



SHAPING EUROPEAN SCIENCE ADVICE INSIGHTS AND EXPERIENCES

Bulgarian Academy of Sciences,
Sofia, Bulgaria, 17 May 2018

SAPEA Insights

SAPEA

Science Advice for Policy by European Academies

This summary is the second in a series of SAPEA Insights. It provides highlights and key messages from SAPEA's Shaping European Science Advice symposium, which was hosted by the Bulgarian Academy of Sciences as part of the ALLEA 2018 General Assembly. The summary outlines the contributions made by the speakers and the discussions that followed in each of the sessions. This document aims to summarise the conversations throughout the day and therefore does not necessarily represent the views of SAPEA, the European Academy Networks or their member academies. The information, facts and opinions set out in this report are those of the authors and do not necessarily reflect the opinion of the European Commission. The SAPEA Consortium is not responsible for the use which may be made of the information contained in this report by anyone, including the European Union institutions and bodies or any person acting on their behalf.

About SAPEA: Spanning the disciplines of engineering, humanities, medicine, natural sciences and social sciences, SAPEA (Science Advice for Policy by European Academies) brings together the outstanding knowledge and expertise from over 100 academies, young academies and learned societies in more than 40 countries across Europe. Working closely with the European Commission Group of Chief Scientific Advisors, SAPEA is part of the European Scientific Advice Mechanism (SAM), which provides independent, interdisciplinary and evidence-based scientific advice on policy issues to the European Commission.

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Shaping European Science Advice: Insights and Experiences

Hosted by the Bulgarian Academy of Sciences
17 May 2018

Key insights from the symposium

Timeliness and a good understanding of the policy process are vital for science advice to have impact. Training is crucial in this context.

Scientists must understand their role when providing advice. They are brokers, not advocates.

It has to be acknowledged that science advice is an important part of the policy-making process, but that it is not the only one.

The fruitful interaction and partnership between policy and science depend on trust. Trust needs to be built and trustworthiness needs to be deserved.

Stakeholders need to be brought into the process of gathering scientific evidence.

Transparency and integrity need to be upheld during all stages of the process.

Interdisciplinarity is key.

Permanent scientific advice structures and mechanisms could be a means to ensure stable advice in rapidly changing policy contexts.

Structures need to be developed to reward scientists who engage in science advice activities.



Introduction



Organised by SAPEA (Science Advice for Policy by European Academies), the symposium *Shaping European Science Advice: Insights and Experiences* brought together a diverse audience of policy-makers, academics, members of the public and representatives from science academies across Europe. Speakers from all over Europe and beyond explored science advice for policy, and how we can learn from experience to shape the future of policy advice.

A wide range of different national perspectives on science advice systems was examined. This was followed by discussions

of recent examples of scientific advice that have been produced by the European Commission's Group of Chief Scientific Advisors, in collaboration with SAPEA.

This symposium offered the opportunity to engage with recent developments in scientific advice in general, as well as developments resulting from specific recent examples. In this way it explored aspects of successful science advice, its uptake, implementation and the challenges faced. These sessions also covered the lessons that can be learned when it comes to trust and distrust in science or the importance of timeliness of advice.

“It is important to educate and train politicians to work with scientists, and vice versa.”

WELCOME REMARKS

Shaping European science advice:
insights and experiences

Julian Revalski, President of the Bulgarian Academy of Sciences
Ivan Dimov, Deputy Minister of Education and Science of Bulgaria

Welcome remarks

SAPEA is a new and innovative tool for providing scientific advice at the European level in the context of the EU's Scientific Advice Mechanism. Its unique strength is to build on the expertise gathered within European academies of science. Providing swift and good quality scientific advice to the European Union's policy-makers is of vital importance for the EU's future. In order to make scientific advice as effective as possible, the interaction and collaboration between scientists and policy-makers has to be strengthened.



This remains a challenge, in particular due to the fact that scientists and politicians have different goals, different priorities and different timelines. Bridges need to be built between the world of academia and the world of politics. To achieve this, both scientists and politicians from all EU Member States need to be trained and educated on how to work with each other.



