

Market Report

January 2014

**Romanian Science, Technology and Innovation:
The Pulsating Core of the CEE's New Economy**

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Formerly referred as a “tiger economy” for its stunning economic growth, Romania is back on track and ready to make a new jump. Embracing digitization and a hyperconnected world, Romania and other developing countries are focusing on innovation to compete for resources and market share. The specific skills set, the overall readiness and the continuous ICT performance mark Romania as the next pulsating core of the CEE's new economy.

ICT and Professional Services driven growth

Having already surpassed analysts' expectations in 2011, with a 2.5% GDP growth, Romanian economy is forecasted to perform further 2.2% GDP growth by 2014. The contribution of the knowledge based economy, namely of the Information and Communication Technology sector to this organic growth is noticeable. According to the latest Cushman & Wakefield's Business Process Outsourcing Location Index, Romania is ranked 2nd, just after Chile (ranked 1st) and before Poland (ranked 3rd). As you can see in Table 1, Romania provides good offshoring conditions (namely: appropriate labour force, adequate business environment, short time to first supply and good IT infrastructure) and it is an affordable region (in terms of labour costs, property costs and inflation level).

	overall	conditions	risk	costs
Chile	1	9	4	3
Romania	2	6	22	2
Poland	3	15	13	1

Table 1: Top 3 countries of the BPO Location Index, Cushman & Wakefield 2013

In order to have a better understanding of what is currently happening at technological level in Romania, it is relevant to have a look at the Networked Readiness Index 2013, featured in WEF's “The Global Technology Report 2013”. Romania is ranked 75 out of 144 surveyed economies. The high literacy of Romanians, the quality of math and science education, the widespread Internet connection across households and businesses can be counted among the top performing indicators. According to the National Institute of Statistics, 28% of the enrolled students in 2011/2012 university year opted for engineering, 21% for economic studies and 10% for medicine studies. Consequently, the skills set coupled with a favorable business environment, propelled Romania on the Top 10 Shoring Locations

(2008 – 2012) according to a recent study released by Jones Lang LaSalle's EMEA Location Consulting Services team, based on the information provided by fDi markets.

From a geographical distribution perspective, Romania hosts several technology, ITO/SSC/ BPO/KPO and R&D centers. The main centers are situated in the capital city – Bucharest – which has also been ranked 44th in Tholons Top Outsourcing Destinations 2013. The second major center is Cluj-Napoca, mainly focused on outsourcing services and recently consolidated around the CLUJ IT cluster association. Next locations to be mentioned are Timișoara, Iași, Brașov, Sibiu and Târgu-Mureș.

It is also relevant to note that most of the main ICT and technology enabled professional services global providers opened at least one center in Romania: Microsoft, Oracle, Cisco, HP, Siemens, Alcatel-Lucent, WIPRO, IBM, Intel, Infineon, Ericsson, Neusoft, Accenture, Genpact, Hellenic Telecommunications Organization, Vodafone, Orange and many others.

Latest UNCTAD data show that the total ICT spending of Romania in 2011 was of Euro 9,88 billion , while the Computer Software and Information Services Exports reached a level of EURO 658 million. A number of 8000 companies have been recorded as active in the ICT sector and 23% of the total active workforce is involved in Science and Technology sector.

Computer Software and Information Services Export Intensive Economy

Due to the fact that an important number of IT companies are active both in software and information services, it has been often difficult to differentiate among the two categories. One of the most coherent studies in this area is the United Nation's Information Economy Report 2012, The Software Industries and Developing Countries issued on the occasion of the United Nations Conference on Trade and Development (UNCTAD).

As you can see in Figure 1, one key finding is that Romania is a computer software and services exporter: the exports ratio on total computer software & services spending is of 1.1, while the percentage from the GDP is of 0.5%. Therefore, Romania and its neighbor Bulgaria are framed in the top right corner of the low share of economy/high export intensity quadrant. The Computer software and services indicator value includes two main subcategories: software products and software services.



Fig. 1: Computer software and services export intensity and computer software and services spending as share of GDP, 2010, low- and middle-income economies (percentage) Source: UNCTAD, adapted from WITSA/IHS Global Insight Inc. and WTO statistics database (see annex table II.2). Note: The ratio of exports to computer software and services spending and computer software and services as a percentage of GDP has been capped at 1 to enhance readability of the figure.

