



**Euro-CASE**

THE EUROPEAN COUNCIL OF  
ACADEMIES OF APPLIED SCIENCES,  
TECHNOLOGIES AND ENGINEERING

# **ANNUAL REPORT**

2017 & 2018



# A hub of collective intelligence



## Euro-CASE

Established in 1992, The European Council of Academies of Applied Sciences, Technologies and Engineering (Euro-CASE) is an independent, non-profit organisation of national academies of applied sciences, technologies and engineering from 23 European countries. Euro-CASE exists as a permanent forum for exchange and consultation between European institutions, industry and research.

Through its affiliated academies, Euro-CASE has access to top expertise (more than 6,000 of Europe's most eminent engineers and technologists) and provides impartial, independent and balanced advice on technological issues with a clear European dimension to European institutions, national governments, companies and organisations. Since 2017, Belgium has joined the group of active members and Italy has joined as an associated member.



## Euro-CASE Executive Committee:



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acatech [DE]  
Chairman



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**Euro-CASE staff:** Antoine Blonce, SAPEA Scientific Policy Officer; Wolf Gehrisch, Advisor; Nadia Pipunic, Euro-CASE Executive Assistant,

# Editorial by Reinhard Hüttl, Euro-CASE Chairman

As the independent voice of European excellence in Engineering, Applied Sciences and Technology, Euro-CASE is dedicated to providing evidence-based policy advice with a clear European dimension and promoting exchange between Academies of Engineering and Technologies in Europe. At the European Commission level, Euro-CASE is one of five Academy Networks that make up the Science Advice for Policy by European Academies (SAPEA) consortium. It is part of the Scientific Advice Mechanism (SAM) of the European Commission which provides independent scientific advice to inform decisions made by the College of European Commissioners.

The Euro-CASE internal programme has focused on three platforms since the start of 2016: Innovation, Engineering Education and Energy. Across these areas, Euro-CASE member organisations have come together to engage in lively discussion and exchange, with outcomes and updates detailed later in this report. These activities reflect Euro-CASE's objective to become a more dynamic forum for collaboration and to set the path for future SAPEA topics.

The SAPEA consortium was launched in 2017 and represents a major evolution for Euro-CASE. The programme received very positive feedback at its recent mid-term evaluation with support given for actions undertaken to date. In 2017 and 2018, three Evidence Review Reports (ERRs) have been issued on specific topics, with contributions coming from experts nominated by Euro-CASE member academies. Our Association has focused on a range of important activities in line with its mission statement: not only on scientific and technical topics, but also on administrative topics such as assuring the quality of the whole process of scientific and technical advice. I would like to thank all the contributing members of Euro-CASE for their commitment to the process. Thanks to the quality of its contributions, Euro-CASE has gained strong recognition at Consortium and Commission levels.



Reinhard F. Hüttl, Chairman of Euro-CASE

For clarity, the Euro-CASE Annual Report 2017-18 covers a two-year period beginning in January 2017 and presents updates on both SAPEA level activities and the Euro-CASE internal programme.

Finally, I would like to thank the members of the Executive Committee for their valuable contributions, in particular the Treasurer, Ric Parker and the Secretary General, Yves Caristan. Together, we will strive to further strengthen the structures of Euro-CASE and to consolidate its role as partner of the European Commission in providing evidence-based policy advice.

I am very much looking forward to embracing new opportunities and challenges.

Reinhard F. Hüttl, Chairman

# Euro-CASE in a changing context by Yves Caristan, Euro-CASE Secretary General

Engineering and technologies are at the heart of global society. Their rapid evolution strongly and pervasively impacts our way of life and continues to redefine many models from an economical, societal, health, energy or food systems perspective. We are still trying to understand the social impact and acceptability of these technologies and we cannot say today which technologies will be transforming our lives even 10 or 20 years from now.

Euro-CASE members offer valuable input by elaborating and sharing their vision on different topics strongly connected to technologies, engineering and their societal impact. The resulting reports are disseminated through the network, and communicated to relevant national government officials, and officials of the European Commission. The Euro-CASE activity programme is a unique opportunity to confront and synthesise academic visions across Europe. In 2017, three platforms have been launched or re-launched by Euro-CASE and a fourth platform will be discussed later in 2019 on the theme: "The Future of Work".

As the unique European network of academies in the field of technologies and engineering, Euro-CASE has begun to deploy a set of actions to strengthen its visibility: internal actions through the platforms, and external actions directly at European Commission level via the SAPEA project.

In addition, during the 2017-2018 period, Euro-CASE took a leading role in defining processes and quality assur-



Yves Caristan, Secretary General of Euro-CASE

ance for the field of scientific and technical advice, and has acted as the lead network for developing interactions between the 100 academies constituting SAPEA's five European academy networks. Euro-CASE also organised two very successful meetings in 2017, on behalf of and financially supported by the SAPEA programme.

A stylized, handwritten signature in blue ink, consisting of a large 'Y' and 'C' intertwined.

Yves Caristan, Secretary General



**Euro-CASE**

## Euro-CASE Vision

**"Euro-CASE will be the voice of European excellence in Engineering, Applied Sciences and Technology for the world".**

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# Highlights of publications 2017-2018

## SAPEA: Scientific Advice, evidence reviews and other scientific inputs

### The SAPEA Quality assurance and Best practice of interaction between Academies

The SAPEA Quality Assurance process ensures the excellency, independency and transparency of the approaches to prepare these reports, and of the scientific advice provided to the Commission.

#### Establishment of procedures for quality assurance of scientific advice

Euro-CASE led the drafting and publication of SAPEA Guidelines on Advising Policymakers and Society & Procedures for Quality Assurance of Scientific Advice. Yves Bamberger of NATF chaired the working group. The aim is to assure the excellence and independence of SAPEA's policy advice through the provision of clear guidelines.

This work is at the heart of the SAPEA project, ensuring scientific reports produced by SAPEA are free from outside influence and guaranteeing the best possible scientific advice for the European Commission.

#### Best practice of interaction between Academies and with policymakers

Euro-CASE organised two workshops at the Royal Academy of Engineering of Spain (RAI) in Madrid and at the Technical Sciences Academy of Romania (ASTR) in Bucharest in 2017, focusing on best practices of interaction between academies and with policymakers. For the first time ever, representatives of all five Academy Networks that participate in SAPEA presented their Networks to all their member academies and the European Commission gave an overview of the diversity of scientific advice at the Commission level.

The aim of these workshops was to address the challenges that different countries and academies have in common within the area of science advice for policy, and to share experiences and approaches that would be beneficial for future activities. The workshops were based on case studies and presentations from a wide range of academies with varying organisational structures and different strategies to address those challenges.

Topics discussed included stakeholder/fellow engagement, funding and resources, national cooperation among academies, science-policy interface at the European level through SAPEA, plus international cooperation among academies beyond the borders of Europe. Some of the conclusions of these discussions are described in the workshop's report, such as the fact that academies should strengthen their communication.



New approaches on how to communicate science advice more effectively, not only to policy makers but also to the general public, should be explored, while academies could also consider increasing their use of social media.

### The SAPEA Scientific advice

With the support of its member academies, Euro-CASE was involved in three SAPEA Evidence Review Reports (ERRs), including leading the drafting and publication of one full report.

