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DIGITAL HEART OF EUROPE:  
LOW PRESSURE OR HYPERTENSION?

STATE OF THE DIGITAL ECONOMY IN CENTRAL  
AND EASTERN EUROPE



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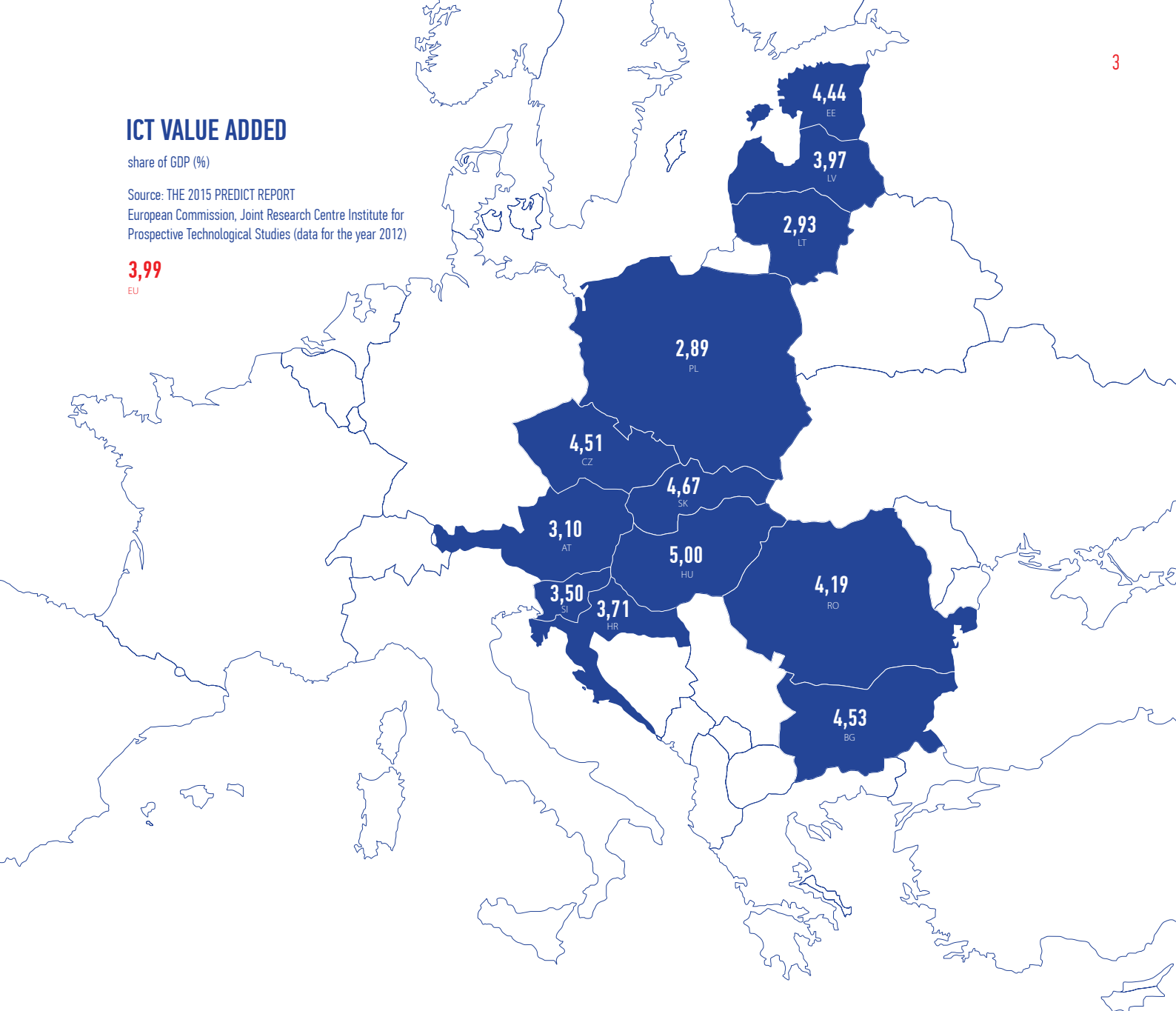
**Editors:** Maria Staszkiwicz and Milan Zubiček

## ICT VALUE ADDED

share of GDP (%)

Source: THE 2015 PREDICT REPORT  
European Commission, Joint Research Centre Institute for  
Prospective Technological Studies (data for the year 2012)

**3,99**  
EU



Internet and communication technologies are important socio-economic accelerators. With the present study, we want to point out to the immense, but often untapped, potential of digital technologies for economies, administrations and societies of Central and Eastern Europe. All countries in the region have fairly developed infrastructures and a variety of e-services, although the levels vary significantly, as illustrated in the following text. Yet, only a few key stakeholders in the region have fully embraced ICTs as an instrument of economic and social development.

