

State of play on digitization in Romania- presentation

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Florentina ENACHE and Corneliu CONSTANTINOAIA
CNSLR-Fratia ROMANIA

Some Data about Romania

- * The current population of **Romania** is **19,264,179** based on the latest United Nations estimates.
- * Romania population is equivalent to **0.26%** of the total world population.
- * Romania ranks number **59** in the list of countries by population.
- * The population density in Romania is 84 per Km² .
- * The total land area is 230,080 Km²
- * **61.3** % of the population is **urban** (11,785,372 people in 2017)
- * The **median age** in Romania is **42.5 years**.

MAIN ECONOMIC SECTORS

- *Wholesale and retails
- *Cement and construction
- *Transport and storage
- *Automobile industry
- *Food and consumer durables industry
- *Tourism
- *Metallurgical industry
- *Information and communication
- *Textiles industry
- *Wood manufacturing and furniture industry
- *Telecommunications
- *Petrochemicals industry
- *Aircraft industry

INFORMATION TECHNOLOGY

- * Romania is one of the fastest-growing information technology (IT) markets in Central and Eastern Europe.
- * The country has made significant progress in all of the information and communications technology ([ICT](#)) subsectors, including basic telephony, [mobile](#) telephony, the Internet and IT.
- * The country's telecoms sector has been deregulated, expanded and modernised over the past 15 years.

INFORMATION TECHNOLOGY

Some data

- Romania *is the leader in Europe, and sixth in the world, in terms of the number of certified IT specialists*, with density rates per 1,000 inhabitants greater than in the US or Russia. There are about **64,000 specialists in the IT sector**.
- Approximately 5,000 of the 30,000 engineers graduating every year in Romania are trained in ICT.

INFORMATION TECHNOLOGY

- The IT market is one of the most dynamic sectors of the Romanian economy. Since the year 1994 the IT market has demonstrated growth rates of 40–60 percent a year.
- The biggest sector in terms of revenue is **system and network integration**, which accounts for 28,3% of the total market revenues. Meanwhile, the fastest growing segment of the IT market is offshore programming
- Currently **Romania controls 5 percent of the offshore software development market** and is **the third leading country (after India and China) among software exporters**.
- Such growth of software outsourcing in Romania is caused by a number of factors

FACTORS' GROWTH OF SOFTWARE OUTSOURCING

- * The supporting role of the [Romanian Government](#). The Government has launched a program promoting construction of IT-oriented technology parks – special zones that have an established infrastructure and enjoy a favorable tax and customs regime
- * The presence of global technology corporations such as [Intel](#), [Motorola](#), [Oracle](#), [Sun Microsystems](#), [Boeing](#), [Nokia](#) and others, which have intensified their [software development](#) activities and opened their [R&D](#) centers in Romania.

INFORMATION TECHNOLOGY

- * Romania's main competitive advantage in software development consists of its **highly qualified, cost-effective human resources**.
- * Currently, about 25,000 software professionals work in the industry and almost 1/5 of them are involved in software export activities.
- * Romania ranks the **6th in the world by number of certified professionals** and has been awarded a bronze certificate in the category of "Most Certified Nation (Overall)" during the first annual Bench Games 2005 ("2005 Bench Games Report", Brainbench).
- * A top IT company – Oracle- is committed to encourage our country to take advantage of its potential: **"Oracle aims to help push Romania into becoming the Silicon Valley of Central and Eastern Europe."**

INTERNET USERS

- * In Romania, **68% of people aged between 16 and 64 years (10.3 million persons)** use the Internet, shows the latest data of the Romanian Audit Bureau Transmedia (BRAT).
- * The largest rate of Internet users is **young people aged between 14 and 21 years: 34% urban and 25% rural environment.**
- * At the same time, **59% of rural Internet users** access the Internet **from their mobile phone.** In **urban areas**, the percentage is **45%.**
- * The user profile is balanced to 50% men, 50% women (population structure is 48% of men and 52% of women).

Romania in DESI 2017

- * The European Commission published the 2017 edition of the **Digital Economy and Society Index (DESI)**:
- * -Romania ranks **28th in DESI 2017**
- * -Urban areas are covered by **high-speed broadband connections**.
- * Romania **ranks second in the EU** as regards the proportion of subscriptions
- * **The digitization rate of the economy, including public services, and the level of digital skills remain low.**

The Economy and Digital Index

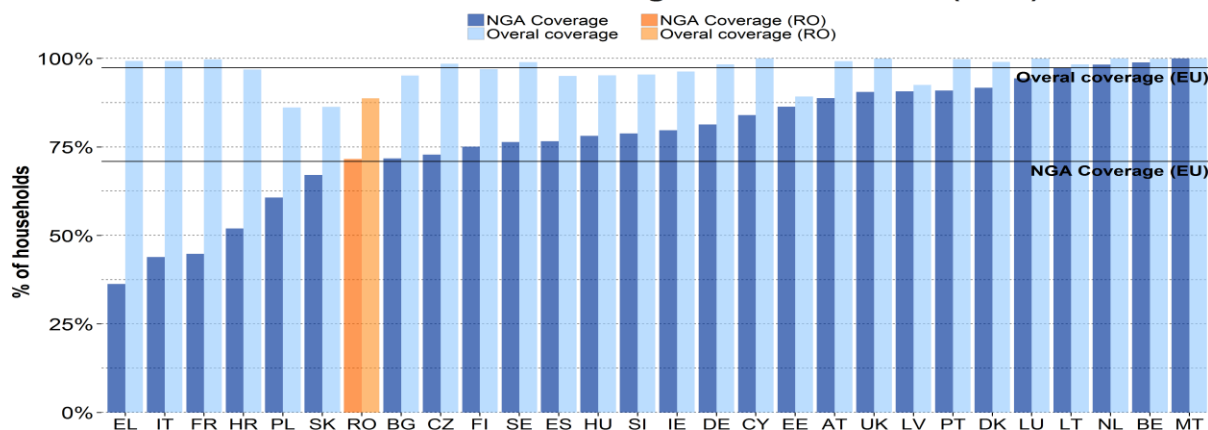
The Economy and Digital Society Index is a composite index that measures the progress of the digital domain according to **five elements**:

1. ***Connectivity*** - fixed broadband, mobile broadband speed and price of broadband
2. ***Human capital*** - using the Internet, digital literacy basic and advanced ones
3. ***Using the Internet*** - using the content by citizens, communication and online transactions
4. ***Integration of digital technology*** - digitizing enterprise and electronic commerce
5. ***Digital public services*** - e -government

Connectivity: Fixed Broadband Coverage

In Romania, fixed broadband is available to 89% of households (97% in the EU).
NGA connections are available to 72% of Romanian households (71% of European households).

