

## ***Engineering a better world – the next 100 years***

### **A statement of the International Council of Academies of Engineering and Technological Sciences (CAETS)**

*The 2019 International Council of Academies of Engineering and Technological Sciences (CAETS) Annual Conference was held in Stockholm on June 25-27, 2019. The theme “Engineering a Better World – the next 100 years” was chosen to address the global grand challenges and the need for engineering leadership to solve these challenges. The theme was also appropriate for celebrating the 100<sup>th</sup> anniversary of The Royal Swedish Academy of Engineering Sciences (IVA), which was founded in 1919 as the first Academy of Engineering in the world.*

*The conference brought together 400 engineers, scientists, entrepreneurs and policymakers from all over the world, including 27 CAETS academies of engineering and three from Nigeria, New Zealand and Serbia that were elected as new members of CAETS.*

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The 2019 CAETS Annual Conference was dedicated to discussing the role and responsibilities of engineering in solving the global grand challenges that we know will be shaping the fate of mankind long into the future.

**When considering the collective communications of the conference speakers, a dire need for inclusive innovation came to be the most important message.**

During the past 100 years, engineering has increased the quality of life for many and at the same time reduced poverty. New, powerful technology is considered the key in solving many of the world’s current challenges. At the same time, technology is perceived as a threat by many people in today’s society, in particular in turbulent labor markets. Many people worry about losing their jobs, their privacy or control over their lives by for example automation, robotics, big data and artificial intelligence.

In the crossroads of grave challenges and great opportunities, one clear message from the speakers of the conference was that we need to put people in the center, engaging them in discussions and decisions concerning the effects and implementation of technology. To overcome the threat of technology resistance, we need inclusive innovation, collaboration and prosperity shared by all. **A vision must be developed about future society that can be shared between policymakers and citizens in different regions.** The solutions designed based on such a shared vision must be both environmentally and societally sustainable. The longer we wait to reach a shared vision, the more likely it will be that we reach unforeseen tipping points, which can’t be reversed. **The high speed of our scientific and technological development gives us genuine hope but only if our institutions and our communities are capable of change.**

Many countries and regions are still lagging far behind other nations in global knowledge generation and technology development that support prosperity and welfare of their citizens. Inequalities between regions, countries and citizens was identified as a huge obstacle for reaching our climate goals. This is a complex issue as global earnings tend to surpass global costs for most of today’s climate measures, while local costs tend to exceed local profits. **The fundamental issue will be to find a balance between the environmental and the social agendas.**

The world is becoming more complex, globalized and very difficult to grasp in its entirety. Due to the complexity and the scale of our challenges, what is needed in the world is perhaps first and foremost

cooperation and sharing between science and policy – between scientists from different fields, and between scientists, political decision-makers and the general public. Cross-border research is becoming increasingly important, for example between humanities and science. Diversity in the engineering profession must be embraced in order to maximize the potential in achieving the best results on a broad front.

**The CAETS Convocation 2019 concluded that the global engineering profession has a crucial role in meeting the serious challenges humanity faces.** However, future development can't be technology-driven exclusively but needs to be also genuinely humanistic, based on the core values of openness, sustainability and inclusion. **Cooperation and diversity need to be designed into the solutions.** Thus, the consciousness of the global engineering community for a shared vision should be encouraged.

To solve our problems, different fields of research and engineering must come together by forming thematic teams that discuss very complex issues. **Our responsibility is global, but the solutions must work on the local level.**

We need to reach a common understanding of the problems we have and the ways in which they can be solved. **Tomorrows' leaders need a clarity of vision and uncompromising focus on equality – at all levels.** Tomorrows' leaders also need to learn how to manage complicated collaborations. Engineering leadership is about developing and promoting technology for a better world but it is also about leading with knowledge, skill, insight and courage. The engineering academies and members of CAETS have an important role to play as convenors and facilitators of the complex discussions that will be required to solve today and tomorrow's issues.

*Recordings of all presentations of the CAETS 2019 conference are available at <https://www.iva.se/om-iva/iva-100/iva-100-video/>.*

*This 2019 CAETS Statement was endorsed by the following CAETS Member Academies*

Argentina's Academia Nacional de Ingeniería  
Australian Academy of Technology and Engineering  
Royal Belgian Academy Council of Applied Sciences  
Canadian Academy of Engineering  
Chinese Academy of Engineering  
Croatian Academy of Engineering  
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Engineering Academy of Japan  
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Netherland's Academy of Technology and Innovation  
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Nigerian Academy of Engineering  
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