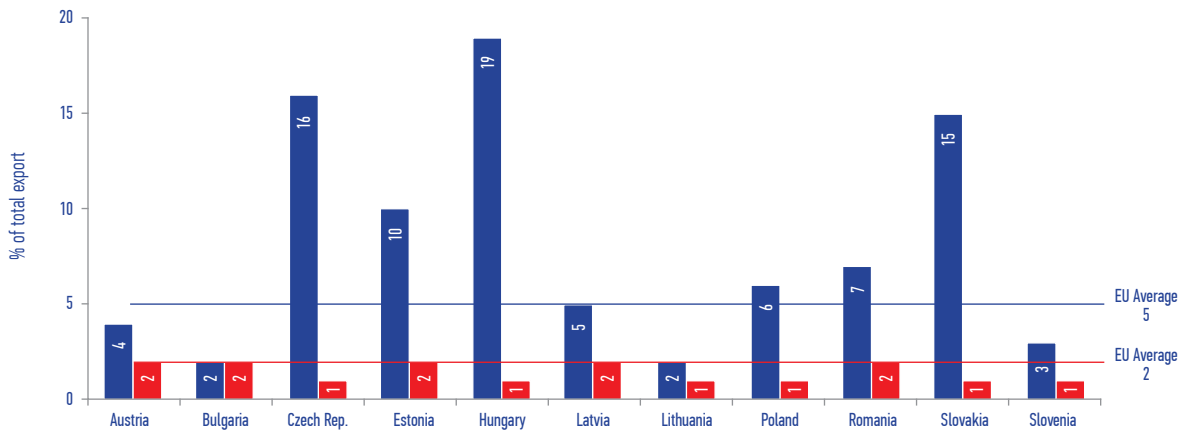
For it to happen, a digital turn has to take place in the way decision-makers, managers, educators, customers, and citizens think and function. In fact, one should not perceive digital economy as a single sector, but understand the whole economy as being (or having the potential to become) digital. Digitization offers unprecedented opportunities to traditional economic sectors, such as transport, machinery or health, and enables the creation of new branches of industry. These changes, however, often take place in a regulatory environment not fit to respond to them properly, making it a huge challenge for legislators.

Based on available data, this overview offers a comparison of key digital indicators across twelve countries in Central and Eastern Europe. It outlines the peaks and troughs of the digital landscape in Central and Eastern Europe, signaling areas that require improvement or can generate further business potential. We hope that thanks to its brevity, it will help the reader make a picture of what are the most urgent areas to be addressed by new policies or laws, and where the biggest business potential lies. It is also an introduction to a broader study that will analyze the state of digital policies and economies in the region, which will be published in the upcoming months.

# ECONOMIC IMPACT

## ICT GOODS EXPORT / ICT SERVICES EXPORT

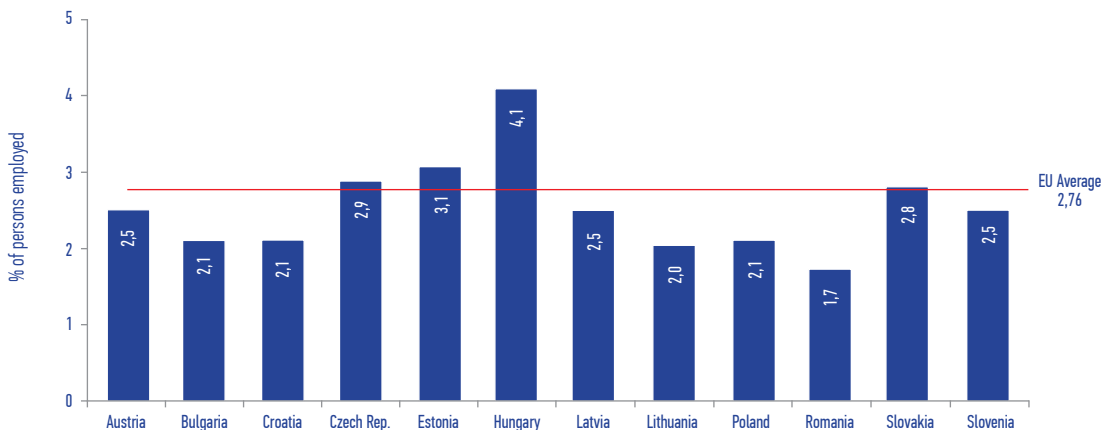
Source: Digital Economy and Society Index (Value 2011)