“Impactful scientific advice leads to better policy-making and legislation”

INTRODUCTION SAPEA and SAM

Bernard Charpentier, 2018 Chair of the SAPEA board
Pearl Dykstra, Deputy Chair of the Group of Chief Scientific Advisors



Summary of presentations

SAPEA is an exciting project that brings together the perspectives and expertise of more than 100 academies into the European Scientific Advice Mechanism (SAM). SAPEA's creation at the end of 2016, and the Consortium's close collaboration with the European Commission's Group of Chief Scientific Advisors

(GCSA) are a recognition of the key role that science can play in advising politicians and proposing options for policies. Three aspects are of central importance to SAPEA. At the same time, they are critical to its success:

Interdisciplinarity. No policy topic can be answered with knowledge from just one discipline. By combining knowledge from engineering, humanities, medicine, natural science and social science academies, SAPEA is by nature interdisciplinary and also applies this interdisciplinary approach to its topics.

Geographical spread for expertise and dissemination. Scientific advice is developed and taken up differently in different countries. Learning from these different systems can inform more diverse and better targeted approaches to providing science advice in such a heterogeneous context as the European Union. SAPEA makes sure to include and reflect a broad range of geographical perspectives both in terms of its groups of experts as well as in its public engagement efforts.

Cooperation with a broad range of stakeholders. Collaboration is at the very heart of SAPEA's activities: collaboration with the network's member academies, with the scientific community, with targeted stakeholders, and with the Group of Chief Scientific Advisors.



SAPEA

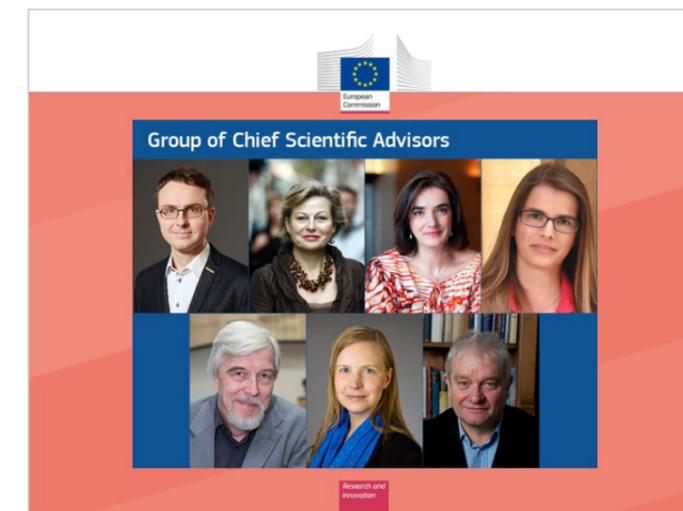
These three aspects testify to the fact that providing scientific advice is a multi-layer, multi-stakeholder, multi-perspective process. As Europeans, we have to make the best use of our European science base, and we must work together to shape the best future for our citizens. This spirit is also reflected in SAPEA's collaboration with the European Commission's Group of Chief Scientific Advisors.



The GCSA is at the very heart of the European Scientific Advice Mechanism. It takes inspiration from the best scientific expertise in Europe, primarily through SAPEA. Diversity is a key element in the GCSA, in terms of gender, of geographical background, and of scientific disciplines. It is worth noting that two out of its seven members have a background in the humanities and the social sciences, thus testifying

to the central relevance of these disciplines for providing high quality advice.

The Scientific Advice Mechanism bases its work on three main principles: integrity, transparency and timeliness. It is fully open about the sources of evidence and the methods used to prepare the advice, an aspect to which it attributes major importance. Furthermore, scientific advice is context-dependent. Tracing its policy impact is, therefore, another highly relevant task for the SAM. Impact can happen on various levels and does not have to be restricted to the European sphere. Sound and thorough policy advice that meets the attention of policy-makers can ultimately lead to better policy-making and better legislation. The contributions of excellent scientists to the science advice activities are, therefore, of crucial relevance to our democracies. The SAM underscores the importance of recognising and rewarding scientists' contributions to providing policy advice.



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“We need permanent and stable bodies to provide science advice.”

OPENING PRESENTATION

How to develop science-based policies: future policies for sustainability and growth based on research data and analyses

Karina Angelieva, Head of Section Education and Research, Permanent Representation of Bulgaria to the EU



Summary of presentation

Setting up the European Commission's Scientific Advice Mechanism has given a strong signal to EU Member States on the importance of evidence-based policy-making. Although there is no one-size-fits-all model, it can serve as an inspiration and role model for how to develop effective structures and processes to provide science advice and, through that, make policy more efficient.