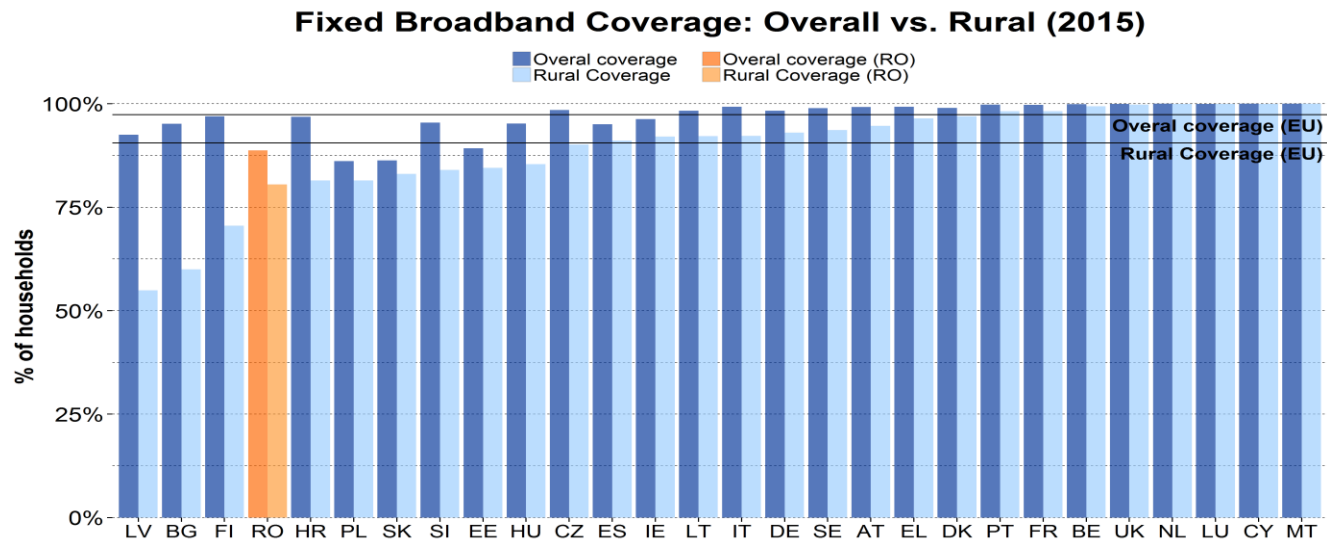
Fixed Broadband Coverage: Overall vs. NGA (2015)



Source: Broadband coverage in Europe, studies for the EC by IHS and Valdani, Vicari & Associati (SMART 2013/0054)

Connectivity: Rural Fixed Broadband Coverage

In Romania fixed broadband connections are available to 81% of households in rural areas (91% of European households in rural areas).

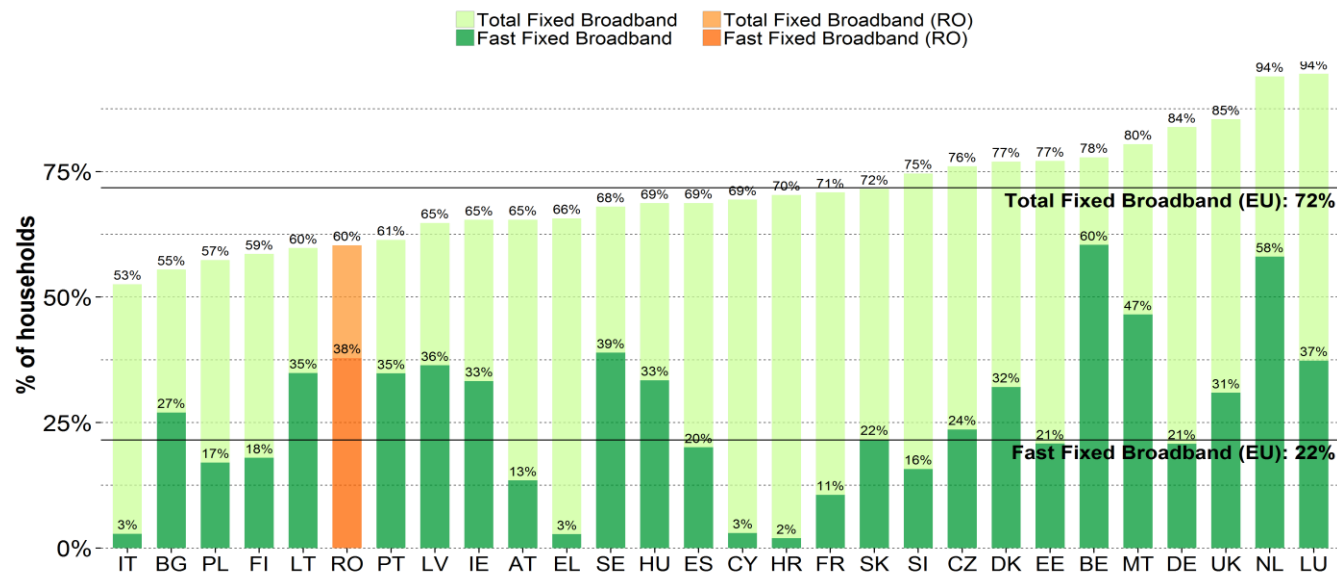


Source: Broadband coverage in Europe, studies for the EC by IHS and Valdani, Vicari & Associati (SMART 2013/0054)

Connectivity: Fixed Broadband Take-up

60% of Romanian households subscribe to fixed broadband (72% in the EU), and 63% of those subscriptions are to a fast* connection (38% of Romanian households).
30% of EU broadband subscriptions are to a fast* connection (22% of EU households).

Fixed Broadband Take-up: Overall vs. Fast Broadband (2015)



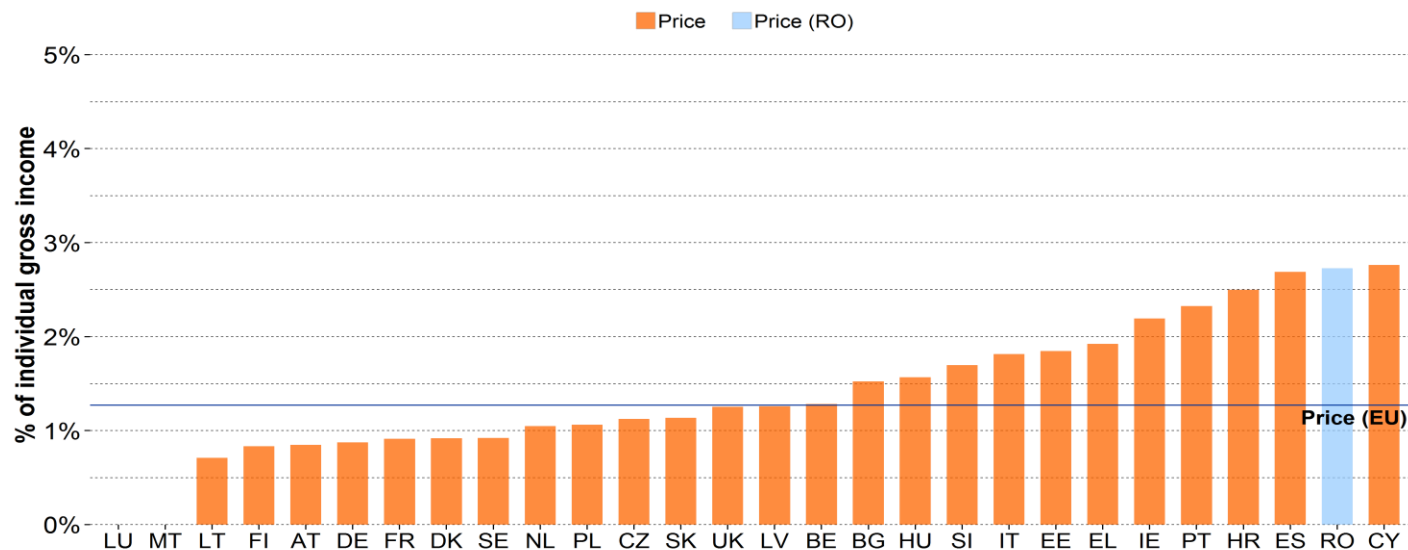
Source: Eurostat and Electronic communications market indicators collected by Commission services, through National Regulatory Authorities, for the Communications Committee (COCOM)

* A broadband connection is considered to be a fast connection when it allows for download speeds above 30 Mbps

Connectivity: Fixed Broadband Price

In Romania the cheapest fixed (internet only) broadband connection allowing for speeds of 12-30Mbps costs 2.7% of the average individual income (overall in the EU it costs 1.3%).