- The production of the ICT industry in the region (e.g. in the Czech Republic, Hungary and Slovakia) is, in some aspects, fully comparable to the Western European countries. It clearly shows the growing potential of the CEE digital economy to attract foreign investments and generate companies with global reach and impact.
- The production of ICT goods, however, covers a wide range of industries and also includes the manufacturing of goods with a smaller added value (such as hardware factories) that are further exported to the EU.
- The amount of exported ICT services is on either the same or a comparable level to the EU 28.

## ICT EMPLOYEES

Source: The 2015 Predict Report (Value for 2012)

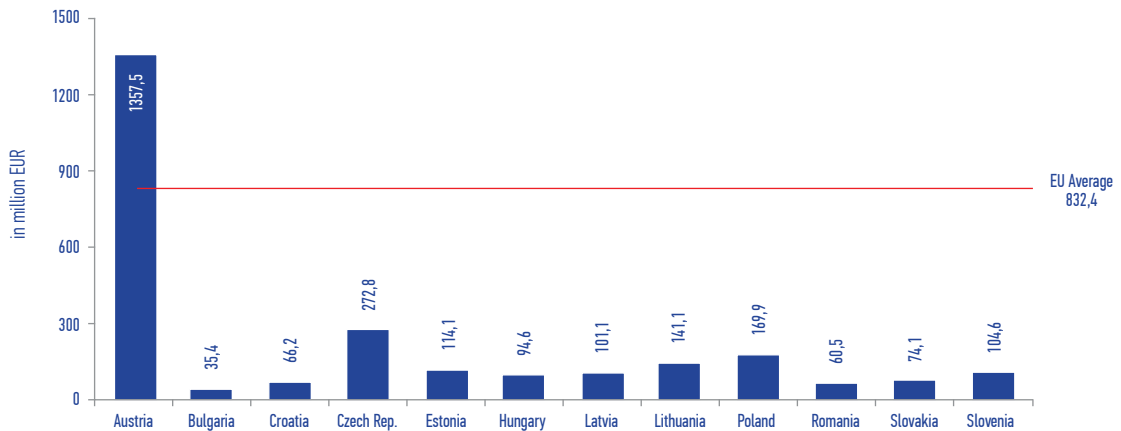


- The number of employees with ICT specialization shows small but important differences in the development of digital economy in CEE countries.
- In many of them an almost 3% (and increasing) share of employees matches financial and other traditional sectors of the economy.

# E-COMMERCE

## B2C E-COMMERCE TURNOVER PER CAPITA

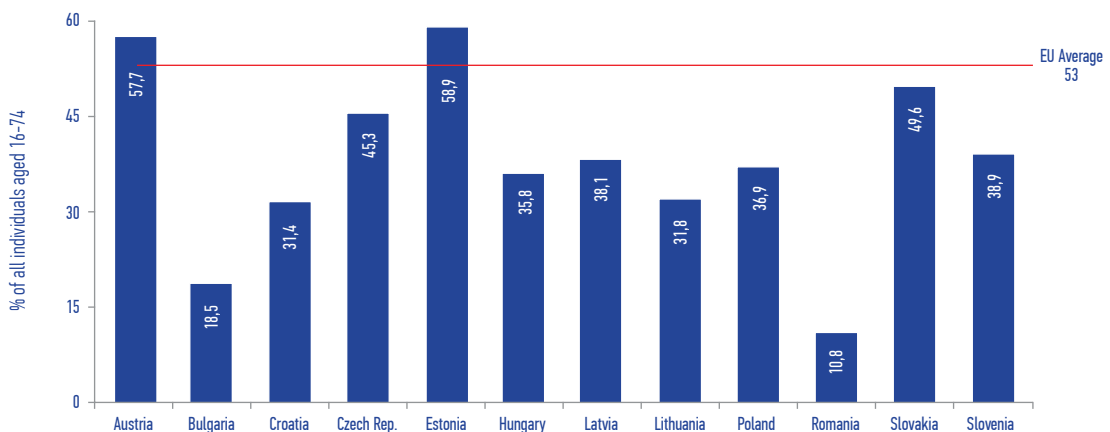
European B2C E-commerce Report 2015, Ecommerce Europe (Value 2014)