These reports present the best available and most up-to-date scientific and technical evidence, including highlighting of all uncertainties, gaps, and contradictions in scientific knowledge to ensure trust and accuracy. The reports are prepared by fellows and experts from member academies of the SAPEA networks and feature robust and contemporary scientific content.

### Explanatory Note on New Techniques in Agricultural Biotechnology

One expert from the National Academy of Technologies of France (NATF) contributed to the drafting of an explanatory note on New Techniques in Agricultural Biotechnology.

This note provides a comprehensive scientific comparison covering the whole spectrum of breeding techniques used for agricultural applications (conventional breeding techniques, established genetic modification and new breeding techniques), according to various criteria including the detectability and identification of products, the speed with which the desired outcome can be obtained, etc.

The report has been an important contributor to the preparation of the Commission's position on genetically modified organisms (GMO) and on new breeding techniques.

Experts nominated by SAPEA were invited to participate in co-ordination group meetings with members of the Group of Chief Scientific Advisors (GCSA).

### Cybersecurity in the European Digital Single Market

Euro-CASE contributed to the delivery of this report via expertise from Belgium (The Royal Flemish Academy of Belgium for Science and the Arts; KVAB), France (NATF) and Switzerland (Swiss Academy of Engineering Sciences; SATW).

On 13 September 2017 the European Commission presented to the European Parliament and to the European Council its Communication paper Resilience, Deterrence and Defence:

Building strong cybersecurity for the EU where it presents the approach and next steps for cybersecurity in the EU.

The European Commission's Scientific Advice Mechanism (SAM) Group of Chief Scientific Advisors published Cybersecurity in the European Digital Single Market in March 2017. This report has been clearly recognised as one of the most important references to inform the future of EU policy making on cybersecurity.

The Communication states that "The approach [set out in this joint Communication] is also substantiated by independent scientific advice provided by the European Commission's Scientific Advice Mechanism".

The General Data Protection Regulation (EU) 2016/679 (GDPR) became enforceable beginning 25 May 2018, following this Communication.



### **Food from the Oceans: How can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits?**

The Euro-CASE academies of Denmark (Danish Academy of Technical Sciences; ATV), France (NATF), Germany (National Academy of Science and Engineering; acatech) and Norway (Norwegian Academy of Technological Sciences; NTVA) contributed to this first SAPEA report, Food from the Oceans, which was very well received by the Commissioner Karmenu Vella (Environment, Maritime Affairs and Fisheries).

The report warns that in our extraction of food from the oceans, 'business as usual' is not sustainable from social, economic and environmental viewpoints. In its conclusion, the report states that the only way to obtain significantly more food and biomass from the ocean in a sustainable manner is to harvest seafood from a lower trophic level (i.e. lower in the food chain) than we currently harvest.

In the course of preparing this report, SAPEA assembled two international working groups, covering both natural sciences and humanities/social sciences.

### **Novel Carbon Capture and Utilisation (CCU) Technologies: Research and Climate aspects**

The Euro-CASE member academies of Croatia (Croatian Academy of Engineering; HATZ), France (NATF), Germany (acatech), Norway (NTVA) and the United Kingdom (The Royal Academy of Engineering; RAEng) took an active role in this ERR led by Euro-CASE, Novel Carbon Capture and Utilisation (CCU) Technologies. The Chair was Robert Schlögl from Germany and the Co-chair was Marco Mazzotti from Switzerland.

The report explores whether CCU technologies have the potential to contribute significantly to mitigating the effects of climate change.

CCU technologies aim to extract CO<sub>2</sub> either from concentrated sources or directly from ambient air for use as a raw material for carbon-containing products, such as fuels, chemical products, and building materials. The report identifies that a systemic approach is essential when evaluating the energy system and CCU systems, and further development is needed in stakeholder awareness and consistency of definitions. This is clearly not the case today.

The study rapidly focused on CO<sub>2</sub> conversion to methane, methanol and other carbon-rich fuels and an energy system based on renewable energy, mostly wind and solar, but lacking a functioning large-scale energy

storage system. This focus must be seen in a context where CCU is used as an important element of societal services for "defossilised" electrical power generation and distribution, mobility and transport of goods, and long-term storage and long-range transport of intermittent energies.

The report presents several options which focus on political actions for involving all stakeholders, on R&D programmes for the advancement and deployment of defossilised energy systems (including innovative energy storage and transport concepts), and finally, on funding and piloting demonstration programmes at EU and national levels.

The report was very well received by the Commission. The Directorate General for Climate Action (DG CLIMA) organised a seminar to present the report and con-



sidered its conclusions in the new European Energy Strategy released in November 2018 through the communication A clean planet for all.

The report was also presented during a dedicated session as part of the Euro Science Open Forum (ESOF) 2018 in Toulouse, France. In addition, two outreach events were organised via the Euro-CASE member academies of Slovenia (Slovenian Academy of Engineering; IAS) and Romania (Academy of Technical Sciences of Romania; ASTR).

### **Improving authorisation processes for plant protection products in Europe: a scientific perspective on the assessment of potential risks to human health**

For this third SAPEA ERR published in June 2018, Authorisation Process for Plant Protection Products, the Euro-CASE member academies of Slovenia (IAS) and the United Kingdom (RAEng) were involved in the evidence review and scientific input.

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 current authorisation processes could be improved from a scientific perspective. In its conclusion, the report underlines that, while improvements are needed to scientific evidence that informs regulatory risk assessment for PPPs, it is also important to ensure that available data is optimally evaluated.

On 16 January 2019 the European Parliament adopted resolution P8\_TA(2019)0023 on the Union's authorisation procedure for pesticides (2018/2153(INI)). This resolution refers to 37 sources, amongst them EC regulations and implementing regulations, previous Parliamentary

Resolutions, court decisions and reports by advisory bodies such as the EFSA (European Food Safety Authority) and the European Commission's Scientific Advice Mechanism (SAM).

The SAM document referred to in the resolution is Scientific Opinion 5/2018 on 'EU authorisation processes of plant protection products', which is based on the SAPEA ERR.

Many issues discussed in the SAPEA ERR and/or GCSA Scientific Opinion are reflected in this Resolution such as the lack of transparency due to lack of public access to studies and data, the lack of data concerning the real-life impacts of formulations and mixtures of products or the fact that animal tests do not accurately predict human reactions for instance.



WP5 meeting in Bucharest at ASTR in 2017

## Internal Euro-CASE topics: Platforms

### Innovation Platform



**Chair:** Dr. Bertrand van Ee, Netherlands Academy of Technology and Innovation (AcTI)

**Working Group members:** Magnus Breidne (Sweden), Christian Brevard (France), Johan Carlstedt (Sweden), Yves Caristan (France), Kees De Koning (Netherlands), Elzbieta Frackowiak (Poland), Jari Hämäläinen (Finland), Anders Haugland (Norway), Rolf Hügli (Czech Republic), Marcin Lackowski (Poland), Björn O. Nilsson (Sweden), Mark Pleško (Slovenia), Ian Ritchie (United Kingdom), José Manuel Sanjurjo Jul (Spain), Germain Sanz (France), Thomas Stehnken (Germany), Bertrand van Ee (Netherlands).

**Current topic:** National Policies to develop innovation and cooperation between actors of the ecosystem.

In 2017, the Innovation Platform produced a report “Barriers to Innovation and Scale-up of innovative SMEs”. This report presents the main barriers to innovation across the EU seem to be stiff regulation, risk aversion and poor interaction between research and industry.

