Romania's Science-Based Human Resources

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1. Science education system in Romania

Traditionally Romania has put an accent on education as it plays a fundamental role in preparing future generations of scientists and engineers, making Romania attractive for foreign corporations, as well as for growing local businesses.

The school system in Romania is mainly free at almost all levels, providing a large selection base at each stage during the process. Consequently, companies get access to a large pool of well-prepared, passionate engineers, ready and looking for challenges. This also allows students to choose the path they want to follow and properly utilize their potential.

Romanian universities also provide free tuition for many students, but they do offer paid options as well. To give an idea, The Faculty of Automatic Control and Computers - the topmost computer science faculty in Bucharest - admitted 580 new students with free tuition in 2019, and 225 new students for an annual fee of 4,000 RON (100,800Yen) which is affordable.

Many top schools, including universities, are state owned. Annually, The University Educational System prepares over 8000 specialists in the IT area, which makes Romania be mentioned in the international statistics as having the largest density of specialists and, at the same time, having a very advantageous price/performance ratio.

Public University Education is organized in 29 Romanian cities with 59 education institutions (universities), and Private University Education is organized in 174 colleges.

The Universities provide free access for students with outstanding results like medals at world science competitions such as the International Physics Olympiad, International Mathematics Olympiad, International Computer Science Competition and so on. As a matter of fact, Romania ranks 6th in the all-time medal count at the International Mathematics Olympiad with 316 total medals. The young Romanian Ciprian Manolescu managed to write a perfect paper (42 points) for gold medal more times than anybody else in the history of the competition, doing it all three times he participated in the International Mathematics Olympiad. Romania has also achieved the highest team scores and ranks 6th in the all-time medal count at the International Olympiad in Informatics with 107 total medals.

Even though many top schools are located in Bucharest, every major city does have science-oriented schools with excellent results.

Starting at early ages, at least two foreign languages are taught, commonly combinations of English, German or French. In the IT sector, most of engineers do speak excellent English.

Knowledge of the English language of all the IT specialists from Romania, a significant German minority together with numerous schools in German, as well as the links with the French, Spanish and Italian languages, due to its Latin origins, makes the linguistic barriers seem almost inexistent in Romania's case. So, graduates not only having a good command of these, but studying foreign languages also opens windows into the culture and lifestyle of the respective countries.

Out of 86,800 students who passed the final high school exam known as Baccalaureate in 2019, about 14,500 chose to study abroad.

Regarding high school education, about 17% of graduates choose to study abroad at famous universities. Students with outstanding results get invited by the very top schools such as Harvard, Massachusetts Institute of Technology, Princeton, Stanford, Yale in the United States, Cambridge, Oxford, Imperial College London in the United Kingdom, also universities in the Netherlands, Denmark, Germany, France and Switzerland. For example, universities in the US offer free tuition for these students - a win-win situation, as these students get access to the best available education, while later in life, through their achievements, they reconfirm the top level of the university they graduated from. These students do come from Romanian high schools.

As an example, I include the list of universities the 2016 graduates, from one science high school - the International Computer High School of Bucharest - , chose. These students will graduate college in 2020 and will decide what to do next:

Harvard University- 3 students
Princeton University - 4 students
Stanford University - 1 student
Massachusetts Institute of Technology - 1 student
University of Cambridge - 8 students
University College London - 8 students
King's College London - 2 students
Hague University -1 student

The following link may give a better idea of the level of the Romanian graduates:

http://liceu.ichb.ro/absolventi/

There are several other state-owned top high schools with equally notable results, but they do not publish the students' names on their websites, such as "Colegiul Naţional de Informaticţ Tudor Vianu", "Colegiul National Vasile Alecsandri Galati" and several others.

As you can also see from the above link, many students chose to study at Romanian universities, with well-equipped IT laboratories and dedicated teachers. These students also attend internships at companies in Romania or their HQs abroad, so they get to know the company and the company gets to know them at the same time. When they graduate, they are ready to join.

Also, a large number of Romanian engineers now work for corporations such as Microsoft, Oracle, IBM, HP, Google, Adobe either in Romania or abroad. Chances are, when you turn on your smartphone or your PC, it will run some code written by a Romanian. Many of these engineers did graduate from Romanian universities.

Last but not least, it's worth mentioning that the Romanian education system does not force arid memorization which, as Dr. Michio Kaku said "crushes curiosity" and "memorization is not science". Instead, memorization comes effortlessly through attractive problems, stimulating thinking and creativity. Later, these graduates will love their work which becomes passion for them.

2. Major global companies are keen on competition for Romanian IT students

Over the years Romanian governments correctly identified the IT sector as a key part of the economy, so they took steps to grow this sector in many ways such as expanding the IT education in universities, creating science and technology parks, introducing tax exemptions for IT employees and tax facilities for IT companies. Since 2004 software makers have benefitted from tax facilities, and in 2017 these have been extended to other already established IT companies (not software makers) with minimum annual revenue of 10,000EUR per programmer. Together with an additional deduction for the R&D activities in the company and accelerated depreciation of equipment used in R&D, these have helped attract large IT corporations as well as grow local software companies.

