

PRESS RELEASE

Geneva (Switzerland), 17 December 2020

GESDA gathers its high-level academic and diplomacy panels to leverage anticipatory science advances and address emerging global challenges in an innovative way

- **The Geneva Science and Diplomacy Anticipator (GESDA), a Swiss foundation dedicated to anticipation in science and diplomacy, is convening the first gathering of its Academic Forum and Diplomacy Forum. The latter is formed so far of 17 high-level decision and policymakers whose names are disclosed today (full list below).**
- **On 18 December 2020, they will meet with representatives of GESDA’s Academic Forum, formed of 68 global leading scientists (full list below) who have produced the first 10 Scientific Anticipatory Briefs, in-depth anticipatory reports on selected emerging scientific topics ranging from advanced artificial intelligence, genome editing, and neuro-enhancement, to decarbonization, ethics of anticipation and computational diplomacy.**
- **Together, the high-level Academic and Diplomacy panels will produce concrete solutions proposals on how to come to a more efficient and faster use of the identified anticipated science advances to address emerging global challenges for the benefit of all.**

The rationale behind the development of GESDA, established in Geneva in 2019 by the Swiss Confederation and the Canton and the City of Geneva, is driven by the fact that:

- The world is experiencing breakthrough science and technological discoveries at an unprecedented pace; they will reshape how we view ourselves as humans, how we relate to each other in society, and how we care for our environment.
- Humanity, especially people living in emerging or developing countries, cannot afford to miss the potential of those science and technology advances for global well-being and inclusive development, but an ever-more rapid adaptation is necessary.

Therefore, “GESDA’s vision is to ‘Use the future to build the present’, by bringing together representatives of different communities (academic, diplomatic, impact and citizens) in order to anticipate advances in frontier scientific work being done by the most advanced laboratories of the world, and to develop around them new initiatives, projects and solutions for humanity,” explains **Peter Brabeck-Letmathe**, Chairman of the GESDA Board. “As such, GESDA is both a think tank and a do tank.”

In spring 2020, teams of leading global scientists, forming GESDA’s Academic Forum chaired by **Joël Mesot** (President of the Swiss Federal Institute of Technology in Zurich – ETHZ) and **Martin Vetterli** (President of the Swiss Federal Institute of Technology in Lausanne – EPFL), identified specific emerging frontier topics in four selected fields: 1. Quantum Revolution & Advanced AI; 2. Human Augmentation; 3. Eco-regeneration & Geoengineering; 4. Science & Diplomacy. “After diving deep into science publications and probing discussions with worldwide experts, they produced ten in-depth reports on these critical topics suggesting what breakthroughs could be anticipated in 5, 10 and 25 years,” says Joël Mesot. “We are thrilled to have been able to gather 68 experts in their field so far, coming from almost all regions of the world,” highlights Martin Vetterli. The full list of the Academic Forum members, of which GESDA disclosed the leading personalities earlier this year, is at the end of this press release. These reports, called Scientific Anticipatory Briefs (SABs), are about:

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|---|--|
| 1. Future of machine learning and AI | 6. Socio-ecological foresight |
| 2. Future quantum technologies | – Integrated digital ecosystem avatars |
| 3. Memory enhancement and cognitive engineering | 7. Social enhancement |
| 4. Future of human genome editing | 8. Negotiation engineering and computational diplomacy |
| 5. Decarbonizing the global economy and society | 9. Future of science diplomacy |
| | 10. Ethics of anticipation |

Note: The summaries of those SABs, which will be published in science journals in due course, can [be found on GESDA’s website](#).

The task was mostly original for those scientists, but fascinating and informative: “From a pure science point of view, long-term anticipation – at 25 years – is an amazing task that we do not do often enough, or almost avoid in our daily work,” says **Olaf Blanke**, holder of the Bertarelli Foundation Chair in cognitive neuroprosthetics at EPFL and author of one SAB on ‘Memory enhancement. “However, it is conceptually and scientifically interesting, extremely important, but also very difficult, or should I say impossible? In my opinion, it is completely lacking in science today and should be a new field of academia. Some topics will have dramatic changes,” he continues. “More and more scientific and technological breakthroughs will come from the private sector and will make it harder for policymakers to put regulations in place without slowing innovation. We need to find the balance, have an anticipatory mechanism in place,” adds **Marga Gual Soler**, Visiting Professor in Science Diplomacy at the Universidad Nacional Autónoma de México, and former High-Level Adviser to former European Commissioner Carlos Moedas, who authored the SAB on the Future of science diplomacy.