In 2018, the Euro-CASE Innovation Platform addressed, as planned, positive examples of new incentives structures, the emergence of new business models and new approaches for supporting collaborative behaviour between actors from research and innovation.

To support the evolution of these approaches, the platform selected and examined examples of initiatives that show promising results in mobilising the research industry collaboration, the broader innovation ecosystem and “work” – and subsequently made recommendations how these can be scaled up to the European level (“Scaling up of good ideas”).

Many good policy practices are in place but the dynamics of implementation should be increased:

- Clusters and knowledge triangles, which are in place and working in EU, should be more focused to accelerate the process. More mobility is necessary between researchers and companies: skills and hiring talent is critical.
- SMEs need to be more closely involved. There are perhaps too many policy instruments with short term fixes that do not lead to innovation. Innovation procurement in risk adverse administrations and large corporations should be developed.



- Develop the active role of Europe – alignment/articulation of regional, national and European actions. The same applies for smart specialisation.
- Correct metrics: meaningful KPIs for clusters and ROI for innovation.
- Soft factors such as nature, safety or environment motivate high quality people.

Members of the Platform met 3 times in 2018 in Madrid, Brussels and Amsterdam.



Dr. Bertrand van Ee, Netherlands Academy of Technology and Innovation [AcTI]

## Engineering Education Platform



**Chair:** Prof. Petar Petrovich, Academy of Engineering Sciences of Serbia (AESS).

**Working Group members:** Petar Petrovic, Chair (Serbia), Albert Albers (Germany), Hanna Bogucka (Poland), Gerard Creuzet (France), Jonas Gallenkämper (Germany), Janez Možina (Slovenia), Kurt Richter (Austria), David Timoney (Ireland), Petr Zuna (Czech Republic), Nick Tyler (United Kingdom). Bojica Bobovic provided support.

**Current topic:** The gap between knowing and learning, and the new digital approach to Engineering Education.

The Euro-CASE Engineering Education Platform II was launched following the Euro-CASE Board's decision at the meeting held in November 2016 in Lyngby. The management of the platform was entrusted to Petar Petrovic, from the Academy of Engineering Sciences of Serbia (AESS).

During the first half of 2017, a working group was formed made up of representatives of nine interested Euro-CASE member academies. Two thematic priorities were defined and recognised as highly relevant for the future of education of engineers in Europe:

Thematic priority #1: Knowing-Doing Gap in Engineering Education – Understanding and bridging the gap between theory and practice within European engineering education.

Thematic priority #2: Big Data and Learning Analytics – Technology-enhanced teaching and learning environments, new understanding of learning processes, and decision making in engineering education through educational data mining and learning analytics.

The first in-person meeting took place in Belgrade on 14-15 September 2017. At this kick off meeting the goal and organisation of the platform were discussed.

The second in-person meeting took place in Paris, on 6-7 March 2018, hosted by the NATF and including a visit to Dassault Systemes, the world's leading manufacturer of DFX software tools for engineering design and simulation. The DS 3DS Academy was introduced to the group, with a special focus on their approach to engineering education – 3D Experience and Project-based Learning, including the 3DS Learning Lab.

The third in-person meeting in 2018 was held in Karlsruhe, Germany on 13-14 September 2018, hosted by acatech at the Karlsruhe Institute of Technology (KIT IPEK). The working group was briefed on the Karlsruhe education model for product development in higher education, developed by the KIT IPEK School of Product Engineering.

Alongside the work activities, Pr. Albert Albers organized a visit to KIT IPEK Labs: Powertrain Lab and Powertool Lab. These laboratories are specialised high-tech spaces intended for research, as well as for training mechanical engineering students, including PhD students.



Platform meeting at KIT IPEK Karlsruhe, September 2018

## Energy Platform



**Chair:** Prof. Eberhard Umbach, National Academy of Science and Engineering (acatech)

**Working Group members:** Eberhard Umbach, Chair (Germany), Eloy Alvarez (Spain), Gérard Creuzet (France), Jean-François Minster (France), John Loughhead (UK), Karin Byman (Sweden), Krzysztof Galos (Poland), Miodrag Mesarovic (Serbia), Zoran Marinšek (Slovenia). Katharina Schätzler, the Scientific Officer, provided a strong support.

**Current topic:** Systemic approach to energy production in Europe: experiments and prototypes of cooperation across borders.

The Euro-CASE Energy Platform, established in June 2017, worked on the drafting of two distinct papers:

1. A concept paper for a SAPEA project on the Energy Transition in Europe and how to achieve this transition through better cooperation within the European energy sector. The paper, entitled “How

to meet the future challenges of the European energy system? – a concept paper” was completed on 1 October 2018. It focuses on challenges in energy supply, sector coupling (e.g. electricity for heat and electricity), synthetic fuels for energy storage, and heating & cooling using geothermal energy, biomass, etc.

2. An “internal” report on national energy systems within the framework of the Energy Transition in Europe and their coordination at EU level. The report is nearing completion and depicts the European (EU) situation, strategy and vision, and the state of affairs in selected EU member countries (France, Germany, Poland, Serbia, Slovenia, Spain, and Sweden). While in general and until recently developments in the EU as a whole followed a satisfactory trend, the situation in individual member countries can differ considerably, making collaboration to attain future goals more than difficult. Moreover, even with the recently achieved reduction of obligations, too many and sometimes contradictory regulations have led to difficulties in achieving a coherent policy. The report will detail the situation of seven Euro-CASE member countries as reported by academy representatives.



# Partnerships

## Frontiers of Engineering

### 2016/2017 cycle

**TAF**

TECHNOLOGY  
ACADEMY  
FINLAND

Since 2010, Euro-CASE and the US National Academy of Engineering (NAE) have jointly organised meetings under the umbrella of Frontiers of Engineering (FOE).

The objective of FOE Symposia is to bring together the next generation of leaders in engineering and create a youth network, to facilitate transatlantic engineering/technology collaboration and the transfer of new techniques and methods across four topics of major societal interest. Invited participants comprised of engineers, scientists and technologists below 45 years old including 60 representatives from both Europe the United States.

On behalf of Euro-CASE, The Technology Academy (TAF) of Finland co-organised the successful FOE 2016-2017 scheme with Dr Harri Kulmala, CEO of the Finnish Metals & Engineering Competence Cluster Tampere and TAF Fellow, as the European General co-chair. After a very interesting and efficient seminar organ-



ised in the Aalto University in Finland on October 2016, the NAE hosted the 2017 Symposium at the University of California, Davis on 15-18 November. The general co-chairs were Dr Harri Kulmala (Technology Academy of Finland) on behalf of Euro-CASE, and Prof. Michael Tsapatsis (University of Minnesota). Four topics were tackled: Neuro-engineering, Computational Imaging, Next-Generation Solar Cells and Technologies for Space Exploration.

A detailed programme and presentations from the symposium are available on the NAE website.



EU US FOE Symposium at the University of California, Davis on November 2017.

### 2019/2020 cycle



The 2019 EU-US FOE Symposium will be held on 18-20 November in Stockholm, Sweden, organised by the Royal Swedish Academy of Engineering Sciences (IVA).