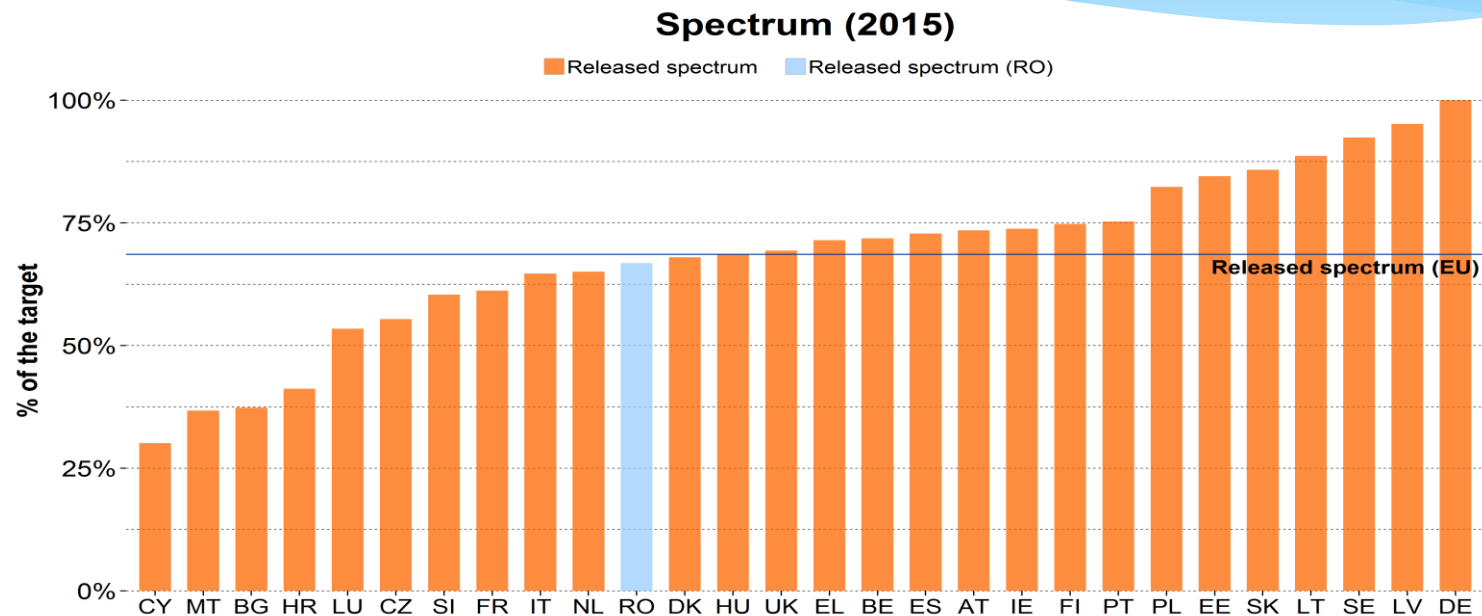
Fixed Broadband Price (2015) (cheapest standalone 12-30 Mbps connection)



Sources: (access cost) Broadband Internet Access Cost (BIAC), annual studies for the EC realised by Van Dijk; (income) real adjusted gross disposable income of households per capita (Eurostat: tec00113);

Connectivity: Spectrum

Romania has reached 67% of the EU goal for spectrum to be harmonised for use in mobile Broadband.
In the EU as a whole 69% of the goal has been reached.



Source: European Commission Services

Connectivity

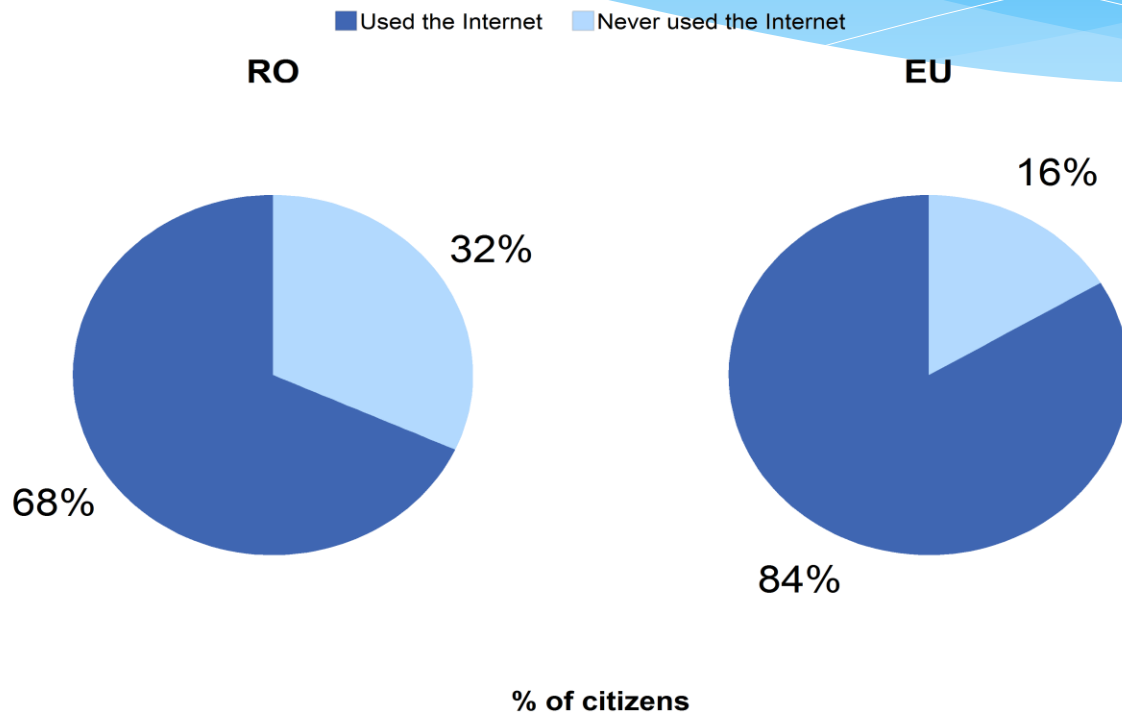
Romanian characteristics

Romania has one of the highest proportions of high speed broadband subscriptions in the EU, and more and more people are using broadband mobile services. Although the available spectrum is on the rise, fixed and mobile (4G) broadband coverage remains one of the lowest in the EU

Human Capital: Internet Users

32% of Romanians have never used the internet (16% in the EU)

