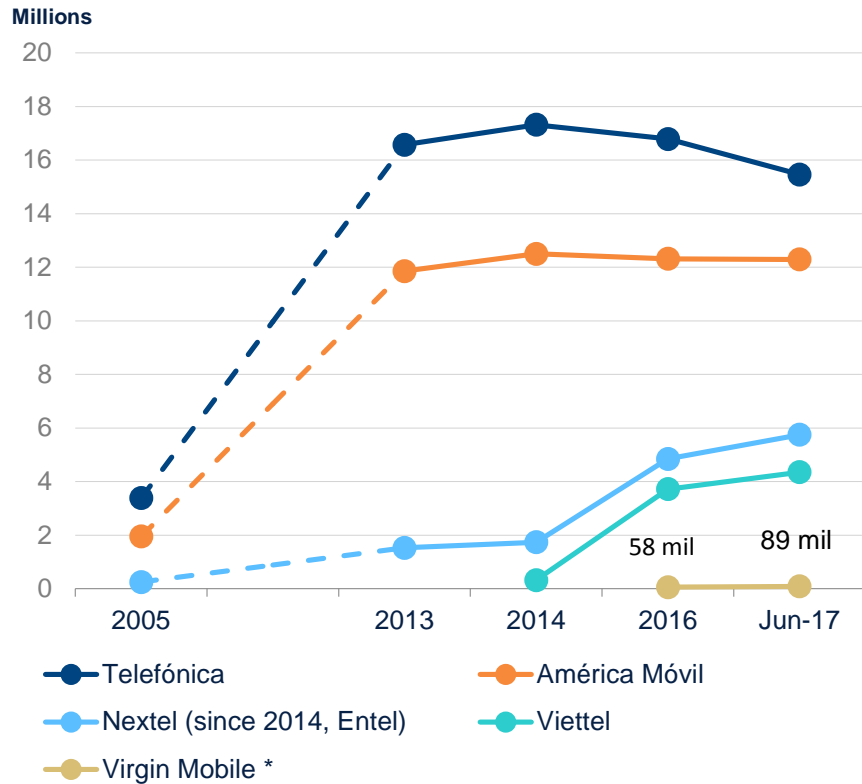




3.a Companies that provide connectivity services

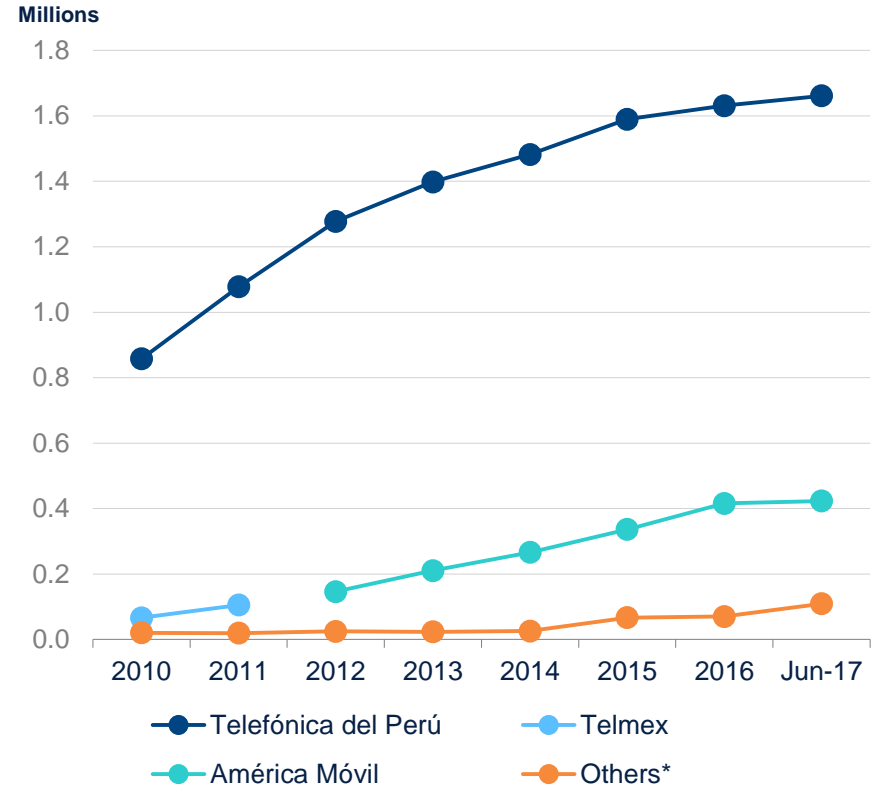
In recent years, the concentration of companies offering internet services has fallen