In 2019 the following themes have been selected by the US National Academy of Engineering and IVA (for Euro-CASE):

- 5G and the Internet of Things
- Systems Approaches to a Clean Environment
- Manufacturing for Smart Industry
- Materials Engineering Enabled by Advances in
- Imaging

## Euro-CASE ANNUAL CONFERENCES

Since 2008 Euro-CASE member Academies have organised a series of Annual Conferences. Through this, a tradition has been established which sees each member Academy host an event each year.

**2008 London:** "How Can Europe Meet its 2020 Renewables Targets?" [RAEng]

**2009 Stockholm:** "Increasing the interest in Mathematics, Science and Technology" [IVA]

**2010 Berlin:** "Innovation – Best Practices" [acatech]

**2011 Madrid:** "Water and Food Security in Europe" [RAI]

**2012 Paris:** "Energy Independence for Europe" [NATF]

**2013 Lisbon:** "Boosting Innovation in Europe" [PAE]

**2014 Brussels:** "Evidence-based Policy Advice and Innovation Policy beyond Horizon 2020" [acatech, ARB, IVA]

**2015 Delft:** "Engineering Smart Cities of the Future" [AcTI]

**2016 Lyngby:** "Big Data – Smarter Products, Better Societies" [ATV]

**2017 Poznan:** "Cybersecurity" [PAN]

**2018 Zurich:** "How will Artificial Intelligence shape our Future" [SATW]

## Annual Conference

Since 2008, Euro-CASE member Academies have organised a series of Annual Conferences, following a tradition of a different Academy hosting the event each year.

### 2017 Annual Conference, 6-7 November, Poznan (Poland)



In 2017 the Polish Academy of Sciences (PAN) co-organised the Euro-CASE annual conference focused on the theme of cybersecurity. The event took place in the Supercomputing and Networking Centre in Poznań (Poland). The conference was focused on critical infrastructures, protection of the Internet of Things and industrial networks, and on the issue of national security and prevention of industrial cyber espionage.

Jakub Boratyński from the DG Connect of the European Commission presented the new regulation on Data Privacy, inspired by the SAPEA Cybersecurity report.

Keynote speakers included:

Prof. Erol Gelenbe – Fellow, National Academy of Technologies of France  
 Jean-Luc Moliner – Senior Vice President, Head of Group Security, Orange  
 Dries Van Dyck – Information Security Officer, Belgian Nuclear Research Centre

A visit of the Poznan Supercomputing and Networking Center was organised and unanimously appreciated. The conference itinerary also included a meeting of Euro-CASE Board members.



Prof. Elzbieta Frackowiak



**2018 Annual Conference, 24 September, Zurich (Switzerland)****SATW**

“How will AI shape our future?” This was the central question of the 2018 Annual Conference hosted by the Swiss Academy of Engineering Sciences SATW. The SATW took the approach to open up the conference for public interest, and to bring together experts from business, politics and science to discuss all relevant aspects of this question. Over 120 people attended the conference at the Swiss Re Centre for Global Dialogue, overlooking the Lake of Zurich. However, there was little time to enjoy the view because the programme was packed. It featured inspiring keynotes, insightful panel discussions and two breakout sessions, one focused on AI research and the other on AI services and business applications.

Experts discussing big issues: Government Councillor Carmen Walker Späh, and Mauro Dell’Ambrogio, State Secretary for Education, Research and Innovation, welcomed the participants on behalf of the Canton of Zurich and the Government of Switzerland respectively. Among the 30 keynote speakers and panellists were many internationally renowned experts such as Olivier Bousquet, Principal Engineer at Google AI Europe; Alessandro Curioni, IBM Fellow, Vice President Europe and Director IBM Research; Luciano Floridi, Director of the Digital Ethics Lab at the Oxford Internet Institute; Jana Köhler, President of Swiss Group for Artificial Intelligence and Cognitive Science, who months later was appointed



Prof. Reinhard Hüttli





new CEO of the German Research Center for Artificial Intelligence (DFKI); Antonio Krüger, Scientific Director of the Retail Laboratory at DFKI; and Anders Lansner, Professor in Computer Science at Stockholm University and KTH Royal Institute of Technology. They presented and discussed challenges and opportunities related to AI, the situation in Europe compared to the USA and China, plus economical and ethical issues. For more information and the key takeaway messages please refer to the corresponding blog post:

- [www.satw.ch/de/blog/article/2018/10/03/euro-case-conference-2018-the-morning/](http://www.satw.ch/de/blog/article/2018/10/03/euro-case-conference-2018-the-morning/)
- [www.satw.ch/de/blog/article/2018/10/03/euro-case-conference-2018-the-afternoon/](http://www.satw.ch/de/blog/article/2018/10/03/euro-case-conference-2018-the-afternoon/)

The Board meeting for the delegates was held the next day at IBM Research – Zurich, followed by a visit to the research centre.



## 2019 Annual Conference, 21 October, Oslo (Norway)



The 2019 Euro-CASE Annual Conference is scheduled to take place in Oslo (Norway) on 21 October. It will be hosted by the Norwegian Academy of Technological Sciences (NTVA) chaired by Prof. Torbjørn Digernes, on the theme of “The Future of Work – The Content of Work”.

How will robotisation, artificial intelligence and automation affect how we work in ten or twenty years? And what should students learn in the age of AI and biotech?

- Learning Centers
- The National Platform for Learning Systems
- Towards an inclusive robot society
- Artificial intelligence in education
- Employee 2030
- Trust in a time of transition

More information on all Euro-CASE conferences can be found on the Euro-CASE website.



## CAETS



The 2017 International Council of Academies of Engineering and Technological Sciences (CAETS) Annual Conference took place on 14-15 November in Madrid, Spain, hosted by the Royal Academy of Engineering (RAE). The main theme was “Challenges of the bioeconomy”. The 2018 CAETS Annual Conference was held on 11-14 September in Montevideo and hosted by the National Academy of Engineering of Uruguay (ANIU). The main theme was “Sustainable development of agricultural and forestry systems”.

The 2019 CAETS Annual Conference was held on 25-28 June in Stockholm and hosted by the Royal Swedish Academy of Engineering Sciences (IVA). The main theme was “Engineering a better world – the next 100 years”.

More information on all CAETS conferences can be found on the CAETS website. Video presentations from the 2019 conference can be found on the IVA website.

## The SAPEA Consortium



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

Funded through the EU's Horizon 2020 programme, the SAPEA consortium comprises five European Academy networks:

- Academia Europaea (AE)
- All European Academies (ALLEA)
- European Academies' Science Advisory Council (EASAC)
- European Council of Academies of Applied Sciences, Technologies and Engineering (Euro-CASE)
- Federation of European Academies of Medicine (FEAM)

### Summary of SAPEA reports submitted to the European Commission

1. Cybersecurity: Scientific Opinion delivered by GCSA to the European Commission on 24 March 2017, following a request by the Commission Vice President Ansip and Commissioner Oettinger. [https://ec.europa.eu/research/sam/pdf/sam\\_cybersecurity\\_report.pdf#view=fit&pagemode=none](https://ec.europa.eu/research/sam/pdf/sam_cybersecurity_report.pdf#view=fit&pagemode=none)
2. FFO: Request from Commissioner Vella, GCSA opinion and SAPEA Evidence Review Report published November 2017 in the presence of Commissioner Moedas. <https://www.sapea.info/wp-content/uploads/FFOFINALREPORT.pdf>
3. PPP: Request from Commissioners Andriukaitis and Moedas, GCSA opinion and SAPEA Evidence Review Report published June 2018. [https://www.sapea.info/wp-content/uploads/SAPEA\\_PPP\\_ERR\\_Web.pdf](https://www.sapea.info/wp-content/uploads/SAPEA_PPP_ERR_Web.pdf)
4. CCU: Request from Commissioner Cañete, GCSA opinion and SAPEA Evidence Review Report published May 2018. <https://www.sapea.info/wp-content/uploads/CCU-report-web-version.pdf>