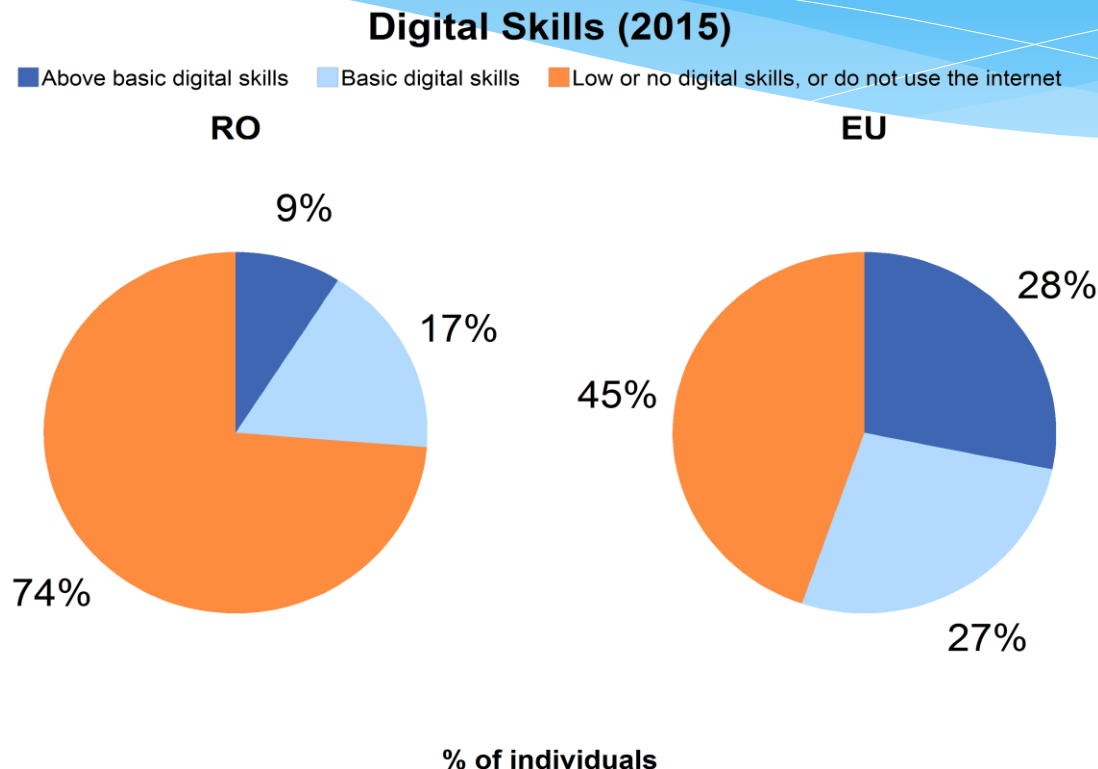
Share of citizens who have never used the Internet (2015)



Source: Eurostat - Community survey on ICT usage in Households and by Individuals

Human Capital: Digital Skills

In Romania 17% of citizens have basic digital skills (27% in the EU)
and 9% have above basic digital skills (28% in the EU)

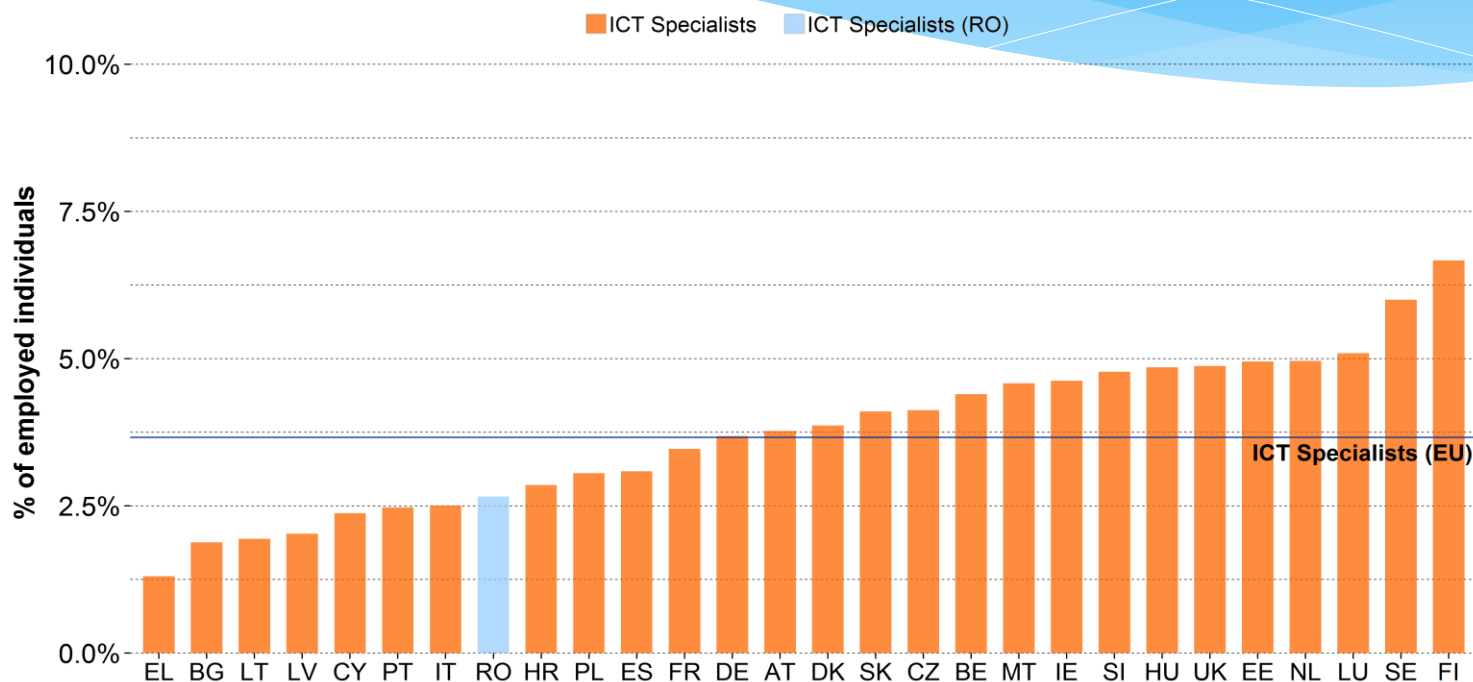


Source: Eurostat - Community survey on ICT usage in Households and by Individuals

Human Capital: ICT Specialists in the workforce

In Romania ICT Specialists account for 2.7% of the workforce (3.7% in the EU).

ICT Specialists in the workforce (2014)