- The amount of B2C sales clearly shows different maturity of online retail markets across CEE region. This depends mainly on level of investments and entrepreneurial activity in e-commerce sector since late 1990s as well as legal, administrative and logistic barriers (transportation conditions, posts, etc.).
- Majority of markets lacks behind the EU and we can foresee huge potential for their further development, esp. in Eastern European and less saturated countries. However, specific consumer behavior may be another barrier for the potential new entrants.

## CUSTOMERS ORDERING GOODS OR SERVICES ONLINE

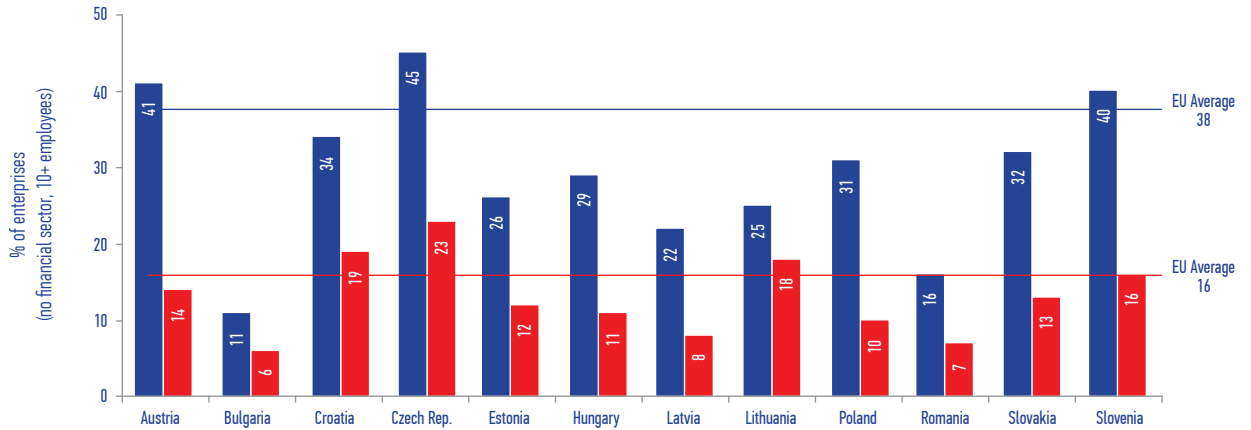
Source: Digital Economy and Society Index (Value 2015)



- The share of e-commerce customers in the CEE illustrates differences among countries in a basic industry of the digital economy and fully reflects the development of the regional economies in the last 25 years. Customers in more developed countries have already adapted to online shopping as their preferred retail channel.
- The specific changes in national markets, however, have been caused by different customer habits, which are applicable to the whole retail sector. Particular groups of products (for example food or fashion) are often sold online in some countries, whilst these same markets' online presence in other countries is near nonexistent.
- The smaller number of online customers in some countries stems from worse Internet coverage, smaller purchasing power or "offline" ordering culture.