In particular at the national level, scientists fight to make their voices heard. Hence, it is essential to develop systems that incentivise policy-makers to make their decisions based on scientific evidence. Since both politicians and scientists change, these systems should ideally take the shape of permanent bodies in charge of providing scientific policy advice. What makes this a challenging endeavour is the fact that researchers and policy-makers do not automatically understand each other. They live in different time horizons, with policy usually moving fast and scientific work mostly being longer-term. Education, therefore, is crucial, as is the mutual recognition of policy-makers and scientists as equals. While educating and training politicians is a very demanding challenge, focussing on the training of the next generation of scientists can be a more promising and effective measure.

“Advisors will inform but not make policy. Act as a broker and not as an advocate.”

SESSION 1

Science for policy: national perspectives

Peter Halligan, Chief Scientific Advisor of Wales

Frans Brom, Secretary/Director of
Netherlands Scientific Council for Government Policy

Siyavuya Bulani, Senior Liaison Officer,
Academy of Science of South Africa (ASSAf)

Karina Angelieva, Head of Section Education and Research,
Permanent Representation of Bulgaria to the EU

This session aimed at providing insights into science-based policy advice from across Europe and beyond. Across the world, there is a whole ecosystem of science advice. Some countries have opted for the model of Chief Scientific Advisors, while others put their trust in Advisory Councils. There is also the broad variety of national academies of science. Supranational organisations, like SAPEA, provide interesting alternative models.



SCIENCE ADVICE: THE UK AND WELSH MODEL OF CSA



Different models of science advice reflect different political cultures. Wales, as part of the UK, employs a Chief Scientific Advisor (CSA) model adopted by several countries such as Australia, Canada, Cuba, Czech Republic, India, Ireland, Malaysia and New Zealand. In most cases, the role of CSA is supported by a team and an independent science advisory council to ensure that government policies

and decisions are informed by the best scientific evidence and strategic long-term thinking. The United Kingdom operates a wide network of departmental and devolved nation CSAs who act as brokers and not advocates of scientific advice, recognising that value conflicts can't be resolved alone by an appeal to facts. The UK model values cross-disciplinary input and recognises that science advice has itself become a field of academic study, generating new theories and conceptual models to explain the complex relationships between science and policy-making in different situations.

SCIENCE ADVICE: THE DUTCH MODEL

In the Netherlands, scientific advice is provided by the Netherlands Scientific Council for Government Policy. In this Council, science advice has a stable structure, based on the rationale that policy-makers change but that scientific advice is required at all times. Accordingly, the Council advises the government, and not policy-makers. It is formed of eight, highly interdisciplinary members. An important part of the Council's work is to reflect on strategic, longer-term issues for long-term policy development. At the same time, it has to be agile and prepared to react to strategic questions.



SCIENCE ADVICE: THE SOUTH AFRICAN MODEL



The Academy of Science of South Africa was actively engaged in the formation of the International Network for Government Science Advice (INGSA Africa) and engages the Network in conducting capacity development workshops. The academy itself undertakes science advice activities, in particular through its studies for development planning in South Africa. Overall, however, there is a

clear wish to further develop evidence-based scientific advice to policy in a region of the world where this is still underdeveloped, mainly due to a lack of information and trained staff. Also, the need for science and, hence, for evidence-based science advice remains underestimated, as there are many other issues that inform and influence people, such as religion, dogma and traditions. Capacity-building is, therefore, still needed.



Summary of discussions

Whilst often being treated as one, science-for-policy and policy-for-science are different. They serve different purposes and require different mechanisms. As a field, professional science advice, the science-for-policy, is still in its infancy. It will mature over the next ten to fifteen years.

For science advice to be impactful, it needs different lenses (different perspectives), effective communication tools and strategies, and an ability to solve problems. Also, it is important to point out that different political issues require different kinds of policy advice.

Trust is a prerequisite for successful science advice. It has to be earned. Engaging policy-makers in research activities early and building relationships are effective means to gain trust and be trustworthy. In today's world with shifting priorities, changing values and new perceptions of reality emerging, scientists in particular have the responsibility to inform others about their work, share their findings and reach out, not only to politicians, but also to citizens. Here again, interdisciplinary approaches are key, not least since they help us understand and mitigate value conflicts that are increasing in our societies. The humanities and social sciences need to be integral parts of all science advice efforts.