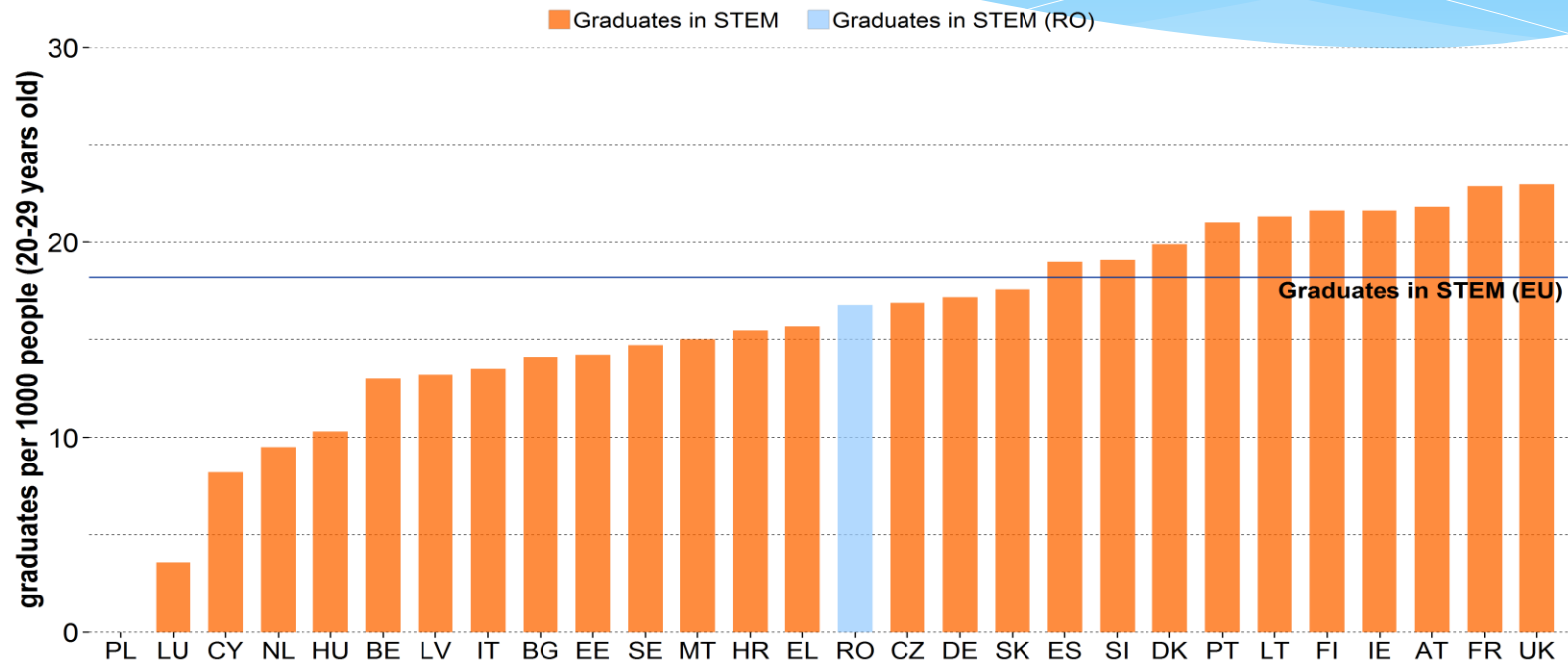


Source: Eurostat - Labour force survey

Human Capital: Graduates in STEM (Science, Technology and Mathematics)

Romania has 17 graduates in STEM per each 1000 people aged 20-29 years old (18 in the EU).

Graduates in Science, Technology and Mathematics (2013)



Source: Eurostat - Science and technology graduates by sex

Human capital

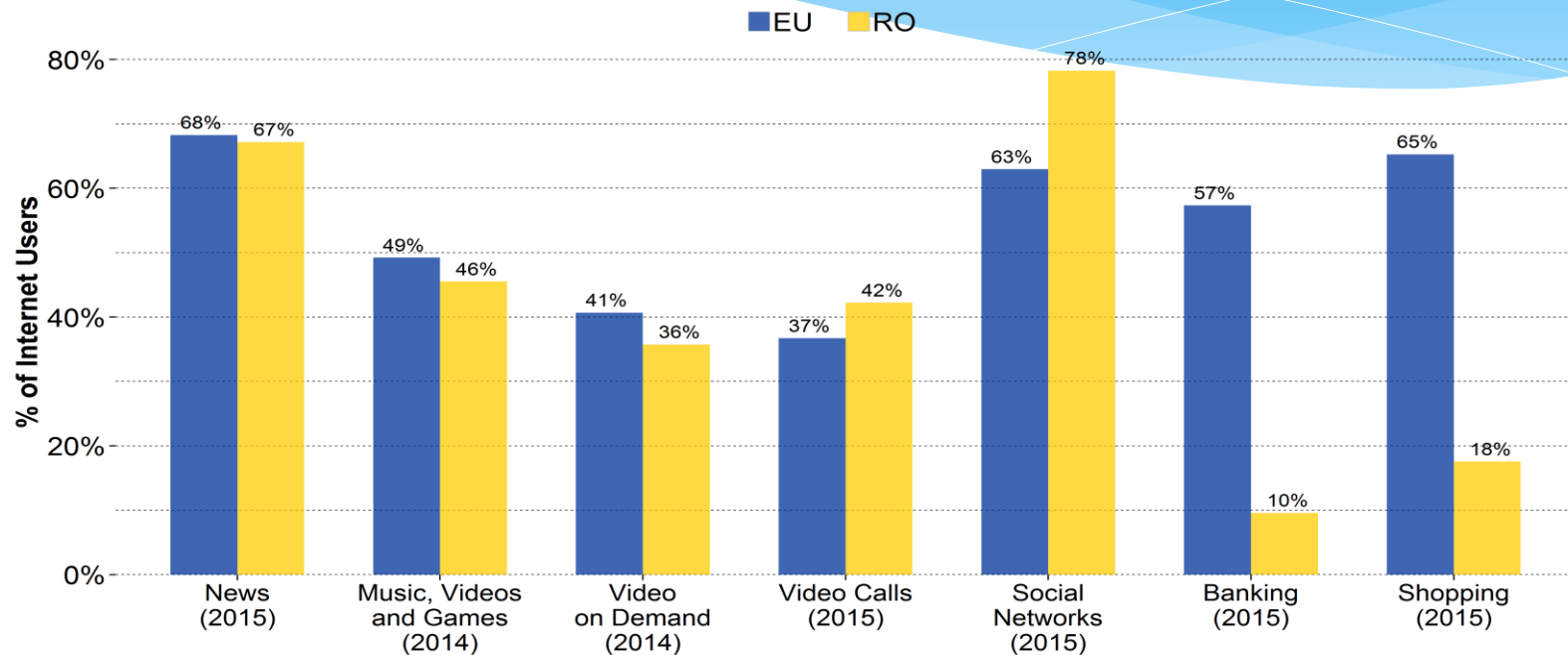
Romanian characteristics

In Romania there is a relatively high number of graduates in the fields of science, technology, mathematics and engineering. Despite some progress, only 68 % of Romanians peoples are regular internet users (vs 76 % in the EU). Moreover, there are still one third (32%) of Romanians who had never used the internet (vs 16 % in the EU) and thus they cannot partake on the possibilities offered by the Internet, nor can they contribute to the digital economy. The digital skills in the population are the lowest in the EU with only 26% of Romanians possessing basic levels of digital skills. Digital skills are nowadays needed in every corner of the workforce. In Romania less than half (46%) of the workforce possesses basic or above digital skills (vs 72% in the EU).

Use of Internet

Romanians, much like European citizens in general, perform a diverse set of activities online. They use the Internet to consume content and media, to communicate, and to perform transactions.

Online activities by Internet Users



Source: Eurostat - Community survey on ICT usage in Households and by Individuals; IHS Technology databases - TV Media Intelligence Service.