## LARGE ENTERPRISES SELLING ONLINE / SMES SELLING ONLINE

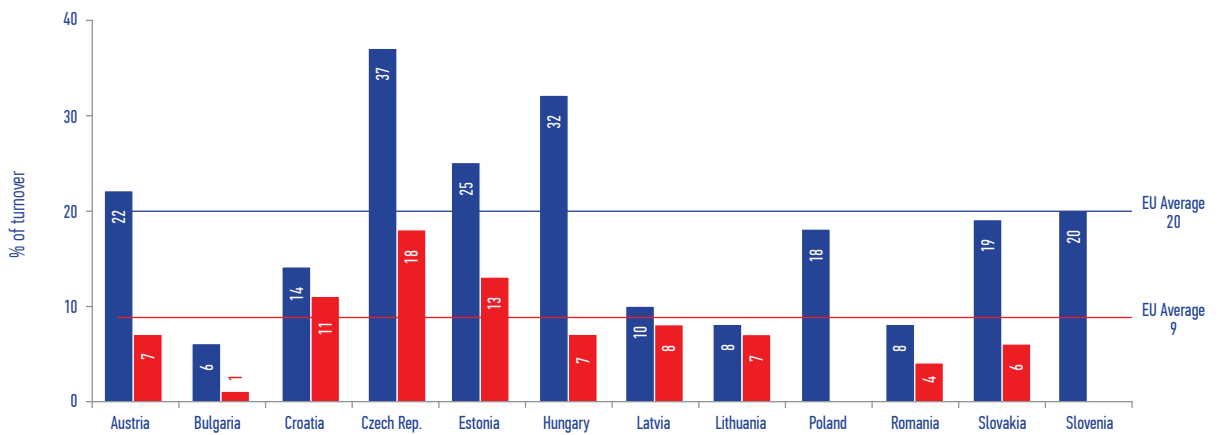
Source: Digital Economy and Society Index (Value 2015)



- The number of large companies selling their products and services online demonstrates the diverse composition of the ICT sectors. Both national companies and branches of foreign corporations are included. This number correlates neither with the level of overall economic development nor the level of digital economy in each respective country.
- Small and medium enterprises' involvement in the digital economy is a very important measurement when assessing digital economy of a given country. The share of SMEs selling online therefore shows the real gap between digital economies. High numbers in case of Croatia and the Czech Republic can be attributed to the importance of tourism.

## LARGE ENTERPRISES / SMES TURNOVER FROM ECOMMERCE

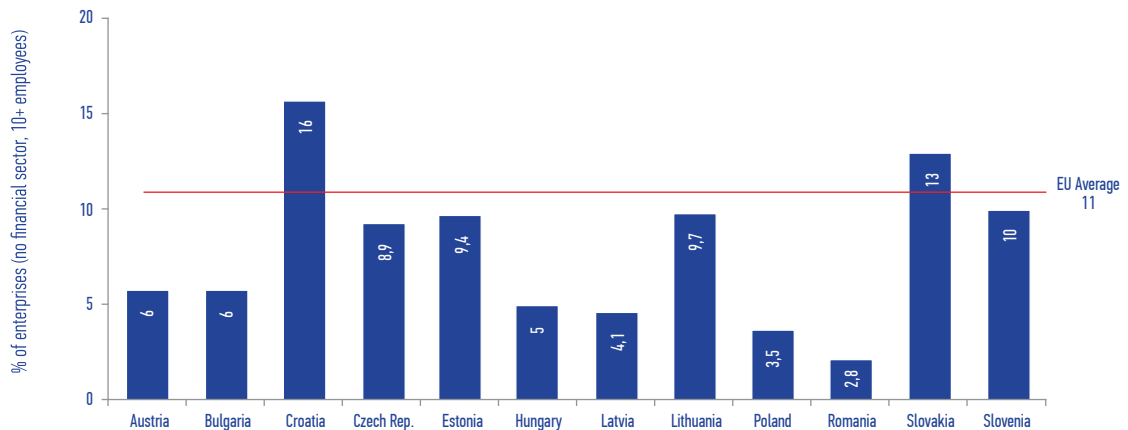
Source: Digital Economy and Society Index (Value 2014)



- The turnover generated by the e-commerce sector via SMEs in comparison with large companies indicates both the real size of the digital sector and its importance to the economy as a whole.
- Countries with a large proportion of small and medium businesses have a better chance to grow larger national e-retailers in the future. For example, extraordinarily high numbers in the Czech Republic reflect strong players exceeding country borders. These players are mostly Germany-based companies.