Examples would be: Oracle Romania SRL with 4,460 employees, IBM Romania s.r.l. with 3,200 employees, Microsoft Romania SRL with approximatively 670 employees, Adobe Systems Romania SRL with 560 employees. In total there are about 100,000 IT specialists employed in Romania.

Also, many young professionals choose to work abroad. They are scouted by all large corporations like Google, Apple, Microsoft, Oracle, Facebook and alike during university years.

This is not limited to tech companies. Other industries need IT engineers too. For example, companies from the finance industry aggressively scout computer science students, offer them internships and invite them to later join.

In addition to the above, companies like CGI, Bosch, Allianz Technology, Adient, Akwel, Continental, Dell, Deutsche Telekom, HP, London Stock Exchange Group, Schlumberger, Schneider Electric, Societe Generale, Zentiva and many others participate at job fairs in Romania. For example, the "Top Employers Career Fair" in spring 2019 offered 6,000 jobs with 55% of them in IT Software plus 18% in IT Hardware according to Business Review. (link:http://business-review.eu/business/top-employers-career-fair-offers-6000-career-opportunities-from-130-employers-198815)

Romania has already proved that it is a leader in information technology and it is no longer a secret that Romanian is the second language spoken in the Microsoft offices around the world, admitted Bruce Andrews, US Deputy Secretary of Commerce at the Regional Cyber Security Summit taking place in 2017 at the Parliament Palace in Bucharest.

Romania's IT industry ranks first among the most profitable investment for local US companies. The IT sector in Romania has been booming in recent years, and US companies, globally recognized for their rapid ability to see business opportunities, have contributed greatly to this success. They are beginning to see the results of their strategy to co-opt Romanian employees into large-scale projects, and we believe that the potential of this industry has not yet been reached, so the coming years will certainly bring even higher returns on US investments in the IT sector in Romania.

The total turnover of companies directly controlled by investors in the United States was approximately EUR 1.4 billion in 2017, which means that the IT industry accounts for about 30 percent of total direct investment by American companies present in Romania. The growing importance of the IT sector can also be correlated with the recent qualitative study by AmCham among its members, according to which US investors believe they perform in Romania thanks to digital infrastructure (52 %) and human capital (50 %).

3. How to establish a relation with them

I will start by saying that Romanian students and young engineers know very little about Japan. By contrast they get exposed every day from early childhood to the US and European cultures as they study those languages or as they just turn on the TV. They do see themselves working in such an environment. By contrast, they get little information about what it means to work for a Japanese company, and this usually comes from the media which has a propensity toward exaggeration.

So in the long run, would help to present Japanese companies during early years of high school, showing a product and what students would likely later work on as young engineers. High school is when students set their path and select the university they will attend. I would not be surprised that many would make it their goal to work on these projects.

For mid-term, internships offered to university students by Japanese companies at their Romanian offices would not only attract future engineers, but an internship works a lot better than any hiring

interview and it clarifies expectations on both sides.

For software developers, organizing coding competitions similar to what some other corporations do may also help.

For quick hiring, it depends on the nature of the project. If the position requires a lot of creativity and efficient solution finding, then you probably need one of the top graduates. The best way to reach them is an initial contact through social media, followed by a face to face discussion with a person with intimate knowledge of the project and the skill to attract the graduate's attention. These top graduates look very carefully at what they are going to do and they are known to turn down offers at large corporations like Google or Microsoft where their role would be very limited.

For not so demanding positions, best is to present the company and the project(s) at the universities the graduates are expected to come from (computer science, or electronics etc.)

Participating at job fairs may also be an option, plus posting on internet job sites and own company site. But this comes second after active face-to-face presentations.

It is common knowledge HR tends to be complacent, waiting passively for candidates to apply. This guarantees the company will mainly get those left out by other actively scouting businesses or with an attractive brand. HR is a sales job and reaching to students and engineers from early stages and continuously during the formation years is key to getting the best for the given budget. Before making a decision, Romanian young engineers do evaluate the company culture, the type of work they are going to do and the work environment. So, emphases on team collaboration, a happy work environment and opportunity for training at the Japanese HQ are also important.

One more aspect worth mentioning: as "Brexit" may negatively impact the United Kingdom's economy or, less likely, the ability for EU citizens to remain in the UK, there is a possibility some of them will return to Romania. Don't miss them!

4. Smart way to collaborate with them

Romanian IT engineers are passionate and motivated by the project assigned to them, so matching the right person with the given task will achieve amazing results, well beyond expectations. It makes them very happy when their work is appreciated. They also want to belong to a family of co-workers, not just a company, so team building activities as well as the collaboration-oriented company culture are important.

If the company doesn't have an office in Romania, then outsourcing to a Romanian software company is the way. For large projects larger companies like Total Soft, Siveco or Bitdefender etc. are to be selected. For small projects, where collaboration with smaller businesses is more appropriate, contacting professors or lecturers at computer science universities can also provide invaluable information and help finding these businesses.

With high-speed internet being the norm in Romania, reliable communication is not an issue regardless of location. This gives the opportunity to find skillful engineers and reliable IT services providers all over the country.

With so many talented students, you will always be able to find the right young professionals for your large software project or just IT support position in a different industry. Best is to make your company well known early during the educational process and keep in contact, so you can get the first pick at these graduates.