‘A crisis is a terrible thing to waste’

In the aftermath of the 2008 market crash, Romanian policy-makers quickly understood the truth of Paul Romer’s maxim: ‘A crisis is a terrible thing to waste.’ In the Higher Education & Research (HE&R) system in particular, we took that maxim to heart and have pushed through deep reforms.

A solid HE&R system rests on three pillars: the ‘human resources’, the ‘infrastructure’ and a favourable ‘research environment’. Upon this foundation, more complex structures can be built together with the private sector, such as a dynamic innovation ecosystem, a smart specialisation strategy, a modern and effective energy security strategy, a food security strategy or a defence strategy. But our primary concern as state authority for R&D is the health and solidity of the foundation, since without it all the rest is mere wishful thinking.

In the years before the crisis, the HE&R infrastructures had seen major updates, with many universities and laboratories obtaining world-class equipment. The other two pillars were less fortunate however, and these we place at the centre of this presentation. We outline the recent changes affecting the institutional and funding structure, the human resources, the research environment, and the connections between public research and industry.

Institutions and funding

The three guiding principles of reforms are rewarding performance, critical mass and international openness. Among the most visible external initiatives in this direction are Romania’s memberships to CERN, FAIR and ESA, and, most especially, the decision of the Romanian government to lend its full backing to the largest and most ambitious R&D project in Eastern Europe: Extreme Light Infrastructure.

On the internal level, institutional reforms are mainly driven by the introduction of a new, three layer funding mechanism. First, all institutes will be evaluated by teams of experts, at least half of which must be from other EU or OECD countries. Following validation, each R&D centre is entitled to two types of institutional funding: the baseline funding and the performance-based complementary funding. The third and last layer, available to all entities, validated or not, is the competitive grant-based funding. The total budget is split between the three layers roughly as 20-30-50%. We must emphasise that the indicators that underlie the complementary funding are quantitative and transparent ‘output’ indicators, such as the number and visibility of publications, the number of patents or the funds attracted from the private sector.

Until mid-2010, Romanian R&D funds were managed by four different agencies. In order to increase efficiency, coherence and transparency, those activities are now concentrated within a single agency. Several state-of-the-art online platforms are used for managing all submissions and online evaluations securely. All competitive projects managed and funded through the agency are evaluated by teams of at least three experts each, of which more than half come from other EU or OECD countries.

Finally, perhaps one of the most important evolutions in the current reform is the upcoming appointment of a nine member National Council for Science and Technology Policy (CNPST), whose mission will be to provide a strategic view on the development of public policies, reporting directly to the Prime Minister at least once a year. The CNPST will be tasked with the transversal coordination of the RD&I policy, with a special emphasis on innovation policy, in close collaboration and communication with the other ministries. The concept of innovation ecosystem is novel in the Romanian public administration, and even in the industrial sector, and the CNPST will play a key role supporting and stimulating the formation of industrial clusters, start-up incubators, introducing new fiscal incentives for innovation, pushing for broader adoption of e-government services, and promoting the hi-tech entrepreneurial culture in the research system and in the broader society.

Human resources

Many of the numerous bureaucratic barriers preventing the return of young academics and researchers who studied or worked abroad have been removed. Moreover, the new Law of Education removes the possibility of senior academics or researchers keeping their posts many years beyond their retirement age. Thus, a very large number of positions held by retiring academics or researchers are open to competition (which started in September 2011). This will provide many opportunities for Romanians working abroad and also for foreigners to obtain positions in Romanian universities and institutes.

The integration of university graduates into the job market, and the continuous connection and communication between HE&R institutions and the job market has been written into the law. University presidents must publish annual reports on this and other aspects related to the socioeconomic relevance of their institutions, based on which they and their institutions are periodically evaluated.
The competitive grant-based programmes have been reorganised under new supervision of independent and highly prestigious experts. In the new structure, human resources have been given much more weight in the eligibility criteria and in the evaluation criteria. Henceforth, the most important criterion in any funding decision is the past performance and experience of the project leader. Funds are therefore no longer spread out in the fashion of a social security programme, but directed only to the true elite.

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Mechanisms are put in place in order to attract not only promising young academics and researchers from abroad, but also more senior ones. A programme will be launched soon that is designed to allow senior researchers working abroad to lead research projects in Romania. In this way, they may establish and develop a research group in the country from a distance, facilitating the decision of moving here, a few years down the road. This programme is meant as a bridge for the return of experienced, senior researchers from the diaspora, in order to repopulate those fields in which the local performance is still poor.

The research environment
We have undertaken a major effort to reduce the bureaucracy of the various funding, control and evaluation mechanisms. These are closely tied to the human resources policy and the institutional and funding reform policy discussed here. The foundation of these efforts is the idea that rather than spreading money broadly and thinly and then controlling tightly the way it is spent in order to avoid waste or corruption, it is preferable to identify those areas of elite performers, based on past activity, and focus resources on them, but with a much lighter level of bureaucratic intrusion.

The main emphasis must be placed on a very strict initial/periodic evaluation of individuals, projects or institutions, but once past this fine filter, those entities must be free to develop in those areas in which they are most competitive. Periodic evaluations are therefore not meant as opportunities for micromanagement, which must be avoided, but as opportunities for assessment of quantitative output indicators, as already mentioned.

Numerous legal provisions guaranteeing the transparency of evaluation and funding decisions are now in force, and the legal framework regarding ethics has also been overhauled. Strict rules are now being enforced regarding conflicts of interest, plagiarism and nepotism. Romania now has the toughest and most detailed legal framework in Europe in the area of the ethics and good conduct of academic and research activities. Particularly tough sanctions are attached to three types of grave ethical breaches: plagiarism, forging scientific data and false declarations in funding proposals.

Applied and industrial research
This area is perhaps one of the most difficult challenges facing the current administration, and, in fact, the government as a whole. Different nations have found different solutions to this problem, which proves that no one size fits all. However, there are some common points, and those are the first we have implemented. First, is a Bayh-Dole type provision guaranteeing HE&R institutions ownership of all the IP that they generate. Various bureaucratic obstacles in the mobility of researchers between academia and industry have been removed, as well as in their ability to launch start-ups while keeping their academic positions.

A new Employees’ Inventions Law will soon clarify the IP ownership rights between private sector employers and their employees, with more weight given to the former, in line with international trends. The law will also contain a strong incentive for public sector academics and researchers who create patents, as they will be entitled to 15% of all revenues that the HE&R institution obtains from the IP they have created.

According to a World Bank study, since 2009, Romania has one of the most effective fiscal incentives in the EU for conducting R&D activities (20% tax incentive).

Conclusion
The Romanian HE&R system is currently going through a major transformation, but many of the obstacles we face are similar to our Eastern European neighbours’, be they within or outside of the EU, and we feel that through closer collaboration and mutual learning we can work together toward the creation of an Eastern European innovation area.