



Opinion: Strengthening Europe's competitiveness by more cooperation in science and education

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Historical dominance of science by European institutions is long over, yet our position in spending on R&D and related impact puts Europe in a strong second position after USA. But is Europe really living up to the competitiveness challenge and making the best of these investments? Some remarks:

1. Despite the present economic crisis we must resist further cuts in EU R&D budgets.

- While more industrial and infrastructure investment is needed to drive growth, it would be counterproductive to sacrifice science – the driver of future growth.
- Crisis-driven Southern EU countries find it all too easy to cut science and education spending in their budget balancing efforts, thus adding education misery to unemployment misery for their younger generation. EU support in science and education programs is needed.
- We specifically argue for an increase in ERC funding and for a re-installment of the position of EU Science Advisor to the Commission President.

2. The future of the EU depends crucially on talents in the fields of Science, Technology, Engineering and Mathematics (STEM). Skills in these fields are the best insurance for employability for Europeans and immigrants.

- We argue for physics as a compulsory topic throughout high school. Benchmarking and comparing European educational results in STEM fields helps to transfer best practice

between the widely different educational systems of EU countries, just like the regular PISA studies do for younger students.

- We should start in primary school to find and develop young talents for science and engineering. In particular, girls and children from non-academic families are the most prominent untapped talent pools. Similarly, for children of immigrants a physics or generally STEM education is a proven way to integration and recognition. This requires teachers as talent scouts: individuals with excellent educational and physics skills as well as pleasure in developing young talent. Making the job image of teachers more attractive and better recognized is priority in most EU countries.

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3. Europe needs to ensure more technology applications from its science investment!

- Technology acceptance in our society is needed to find solutions to the grand challenges of our times, such as climate change, energy, nutrition and medical care. The International Year of Light provides a great opportunity to build bridges between basic research, industry and society. It demonstrates beneficial technology impact and responsible use of new technologies, thus stimulating technology acceptance with politicians, teachers and citizens in Europe.

- EU citizens and politicians are generally very positive about research, but are withholding their support when it gets to translating the results into practical applications. Informing and educating our citizens continuously about the benefits of oncoming new technologies is a vital task for every researcher. When misguided persons spread technology fears to an uninformed public of teachers, politicians and parents it takes decades to turn technology mistrust around.
- Developing European research and ethical standards would help to prevent individual countries to over-react and drive out biotech and genetic research.
- The reports on the importance of physics to the EU economies made by EPS – following that of UK and taken over also by Italy – is a good step toward a better understanding of the technology transfer process. Specifically, exchanging best practices in technology transfer might be an EU initiative.

4. Given these challenges, more cooperation and integration between national physics societies should be encouraged.

- EPS is already taking a position in many of the above challenges. Strengthening our physics position in Brussels is needed and planned. EPS as an umbrella organization should speak for all of our national societies to the commission and the parliament.
- Coordination with other science organisations in Brussels will increase our impact in the EU political discussion. Uniting together behind educational topics and science funding issues makes our science voices much stronger. ■