Mobile telephony operator companies (number of lines)



* Virgin Mobile announced that it was leaving the Peruvian market in September 2017. It was sold to Inkacel (another virtual mobile operator).
Source: Supervisory body for private investments in telecommunications (OSIPTEL)

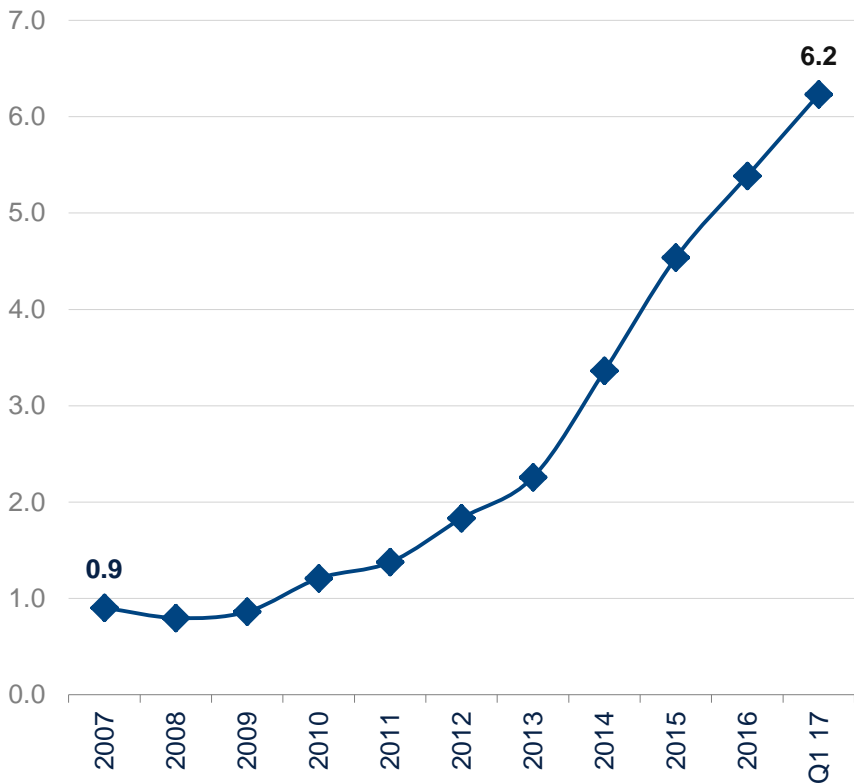
Fixed internet operator companies (number of connections)



* There are over 30 operators in Others, including: Star Global Com, Americatel, Olo and Entel.
Source: Supervisory body for private investments in telecommunications (OSIPTEL)

