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Scienti□c integrity, trust in science, and independence of research

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Science in crisis?

Celebrating the 10-year anniversary of APIS impact factor with this Special Jubilee Issue is shadowed by the apparent marginalization of and lack of trust in science in public life, and in political decision-making. In leading countries that foster scientific excellence, such as the United States, United Kingdom, and my home country Finland, public policy is increasingly based on other than solid scientific evidence, and key decision-makers publically belittle scientists. For example, a leading British politician dismissed consulting economists by stating 'People in this country have had enough of experts' (Clarke and Newman 2017). The Prime Minister of Finland was belittling the expertise of university professors and other academic sta in a TV interview (2 December 2015), while making a call for "those who could advise us on what to do in this [economic] situation". In the USA, uncomfortable scientific facts are replaced by "alternative truths" as a basis for policymaking (Tsipursky 2017). Why is it that while the general public largely has a high confidence and trust in science (Funk 2017), politicians seem to lack respect for scientific expertise?

Rush Holt, the CEO of the American Association for the Advancement of Science (AAAS), explained at the World Science Forum in Budapest in 2015 that "Policy makers do not think of science frequently, or crave scientific advice. They do not even know what to ask" (King 2016).

For us scientists, these developments should be alarming. Maybe we have to look into the way how science is operating: how science policy is formed, and how scientific institutions are run. After all, trust has to be earned.

Research results arising from within the stakeholder communities (e.g., industry-based research, or institutes serving a particular sector, and being funded by that sector) have always been viewed with suspicion by the critical public, while independent research institutes and universities traditionally have enjoyed high levels of public trust. It seems that this tradition is eroding, as research institutes and universities are changing their funding and operation principles. Increasingly, researchers are deprived of their academic freedom and are requested to conform to the "research strategy of the institution". Large proportion of funding is currently targeted, specifying exactly what the researcher is expected to study and how, leaving very little scope for independent innovations and creative problem solving.

Another aspect of evaluating whether scientists are trustworthy or not, is to look at the quality of their work. Under the intense pressure to produce a high number of publications, it is discomforting to learn that despite our e orts to peer review and to assure quality, the majority of published research findings are wrong. Professor John Ioannidis at Stanford University specializes in the conduct of scientific studies. He has found that in modern research, false findings may be the majority, or even the vast majority, of published research claims (Ioannidis 2005). Is this an outcome of the way our science policy is steered, and how the academic institutions are operating?

The case of an EU-funded Horizon 2020 project

An illustrative, personal case study concerning the described problematics, has been detailed earlier in the articles by Hokkanen (2017), Hokkanen and Menzler-Hokkanen (2018a, b, c), and Menzler-Hokkanen (2018).

I summarise here how a promising, pan-European research project addressing the call SFS-28-2017, with focus on ecostacking (Hokkanen 2017), was transformed from its original aspiration by a series of administrative and research policy decisions. As a result, a project intitially

Ma□aisation of science?

In her book “Justice under siege” (Joly 2006) Eva Joly describes how mafia-like structures penetrate and control large parts of our society—a sort of mafiaisation takes place in the society. Mafiaisation of science includes the fear of research groups to lose access to project funding, if not playing by the unwritten rules. It includes also collusion and power ambitions by groups based on long-term

> levels of integrity has been created. …. Individuals and institutions should use these practices with the goal of fostering a culture in which high ethical standards are the norm, ongoing professional development is encouraged, and public confidence in the scientific enterprise is preserved.

It is clear that to increase the credibility, impact and respect of scientists, and the scientific, evidence-based approach to policy making, our scientific institutions and science funding must work better than in the case of EcoStack. The rise of pseudoscience and alternative facts as guiding principles for running our societies cannot be the future of humanity.

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