

10.01.2022 – Elementarium

Translation of <https://elementarium.cpn.rs/naucne-vesti/upotrebiti-buducnost-kako-bi-sadasnjost-bila-bolja/>

### **Use the future to make the present better**

Science should be universal, open and accessible to all, equally, but also in accordance with ethical principles

This is the main message from Geneva from the first GESDA Science and Diplomacy Summit.

How science was transferred from laboratories and classrooms to the ordinary world was a key question to which the gathering tried to provide an answer.

The Geneva Foundation for the Anticipation of Science and Technology (GESDA) was founded in 2019 in response to global challenges facing humanity or will face in the near future, with special emphasis on the dizzying development of science and technology, but also increasingly serious disruptions. and the impending collapse of our planet's ecosystems. The foundation's work is based on three fundamental questions: first, what it means to be a human being in the era of robots, editing genes and digitally augmented reality; second, how we can use technology to reduce inequalities, benefit all and foster inclusive development; and third, how to provide all people with adequate nutrition, supplies and necessary energy, while at the same time enabling the planet Earth to recover and regenerate.

In the search for answers to these questions, four areas of science and technology will be the focus of the foundation's interest in the long run: quantum revolution and advanced artificial intelligence; technological enhancement of human capabilities; eco-regeneration and geoengineering; and last but not least, the relationship between science and diplomacy.

In short, the GESDA Foundation for the Anticipation of Science and Technology, which represents a solid marriage between science and diplomacy, aims to anticipate major technological revolutions in the future and enable everyone, not just the privileged, to benefit from it.

And while scientific research used to be exclusively in the hands of the state, now it is also dealt with by the private sector, which often does not pay attention to fundamental rights.

The right to science was recognized in 1948 by the Universal Declaration of Human Rights, which, among other things, states that everyone should benefit from scientific discoveries.

Despite that, this right is often ignored and is not included in the list of priorities of the world's elites, which was further confirmed by the coronavirus pandemic. A clear example of this is the fact that in some parts only one percent of the population has been vaccinated, and that is "inequality that undermines global economic recovery", the World Health Organization emphasizes, adding that the Covid-19 pandemic will not stop until the vaccine is available to everyone. the world. "

Participating in the summit, Sir Jeremy Farrar, director of the Wellcome Trust and one of the world's leading experts on infectious diseases, shared his knowledge and expertise, saying: "Immunization of many people in several countries, while in other parts of the world the virus spreads development of new strains. And as long as that is the case, the virus will evolve to the point that vaccines, therapies and tests are no longer effective. We are facing a growing trend of nationalism regarding vaccines, and that does not bring good to anyone. Because until we are all safe, no one will be safe. We need to understand that this is a global problem that needs to be solved in this way. "

Bringing together experts in science, politics and the private sector, GESDA has set a very ambitious goal - to create a basis for open cross-sectoral dialogue on science, with the aim of global prosperity and social equality. The initiative started from Geneva, and not by chance, because it is the capital of internationalism and multilateralism.

### **A radar that predicts future technological revolutions**

Will this be another empty story or can we expect something concrete - is a thought that could be heard among the guests at the entrance to the Biotech Campus in Geneva at the beginning of the summit. Namely, Greta Thunberg's speech from Milan at the Youth4Climate summit, in which, criticizing world leaders, she characterized their rhetoric on climate action as "blah, blah, blah" – they meet, discuss, promise a lot, but, in the end, they do nothing, Thunberg said.

The scepticism that another empty story would resonate in Geneva was realistic. Invited to speak at the opening of the summit, the Minister for International Cooperation and Cooperation of the Republic of South Africa, Naledi Pandor, pointed out at the end of her speech: "But now these words should become deeds!"

It is too early to say whether that will happen. One thing is for sure - the summit participants parted with much greater enthusiasm than at the beginning.

One of the key reasons for this is the GESDA Radar of Scientific Discoveries, which the foundation created in collaboration with about six hundred scientists from around the world. Radar detects scenarios, i.e. the potential of revolutionary scientific discoveries in 5, 10 and 25 years in various fields, from artificial intelligence to space exploitation, eco-regeneration and genetic engineering. It is designed to help states, international organizations, the non-governmental and civil sector, so that they can prepare in time, that is, so that they are not caught, i.e. surprised when the discoveries become a reality.

It is this crystalline view of the future that brings admiration to the scientific community, which is sometimes sceptical of initiatives that lead to many debates, but without concrete action.

In addition, in order to avoid the "second cold war" in science and technology, diplomats and scientists should have open access to society, said GESDA President Peter Brabeck-Letmathe.

The spirit of the "second cold war" does not leave foreign governments indifferent. The administration of US President Biden expressed interest in this Swiss scientific-diplomatic project, seeing it as a great opportunity for progress in the field of innovation and an incentive to develop partnerships.

### **People and technology closer than ever**

In 25 years, it is possible that artificial intelligence will resemble human intelligence and that machines will be largely equated with humans, if not take precedence in many jobs, increasing productivity. Of course, this will affect future employment and encourage thinking about our, human role in society.

In that sense, the radar can be of help to the global society to provide a technological future that will be for the benefit of humanity, and not against human interests, the summit organizers point out. In addition, it can encourage the inclusion of science in the discussions of international organizations and governments. The idea behind the GESDA slogan "use the future to create the present" is not entirely new.