## SAPEA Board members, Chairmen of Networks



Prof. Sierd Cloetingh  
Utrecht [NL]  
Chair of the Board of  
SAPEA



Prof. Antonio Loprieno  
Basel [CH]



Prof. Thierry  
Courvoisier  
Geneva [CH]



Prof. Reinhard F. Hüttel  
Potsdam [DE]



Prof. George Griffin  
London [UK]



# **Member Academies' major events and achievements in 2017 & 2018**

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**More detailed information for each Academy can be found on their respective web sites.**



## Austria

([www.oeaw.ac.at](http://www.oeaw.ac.at))

- Jan. 2017: Lecture “Earth, Mankind and Energy” given by Carlo Rubbia (Nobel-Prize in Physics 1984)
- May 2017: Lecture “The development of colour patterns in fishes: Towards an understanding of the evolution of beauty” given by Christiane Nüsslein-Volhard (Nobel-Prize in Medicine 1995)
- Sep. 2017: Space-Research Institute of the Austrian Academy participates in the final phase of the NASA-spacecraft Cassini’s 20-year mission to planet Saturn.
- Researchers at the Institutes of the Austrian Academy received twelve new ERC-Grants (seven in 2017 and five in 2018; five in the Humanities and Social Sciences, four in Natural Sciences and Engineering, three in Biology and Biotech)
- Sep. 2017: World Premier in Quantum Physics: First Quantum-encrypted Video-Call between Vienna and Beijing. Major Step towards a Quantum-Internet
- Apr. 2018: Lecture “How CDKs control the cell cycle” given by Sir Paul Nurse (Nobel-Prize in Medicine 2001)
- Oct. 2018: the First “Joint Academy Day” in co-operation with the Royal Netherlands Academy of Sciences addressed topics including “ethical questions regarding research in or about authoritarian regimes” and “advisory functions of academies”.
- Jun. 2018: Ahead of the Austrian EU-presidency, the General Assembly of the European Academies Science Advisory Council (EASAC) took place in Vienna.



## Belgium

ARB ([www.academieroyale.be](http://www.academieroyale.be))

- In 2018, Didier Viviers was appointed permanent secretary of the Royal Academy of Belgium (ARB) and started to strengthen the relations between the ARB and several international and European scientific networks, especially by creating a department of International Relations.
- ARB has become a member of Euro-CASE in 2018, alongside the Belgian sister academy KVAB. Luc Chefneux, member and vice-director of the Class Technology & Society, has been appointed as the ARB member of the Board of Euro-CASE.
- The work of the ARB has focused on several societal issues: the future of the European Union, industrialisation, education, energy, corporate social responsibility. The ARB also launched the “Rencontres internationales”, a conference series focused on how each region, culture and relevant State articulates local concerns and global issues.



## Belgium

KVAB ([www.kvab.be](http://www.kvab.be))

- In 2017 the Royal Flemish Academy of Belgium for Science and the Arts (KVAB) entered into a new agreement with the Flemish Government for the period 2018-2022, with funding secured to develop internal Academy activities, raise international profile and cooperate and interact with society.
- KVAB has four classes, including the Class of Technical Sciences KTW which has been a Euro-CASE member since mid-2018, alongside the

Belgian sister academy ARB. Joos Vandewalle, president of KVAB for the years 2017 and 2018, has been appointed as a KVAB member of the Euro-CASE Board. Brussels and the premises of the Palace of the Academies has offered enormous added value as a central meeting place in Europe.

- The main society related programmes of KTW have been a thinkers’ programme on food, and positioning of papers on seven specific themes: mobility for tomorrow, privacy in an age of the internet, social networks and Big Data, Artificial Intelligence, data science and health-care, learning analytics, and corporate digital responsibility. The societal debate on energy is stimulated by the Energy Reflection Group.



## Croatia

([www.hatz.hr](http://www.hatz.hr))

- Publication of the Croatia Academy of Engineering (HATZ) scientific editions: “Annual 2016 of the Croatian Academy of Engineering” (in Croatian), HATZ, Zagreb, 2017 and “Engineering Power” – Vols. 12(1) 2017, 12(2) 2017 and 12(3) 2017.
- Signing of Collaboration Agreement with Slovenian Academy of Engineering, Ljubljana, Slovenia, September 2017.
- Organisation of numerous public events (symposia and workshops) and lectures of the international experts, such as Prof. Dr. Rajendrakumar Anayath, International member of HATZ and Vice Chancellor of Deenbandhu Chhotu Ram University of Science and Technology, India (“Bringing Agility in Technical Education to Sustain and Develop”), and Dr. sc. Tin Komljenović, University of California, Santa Barbara, USA (“Integrated Photonics for LIDAR and Communications”).
- Participation in Euro-CASE Board meeting in Paris, France, and CAETS 2017 convocation, Real Academia de Ingeniería (RAI), Madrid, Spain; visit to University of Seville, November 2017.
- Publication of the Academy scientific editions: “Jubilee Annual 2017-2018 of the Croatian Academy of Engineering” (in English), HATZ, Zagreb, 2018 and “Engineering Power” Vols. 13(1) 2018, 13(2) 2018 and 13(3) 2018.
- Organisation of numerous public events (symposia and workshops) and lectures of the international experts as part of the celebration of 25th Anniversary of the Academy
- We particularly emphasise that several gatherings were organised to help achieve our strategic objective of improving cooperation between science and the economy
- Participation in Euro-CASE Board meeting in Paris, France, May 2018



## Czech Republic

([www.eacr.cz](http://www.eacr.cz))

- The Engineering Academy of the Czech Republic (EACR) organised an International workshop on “Scale-up of Innovative SMEs” on 19 September 2017 in Prague. The Euro-CASE Position Document “Barriers to Innovation and Scale-up of Innovative SMEs” was presented and recommendations of the Euro-CASE Innovative Platform II were discussed.
- EACR cooperated in the elaboration of an independent Royal Academy of Engineering (UK) study on the building and fire regulations for residential buildings in reaction to the Grenfell Tower fire in London. EACR provided sources for this field from the Czech Republic.