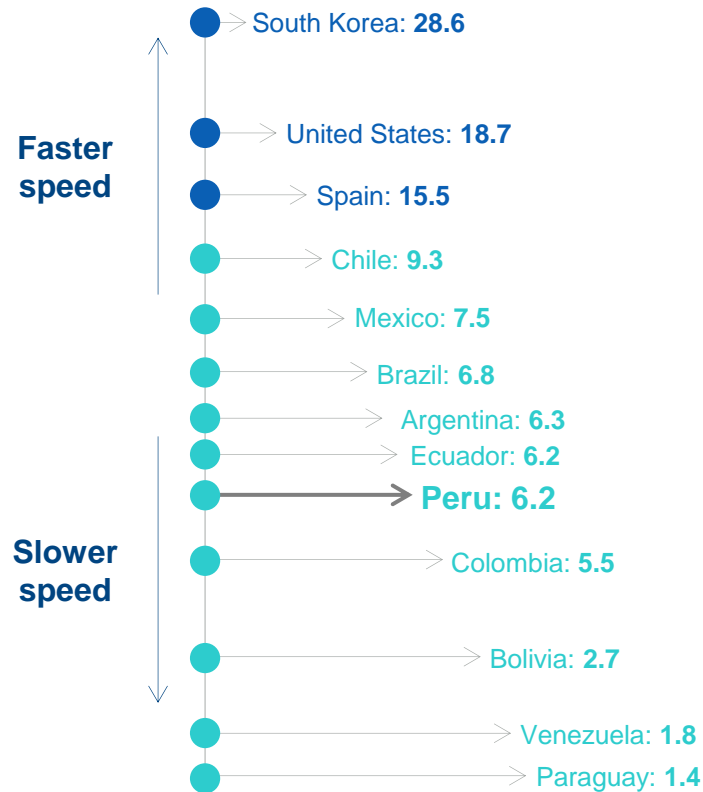
Despite the fact that the average internet speed has improved considerably over the last 5 years, it is still low

Peru: Average internet connection speed
(Mbps)



Source: Akamai

Average internet connection speed
(Mbps)



Information for the first quarters of 2017.
Source: Akamai

The development of apps is a essential to boosting the use of the internet

Though internationally developed apps can be easily used, the increase of Peruvian apps that meet local needs could encourage more people to sign up to digitisation

In Peru, a smartphone has an average of **17.4 apps installed**

Source: IMS Corporate, "Mobile in Latam Study 2016"