Namely, science fiction has long encouraged us to think about different future scenarios that we may or may not want to experience. But these ideas have not always been helpful to governments and international organizations to build the future we had hoped for. It is clear that the negative impact of artificial intelligence is not prevented. And while many of us benefit from the Internet, almost half of the world's population is still not online. The same goes for the inequality in the distribution of Covid-19 vaccines - agreed many diplomats, participants in the summit. However, it is not easy to think about the future of scientific trends when current topics require all the attention. And here the question arises whether international institutions and governments, as they are formed today, are capable of accepting challenges and opportunities that can materialize only in 25 years?

For example, the price of genome sequencing has dropped from \$ 2.7 billion to just three hundred in just 20 years. Dramatic advances in our ability to read DNA suggest a greater revolution, and that is writing our genetic future. In the next ten years, gene therapy will focus on rare inherited diseases and some forms of cancer and will become part of regular medical practice.

In 25 years, various opportunities to improve human capabilities will be available, which will ensure progress in many fields. But, on the other hand, important bio-security challenges will arise and the essential question will arise: what does it mean to be a human being?

In addition, by 2050, one in six people on the planet will be over 65 years old. The grey tsunami of existing diseases threatens health and the economy on a global level, as the proportion of able-bodied people decreases today. It is encouraging that new scientific advances aimed at slowing down the physical and cognitive aging of man suggest a better future for people on the planet. Developing drugs that target slowing biological aging or simply reversing the "epigenetic hour" could soon significantly extend our "healthy years of life," even into old age.

"When I started studying the aging process in the 1990s, it was a very narrow scientific field. At that time, I was faced with great scepticism, most of the scientific community did not believe that it was possible to slow down the aging process. Today the situation is completely different, most think it is possible. We are developing therapies that can prolong our life, but also good health. Of course, here we are talking about a functional physical and mental state, not about extending the life span in which someone will live 120 years, but on the devices that keep him alive. On the contrary, our research is more preventive, we aim at the greatest risks that age brings with it, and it is not just chronic diseases. Covid-19 additionally showed how old is the main risk factor for death and hospitalization, in the so-called mini-infectious diseases, such as influenza. So, it is important that individuals stay healthy and functional for a long time. In this regard, we can expect exceptional results in this field in the next 30 years," said Professor Brian Kennedy, biochemist, director of the Center for Healthy Aging in Singapore and one of the world's leading experts in the field of aging biology.

All this will significantly change the dynamics of population aging on the planet and will require fundamental changes in public health systems, economic planning and, of course, employment dynamics.

Covid-19 showed how important the answers to almost all global questions are. Many of the challenges of our time - including not only the global pandemic, but also climate change, the migrant crisis and food security for the world's population - can no longer be just a matter of domestic policy. The link between science and diplomacy is extremely important if we want to use advanced

technologies as a tool for integrated development. That is why the radar is purposefully designed to deal with this issue.

### **Science is made up of people and stories**

When we talk about science, we must not forget that behind every innovation, behind every small or big discovery that makes our lives better, there are personal stories and people dedicated to the development of science.

The new Center for the Origin and Prevalence of Life will open next year at the ETH Federal Institute of Technology in Zurich. Nobel laureate Didier Patrick Queloz has been elected director of the Center, who will research the origins of life with his team.

Recall, James Peebles, Michel Mayor and Didier Queloz received the 2019 Nobel Prize in Physics for a "revolutionary" discovery of the universe. They received the award for their work on the evolution of the universe and the discovery of a distant planet orbiting a star like the Sun in 1995.

Michel Mayor and Didier Queloz were awarded for the discovery of 51 Pegasi b gas giants, which orbit a star 50 light years away. It was the first exoplanet found around the star of the main series.

At the summit in Geneva, Queloz briefly presented the idea of future research. "In the search for another form of life in space, scientists need to better understand how life evolved on Earth. It is a well-known opinion that organisms discovered in underwater volcanoes represent early forms of life on Earth. When you talk about the origin of life, it is the simplest question you start from. And there are two views: first, we know what life is like on Earth and we can take that as a reference. And that is completely legitimate, because the chemistry that exists on Earth can also exist on other planets.

So, look for something based on what you already know. And secondly, it is the unknown. How do you identify life if you don't know what it is? The most reasonable answer is to try to see life as part of a planetary system. At some point, life will play an important role in the history of a planet like this on Earth, where oxygen is simply the result of life. So, would you expect the chemistry of a planet to be influenced by life. It is certainly a challenge to establish this assumption. You may find something inexplicable and decide to call it "another form of life." But will it be possible to create life in the laboratory? Technically, reverse engineering could be performed. You can try to get everything back to square one, like when you disassemble a car and try to reassemble it.

On the one hand, the desire of leading scientists to work more closely with diplomats and decisionmakers to ensure that the progress of science is meaningful and influential is quite clear. On the other hand, the need to better predict the future has prompted other sectors to get involved, trying to understand the essence and impact of transformative science coming out of the laboratory, and how important it is for diplomacy, whether at the level of governments, international institutions or private sector. In this regard, there is a chance that future solutions for the benefit of humanity will be considered in a timely manner, and it seems that both sides are ready to bridge their differences and try to cooperate on this common goal.