

Kimmo Kaski

The usefulness of useless knowledge

Greeting from the President

2022, with its conflicts and other events, proved to be momentous in many ways. It gave rise to a geo- and security-political, economic, technological and, as a consequence, cultural and social disruption and a polarizing change in the world order. These events raised people's crisis awareness of other global and interlinked challenges, such as population growth and loss of biodiversity, climate change, carbon neutrality, energy sufficiency and the potential of biotechnology, as well as of the possibilities, fears and regulation of digitalization, automation and artificial intelligence.

Martin Rees writes about these far-reaching challenges that are central for sustainable development in his recent book *If Science is to Save Us*. To put it briefly, his answer is this: nothing but Science and the new knowledge and understanding it generates can help us find solutions to challenges as complex as these. Rees also points out that scientists have a duty to promote useful applications of their research and to warn of their potential downsides. The

same view of the necessity of basic scientific research for development was expressed by Abraham Flexner, the first Director of the Princeton Institute of Advanced Study, in his 1939 essay *The Usefulness of Useless Knowledge*, which contains a discussion he had with G. Eastman, the founder of Kodak:

“I ventured to ask him whom he regarded as the most useful worker in science in the world. He replied instantaneously: ‘Marconi.’ I surprised him by saying, ‘Whatever pleasure we derive from the radio, or however wireless and the radio may have added to human life, Marconi's share was practically negligible. The real credit for everything that has been done in the field of wireless belongs to Professor Clerk Maxwell and his research in the field of magnetism and electricity in the 1860s.’”

As has become customary recently, I asked ChatGPT about the benefits and value of science. I think that the answer it gave was quite correct: “The benefits of science refer to how science helps people



solve problems and improve their quality of life. This may include, for example, advances in medicine and technology and the protection of the environment. The value of science refers to why science is important for the development of humanity. This may include, for example, increasing knowledge about the world and how it works, increasing people's understanding of themselves and the world around them, and laying the scientific foundation for future technologies and innovations." My answer is that science has always possessed a timeless intrinsic value, but often also an instrumental value tied to time – in other words, benefits.

The central role of scientific research in building a nation's welfare was articulated in

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1945 by Vannevar Bush, science advisor to US President F. D. Roosevelt, in his memo *Science: the Endless Frontier*. In his memo, he emphasized the role of **R**esearch as a growing reservoir of knowledge and expertise that inevitably leads to **D**evelopment and **I**nnovation. In other words, he saw **RDI** as a chain where D and I cannot exist without R. As in the above example about Maxwell and Marconi, the time frame during which R becomes D and I (or when it turns into benefits) is difficult to predict, but it always generates intrinsic value in the form of new knowledge and expertise.

I have been delighted to see that the Parliamentary Working Group on Research, Development and Innovation has recognized the value and benefits of new scientific knowledge and expertise when it proposed to increase R&D funding to 4% of GDP by 2030. In addition, the new funding law and the planning period of R&D funding that extends beyond the framework period make us confident about the future. The new government has promised to deliver on this excellent promise. It is particularly important now, at the turning points of our living and working environments, in times of upheaval and crisis, as the COVID-19 pandemic already showed us. This project has all the ingredients for success, just as long as we remember that the reservoir of new knowledge, understanding and expertise generated by long-term scientific research based on curiosity is the basis for development and innovation in various sectors of society and the engine of prosperity. As an independent operator in the field of general science and a promoter of basic scientific research, the Finnish Academy of Science and Letters is ready to make the RDI promise a reality together with various parties.

Over the past few years, the Academy has expanded its operations to become a visible and influential actor, both nationally and internationally, "For the benefit of science – for the good of society". I would like to highlight two societally important initiatives that draw on the deep and wide-ranging scientific expertise of our members: 1) promoting interaction between science and decision-making, and 2) the History of Science in Finland project.

Since its foundation, one of the Academy's main tasks has been, and continues to be, the promotion of research-based decision-making. In recent years, we have worked

with ministries to strengthen the dialogue between science and decision-making on both sides. The Prime Minister's Office has been our key partner in this. We have worked together with the Office to establish science panels and organize dialogues to support the ministries' foresight work. At the beginning of this year, by the request of the Prime Minister's Office, we carried out an extensive review of the effects of Russia's war of aggression against Ukraine on Finnish society, including assessments by researchers. It will be utilized in the government negotiations and in the work of the future government. There is also an international demand for this kind of expertise, including in the UN.

The aim of the independent History of Science in Finland project is to produce a structured overview of the field of Finnish science and its changes over time. What is unique about this project is that it makes extensive use of scientists' oral history and personal narratives. The project involves the collection of oral history, which was organized by the Finnish Literature Society and the Society of Swedish Literature in Finland together with the Finnish Acad-

emy of Science and Letters, the Finnish Society of Sciences and Letters, the Federation of Finnish Learned Societies, the National Archives of Finland and the Finnish Historical Society. We call this project the *Kalevala of Finnish Science*, and I hope that all members will participate in the collection of oral history and share their views on the development of their own scientific discipline.

Other recent developments at the Academy include the overall reform of scientific publishing in the form of *Annales Academiae Scientiarum Fennicae*, a journal covering all scientific disciplines, of which the second issue has just been published. Another development worth mentioning is the independent Young Academy Finland operating within the Finnish Academy of Science and Letters, and in particular its "Meet a Researcher" service for Finnish schools, which has turned out to be a great success.

The Finnish Academy of Science and Letters will continue to develop and strengthen the impact of the above-mentioned initiatives and activities for the benefit of the scientific community and its members, and for the good of society.

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The title is a quote from the title of Abraham Flexner's essay "The Usefulness of Useless Knowledge"