- The 2017 Annual Award of the EACR was presented to a team of the Technical University, Brno for the implementation of a small hydro-electric power station with a siphon swirl turbine in the Želina locality. The unique concept of the siphon swirl turbine is characterised by its simple design and high hydraulic efficiency - up to 85% - which makes it possible to use these turbines on most rivers already from a 1 m gradient with minimum costs.
- EACR and the Czech Medical Academy held their third Joint Conference presenting achievements of engineering and medical research co-operation in the field of human organ replacement. The Conference took place on 16 April 2018 in Prague.
- The 2018 Annual Award of the EACR was presented to the team of the Novák & Partner Co. for the unique structure of the bridge over the Chomutovka valley. The structure was designed through the application of several calculation models which made it possible to create a materially balanced and slender structure, demonstrating the high level of bridge engineering in the Czech Republic.
- EACR has participated in a project aimed at elimination of noise and other environmental burdens at the outfalls of urban tunnels in residential areas. EACR also participated in number of infrastructure projects in Prague and across the Czech Republic



#### **Denmark** ([www.atv.dk](http://www.atv.dk))

- The Danish Academy of Technical Sciences (ATV) held an "Intelligent Growth" conference in Copenhagen in November 2018, with a focus on how Denmark utilises disruptive, digital technologies as drivers for growth and welfare. The report "Disruptive China" was launched based on an ATV delegation visiting Shanghai area in October 2018.
- "Denmark's Knowledge-Region-Challenge" conference held in Copenhagen in April 2018 and launch of the report "Denmark's Position as Science & Engineering Region". Tuula Teeri, President of the Royal Swedish Academy of Engineering Sciences (IVA) was keynote speaker at the conference.
- "Towards a World-Leading Science & Engineering Region" conference held in November 2017 with a focus on Computer Science, Life Science and UN Sustainable Development Goals. Launch of the report "Learnings from US Tech Clusters" based on an ATV delegation visiting Boston and Bay Area in October 2017.



#### **Finland** ([www.academies.fi](http://www.academies.fi))

- In the summer 2018, the national membership at Euro-CASE was transferred from Technology Academy Finland (TAF) to The Council of Finnish Academies (CoFA). CoFA is a cooperative body for the four academies of sciences & letters and technology & engineering in Finland. This arrangement allows all the academies to be informed about and involved in Euro-CASE activities.
- TAF awarded the biennial one-million-euro Millennium Technology Prize to Dr. Tuomo Suntola in May 2018. Dr Suntola's prize-winning atomic layer deposition (ALD) innovation is a nanoscale technology in use all over the world.

- The Innovation Award for Women, awarded by the Finnish Parliament in co-operation with Technology Academy Finland, has been granted in 2017 and 2018. The award is worth 110.000 €.



#### **France** ([www.academie-technologies.fr](http://www.academie-technologies.fr))

- Besides its Fellows' active participation in Euro-CASE Platforms (Energy, Innovation, Engineering Education and Bioeconomy) and in the SAPEA project, the National Academy of Technologies of France (NATF) published several reports on the main following topics:
  - Industrial production of human stem cells for therapeutic use
  - AI and automatic learning
  - Energy transition
  - Innovation & SMEs
  - The digital revolution and jobs
  - Industry of the future
  - Initial and continuous vocational training.
- The second edition of the NATF Annual Convention, devoted to Sustainable, intelligent and low-carbon buildings, was attended by over 300 people. In December 2018, NATF and the Air & Space Academy jointly organised a colloquium on the topic: "Management of major projects: feedback".
- As part of bilateral relations between foreign academies, NATF strengthened its existing collaboration with the Chinese Academy of Engineering on the subject of nuclear energy.
- NATF elected a new governance for the period 2018:
  - Bruno Jarry, President
  - Pascal Viginier, Vice-President
  - Olivier Appert, General Delegate.



#### **Germany** ([www.acatech.de](http://www.acatech.de))

- On 8 May 2018 Karl-Heinz Streibich succeeded Henning Kagermann as President of the German Academy of Science and Engineering (acatech). At the handover ceremony, Chancellor Angela Merkel announced a continuation of the innovation dialogue between the Federal Government, industry, and science as well as the transformation of the National Platform for Electromobility into a National Platform Future Mobility which comprises all aspects of mobility including sector coupling.
- On 16 October 2018, acatech celebrated its tenth anniversary as a National Academy. The anniversary celebrations were dedicated to the future direction of acatech as well as to the topics of artificial intelligence, and the future of the workplace. In addition, Stefan Oschmann, CEO of Merck, highlighted new developments in the field of biotechnology in his keynote speech.
- On 3 December 2018, experts from the National Platform "Learning Systems", initiated by the German Federal Ministry of Education and Research (BMBF) on Artificial Intelligence, together with professionals from science, business and society discussed how self-learning systems are revolutionising the economy and everyday life. The platform is chaired by Anja Karliczek, Federal Minister of Education and Research and acatech President Karl-Heinz Streibich.

- On 4 December 2018, the Innovation Dialogue with Chancellor Angela Merkel, the Minister for Research Anja Karliczek, the Minister for Economic Affairs Peter Altmaier and the Steering Group, chaired by Henning Kagermann dealt with the topic: "Strengths and Weaknesses of the German Innovation System".
- In October 2018, a publication on blockchain technology was issued within the framework of the new acatech HORIZONTE series, which highlights fields of technology that are literally emergent on the horizon, but whose effects are still uncertain. This series combines dialogue and technological science advice.
- On 18 May 2017, the acatech Academy Day on Cybersecurity in a Connected Economy was held in Wiesbaden. During the event, the Hessian Minister of Justice Eva Kühne-Hörmann together with Johannes Buchmann, TU Darmstadt / CRISP, Karl-Heinz Streibich, CEO Software AG, Hauke Stars, CEO Deutsche Börse AG, and numerous Fellows of acatech as well as other experts discussed how the openness of systems and security can be reconciled.
- On 17 October 2017, at the acatech annual meeting, Heinz Riesenhuber, former Federal Minister of Research and Technology, held a keynote speech on innovation politics and pointed out the role of partnerships and the need for dialogue between science, industry and the general public.
- In 2017, two Innovation Dialogues with Chancellor Angela Merkel, ministers and the Steering Group, chaired by Henning Kagermann took place on the topic of: "Germany's role in European Innovation Policy" and "Strengthening Disruptive Technologies".



### Greece

<https://bit.ly/2lFegDe>



### Hungary

[www.mernokakademia.hu](http://www.mernokakademia.hu)

#### 2017:

- In March the Hungarian Academy of Engineering (HAE) held a very interesting professional meeting at the High Voltage Laboratory of the Budapest University of Technology and Economics.
- In May the General Assembly of HAE featured a very informative presentation about Industry 4.0 Research and the Innovation Centre of Excellence.
- In September HAE organised "Innovation and Sustainable Surface Transport 2017", with the purpose of motivating domestic professionals in the field of innovation and strengthening the relationship between domestic stakeholders and the companies involved in development.  
2018:
- In May HAE held its General Assembly which included a very interesting presentation about "Personalised health research and the European challenges of digital health care".
- In August HAE organised "Innovation and Sustainable Surface Transport 2018", which was the continuation of a successful conference series



### Ireland

[www.iae.ie](http://www.iae.ie)