## CLOUD ENTERPRISES, WHICH PURCHASED CLOUD COMPUTING SERVICE

Source: Digital Economy and Society Index (Value 2014)

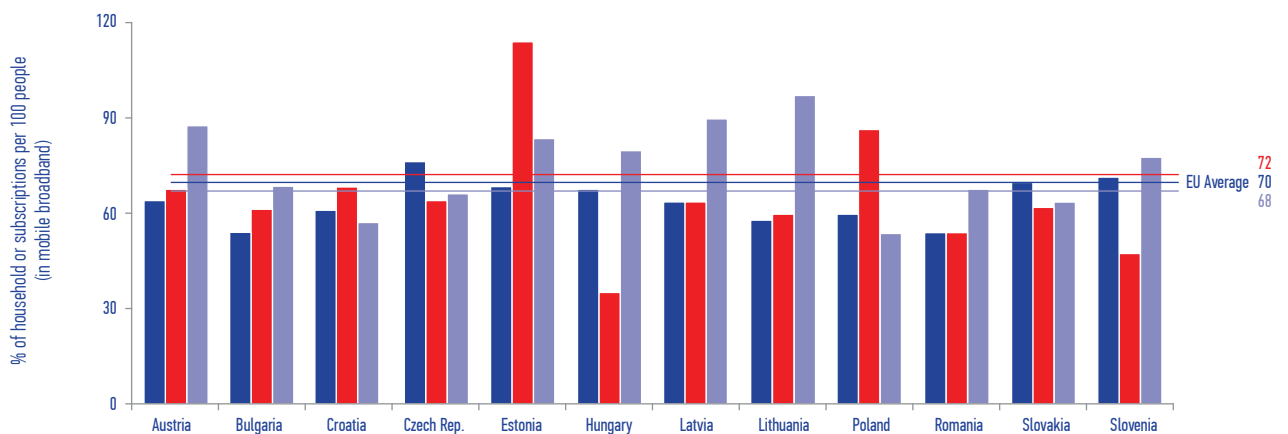


- Cloud computing is one of the most advanced online services currently available. Its availability is determined by the presence of high-speed and stable connectivity, alongside the level of ICT facilities in a given company. Its usage among enterprises therefore indicates a country's overall level of digital development. However, it may be influenced by other aspects (eg. security concerns).
- The large number of cloud-enabled companies in some of the smaller economies mainly reflects the high volume of SMEs in these countries' high-tech and creative sectors. Conversely, lower numbers of cloud-enabled companies may be caused by a higher share of enterprises in traditional industries.

## CONNECTIVITY

### FIXED BROADBAND / MOBILE BROADBAND / NGA COVERAGE

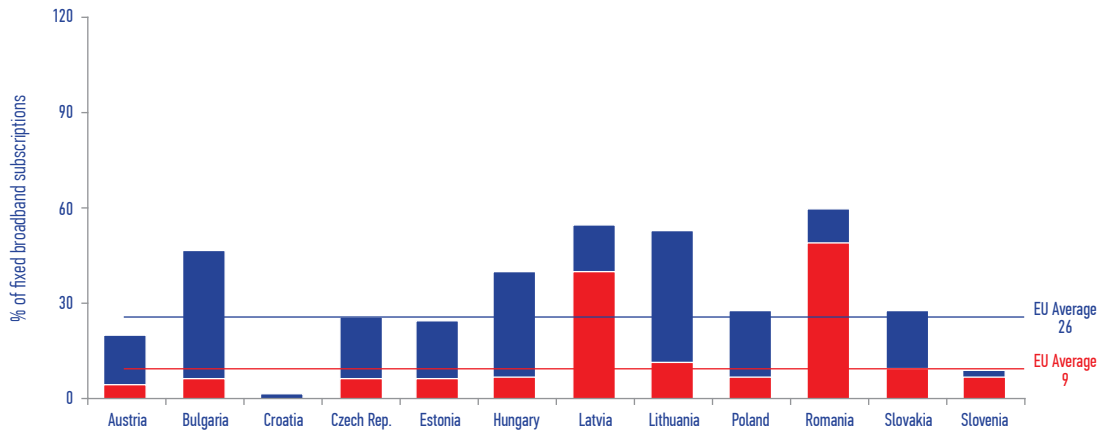
Source: Digital Economy and Society Index (Value 2014)



- Fixed broadband coverage depends heavily on the presence of metallic cable networks. Investments into fiber optic infrastructure differ significantly across the region.
- Mobile Internet coverage is currently growing due to the roll-out of 4G/LTE networks. Therefore, the different timing of frequency auctions may be the cause of the differences in access among countries.
- Higher NGA coverage is one of the top priorities of the European Commission. CEE countries should be among the biggest beneficiaries of the funds allocated towards achieving this goal.

