No time to waste in Ukraine's road to boost science

Ukraine has put in place a wide-ranging legal framework to govern the development of its science and innovation system, but must move from theory to action, and faces tough implementation challenges, according to an international Peer Review carried out in the second half of 2016.

The review was led by Hans Chang, a Dutch science policy advisor and former director-general of the Royal Netherlands Academy of Arts and Sciences. Chang says that the exercise helped crystallise the task that Ukraine faces in modernising its science and innovation system. It also made plain to the reviewers what the scale of that task is. "The country is in a war; the country is in an economic crisis; their banks are in trouble," Chang says. So the earlier Ukraine starts the work of implementing its new legal framework the better.

Chang is realistic about the difficult road ahead for science and innovation. But he also acknowledges that the Peer Review received support from the highest levels, including Ukraine education and science minister Liliia Hrynevych. "There is the will," Chang says. "That's clear: they want change and improvement."

"We want to see reform and improvement in our research and innovation system, as reflected in the new law on scientific and technical activity. For this reason, we asked for PSF support and recommendations that would improve implementation and impacts."
Liliia Hrynevych, Ukrainian education and science minister

An ambitious reform agenda

Ukraine codified its ambitions for its science and innovation system in the Law on Scientific and Technical Activity, finalised at the start of 2016. Among other things, the law created a National Board on the Development of Science and Technology and a National Research Foundation, and set a target for public expenditure on research.

In implementing the law, the period up to 2020 will be crucial. The reviewers found that Ukraine should seek increased financial backing for the reform process from national, international, EU and private sources, and made seven top-line recommendations to Ukraine's government to ensure implementation of the new research framework:

1. Ukraine should remain committed to increased research investment, although the 1.7% of public spending target is "unlikely to be reached soon."
2. Ukraine's science strategy should be "cross-governmental" and should be understood as a key underpinning to the country's future growth and societal well-being.
3. Science and research in Ukraine must have the goal of benefiting society and the economy, and this orientation should be "firmly anchored in the mission and rules" of research bodies.
4. Clear and quick decisions should be taken on priorities, with the focus in this respect on the new National Board on the Development of S&T.

5. A general institutional revamp is needed for science bodies, their funding and procedures; this should be based on international good practice.
6. Ukraine should aim to open up its science system to international projects, and should leverage in particular its participation in Horizon 2020, which was agreed in 2015.
7. The reform process should be openly communicated, so that the aim to revamp the science system for the benefit of society is widely understood. This should include the whole science and innovation community: academia, public institutions, businesses and citizens should all feel involved in a reform process based on jointly defined priorities.

In terms of practical steps towards implementation, the new National Board would play a fundamental role, according to the review report. It should act as a "champion" of Ukraine's science and innovation reform efforts, and should have on its agenda for the next two years a short list of key priorities to "radically re-orient" the science system. Chang says that it should be "an organisation run by scientists for scientists."

The reviewers are candid about the scale of Ukraine's challenge in reforming its science system. Ukraine is now working on the roadmap for implementation of the Peer Review's recommendations, considered crucial to the success of the reforms by the reviewers. They recommend that in the next two years the National Board should:

- Decide on the distribution of funding between institutional research funding and competitive project-based research funding, with a recommended split of 60:40.
- Introduce a priority-setting process for socio-economic objectives, and include business and civil society in this priority-setting activity.
- Forge the link between scientific activity and innovation, especially in engineering and natural sciences.
- Establish a monitoring system so that Ukraine's science and research institutions can be assessed, and the progress of the reform process itself can be evaluated.

The Peer Review was completed under the European Union's Horizon 2020 Policy Support Facility (PSF), an instrument established in 2015 to support national authorities upgrade the way they organise their science and innovation activities.

"We are glad that Ukraine's associate status to Horizon 2020 provides for this excellent possibility to get the highly qualified expertise from the European Commission and the Member States", said Ms Hrynevych.

To date, PSF Peer Reviews have been carried out for Bulgaria, Hungary, Moldova and Ukraine, and one for Poland is underway. The Ukrainian review started in May 2016 and delivered its recommendations in December.

The Peer Review of the Ukrainian Research and Innovation System is available at https://rio.jrc.ec.europa.eu/en/policy-support-facility/peer-review-ukrainian-research-and-innovation-system