Best practice recommendations for scientific advisors:

- The demand side (policy) is as important as the supply side (science).
- The policy cycle is short and manoeuvrability is limited.
- Advisors inform but do not make policy.
- Remember that advice can — and will — often be ignored.
- The ability to provide effective advice is based on trust.
- Trust needs to be earned and maintained.
- Act as a broker, not as advocate.
- Science advice is not an end in itself — it must also be of high quality for its users.



SESSION 2

Scientific policy advice in practice:
success stories, challenges,
impact and limits

This session centred on two scientific advice topics which were recently addressed by the SAM. What can be learned from these two very practical examples of providing science advice to the European policy-making process?

“This is how science for policy
should work.”

CASE STUDY 1

Food from the Oceans

Ole Petersen, SAPEA board representative, Vice President of Academia Europaea

Pearl Dykstra, Deputy Chair of the Group of Chief Scientific Advisors

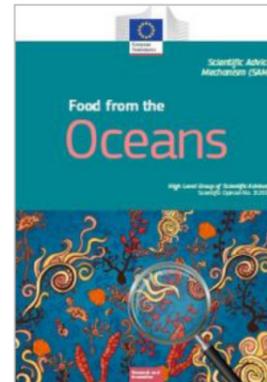
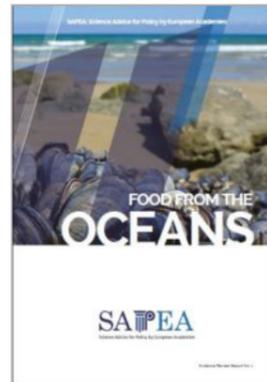
Iain Shepherd, Senior Expert at the Directorate General for Maritime Affairs and Fisheries (European Commission)



Context

SAPEA's first Evidence Review Report titled Food from the Oceans (FFO) was published in November 2017. It examines the question of how the ocean can help satisfy the global demand for food. As an integral part of the Scientific Advice Mechanism (SAM), SAPEA was asked to produce this Evidence Review Report to underpin the Scientific Opinion of the European Commission's Group of Chief Scientific Advisors (GCSA), in response to a request from the European Commissioner for Environment, Maritime Affairs and Fisheries, Karmenu Vella. The request asked for advice on the question: *"How can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits?"*

The Evidence Review Report warns that in our extraction of food from the oceans, 'business as usual' is not sustainable from social, economic and environmental viewpoints. The report suggests a number of options, which inform the



recommendations contained in the GCSA Scientific Opinion. It states that the only way to obtain significantly more food and biomass sustainably from the oceans is to harvest seafood that on average is from a lower trophic level (lower in the food chain) than we currently harvest. To produce Food from the Oceans, SAPEA worked with academies across Europe and the European Academy Networks to bring together experts in a range of disciplines.



SAPEA Food from the Oceans Working Group 1

Food from the Oceans was the very first Evidence Report published by SAPEA. As such, it served as testing ground for future endeavours. Months of intensive work and exchanges between academies led to a result that was described by one of the policy-makers on the demand side with the phrase: "This is how science for policy should work."



The topic of Food From the Oceans has proven that academies can be effective and are able to respond within a short timeframe. It was picked up by a large number of legislators, and policy actors at all levels of governance in Europe have shown an interest in the report. While the College of Commissioners was the main receiver of the Scientific Opinion and the Evidence Review Report, other policy actors were also intrigued by the insights provided. For the Directorate General for Maritime Affairs and Fisheries, Food From the Oceans was a great success. It provides support for aquaculture in the post-2020 Maritime Fisheries Fund and also encourages more coherence between departments of food safety, security and sustainability.



For this highly demanding process to work, a number of prerequisites had to be fulfilled. Food From the Oceans, therefore, has created a sort of blueprint for future SAPEA science advice endeavours. So what are the lessons learned?