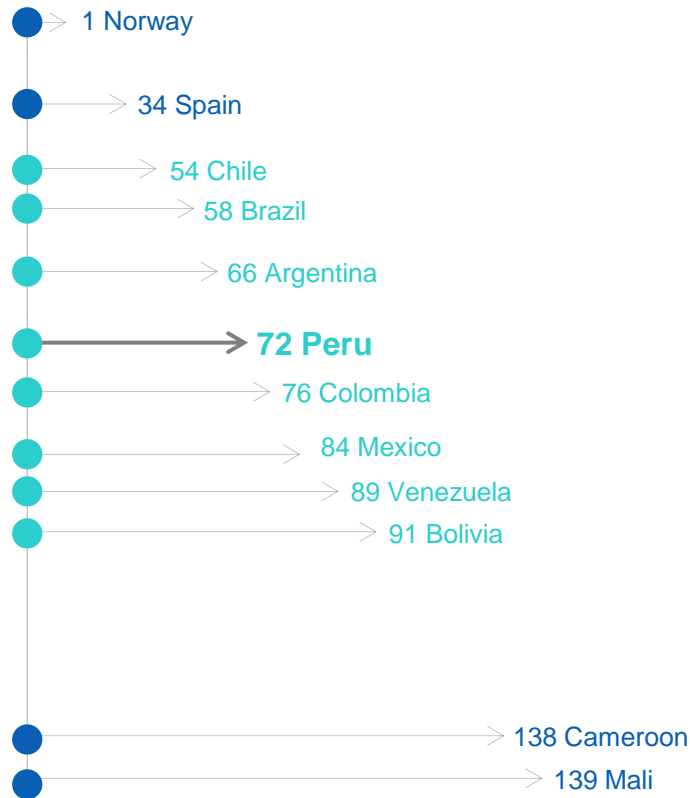




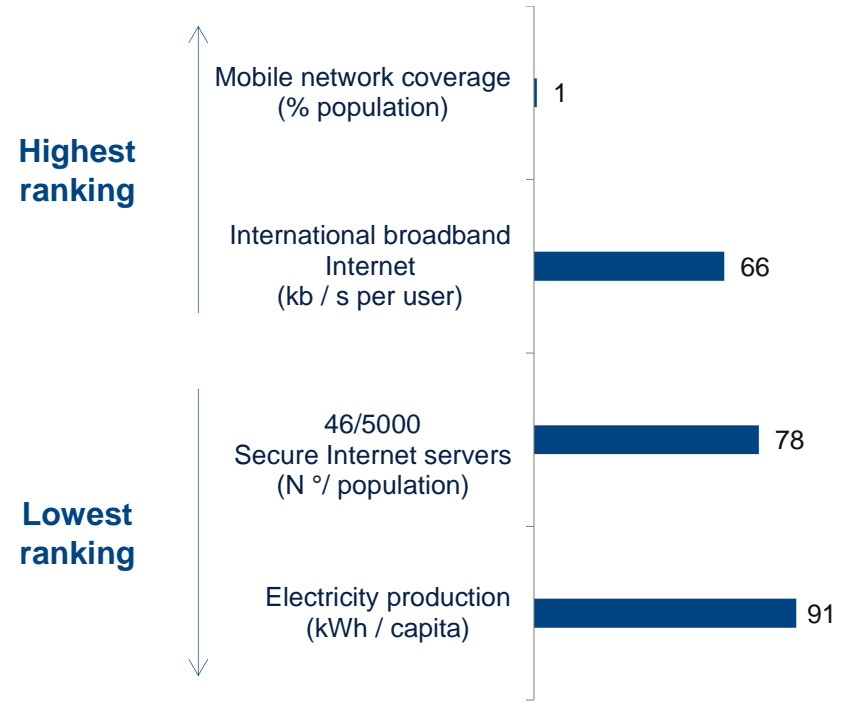
3.b Infrastructure

Peru is ranked in mid-table as regards IT infrastructure

IT Infrastructure Ranking* (ranking)



Components (ranking)



The ranking takes the following into account: electricity production, mobile network coverage rate, international bandwidth for internet and secure internet servers.

Progress has been made: greater extension of fibre optic is contributing to better quality internet coverage

National Fibre Optic Backbone Network Coverage (RDNFO)

Serves **180** provincial capitals

19% of districts have at least one fibre optic node



- Amazon Integration – TdP
- Amazon Integration – Fitel
- National FO Backbone Network

Source: Ministry of Transport and Communications – March 2017

Deployed fibre optic (km)

Company	Length
Viettel	20,958
TVAzteca (RDNFO)*	13,571
América Móvil	10,193
Telefónica	7,168
Others*	9,583
Total	61,473

*Includes: Americatel, Fiberlux, Intermexa, Level 3, Moche, Netline, Optical, OLO, Winner and World's TV.

With information from Osiptel 2016.