- BREXIT - Implications for Transport Infrastructure Investment, published January 2018  
The report was prepared by an Irish Academy of Engineering (IAE) taskforce and is one of a series that has and will continue to focus on important topics with a significant engineering dimension. The Academy generally seeks to engage with issues of longer term import but on occasion will also address more pressing subjects with a view to helping to identify appropriate solutions. No issue is more immediate and pressing from the current Irish standpoint than that of Brexit. The ongoing uncertainties generated by the process of UK withdrawal from the EU as well as the dependence of a high proportion of Irish trade on either the British market or access to third countries via Great Britain pose significant risks requiring attention. This report on the implications for transport infrastructure investment is both timely and, it is intended as, a contribution by the Academy to the overall Brexit discussion.
- Natural Gas – Essential for Ireland's Future Energy Security, published July 2018  
Natural gas plays a critical role in Ireland's energy mix and economy. Gas provides around 30% of Ireland's total primary energy and generates about 50% of Ireland's electricity. Many industries and homes in Ireland depend on gas for heating. Ireland's Government has a vision of transitioning to a low-carbon economy by 2050. This will require a large increase in renewables and a shift to lower-carbon fuels like natural gas. Natural gas has the lowest carbon emissions of all fossil fuels and is an ideal complement to renewables. Natural gas will be critical for Ireland's transition to a low-carbon future. Ireland needs to develop alternative sources of gas supply and supply routes. Developing a Liquefied Natural Gas (LNG) import terminal in Ireland would enhance Ireland's security of gas supply and provide access to the increasingly competitive global LNG market. Exploration for gas offshore Ireland should also be promoted, with appropriate licensing terms. A strategic national plan is required to diversify Ireland's gas supply needs.
- IAE Response to Transport Infrastructure Ireland's call for submissions to METROLINK proposal, submitted May 2018  
The Academy has made a response to Transport Infrastructure Ireland's (TII) call for submissions in relation to its METROLINK proposal. The Academy's proposals are in line with its Feb 2015 submission to the National Transport Authority (NTA) on Transport Strategy for the GDA 2015-2035 and its April 2016 report Sustainable Transport Infrastructure 2035. Both documents called for the development of Metro North/South, from Swords to Sandyford, as now proposed by TII. The Academy's submission indicates that by choosing an alternative alignment, to that proposed between the M50 and the Royal Canal, the requirement for bored tunnelling could be substantially limited and the number of underground stations reduced from six to one, thus saving over €500m on civil engineering costs. The Academy also considers that the alternative alignment it put forward would also make a greater contribution to integrated land use and transport planning and make a comparable contribution to social inclusion. The Academy also identified a number of technical issues in the city area where alternative solutions may be more appropriate.



## Italy

[www.fast.mi.it](http://www.fast.mi.it)



## Netherlands

[www.acti-nl.org](http://www.acti-nl.org)

- The new Dutch government that took office in late 2017 has put forward some new incentives and policy changes regarding science, innovation and entrepreneurship. At the request of the Netherlands Ministry of Economic Affairs and Climate Policy, the Netherlands Academy of Technology and Innovation (AcTI) has written and presented an advice titled “Professionalizing the Golden Triangle” which highlights five critical issues that would need to be addressed in this new context in order to strengthen the innovative and entrepreneurial Dutch economy for the medium-long term: 1. Continuity in policy, 2. Mission-driven innovation is needed to bring science and industry R&D agenda’s together, 3. Facilitate SMEs and startups, 4. Strengthen tech transfer capabilities and the exact sciences, 5. Increase spending in public R&D and create new specific instruments vs. generic tax incentives for R&D. The report has been well received and used in a recent policy letter on “Valorisation” (i.e. creating value and impact with academic knowledge and science) of the Government to Parliament.
- On 23 March 2018 AcTI organised a high-level meeting with Prince Constantijn of Orange, Special Envoy for Startups, and several leaders from academia, science and the private sector on the Euro-CASE Innovation Platform II report “Barriers to innovation and scale-up of innovative SMEs”. The goal of this meeting was to have a high-level discussion on the existing barriers, instrumentation and respective roles of knowledge-institutes and government to support and foster innovative startups to scale.
- This meeting came just after AcTI had launched a new initiative to connect with the new generation of technologically innovative entrepreneurs: the Young Innovator Platform. AcTI was able to provide real case input into the discussion through experienced fellows and several Young Innovators who are actually working on getting their companies to scale. The discussion has led to a more prominent role for AcTI in the national discussion and policy making on topics of technology transfer, academic commercialisation and scale-up. AcTI has been asked by the Netherlands Ministry of Economic Affairs and Climate Policy to provide content and practical support through its fellows to keep these topics on the political and societal agendas.
- On 9 April 2018 AcTI organised jointly with KNAW (Netherlands Royal Academy of Sciences) a public symposium on Carbon Capture and Utilization, partly driven by the preliminary results of the SAPEA working group that worked on this matter. Prof. Dr. Abanades of the Spanish National Research Council and Vice Chair of the SAPEA working group was part of a panel of experts and presented and discussed the climate mitigation potential of CCU technologies. The symposium was held to help achieve an objective shared by AcTI, KNAW and SAPEA to engage the general public and to inform and discuss the latest scientific and technological developments that have critical importance for the most pressing societal challenges.



## Norway

[www.ntva.no](http://www.ntva.no)

- 28 March 2017 the Norwegian Academy of Technological Sciences (NTVA) together with the Norwegian Academy of Science and Letters and the Norwegian Research Council arranged a symposium on Premises for Politics based on Science. There were many prominent speakers both from overseas and from Norway. His Majesty Kong Harald took part in the symposium.
- NTVA held a third joint seminar with IVA Väst in Oslo on 5 April 2017. The topic of was The electricity supply: The Nordic Countries will be better off if they cooperate. The same seminar was held in Gothenburg with the same speakers.
- The Norwegian government asked for comments to their revision of the long-time plan for research and higher education. NTVA advised that research benefitting small and medium sized businesses must have higher priority and discussed the need for developing the physical infrastructure for research. Other focus areas included bigger success with a systematic work for multidiscipline cooperation.



## Poland

[www.pan.pl](http://www.pan.pl)

- In 2017 the Polish Academy of Sciences (PAS) co-organised the Euro-CASE annual conference focused on the theme of cybersecurity. The event took place in Supercomputing and Networking Centre in Poznań (Poland). The conference was focused on critical infrastructures, protection of the Internet of Things and industrial networks, and on the issue of national security and prevention of industrial cyber espionage. The keynotes were delivered by Prof. Erol Gelenbe of NATF, Prof. Jean-Luc Moliner of Orange, and Dr Dries Van Dyck of the Belgian Nuclear Research Centre
- Additionally, in 2017 PAS hosted the 24th IFIP World Computer Congress in Poznań on 17-21 September. Over 500 participants from all over the world attended this event with the keynotes by Prof. Wil van der Aalst of RWTH Aachen University, Dr. Jan Camenisch of IBM Research, Prof. Leslie Valiant of Harvard University and Ms Shamika N. Sirimanne of UNCTAD.
- On 9-10 May 2018 in Katowice, PAS together with the Royal Academy of Engineering of Spain and the Polish Central Mining Institute organised a seminar entitled “Challenges for the coal industry in the EU”. Participants raised a number of issues including: the future of coal and clean coal technologies in the context of climate and energy policy, the need for diversification of energy sources and sustainable development of energy systems, as well as new technological developments in Poland and in Spain.



## Portugal

[www.ordemengenhheiros.pt](http://www.ordemengenhheiros.pt)



## Romania

([www.astr.ro](http://www.astr.ro))

The Technical Sciences Academy of Romania (ASTR) held the following academic days and international conferences:

- 6-7 Oct 2017: Strategic Synergies in the Black Sea Basin, held in partnership with Ovidius University of Constanta
- 18-19 Oct 2017: Energy and environment-major challenges of the 21st century, held in partnership with Petroleum-Gas University of Ploiesti. Proceedings of both events have been published.