Use of Internet

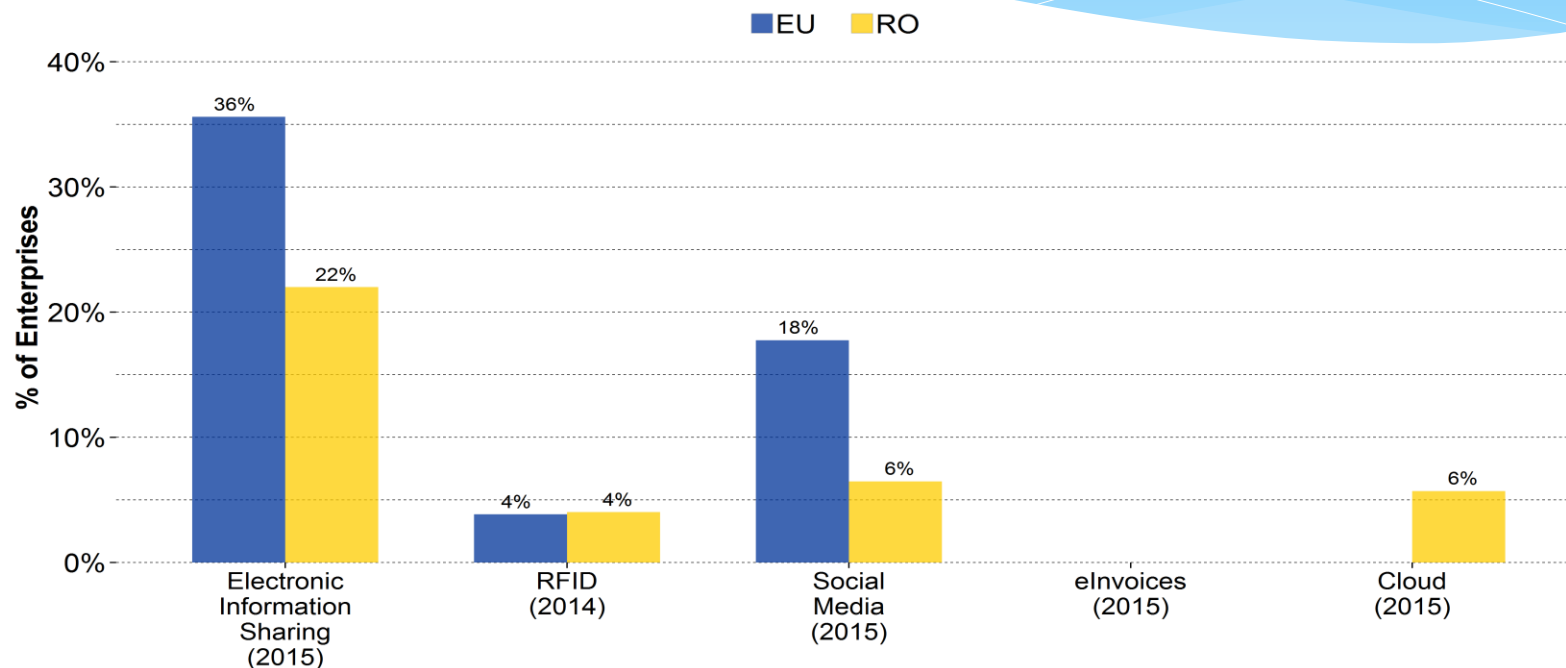
Romanian characteristics

Internet users in Romania perform far fewer online activities than the EU average, especially with regard to electronic commerce and electronic banking. Social networks and online video calls are intensely used. In terms of the propensity of individuals to use Internet services, Romania scores 0.34 (up from 0.31) and ranks 27 th among EU countries. Romanian Internet users engage in a broad range of online activities. They read news online (67%), listen to music, watch films and play games online (46%), use the Internet to communicate via voice or video calls (42%) or through social networks (78%), and obtain video content using their broadband connections (mostly though Video on Demand – 36%). Using of social networks featured the highest increase in the last year.

Integration of Digital Technology: Business digitization

Businesses in Romania are adopting different digital technologies to enhance productivity, such as sharing internal information electronically or using RFID, eInvoicing, Social Media and Cloud.

Adoption of Digital Technology by Businesses



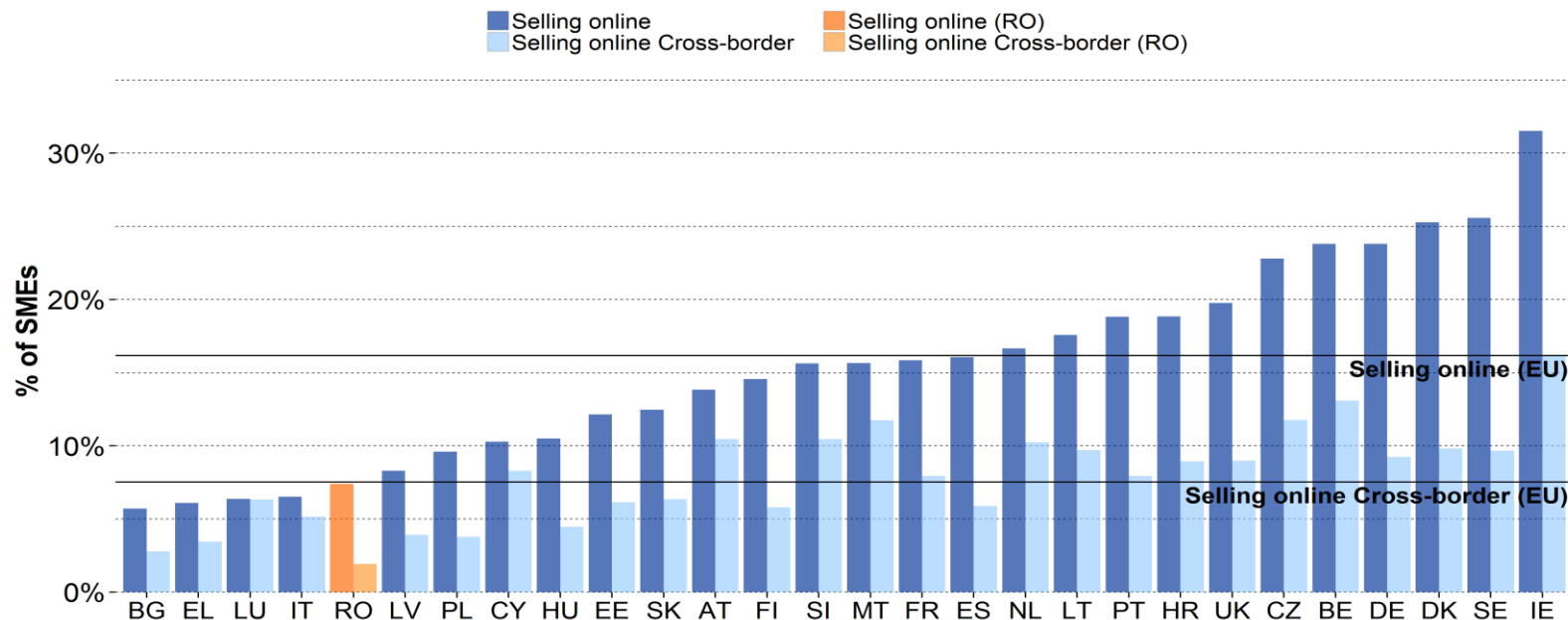
Source: Eurostat - Community survey on ICT usage and eCommerce in Enterprises

Integration of Digital Technology: SMEs selling online

In Romania 7.4% of SMEs sell online (16% in the EU).

1.9% of Romanian SMEs sell online to other EU countries (7.5% in the EU).

SMEs selling online Overall (2015) vs. Cross-border (2015)