Source: Apoyo Consultoría

Regional projects to extend broadband services

8 projects in progress

13 projects pending implementation

11.7 thousand km of FO

18.4 thousand km of FO

575 district capitals connected with FO

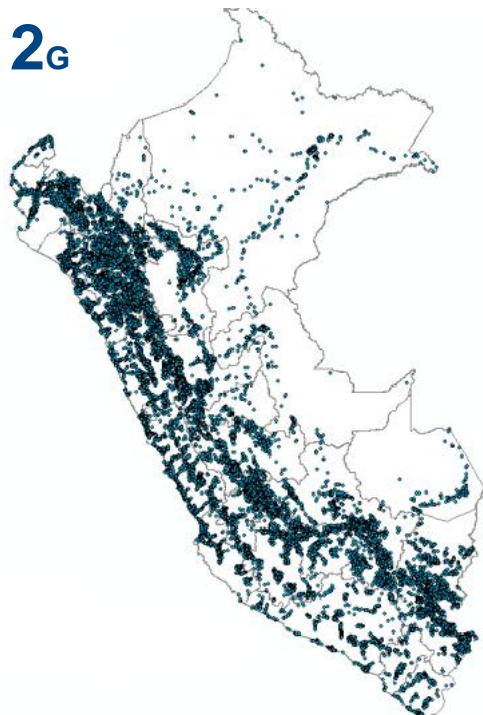
575 district capitals connected with FO

Source: Ministry of Transport and Communications – March 2017

Nevertheless, there is still room to expand 3G and 4G mobile internet coverage

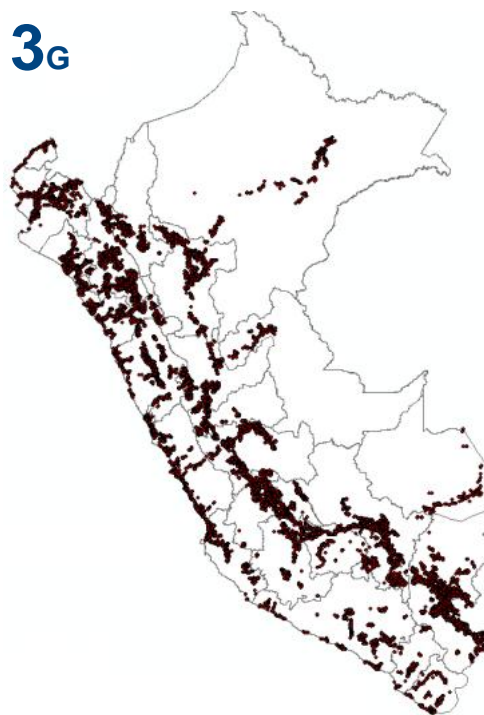
Mobile coverage of at least 1 operator

2_G



Digital technology that transfers data and sends text messages

3_G



Technology that enables internet navigation. Can reach up to 20Mbps

4_G



Improvement in 3G version speed, call sound quality, among others

4. Regulation and promotion

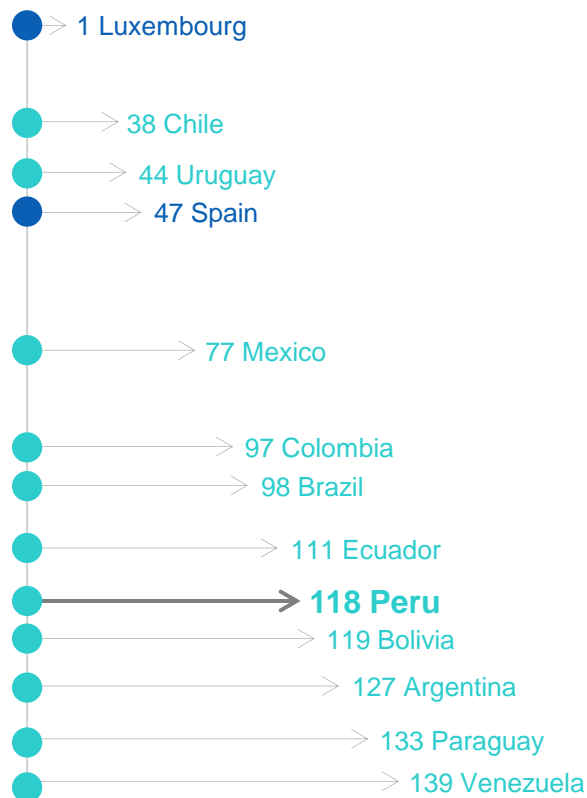




4.a Regulation

ICT development in Peru is not well perceived

Political and regulatory environment to develop ICT (ranking)



Components (ranking)