## SHARE OF FAST BROADBAND SUBSCRIPTION (UP TO 30 MBPS) FAST BROADBAND SUBSCRIPTION (100 MBPS)

Source: Digital Economy and Society Index (Value 2014)

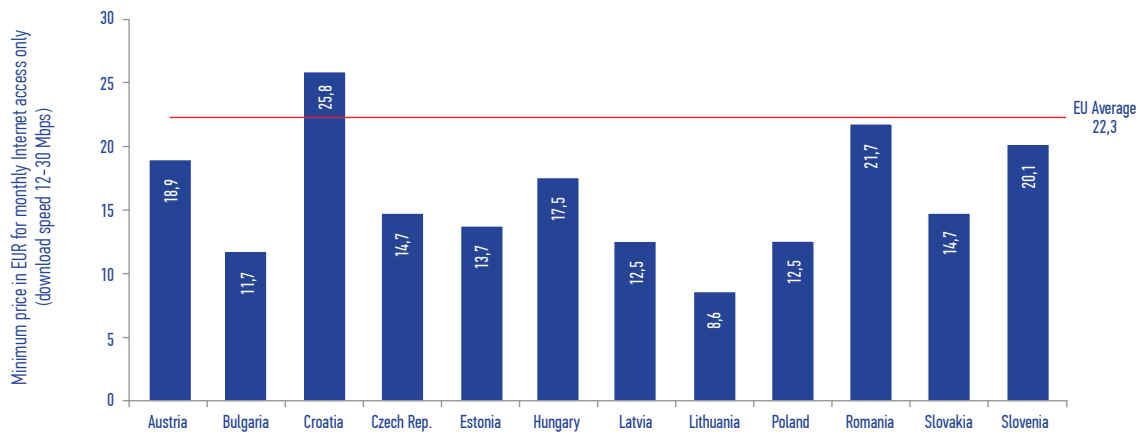


- A significant gap in the proliferation of NGAs across the region can be attributed to differing market structures, competition among carriers, investment

potential, and geographical conditions. It is not simply linked to the country's level of economic development.

## BASIC FAST INTERNET ACCESS PRICE

Source: Digital Economy and Society Index (Value 2015)



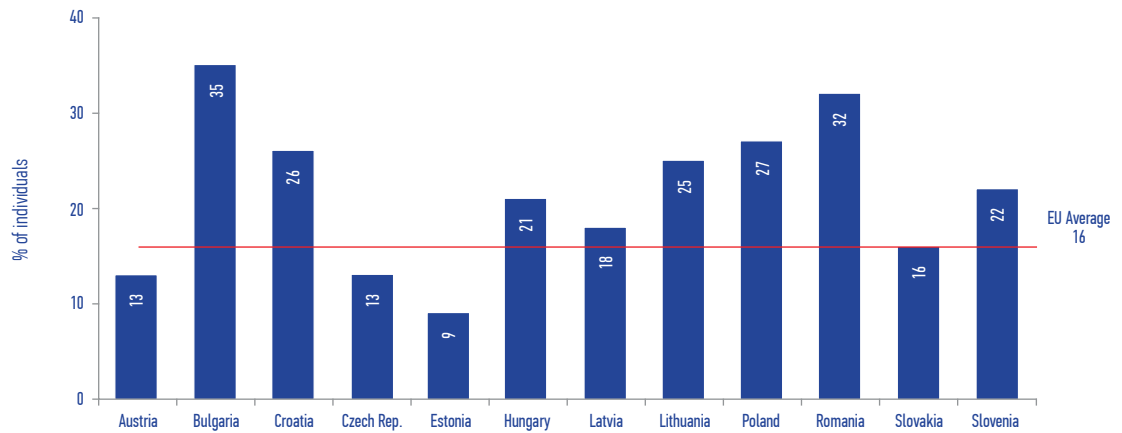
- When the purchasing power and technical variations in particular offers have been taken into account, the average price for a basic broadband connection (up to 30 Mbps) in the CEE region is significantly lower than the EU 28 average.