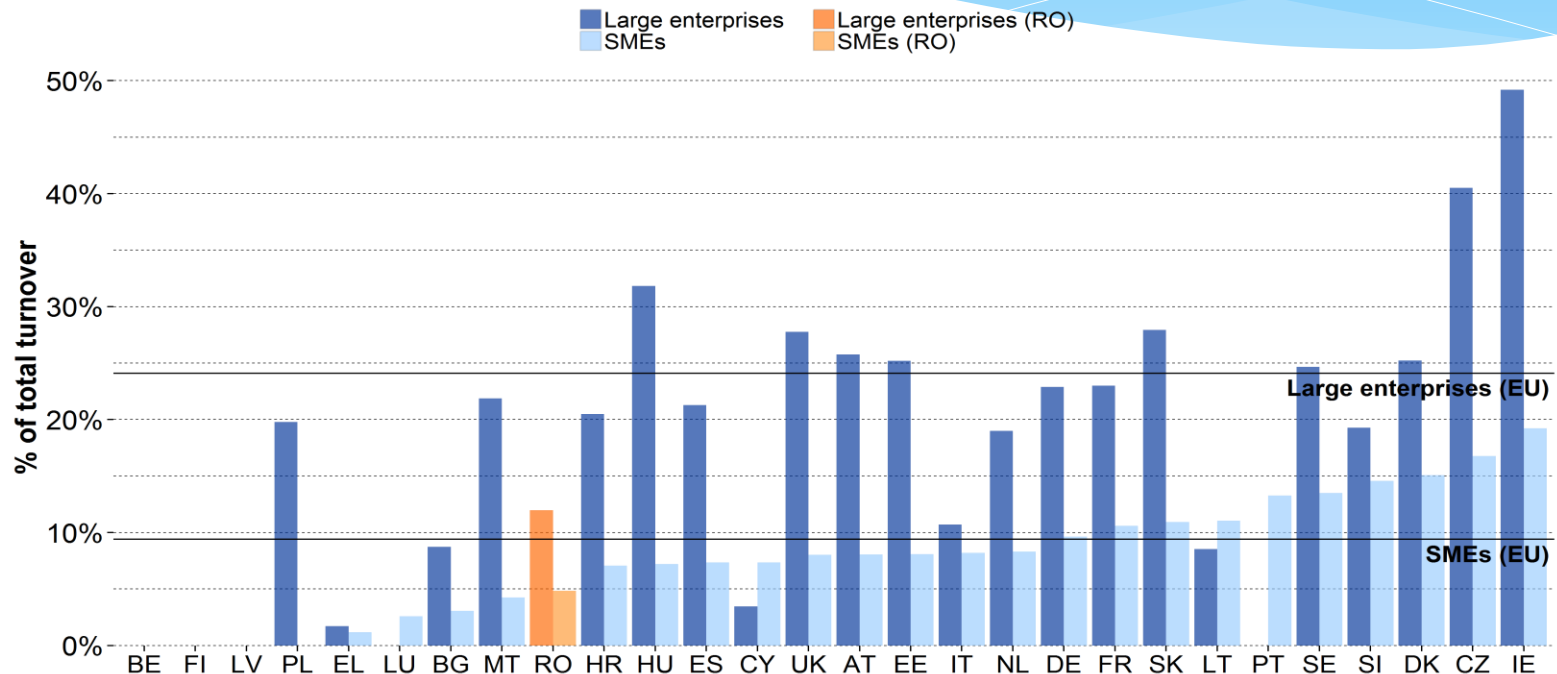
Source: Eurostat - Community survey on ICT usage and eCommerce in Enterprises

Integration of Digital Technology: SME Turnover from eCommerce

SMEs in Romania obtain on average 4.9% of their turnover from eCommerce (9.4% in the EU).

Large enterprises derive on average 12% of their turnover from eCommerce (24% in the EU).

Turnover from eCommerce (2015)



Source: Eurostat - Community survey on ICT usage and eCommerce in Enterprises

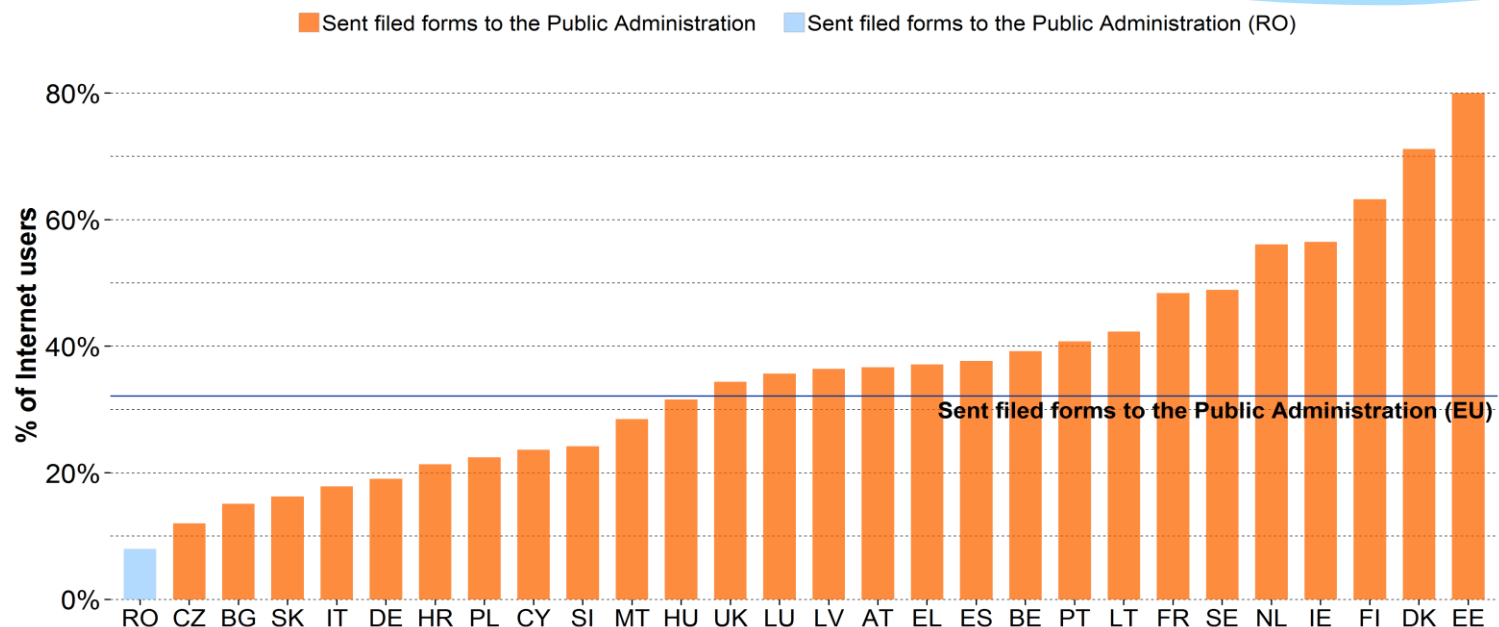
Integration of Digital Technology: *Romanian characteristics*

Romania has not reduced its gap with the EU in terms of enterprise digitization, especially the use of cloud computing technology and the exploitation of online marketing channels. Unfortunately, despite some progress, in Integration of Digital Technology by businesses, Romania scores 0.2, its lowest score in the EU. The percentage of businesses using technologies such as electronic information sharing (ERP – 22%) or social media (6.5%) in Romania is the lowest in the EU. The use of Cloud services doubled and reaches 5.7% but still is one of the lowest in the EU. Very few SMEs in Romania sell online (7.4%), even less SMEs sell online to other EU member states (1.9%), and those who do sell online make a very small share of their turnover from those sales (4.9%).

Digital Public Services: eGovernment users

8% of Romanian internet users have exchanged filled forms with the public administration online, whereas overall in the EU 32% of internet users have done so.

eGovernment Users (2015) (sending filled forms online)