Key points from discussions

1. To get the scientific advice right and to get the right science advice, the scoping period is crucial. The **initial scoping review** has to be as solid and robust as possible, and the question that has to be answered needs to be clearly framed. It must be clear what the group that is asked to provide advice will do — and what it will not do.
2. Identifying and bringing together the **right mix of experts** is the next crucial part. In the case of Food From the Oceans, SAPEA received an impressive number of nominations from the Networks and their member academies. It was also able to draw in distinguished experts from outside the academies.
3. The **combination of expertise in the sciences, social sciences and humanities** was a key factor for the high quality output. Issues like those covered in Food from the Oceans cannot only be looked at through a natural science lens; issues around governance, economics, sustainability and consumer behaviour have to be studied as well. This interdisciplinary collaboration requires an open mind among all involved. It also demands a certain degree of bravery and the readiness to break down silos.
4. Once the question is clear, the scoping work is done and the expert group has been established, **effective management structures** need to be set up to ensure that the projects stays on track and delivers on time.
5. In order to provide effective recommendations to policy, the **policy landscape** the advice is operating in has to be well known. Furthermore, the **timing** of providing the advice is of essential importance for its success.
6. The best scientific work is of limited use without appropriate outreach efforts. Hence, a **carefully thought-through communication and engagement plan** has to accompany the project from its start until after its work has come to an end.
7. Finally, institutions should reflect on ways to reward scientists who take the time to engage in science advice activities. This is particularly relevant in cases where the advice needs to be delivered under considerable time pressure.

Handover of Food from the Oceans Scientific Opinion and Evidence Review Report to Commissioner Vella, November 2017



“There are no easy answers. Scientists have to remain brokers and help policy-makers solve their problems.”

CASE STUDY 2

Authorisation processes of plant protection products in Europe

Evangelia Ntzani, Chair of the SAPEA Plant Protection Products Working Group

Günter Stock, SAPEA Board Member, President of ALLEA

Johannes Klumpers, Head of SAM Unit, European Commission

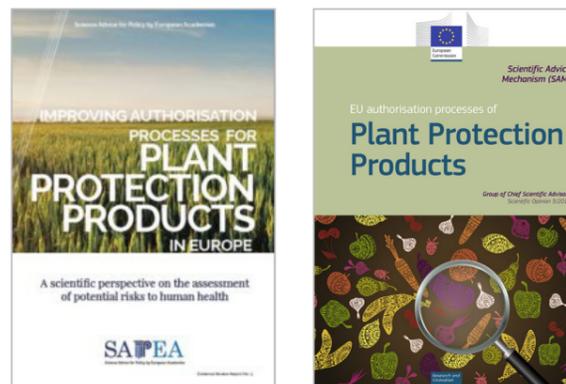
Andy Hart, Visiting Professor of Risk Analysis Practice at Newcastle University



Summary of discussions

Context

In June 2018, SAPEA published its third Evidence Review Report titled *Improving authorisation processes for plant protection products in Europe: a scientific perspective on the assessment of potential risks to human health*. The report examines the methods and procedures for assessing potential harmful effects on human health from the use of Plant Protection Products (PPPs), and the ways in which the current authorisation processes could be improved from a scientific perspective.



SAPEA was asked to produce this Evidence Review Report as one of the documents that informs the Scientific Opinion of the European Commission Group of Chief Scientific Advisors, in response to a request from the European Commissioner for Health and Food Safety, Vytenis Andriukaitis.



The Evidence Review Report makes suggestions for further improvement in: the scientific data that underpin risk assessments; the methods by which such data are analysed; the ways in which assessment procedures are organised and tasks are allocated.

The report lists 26 Options, which were used to inform the Group of Chief Scientific Advisors' Scientific Opinion alongside a social sciences workshop on 'Risk Perception and the Acceptability of Human Exposure to Pesticides' (organised by SAPEA in 2017) and other sources of evidence.

To reach the 26 Options, the SAPEA Working Group had to adopt a well-structured iterative process.