The GESDA Diplomacy Forum, composed of high-level representatives of various communities (diplomats, policy-makers, former national politicians, heads of United Nations (UN) agencies and international organizations, and representatives of civil society, media, business, etc.) has **Michael Møller** (former Director General of the UN Office in Geneva and former Undersecretary General of the United Nations) as its chair. It is so far composed by:

| Name | Title, organization | Location/origin |
|---|---|------------------------|
| Representatives of politics - diplomatic circles - geopolitics | | |
| Martin Chungong | Secretary General, Inter-Parliamentary Union (IPU) | Geneva/Cameroon |
| Sean Cleary | Executive Vice-Chair, FutureWorld Foundation | Cape Town/South Africa |
| Jürg Lauber | Ambassador, Permanent Representative of Switzerland to the UN and other International Organizations | Geneva/Switzerland |
| Enrico Letta | Dean, Paris School of International Affairs, Sciences Po; former Prime Minister of Italy; President, Jacques Delors Institute | Paris/Italy |
| Representatives of transversal international organizations | | |
| Michelle Bachelet | United Nations High Commissioner for Human Rights (OHCHR); former President of Chile | Geneva/Chile |
| Peter Maurer | President, International Committee of the Red Cross (ICRC) | Geneva/Switzerland |
| Mami Mizutori | Special Representative of the UN Secretary General for Disaster Risk Reduction (UNDRR) | Geneva/Japan |
| Sergio Mujica | Secretary General, International Organization for Standardization (ISO) | Geneva/Chile |
| Guy Ryder | Director General, International Labour Organization (ILO) | Geneva/UK |
| Daren Tang | Director General, World Intellectual Property Organization (WIPO) | Geneva/Singapore |
| Representatives of the community of chief scientists | | |
| Lidia Brito | Director of UNESCO's Regional Bureau for Sciences in Latin America and the Caribbean; former First Minister for Higher Education, Science and Technology of Mozambique | Montevideo/Mozambique |
| Peter Gluckman | Chair, International Network for Government Science Advice, President-elect of the International Science Council; former Chief Science Officer to the Prime Minister of New Zealand | Auckland/New Zealand |
| Representative of Impact and Citizens Communities | | |
| Anousheh Ansari | CEO, XPRIZE Foundation; Co-founder and former CEO of Prodea Systems; Astronaut (private) | Los Angeles/US & Iran |
| Jim Hagemann Snaab | Chairman, Siemens AG and A.P. Møller Mærsk; Vice-Chairman, Allianz SE | Copenhagen/Denmark |
| David Goodhart | Journalist, Author and Think Tanker | London/UK |
| Jayathma Wickramanayake | United Nations Secretary General's Envoy on Youth (ad personam) | New York/Sri Lanka |
| Nanjira Sambuli | Policy Analyst, Advocacy Strategist | Nairobi/Kenya |

This first gathering of the Diplomacy Forum with the Academic Forum will be held on 18 December 2020 – online, due to the COVID-19 situation. “The role of the Diplomacy Forum representatives, while discussing directly with the scientists who authored the SABs, will be first to build a common understanding of what the cutting-edge science and technologies can bring to address emerging challenges, and then jointly to develop ideas for new global solutions, initiatives or institutions to accompany and foster agreement on how these science advances might help tackle those challenges,” says Michael Møller. “The resulting agreement on how to move forward will be transmitted to the GESDA Board in January 2021 for a decision on which solutions to prioritize.”

Dedicated “Task forces” will then shape these solutions during 2021. Depending on the specific emerging scientific topics and the emerging challenges they address, they can vary in terms of:

- **Development projects** (technological deployment accelerating the implementation of the UN's Sustainable Development Goals in the next 5-10 years, etc.)
- **Governance** (new conventions related to science, agreements, standards, etc.)
- **New institutions to be created in Geneva** (new international regulatory organization, research centre for science policy and/or science diplomacy, international capacity-building initiative on rapidly developing sciences, training centre, observatory, associations, foundations, etc.)

This process follows the overall objective of creating coalitions between scientists/academics and diplomacy representatives in order to arrive faster and more efficiently at global and actionable solutions. The former will benefit from a direct and influential opportunity to share their complex vision, work and its applications at a very high and international decision level. The latter can present the priorities they foresee for people, society and planet while being presented with a unique chance to interact with a dynamic and solution-driven scientific research community, in order to better include them as stakeholders in international policymaking and diplomacy. The methodology put in place by GESDA strives to provide an innovative instrument in favour of multilateralism by addressing the global challenges of tomorrow thanks to properly anticipated developments in science and technology.

Commenting on their participation in the Diplomacy Forum, **Lidia Brito**, Director of UNESCO's Regional Bureau for Sciences in Latin America and the Caribbean and former First Minister for Higher Education, Science and Technology of Mozambique, says: "Scientific advice should not just be facts for decision, but be there to change the process of decision-making. That is where it is transformational!" **Enrico Letta**, former Prime Minister of Italy, now Dean of the Paris School of International Affairs, says: "Institutions are always a step behind; science and scientists have an essential role to play in a renewed multilateralism. The worlds of science and diplomacy must establish a sustained dialogue. The main obstacle is to understand each other with the language difference (social sciences vs STEM). The future will be different as students will be trained in both languages." **Mami Mizutori**, Special Representative of the UN Secretary General for Disaster Risk Reduction, concludes: "Anticipation is very important, but how do we find the best way to govern it so that it takes the global community to a place where we should be going? We should come to a good outcome on solutions; we can talk a lot about challenges (and opportunities), but in the end, we want to know how to solve them."