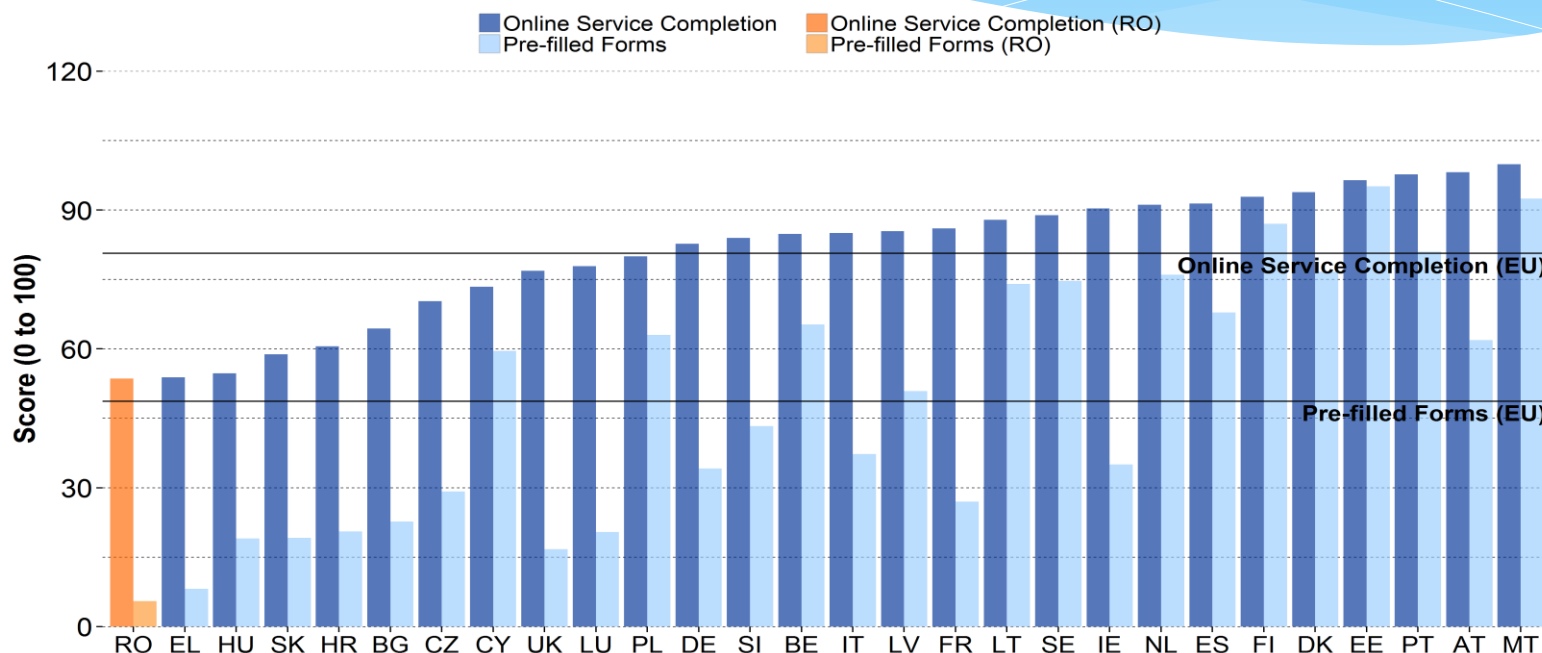


Source: Eurostat - Community survey on ICT usage in Households and by Individuals

Digital Public Services: eGovernment service sophistication

Romanian online public services score 5.5 out of 100 in the Pre-filled Forms* indicator and 54 out of 100 in the Online Service Completion** indicator (EU scores 49 and 81 respectively).

eGovernment Service Sophistication (2015)



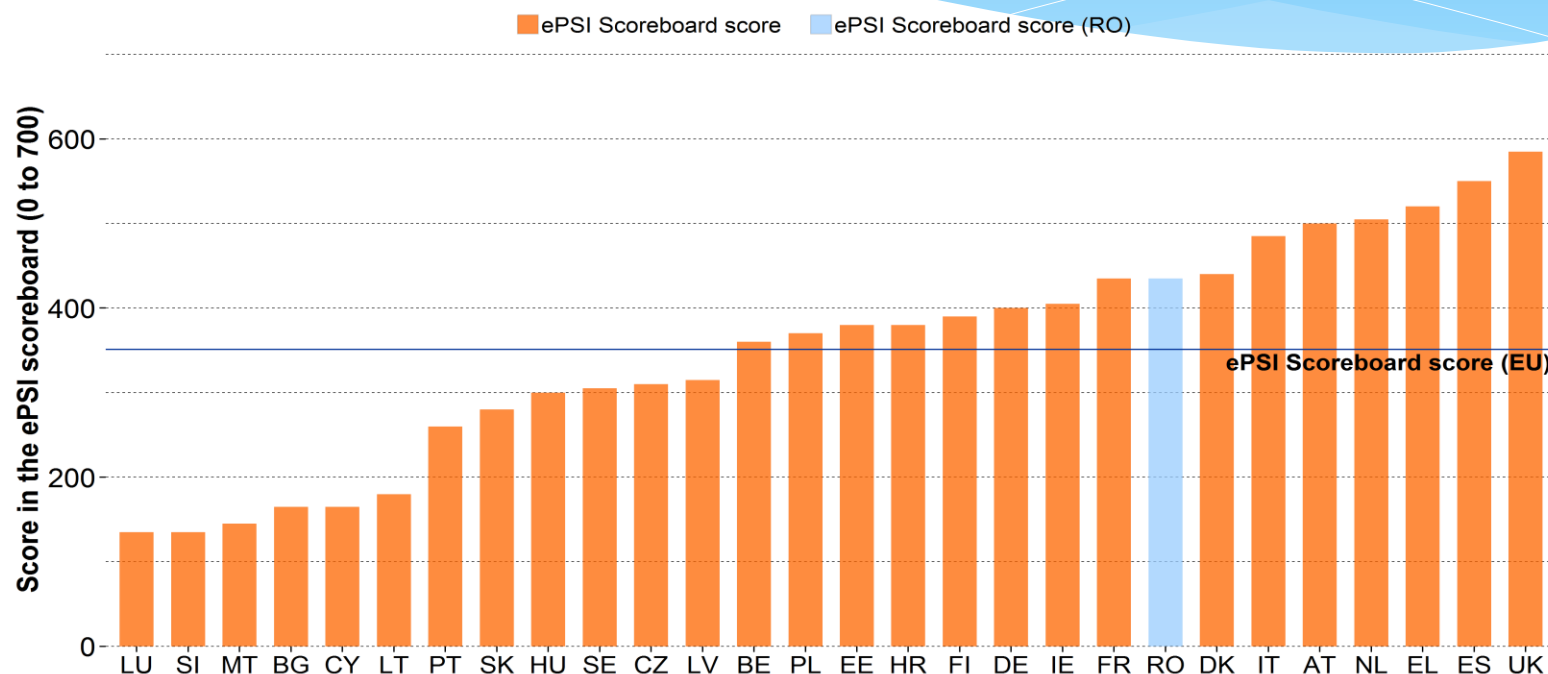
Source: eGovernment Benchmark.

* Pre-filled Forms measures to which extent data known to the public administration is pre-filled in forms presented to the user. ** Online Service Completion measures to which extent the steps in an interaction with the public administration – life event – can be performed completely online.

Digital Public Services: Open Data

Romania scores 435 out of 700 in the European Public Sector Information scoreboard, against an overall score of 351 out of 700 for the European Union.

Open Data (2015)



Source: The Public Sector Information Scoreboard is a 'crowdsourced' tool to measure the status of Open Data and PSI re-use throughout the EU.

Digital Public Services

Romanian characteristics

The digitization rate of the economy, including public services, and the level of digital skills remain low. For Digital Public Services Romania scores 0.33 (up from 0.27 last year) and improved its ranking to the 27 th position. Romania's offer for online public services is among the least sophisticated. Its indicator scores place it among the last in the EU and show that the level of sophistication of its services needs to improve. Better online public services will also likely improve Romania's percentage of e Government users (8% of Internet users, the lowest in the EU). Romanian made significant progress on promoting Open Data scoring 435 (up from 270).

FUTURE EXPECTATION

Romania is part of the catching-up cluster of countries because, although it still performs worse than the EU as a whole, it has developed fast over the last year and got closer to the EU average. The potential show that in the next few years Romania could quickly reach and go over to EU average.