1. As with *Food from the Oceans*, close attention had to be paid to the way the **questions** were formulated and refined. This was critical to start the science advice process, as was the systematic screening of potential conflicts of interest.
2. Choosing the **right experts** was another central element. Scientists who engage in science advice should critically reflect on what they can contribute. The same holds true for academies. The process of selecting experts is paramount. It has to be transparent and open, and nominations should not be done lightly.
3. Having robust and valid **data** is crucial, and it needs to be dealt with in a most transparent and responsible way.
4. The **risk assessment angle** of the topic made it particularly complex. In the case of plant protection products, a multitude of risks need to be assessed, ultimately leading to a risk assessment indicator, i.e. whether given risks seem acceptable to scientists or unacceptable. In turn, this requires unambiguous definitions for the goals of the regulation — what should be protected against, and with what level of certainty.
5. To address risk appropriately, a **broad variety of disciplines** had to be brought in. Overcoming barriers between scientific disciplines remains a challenge but is crucial for the success of the scientific advice. Social sciences and humanities have their role to play.
6. Here again, very practical matters around how and when to provide the advice had to be considered. Scientific advice is most useful for policy-making if the **timing of the advice** is right, i.e. if it comes at a moment when major legislation is in the process of being reviewed.
7. The work is not over once the advice has been published. **Public engagement**, transparency and inclusiveness remain crucial. Scientists who engage with the public should focus on fostering interactions, not teaching.



In both cases of providing scientific advice to policy, a number of insights could be gained on how the process should be best structured — but also on what it means for the scientists who engage in providing the advice — and for the way they understand their task. It is not the role of scientists to make policy, but to provide evidence for policy-making. Scientists should not mistake their role for

the one of the politicians but help policy-makers solve their problems. As science advisors, they are knowledge brokers.

This is a challenging situation for scientists since they have to leave their familiar and comfortable realms, and enter the unknown and strange realm of politics, with its regulations, timelines, and policy frameworks. At times, policy-makers can make scientists feel that they are encroaching on their territory. Here, the issue of trust becomes relevant again. Trust and scientific integrity cannot be taken for granted. They have to be earned. Providing science advice is no easy endeavour but it will become ever more important. It is challenging and requires stamina and conviction. It is a learning process for all involved — but ultimately rewarding.



SESSION 3

Reflections, conclusions
and summing up

Four representatives from academies (Ulrike Tillmann, Elżbieta Frąckowiak, Peter Kennedy and Tarmo Soomere) and the symposium's moderator Julia Stamm offered their reflections on the previous sessions. They explored how the science advice models examined in the first session could be relevant in their own spheres, and the possibilities for sharing messages about the Scientific Advice Mechanism's work on a national level. They reflected on the need to seek connections and not work in silos, and the importance of working in an interdisciplinary way. The nature of trust was also reiterated, reminding the audience that trust takes a long time to be established but can be lost in minutes.

Speakers and panellists

KARINA ANGELIEVA

Head of Sector Education and Research at the Permanent Representation of the Republic of Bulgaria to the EU

Karina Angelieva is Counsellor, Head of Sector Education and Research at the Permanent Representation of the Republic of Bulgaria to the EU. She holds Master degrees in European integration and in Contemporary History from Sofia

University "Saint Kliment Ohridski". She is a founder of the Club of Young Scientists in Bulgaria and has been in charge of the coordination of the national contact points' network for the EU Framework Programme for Research and Innovation for 10 years



Ulrike Tillmann
The Royal Society



Elżbieta Frąckowiak
Polish Academy of Sciences



Tarmo Soomere
Estonian Academy of Sciences



Peter Kennedy
Royal Irish Academy



FRANS BROM

Council Secretary and Director of the Netherlands Scientific Council for Government Policy (WRR)

Frans Brom is Council Secretary and Director of the Netherlands Scientific Council for Government Policy (WRR), and a professor of Normativity of Scientific Policy Advice at Utrecht University. He studied ethics at the Catholic Theological University in Amsterdam, with an extended minor in philosophy of law at Free University Amsterdam. Since 2016 he is Chair of the Netherlands Society for Bioethics, among other positions.

Speakers and panellists

SIYAVUYA BULANI

Senior Liaison Officer, Academy of Science of South Africa

Dr Siyavuya Bulani is the Senior Liaison Officer at the Academy of Science of South Africa (ASSAf) and is in charge of the Academy's Overseas Collaboration sub-program. Siyavuya is responsible for all the academy's bilateral agreements with other overseas academies,



multilateral organisations and represents ASSAf at Government Joint Commission on Science and Technology (JCST). His role is to build new and maintain existing overseas partnerships, and serve as the main contact person for all overseas collaborative activities and engagements.