SAPEA Workshops held in Bucharest:

- 16-17 Oct 2017: Best practice of interaction between academies and policymakers
- 7 Nov 2018: Novel carbon capture and utilisation technologies

Published papers:

- ASTR - short history and data, author: Mihai Mihăiță, 2017
- Pages from the development of the industry of Romania, coordinator: Valeriu Jinescu; Heavy water produced in Romania, author: Mircea Turtureanu, 2017
- The construction of the equipment, machines and installation for industrial processes, The construction of the engines, machines and means of transport, authors: Valeriu Jinescu, Ioan Avram, Stelian Necula, 2018
- Journal of Engineering Sciences and Innovation (JESI), quarterly journal 2017-2018
- Awarding prizes for scientific papers, appeared in 2015; 2017
- The establishment of ASTR subsidiary of Chisinau -Moldova Republic-2017



## Serbia

([www.ains.rs](http://www.ains.rs))

- Regular elections (three years) of new Academy of Engineering Sciences of Serbia (AESS) members
- Celebration of AESS's 20th anniversary and the festive General Assembly with special recognition given to AESS members who delivered extraordinary contributions to the Academy in the past 20 years
- Publishing a monograph on AESS history and a monograph with biographies of all members of the Academy, including international members, with separate editions in Serbian and English
- Intensifying bilateral cooperation with Chinese Academy of Engineering (CAE).



## Slovenia

([www.ias.si](http://www.ias.si))

Report for 2017

- "10th Anniversary of the Slovenian Academy of Engineering (IAS)": In June, IAS celebrated the 10th anniversary of its formation as a National Academy established by a special law. Guest at the ceremony was the newly elected Honorary Member France Rode, founder of the HP35, the first scientific pocket calculator and main inventor of HP business

- "Counselling to State Institutions": IAS cooperated with State Institutions by preparing the law for awarding engineering achievements, now equal to the awards for scientific achievements. IAS has also cooperated with the State Institutions in the twin-track railway project, in cooperation with other engineering organisations.
- "Understanding the Innovation Process and Sustainable development": IAS continued a long-term analysis of the educational system in Slovenia, the analysis of Slovenia's research, development and innovative achievements. It includes recommendations for improvement on these topics. The results of the analysis will be published in 2018.

Report for 2018

- "Preparation of proposals about organization of educational system in Slovenia": IAS has together with external experts prepared proposals about organisation of the higher educational system in Slovenia. Cooperating partners were the Ministry for Science and Education, Chamber of Commerce and Industry of Slovenia, universities and engineering companies. The proposals should result in a new law on research, development and innovation in Slovenia.
- "Cooperation with SAPEA on the conference" The Outreach Event: Novel Carbon Capture and Utilisation Technologies: Research and Climate Aspects": IAS together with the National Institute of Chemistry hosted the conference in cooperation with SAPEA. A working group of experts has prepared a report outlining the circumstances under which CCU for production of fuels, chemicals and materials can deliver climate benefits and their total climate mitigation potential over the mid- and long- term.
- "Promotion of engineering": IAS has prepared different activities for promotion of engineering and status of engineers in Slovenia. In 2018, a first national achievement award has been presented upon the new law that IAS has presented to the Ministry for Science and Education. Two members of IAS have been awarded.



## Spain

([www.raing.es](http://www.raing.es))

The Royal Academy of Engineering of Spain (RAI) has organised over 30 seminars, conferences and other events during 2018. Highlight events were:

- "Opening session with the lecture "Twenty years later..."
- "Master class "Know how, technological dissemination and economic development" by Prof. Ricardo Hausmann, Harvard University.
- "Seminar of "Engineering and Accessibility" with the participation of the Ministry of Infrastructures of Spain.
- "Joint seminar with the Academy of Sciences of Poland about "The challenges of the coal industry in the European Union" held in Katowice, Poland.
- "Annual awards "Academiae Dilecta" and "Young Engineers".
- "Project "Women and Engineering": Opening session of the "3rd Mentoring Programme" and Seminar "Women and Engineering" Dialogues with the participation of outstanding professional women.
- "Presentation of the Observatory "Digitalization of the Media" with a first seminar about "Technologies for the analysis and metadata of the video contents".

- “Conference about “Brain and Creativity” organised along with other Spanish Royal Academies.
- Inception ceremony of the new member Dr. Nuria Oliver, with the conference “Artificial intelligence: fiction, reality and...dreams” Further information on two special activities held in 2018:
- The ‘deep dive’ workshop for the EURO-CASE Energy Platform was organised by RAI on 27-28 September
- The TECHMI contest kicked off, which involves teams of 8-10 teenagers using their combined creativity and imagination to develop prototype solutions to social problems. Part of the “Women and Engineering” project which aims to promote female engineering talent, teams must include a female leader and a female majority.



### **Sweden** ([www.iva.se](http://www.iva.se))

- The German Swedish Tech Forum, an initiative of the Royal Swedish Academy of Engineering Sciences (IVA) together with the German-Swedish Chamber of Commerce, was inaugurated on 31 January at IVA by German Chancellor Angela Merkel and Sweden’s Prime Minister Stefan Löfven. The forum is a new innovation platform to increase cooperation between industrial enterprises in Germany and Sweden.
- Seminars over a wide range of topics have been held, including presentations from Nobel Prize Laureate Prof Hiroshi Amano of Nagoya University on the development of the blue LED, Prof Emmanuelle Charpentier on CRISPR-Cas9, and the world-famous robot guru Hiroshi Ishiguro on his geminoid.
- Many IVA projects during 2017-18 were devoted to aspects of sustainability. The project “Good Cities” focused on city planning and presented new ideas in this area. IVA has also taken forward projects on circular economy and resource efficiency, both of which involved interaction with responsible government Ministers.



### **Switzerland** ([www.satw.ch](http://www.satw.ch))

- The Swiss Academy of Engineering Sciences (SATW) organised the 2018 Euro-CASE conference near Zurich. Artificial Intelligence was the focus topic for the public conference on 24 September that attracted 120 participants and 30 speakers. Following the board meeting the next day, the delegates visited the IBM Research Centre.
- In 2018 SATW published a study investigating the development of the Swiss industry’s innovative strength in recent years. While Switzerland is regularly topping international rankings for innovation, the study produced some disturbing results. This provoked a large media echo and led to extensive, ongoing discussions with various stakeholders.
- In 2017 SATW started the public-private partnership programme Swiss TecLadies, an initiative to foster young female talent in tech. After qualifying by completing an online test, 45 females aged between 13 and 16 are undergoing a versatile nine-month development programme with close oversight from one female mentor each.



### **United Kingdom** ([www.raeng.org.uk](http://www.raeng.org.uk))

- Through multiple international programmes, the Royal Academy of Engineering (RAEng) has funded 169 partnerships with the UK across 14 countries and supported some 200 engineering entrepreneurs to commercialise their innovations. Most notably, some of the Academy’s Africa Prize Alumni also met with the UK Prime Minister on the first visit to Sub-Saharan Africa in five years.
- The Academy launched “This is engineering”, a social media advertising campaign aimed at young people aged 13-18 to change their perception of engineering. The first set of films have been viewed over 10 million times since launch in January 2018.
- The Academy launched the Engineering Policy Centre at the end of January 2019, bringing together the Academy, Engineering Council, Engineering UK and the UK’s 38 Professional Engineering Institutions to provide a stronger engineering voice for policy in the UK.

# Member Academies and Euro-CASE Board members in 2018 (Representatives and alternates)

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