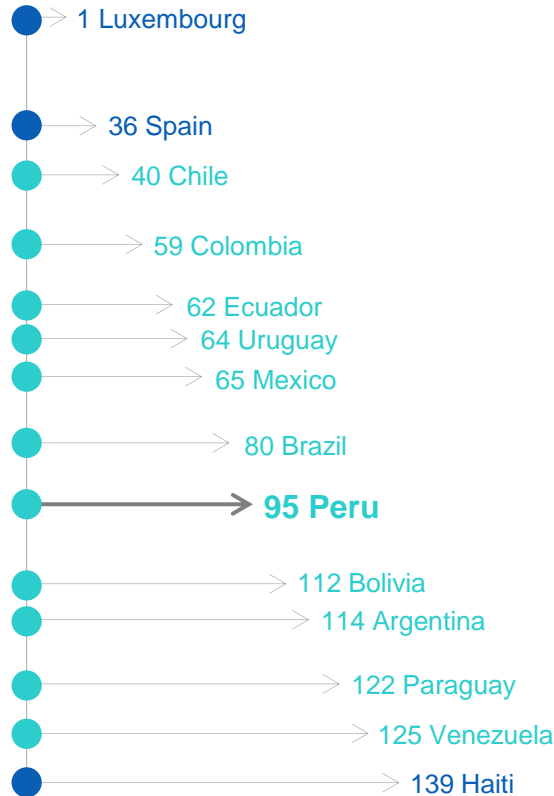
Highest ranking

Lowest ranking



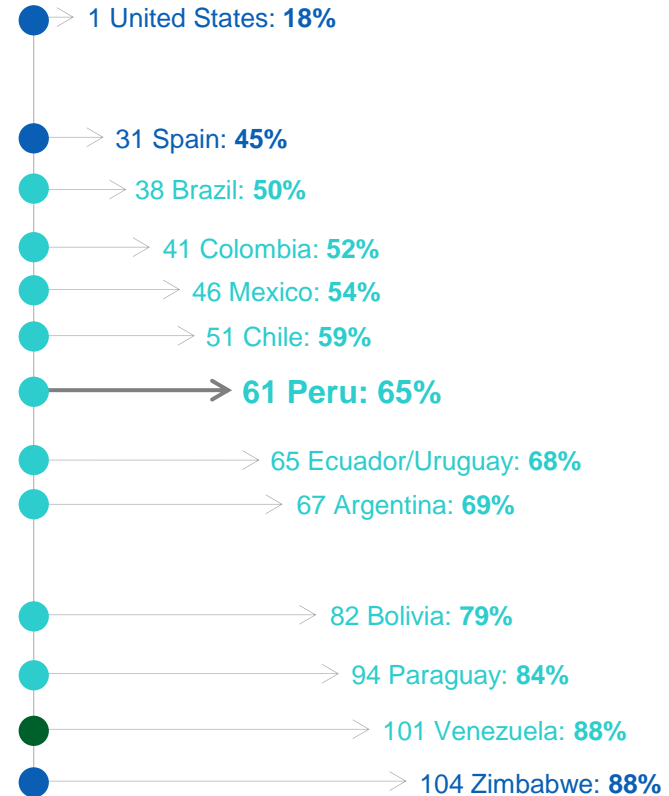
In a context in which it is considered that ICT laws are inefficient and the level of piracy high

ICT related laws (ranking)



Source: World Economic Forum 2016

Software piracy level (ranking) % installed software)



Source: World Economic Forum 2016



4.b Promotion of digitisation

Some efforts can be seen to promote digitisation in the public sector

1

E- government

2

Support to improve
infrastructure

3

Administrative simplification
in labour compliance

4

Digital Kit for Microbusinesses

- ◆ Employers can use digitisation technologies to replace physical documents and signatures

For:

- Contracts
- Payments

- ◆ Ministry of Production Platform
- ◆ Provides:
 - Digital tools for e-commerce
 - Courses and tutorials
 - List of businesses in the country

Some efforts can also be seen in the private sector to help to improve connectivity



Mobile wallet

- ◆ Union of 34 financial institutions to build a shared platform to increase financial inclusion nationwide
- ◆ Use of e-money
- ◆ Enables the sending and receiving of money through mobile phone text messages

Microsoft

- ◆ For elections: helped the ONPE with the information cloud to improve the allocation of polling stations where to vote in elections

