

Artificial intelligence and one health as opportunities for Life Science Universities

Martin Gerzabek – Acceptance of the ICA Excellence Award 2023

Dear presidency, dear board members, esteemed colleagues, dear friends!

First of all, I would like to express my sincere gratitude for the great honor bestowed upon me by being awarded the ICA Excellence Award 2023! I am completely surprised and of course delighted that my achievements inside and outside ICA are recognized in this way. Let me add that I have enjoyed serving ICA over the many years and it has been a pleasure to contribute a little to the development of this important European University association. At this point I would like to thank all my colleagues on the Board for their many years of good cooperation and I would like to make a special mention of Simon Heath, without him ICA would not be what it is today.

The founding of ICA-CASEE strengthened ICA's presence in the Danube region and continues to contribute to increased cooperation between life sciences universities in this region. The Rectors and Deans Forum became an important event for the exchange of ideas and concepts at the European level. I would like to congratulate you on this year's topics, which I will comment on in a moment! Of course, I am very sorry that I cannot be present in person.

Universities around the world face numerous challenges. The current crises, which have hit us unexpectedly, also have a massive impact on universities and university operations. Many things will no longer be the same as they were before the corona pandemic. However, I also see great opportunities for further development here. Digitalization, for example, has progressed much faster than was thought possible until recently. I see the two main topics of this year's Rectors and Deans Forum also as a great opportunity.

Let me start with artificial intelligence. AI is likely to bring about the biggest disruptions in our society, economy and environment. As president of the Christian Doppler Research Association, I can report that a third of our 113 laboratories and research centers use and/or further develop AI methods. AI,

which started in 1953, has already become an integral part of numerous areas today. AI has gained a firm place in medicine, especially in the area of diagnosing eye and skin diseases, evaluating imaging procedures, etc. In general, AI is being used more and more for diagnostic procedures. In the narrower area of life science universities, it is primarily the applications in agriculture and forestry that are becoming more abundant in the farm and forest 4.0, but AI methods will also be of utmost importance in evaluating biodiversity and in the energy transition in the future in order to increase the efficiency of the systems and to increase their resilience. The complexity of energy supply systems in particular requires resilient control mechanisms in which AI plays an increasingly important role. But research itself can also be accelerated and made more efficient through AI systems. Here are numerous tasks for universities: first, universities must build scientific capacities in AI and digitalization in order to be able to credibly research and teach in this area – as in the moment in many cases companies are far ahead of the universities.

But universities in particular will also be required to address the challenges that go hand in hand with AI in research and teaching. The challenges are manifold: (i) the trustworthiness of the tools, (ii) the increasing complexity due to enormous amounts of data, whereby the validation of the methods cannot be solved by simply increasing the amount of data, but only through alternative approaches, (iii) the question of safety in situations in which quick decisions are necessary and AI is the basis for these decisions, (iv) the question of the social, societal and also artistic dimensions of AI and (v) the problem of a possible loss of control over critical systems by humans.

The change in job profiles for our graduates will result in the necessity to adapt our curricula and because of the impact of ChatGPT or similar programs on the design of seminar papers and theses. I haven't yet touched on the enormous energy requirements of AI. Estimates have shown that by 2040, if developments in AI continue at today's pace, all of the electrical energy produced on Earth would only be used for AI. One could also provocatively point out that the human brain is significantly more energy efficient than current computer resources - think for yourself as an alternative?

I move on very briefly to the topic One Health. The World Health Organization has joined with the Food and Agriculture Organization, the World Organization

for Animal Health and the United Nations Environment Program in an interdisciplinary initiative on One Health since March 2022. The One Health initiative is based on the premise that the health of humans, domestic and wild animals, plants, and the broader environment (including ecosystems and soils) are intimately linked and interdependent. Cross-sector and multidisciplinary collaboration helps protect health, address public health challenges such as infectious disease incidence, antibiotic resistance, and food safety, and promote ecosystem health and integrity. By linking people, animals and the environment, One Health can help address the full spectrum of disease control-from prevention to detection, preparedness, response and management-and contribute to global health security.

This initiative could be a great opportunity for life sciences universities. We are already used to thinking in systems - agricultural sciences were the first systems study before there were studies in ecology and environmental sciences. In this context, our universities' traditions of inter- and transdisciplinarity are a great strength that we should not only use, but also develop further. It will be important to work closely not only with veterinary medicine, but also with human medicine, with environmental medicine specialists, oncologists and epidemiologists. Let's look at two examples. The EU actually failed on the glyphosate issue in the view of the public. There is a light at the end of the tunnel with new plant breeding methods, but there is still a long way to go. In fact, a holistic approach could help significantly in these cases and others and our universities could play a prominent role in this.

I would like to thank you again for the great award that has been given to me and I hope that the conference continues to be exciting. Have a nice dinner and evening.

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