Speakers and panellists

PEARL DYKSTRA

Deputy Chair of the European Commission's Group of Chief Scientific Advisors

Professor Pearl Dykstra is the Deputy Chair of the European Commission's Group of Chief Scientific Advisors and has a chair in Empirical Sociology and is Director of Research of the Department of Public Administration and Sociology at



the Erasmus University Rotterdam. Previously, she had a chair in Kinship Demography at Utrecht University (2002-2009) and was a senior scientist at the Netherlands Interdisciplinary Demographic Institute (NIDI) in The Hague (1990-2009)

IVAN DIMOV

Deputy Minister of Education and Science of Bulgaria

Professor Ivan Dimov is the Bulgarian Deputy Minister of Education and Science with the portfolio "High Education and Research". His main responsibilities are the reform in the science sector and elaboration of a new strategy for research development closer to innovations, market application and economic development as well as human potential enhancement; ongoing reform in



universities, dominated from a progressively increasing performance based funding and internationalisation of the Bulgarian research system as a whole.

ELŻBIETA FRĄCKOWIAK

Vice-President, Polish Academy of Sciences

Prof. Elżbieta Frąckowiak (FRSC) is the Vice-President of the Polish Academy of Sciences. She works in the Institute of Chemistry and Technical Electrochemistry at the Poznan University of Technology, Poland. Her research field is energy storage/conversion with special emphasis on electrochemical capacitors, lithium-ion batteries, fuel cells and hydrogen electrosorption in carbon



materials. She is particularly interested in electrode materials from activated carbons, carbon nanotubes, carbons enriched with heteroatoms (nitrogen, oxygen), graphene materials, conducting polymers and composites.

Speakers and panellists

PETER W HALLIGAN

Chief Scientific Adviser for Wales (CSAW)

Professor Peter W Halligan gained qualifications in psychology, philosophy and education at University College Dublin. In 2003, he became the founding Director of the Cardiff University's Brain Research Imaging Centre (CUBRIC), and later in 2006 Dean of Interdisciplinary Studies at Cardiff University. In 2012, he



joined Universities Wales as Head of Strategic Futures as part of a 2 year secondment before joining the Learned Society of Wales in 2015 as Chief Executive. In March 2018, he became Chief Scientific Adviser for Wales (CSAW).

Speakers and panellists

PETER KENNEDY

President of the Royal Irish Academy

Peter Kennedy is a Professor of Microelectronic Engineering at University College Dublin and Scientific Director of Ireland's Microelectronic Circuits Centre. Over his career, he has published extensively in the fields of neural networks, chaos theory, and microchip design, ranging from basic to applied



research. Peter has held visiting positions at several universities in Europe, including EPFL and the University of Pavia. He served as Policy and International Relations Secretary, and is President of the Royal Irish Academy since 2017.

ANDY HART

Visiting Professor of Risk Analysis Practice at Newcastle University

Andy Hart is Visiting Professor of Risk Analysis Practice at Newcastle University and was previously at the UK Food and Environment Research Agency (now Fera Science Ltd.). He served for 9 years on the European Food Safety Authority (EFSA) expert panel on pesticides. He has a special interest in approaches to uncertainty, weight of evidence and

expert judgement in risk assessment, and contributes to EFSA guidance and training on these subjects.



JOHANNES KLUMPERS

Head of the SAM Unit, European Commission

Johannes Klumpers leads the recently created Scientific Advice Mechanism Unit (SAM) in the European Commission. The Unit supports the Commission's Group of Chief Scientific Advisors who, as their name suggests, give science advice to the European Commissioners. The Group of Advisors – with support from the Unit – collaborates in this endeavour with five European Science Academy

Networks. The Unit also supports the European Group on Ethics in Science and New Technologies, which also advises the Commissioners.



Speakers and panellists

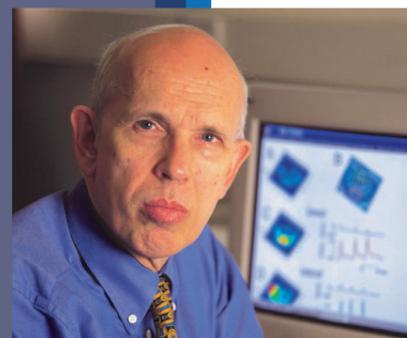
EVANGELIA NTZANI

Chair of the SAPEA Working Group on Improving Authorisation Processes for Plant Protection Products in Europe

Dr Evangelia Ntzani is Chair of the SAPEA Working Group on Improving Authorisation Processes for Plant Protection Products in Europe. She is a paediatrician and an epidemiologist, and serves as an Associate Professor



and Head of the Department of Hygiene and Epidemiology, School of Medicine, University of Ioannina, Greece. She is coordinator and investigator in grants on research methodology, evidence assessment, environmental epidemiology, genetic epidemiology of complex diseases and motivating behaviour change across diverse areas.