The Business Process Outsourcing and ICT –enabled services are excluded from this indicator.

a) The software products include: application software (sold as packages or off the shelf products) and system software (operating systems of servers, desktop computers and mobile devices, other programmes needed to run application software).

Romania's total spending of software products in 2011 was of USD 412 million, comparable with Slovakia (USD 418 million) and Ukraine (USD 445 million), but far behind Poland (USD 2198 million) or Russia (USD 4238 million).

b) The software services cover the traditional software development lifecycle: specification and analysis, design and implementation, testing and maintenance. The category also includes data entries activities and software-intensive IT services. Romania's total spending of software services in 2011 was of USD 509 million, again similar to but lower than Slovakia (USD 611 million) and Ukraine (USD 670 million).

Selecting Romania's peer countries from the CEE region, another key finding is that it is catching-up Czech Republic and Hungary in terms of exported computer software and services value. Still two ranks below Russia (USD 135 million) and Poland (USD 1545 million), Romania is also 4th in terms of employed workforce in software products and services: av. 35000 employees.

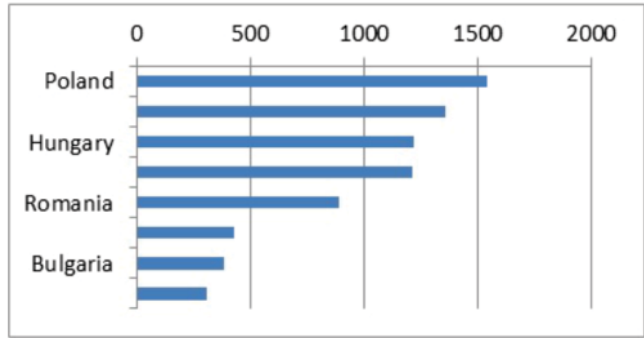


Fig. 2: Computer software and information services exports (USD millions), 2011, by selected country in the CEE (USD millions) Source: adapted from the Information Economy Report 2012, The Software Industries and Developing Countries / UNCTAD / UN Publication



Romania and the Fine - Tuning Theory

While analyzing the available indexes, research papers and studies on the causes that determine Romania's evolution towards a science and technology hub, the answers are diverse and sometimes contradictory. Certainly, the key drivers are the education system, the government orientation towards the alignment with the European e-policies, science and technology goals. One ambitious plan is to reach the R&D intensity ratio of 2% by 2020, in contrast with the current 0.52 % level.

However there are a few immeasurable aspects, such as Romania's tradition in research and innovation. It worth to mention that Romania was the 1st Eastern European Country that has built its own computers. Or, we can add the cultural mix and the geographical location to explain the tendency to adapt the fastest and embrace change. Then, we must look at the core of the economy – the entrepreneurs who saw the opportunities underlying beneath the science and technology related services. Such an example is Codespring, a software development and outsourcing company from Cluj-Napoca who has built an entire strategy around the concept of fine-tuning.

According to the Fine-Tuned Universe theory, the conditions that allow life can only occur when certain universal fundamental physical constants lie within a very narrow range. In a similar way, successful software projects and business partnerships may occur when the main levers of such endeavors are finely adjusted or “fine-tuned”. Should Romanian ICT stakeholders not be able to adapt at the finest detail, would we be seeing these data today? (D.C.)

- According to the forecast issued by the National Institute of Statistics of Romania, 2012
- Business Process Outsourcing Location Index, Cushman & Wakefield Publication, 2013
- The Global Technology Report 2013, World Economic Forum & INSEAD, 2013 (p.250)
- 2013 Top 100 Outsourcing Destinations, Rankings and Report Overview, January 2013, Tholons Group
- Own calculation at conversion rate of 1 EURO = 1.3525 USD based on the data extracted from the Information Economy Report 2012, The Software Industries and Developing Countries / UNCTAD / UN Publication,
- Romania Your Business Partner, Romanian Center for Trade and Investment Promotion Publication, 2012
- Innovation Union Competitiveness report 2011, Country profile – Romania
- Fine Tuned Universe, http://en.wikipedia.org/wiki/Fine-tuned_Universe

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