Telefónica: D Challenge

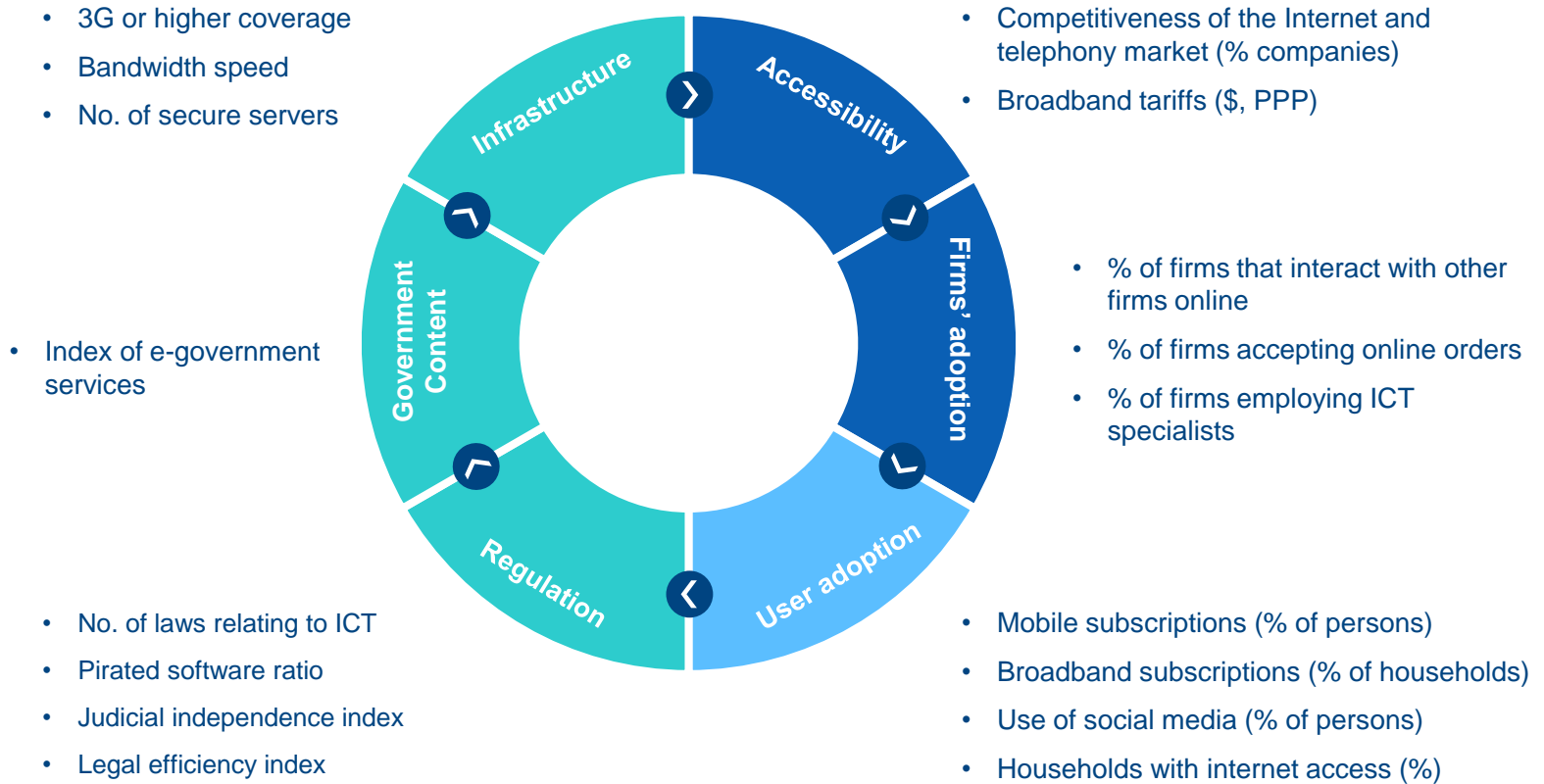
- ◆ Search for digital solution proposals in four areas: water and drainage, public safety, corruption and disaster prevention
- ◆ Public competition for citizens and companies

5. Annexes



Composition of the DiGiX 2017 Digitisation Index

DiGiX is structured on six main dimensions: infrastructure, home adoption, business adoption, costs, regulation and content. Each dimension is in turn divided into a series of individual indicators



Peru

Advances in digitisation

November 2017