OLE PETERSEN

Professor of Physiology, Biosciences, Cardiff University.

Professor Ole Petersen is Professor of Physiology in the School of Biosciences at Cardiff University. As one of the world's leading physiologists, he leads a research group on disease of the pancreas. In 2008 his significant research was acknowledged by the award of CBE in the New Year Honours and election to the German National Academy of Sciences, Leopoldina, in 2010.

Speakers and panellists

JULIAN REVALSKI

President of the Bulgarian Academy of Sciences

Professor Julian Revalski was elected President of the Bulgarian Academy of Sciences in December 2016, with a mandate until December 2020. In 1997 he was awarded the degree Doctor of Mathematical Sciences and in 2001 became Full professor at the Institute of



Mathematics and Informatics at the Bulgarian Academy of Sciences



IAIN SHEPHERD

Senior Expert, Directorate General for Maritime Affairs and Fisheries

Iain Shepherd is a physics graduate who has worked for the European Commission since 1980 on scientific support for EU policy; first at the Commission's Joint Research Centre and later in the Directorate General for Maritime Affairs and Fisheries, where he is now a Senior Expert. He has contributed to policies on nuclear safety, nuclear non-proliferation,

humanitarian aid and fisheries control, and he is now engaged in work that aims to help the EU realise the potential of the blue economy.

Speakers and panellists

JULIA STAMM

Founder and Director of SCIENCE LEADS, and Adjunct Senior Fellow at the Centre for Policy Futures, University of Queensland

Dr Julia Stamm is the founder and Director of SCIENCE LEADS, and Adjunct Senior Fellow at the Centre for Policy Futures, University of Queensland. She has over ten years of leadership and management experience in national and international academic institutions and international organisations.



Speakers and panellists

GÜNTER STOCK

ALLEA President, SAPEA Board Member

Professor Günter Stock has been serving as President of ALLEA (All European Academies) since 2012. Throughout 2017 he was chair of the European academies' SAPEA project (Science Advice for Policy by European Academies). A physiologist by training, he has held many positions in the fields of academia and industry.

Between 2006 and 2015, he was President of the Berlin-Brandenburg Academy of Sciences and Humanities. Additionally, between 2008 and 2015, he served as President of the Union of German Academies of Sciences and Humanities.



TARMO SOOMERE

President of the Estonian Academy of Sciences

Professor Tarmo Soomere is President of the Estonian Academy of Sciences. He was appointed as Vice-Director of the Marine Systems Institute in 2002-2004 and elected as the first Professor of Coastal Engineering in Estonia (2005). Currently he is also the Head of Wave Engineering Laboratory in the Department of Cybernetics, Tallinn University of Technology.



ULRIKE TILLMANN

Vice-President of the Royal Society

Ulrike Tillmann is a mathematician who has worked in algebraic topology, K-theory, and non-commutative geometry. She is Professor of Mathematics at the University of Oxford, Professorial Fellow of Merton College, and a scientific board member of the International Centre for Mathematical Sciences, and the Mathematisches Forschungsinstitut Oberwolfach. Her work on the moduli spaces of surfaces and

manifolds of higher dimensions has been motivated by problems in quantum physics and string theory. More recently her work has also been motivated by the challenges in data science.



About SAPEA

Spanning the disciplines of engineering, humanities, medicine, natural sciences and social sciences, SAPEA (Science Advice for Policy by European Academies) brings together the outstanding knowledge and expertise from over 100 academies, young academies and learned societies in more than 40 countries across Europe.

SAPEA is part of the European Scientific Advice Mechanism, which provides independent, interdisciplinary and evidence-based scientific advice on policy issues to the European Commission. SAPEA works closely with the European Commission Group of Chief Scientific Advisors.

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