- Higher basic prices occur in countries whose geographical conditions make building a high-speed broadband network more difficult, as well as in nations where there already exists weak coverage by preceding technologies. In addition, the level of real market liberalization and competition may play a role.



## DIGITAL DIVIDE

Source: Digital Economy and Society Index (Value 2015)



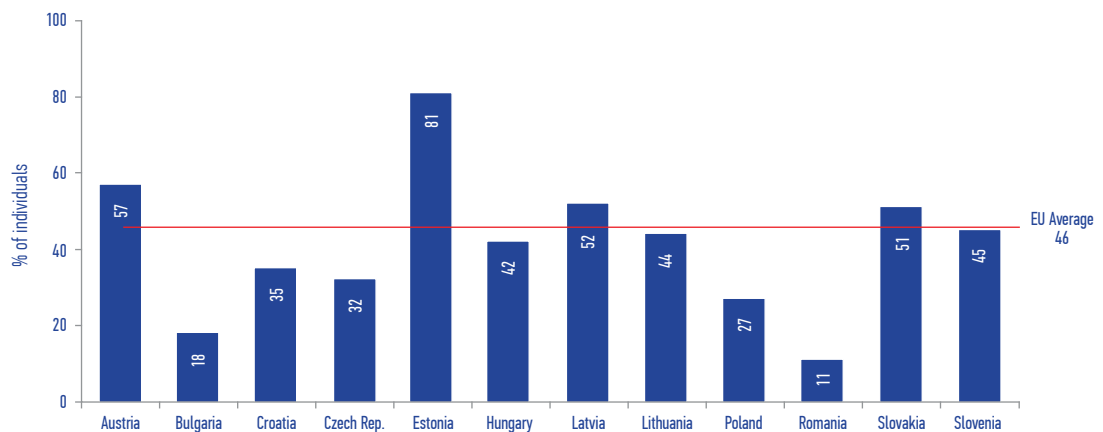
- The number of people who have never used the Internet indicates the level of digital divide in a given country, which is not significantly higher in most of the CEE region than the EU 28 average. Exceedingly

high numbers in some countries can be attributed to the varying levels of Internet coverage due primarily to differing geographical conditions.

## E-GOVERNMENT

### E-GOV SERVICES

Source: Digital Economy and Society Index (Value 2015)



- The level of a citizen's usage of e-government services is highly dependent on their ease of availability, rather than the overall development of the digital sector. Therefore, it mainly reflects the real political priority on e-government and e-administration in a given country.

- Countries with a higher number of e-gov service usage in their population did not significantly exceed more than half of their respective overall population. This area of CEE Digital Economy requires more attention and offers many opportunities.

## SUMMARY

The digital economy in Central and Eastern Europe has been growing rapidly for the last couple of years. Although there are still many differences among countries, the sector attracts significant investments and features high potential for future growth. It covers a complex ecosystem including broadband and high-speed Internet connections, ICT goods manufacturing, basic and advanced online services, e-commerce and cloud computing, and research and support for start-up and spin-off companies.

The current state of digital economy development in the CEE lies closely behind the EU 28 average in most of the relevant indicators. Some states are falling behind, others are more developed. This is mainly due to their different historical and socio-economical background and development during the communist era as well as during the last 25 years, such as the different coverage by cable infrastructure or tax regimes.

The promotion of digital economy is moving up the ladder of political priorities in many CEE states, particularly the V4 countries. The focus is mainly on building a robust Internet infrastructure, particularly the NGA-fiber networks, which constitutes a necessary basis for the development of more advanced online business and government services. CEE countries try to advance e-commerce and e-society, as well as promote innovation and new models of economy, (e.g. by means of the support for industry 4.0 and startups). Further adaptation of legal and other administrative conditions will be necessary, but the potential for rapid growth is unquestionable.

## NOTE ON DATA

The aforementioned sources were used for preparation of this study. Each table relies on only one source from the same time period. Only the public data is presented and no recalculation has been applied for the clarity and transparency of this study. The share is always stated from overall (100%) amount and currency numbers are in euros.

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