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Now more than ever, our societies need transformative knowledge to solve global challenges, to sustain societal development, and to promote wellbeing and growth. Inventions that change the world for the better tend to emanate from discoveries made through frontier research that no-one could have even imagined asking for. Therefore fundamental research, the themes and methodology of which the researcher decides upon independently, must be safe-guarded, and comprehensive universities need to maintain a broad research base as excellence can emerge from any scientific or scholarly domain.

However, curiosity-based research is a slow driver of innovation. One way of accelerating the transformation of research findings to new products, processes, practices and services is to combine higher education, research and innovation to make a 'knowledge triangle', and it is on this principle that the European Institute for Innovation and Technology (EIT) is based. To reinforce innovation capacity, the EIT educates academic entrepreneurs to develop research findings into business in its virtual knowledge and innovation centers that combine the best universities, research institutes, companies, and other stakeholder organisations into highly competent versatile networks. The EIT's mission is to create businesses based on novel concepts that conform to the novel contexts of the rapidly changing world.

Whatever incentives policy makers, funding agencies, and universities develop to enable innovation, it is up to individual researchers to combine excellence with relevance. Individuals who are capable of identifying the potential applications of their research findings – and who have the stamina to develop them into commercially viable innovations – remain rare, especially in academic research environments that do not necessarily promote the culture of transformative research. To highlight towering role models from the past, I mention Louis Pasteur on whose microbiological inventions the vaccine, dairy, and brewing industries are based, and Marie Skłodowska-Curie whose discovery of radioactivity forms the basis of the most efficient cancer therapy.

In order to catalyse innovations and celebrate innovators, the State of Finland, together with high-tech industry and academic institutions, established the Millennium Technology Prize. This is awarded biannually by Technology Academy Finland, under the patronage of the President of the Republic of Finland, for disruptive innovations that enhance the

quality of life and sustainable growth. Candidates are sought from all over the world, from any field of technology (apart from military). The first prize was awarded to Tim Berners-Lee in 2004 for the World Wide Web. Thereafter, Shuji Nakamura was awarded the prize for white and blue LEDs, and after him Robert Langer for controlled drug release technology. In 2010, Michael Grätzel received the prize for sensitised solar cells. In 2012, it was shared by Linus Torvalds for the Linux kernel open source operating system and Shinya Yamanaka for ethical stem cell technology. The latest winner, in 2014, was Stuart Parkin for increased data storage technology. The next Millennium Prize winner is in the process of being selected by a high profile international jury, and will be awarded the €1m prize on 24 May 2016 in Helsinki.

The awarded innovations are expected to further stimulate cutting-edge research. It has been gratifying to see how the applications developed by the Millennium Technology Prize winners not only produce growth, but simultaneously spark new fundamental research questions.

In the ERA conference held on 22-23 June 2015 in Brussels, the new European Commissioner for Science, Research and Innovation Carlos Moedas noted that while excellent science is supported by the European Research Council (ERC), Europe lacks a world-class scheme to support the best innovations. He therefore proposed to establish a 'European Innovation Council' to guide European investment in innovation.

While the benefits of European innovations for Europe have to be secured by policies and financing instruments, and the role of such a council therein is being debated, we need to pay attention to the very foundation of innovation capacity: the next generation of researchers. Technology Academy Finland (along with the Centenary Foundation of Finnish Technology Industries) thus inspires young people at the national level by organising innovation competitions for school children and technology events for teenagers. In the Millennium Youth Camp, 18-20-year-old participants chosen from amongst 1,000-2,000 applicants worldwide develop technology projects under the guidance of high profile researchers.

Indeed, at the ERA conference, Commission Vice-President Jyrki Katainen highlighted the role of school education as a priming enabler for fostering the development of our future innovators, and it is clear that this must be a continued focus to secure Europe's innovative future.