Geneva was determined to be the place to host GESDA, establishing it at Campus Biotech, a centre of excellence in life sciences, global health and digital sciences. Known as the City of Peace and Human Rights, Geneva is the birthplace of the creation of, amongst others, the International Red Cross and Red Crescent Movement, many United Nations organizations and the European Organization for Nuclear Research (CERN), a major science diplomacy initiative. Geneva is now home to nearly 100 international organizations, over 700 NGOs, 180 state representations, over 1,600 multinational businesses and world-class academic institutions. Leveraging this ecosystem, GESDA will help emphasize the crucial role of Switzerland in general – and International Geneva in particular – as the worldwide hub for international organizations tasked with effectively implementing the UN's 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), and beyond. "Leave no one behind" (the lead pledge of the SDGs) is one of the foundations of GESDA's actions, as along with the "Right to share in scientific advancement and its benefits" (Art. 27 of the Universal Declaration of Human Rights).

– ENDS –

Interviews with the following GESDA representatives can be arranged for the media:

- **Peter Brabeck-Letmathe**, Chairman of the GESDA Board, appointed by the Federal Council. Vice-Chairman of the Board of the World Economic Forum (WEF); Chairman Emeritus of Nestlé SA
- **Patrick Aebischer**, Vice-Chairman of the GESDA Board, appointed by the Federal Council. Professor of Neuroscience; former President of EPFL, Switzerland

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Please also visit GESDA's new website: <http://www.gesda.global/>

ANNEX

Academic Moderators and Experts

The GESDA Academic Forum consists of four Platforms on four research fields: 1. Quantum revolution & Advanced AI; 2. Human augmentation; 3. Eco-regeneration & Geoengineering; 4. Science and Diplomacy. Each Platform is led by two to three Moderators who can ask global experts to contribute to the production of the Scientific Anticipatory Briefs on emerging topics related to the Platform. With 68 members from almost all regions worldwide, the Academic Forum truly is international.



Platform 1: Quantum Revolution & Advanced Artificial Intelligence

Moderators and SAB lead authors: **Matthias Troyer**, Distinguished Scientist and Director of Quantum Computer Solutions, Microsoft; **Rüdiger Urbanke**, Professor of Communication Theory, EPFL

Global experts: **Robert Thew**, Senior Researcher in Quantum Technologies, University of Geneva; **Nicolas Gisin**, Professor of Quantum Information and Communication, University of Geneva; **Francesco Petruccione**, Pro Vice-Chancellor, Big Data and Informatics, University of KwaZulu-Natal; Sir **Peter Knight**, Emeritus Professor, Faculty of Natural Sciences, Department of Physics, Imperial College London; **Philipp Treutlein**, Professor, Quantum Optics Lab, University of Basel; **Emmanuel Abbe**, Professor, Chair of Mathematical Data Science, EPFL; **Samy Bengio**, Research Scientist, Google Brain; **Antoine Bosselut**, Post-Doctoral Researcher, University of Washington, Washington; **Jennifer Chayes**, Associate Provost, Division of Computing, Data Science and Society, University of California Berkeley; **John C. Platt**, Distinguished Scientist, Google Research; **Shai Shalev-Shwartz**, Professor, School of Computer Science and Engineering, Hebrew University Jerusalem; **Bin Yu**, Chancellor's Distinguished Professor, Departments of Statistics and Electrical Engineering and Computer Sciences, University of California, Berkeley; **Yi Zheng**, Professor, Institute of Automation, Chinese Academy of Sciences

Platform 2: Human Augmentation

Moderators and SAB lead authors: **Olaf Blanke**, Bertarelli Chair in Cognitive Neuroprosthetics, EPFL; **Samira Kiani**, Associate Professor, University of Pittsburgh School of Medicine

Moderator: **Effy Vayena**, Professor for Bioethics, ETHZ

Global Experts: **George Church**, Professor of Genetics, Harvard Medical School; **David Liu**, Professor of Chemistry and Chemical Biology, Vice-Chair of the Faculty, Broad Institute, Harvard and MIT; **Baptiste Gauthier**, Senior Researcher, EPFL; **Andrew Hessel**, Fellow, Institute for Science, Society and Policy, University of Ottawa; **Itzhak Fried**, Professor, Brain Research Institute, University of California Los Angeles; **Bryan Johnson**, CEO, Kernel; **Michael Kahana**, Professor of Computational Memory, University of Pennsylvania; **Johannes Gräff**, Professor of Neuroepigenetics, EPFL

Platform 3: Eco-regeneration & Geoengineering

Moderators and SAB lead authors: **Gerald Haug**, President of the German Academy of Sciences Leopoldina and Professor of Climate Geochemistry, ETHZ; **Berend Smit**, Professor of Chemical Engineering, EPFL

Global experts and SAB lead authors: **Ottmar Edenhofer**, Potsdam Institute for Climate Impact Research; **Neil Davies**, Gump South Pacific Research Station, University of California Berkeley; **Ioan Negrutiu**, Director, Michel Serres Institute for Resources and Public Goods and Professor, ENS Lyon

Other global Experts: **Wendy Queen**, Assistant Professor of Functional Inorganic Materials, EPFL; **Jonas Knapp**, Energy and Climate Policy Expert, Potsdam Institute for Climate Impact Research; **Peter Schlosser**, Vice-President and Vice-Provost, Julie Ann Wrigley Global Futures Laboratory, Arizona State University; **Sally J. Holbrook**, Professor of Ecology, Department of Ecology, Evolution and Marine Biology, University of California Santa Barbara; **Gerhard Schmitt**, Professor of Information Architecture, ETHZ, Director of the Singapore-ETH Centre in Singapore, Future Cities Lab Steering Committee Member; **Russell J. Schmitt**, Professor, Department of Ecology, Evolution and Marine Biology, University of California Santa Barbara; **Cherie Briggs**, Professor of Ecology, Evolution and Marine Biology, University of California Santa Barbara; **Joachim Claudet**, Director of Research, Centre for Island Research and Environmental Observatory, CNRS (CNRS Unit, École pratique des hautes études, University of Perpignan); **Juliana Freire**, Professor, Department of Computer Science and Engineering, New York University; **Nicolas Gruber**, Professor of Environmental Physics, Department of Environmental Sciences, ETHZ; **Armin Grün**, Professor of Photogrammetry, Institute of Geodesy and Photogrammetry, ETHZ; **Mike Harfoot**, Ecologist and Conservation Scientist, United Nations Environment Programme- World Conservation Monitoring Centre (UNEP-WCMC) Cambridge, UK; **Andrew Rassweiler**, Professor, Biology Department, Florida State University; **Christoph Schaer**, Professor, Institute for Atmospheric and Climate Science, ETHZ; **Claudio Silva**, Professor of Computer Science and Engineering and Data Science, New York University

Platform 4: Science & Diplomacy

Moderators and SAB lead authors: **Dirk Helbing**, Professor of Computational Social Science, ETHZ; **Jean-Pierre Danthine**, Professor, EPFL, Managing Director of E4S, & President of PSE – Ecole d'économie de Paris

Global experts and SAB lead authors: **Marga Gual Soler**, Young Global Leader, World Economic Forum, Visiting Professor in Science Diplomacy, Universidad Nacional Autónoma de México, former High-Level Adviser to the European Commissioner for Science, Research and Innovation, and former Senior Project Director, AAAS Center for Science Diplomacy; **Nicolas Levrat**, Director, Global Studies Institute, University of Geneva; **Jérôme Lacour**, Dean, Faculty of Sciences, University of Geneva; **Bastien Chopard**, Professor of Computer Sciences, University of Geneva; **Philip Grech**, Senior Researcher, Chair of Negotiation and Conflict Management, ETHZ; **Johan Rochel**, Co-Founder and Co-Director, ethix - Lab for Innovation Ethics; **Jean-Daniel Strub**, ethix - Lab for Innovation Ethics, Zurich.

Other global experts: **Yvonne Hofstetter**, Honorary Professor of Digitalization and Society, Bonn-Rhein-Sieg University of Applied Sciences; **Sarah Spiekermann**, Professor, Vienna University of Business and Economics; **Jeroen Van den Hoven**, Professor of Moral Philosophy, Delft University of Technology; **Isamu Okada**, Professor, Soka University, Department of Business, Tokyo; **Chang-Won Ahn**, Daumsoft; **Lorenzo Fioramonti**, Professor of Political Economy, University of Pretoria; **Hans J. Herrmann**, Professor, Theoretical Physicist, ESPCI Paris – PSL; **Jose Jacob Kalayil**, Founder & CEO – INTEGRO Infotech & Consulting; **Indra Spiecker**, Chair in Public Law, Information Law, Environmental Law, Legal Theory, Goethe University of Frankfurt am Main; **Ranga Yogeshwar**, Physicist and Science Journalist; **Sanjana Hattotuwa**, National Centre for Peace and Conflict Studies, University of Otago, New Zealand; **Didier Wernli** and **Stephan Davidshofer**, Global Studies Institute, University of Geneva.