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UK ACADEMIC SALON 2020 REPORT

KEYNOTE SPEAKERS
AND DISCUSSIONS



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Introduction

The 2020 UK Academic Salon brought together more than 300 delegates from higher education, industry and policymaking to take part in a series of discussions about scientific innovation.

For the first time in the salon's history, delegates convened digitally. This further served to highlight technology's impact on our lives.

In his opening remarks, John Gill, editor of *Times Higher Education*, said that science and technology would shepherd us through the Covid-19 crisis and be the driver of economic recovery, but that there were fundamental issues with how the

UK nurtured and safeguarded innovation, and maintained its fruitful international collaborations.

"Collaboration which is not politicised, which is driven by the new knowledge creation above all else, is vital to all our futures," he said. That sentiment echoed in the subsequent panel talks, and in Sir Kenneth Olisa's closing remarks.

A non-executive director at Huawei, Sir Kenneth said that 5G was "a technological step-change with the potential to have an impact on society equal to or greater than the internet" but cautioned that politics and competition between nations must not be allowed to limit its potential.

Victor Zhang, vice-president, Huawei Technologies

Victor Zhang's keynote illustrated the importance of innovation to Huawei's history and how the pursuit of new technologies and systems remains a guiding principal for the company. Huawei's commitment to research and development manifested itself in its investments, said Mr Zhang, with the company now employing more than 80,000 people in R&D.

"Our investments in R&D have grown by over 30 per cent last year," he said, with more than \$20 billion (£16.35 billion) allocated to R&D investment in 2020. Finding common causes with like-minded academic institutions was key, and Mr Zhang spoke of Huawei's new five-year strategic partnership with Imperial College London as a model for "connecting the digital ecosystem across academia and business."

Mr Zhang said that society will be transformed by artificial intelligence and 5G, and that academia and business must collaborate to enhance the social value of such innovations.

Ian Walmsley, provost, Imperial College London

Ian Walmsley expanded upon the theme of social value and innovation, including the importance of partnerships. He stated that ecosystems of ideas needed both "capacity and fertility" so that ideas can be both generated and tested quickly, and that new



Victor Zhang



Ian Walmsley

innovations can be exploited fully. Multiple perspectives can help drive innovation, he added, and universities must look outside the institution. "It helps us to refine ideas more effectively," he said. "Working in an open and transparent way brings real benefits."

Professor Walmsley heralded Imperial's many relationships with partner institutions and business as yielding many such benefits. "Huawei's expertise in wireless technology helped us explore how the digital world will evolve and will indeed help us to create a future digital ecosystem," he said. Imperial and Huawei will combine their expertise in AI for a new innovation laboratory, while Huawei's technology will be used in a number of ground-breaking environments, such as the simulated online training for Imperial's sustainable business programme.



Huawei's expertise in wireless technology will help us to create a future digital ecosystem

Ian Walmsley

Ensuring the UK remains a world leader in research excellence

THE PANEL

John Gill, editor, *Times Higher Education* (moderator)

Sarah Main, executive director, Campaign for Science and Engineering (CaSE)

Joe Marshall, chief executive, National Centre for Universities and Business

John Gill framed the discussion around the uncertainty that faces the British research sector, with Covid-19 and Brexit both providing volatile scenarios. How might funding hold up under such uncertainty?

Joe Marshall maintained that the UK remains attractive to investors. "Part of the UK's strength lies in the diversity of its institutions, and the interconnected ecosystem that enables quick collaborations with businesses of all sizes," he explained. But this, he added, should not be taken for granted. Dr Marshall welcomed the UK chancellor Rishi Sunak's recent comments regarding the government's commitment to science and innovation investment, and said that the UK government's target of 2.4 per cent of GDP being spent on R&D by 2027 was a "good provocation" to the country's research base.

Sarah Main welcomed the cross-party support for the UK's industrial strategy, and "an R&D decade" where research and innovation spending was increased with the goal of increasing prosperity and the



Every pound of public money for research will be expected to have a dual purpose

Sarah Main

quality of life for individuals and stimulating national productivity. She said that CaSE had written to the science minister to stress the importance of multi-partner research endeavours that bring academia, charities, business and other parties together to collaborate. These, said Dr Main, often yield a strategic national advantage. "Some of our most foremost research centres and programmes are characterised by such partnerships," she said. "Under the extensive financial pressure that some organisations are feeling, my concern is for the sustainability of these interfaces."

Dr Main believed that there would be a greater expectancy that publicly funded research would deliver both economic and social impacts. "It is my belief that every pound of public money for research will be expected to have a dual purpose to deliver that economic and societal benefit," she said.

How can intelligent 5G support UK research capabilities?

THE PANEL

John Gill, editor, *Times Higher Education* (moderator)

Rahim Tafazolli, head of Institute for Communication Systems and director of the 5G Innovation Centre, University of Surrey

Muhammed Imran, professor of communication systems, University of Glasgow

Muhammed Imran spoke about digital inequality in the UK. He said that the provision of high-quality digital technologies must be shared more equally between urban and rural areas, with access expanded in impoverished regions.

Rahim Tafazolli said that the UK was already a leader in 5G and that, in 2012, the focus was on the network's speed, but the UK helped broaden the project's scope by maintaining that 5G should provide connectivity between machines and robots. "Otherwise, 5G would have just been another system, only 10 times faster than 4G," he said. "When academia and industry work together, they can influence things."

The discussion turned to the public's misgivings about 5G. Professor Imran stressed the importance of having a diverse range of 5G vendors to reduce security risks, and that academia is well-placed to advise governments on security matters.



Academia can stress-test the security bugs in any infrastructure

Muhammed Imran

"It will be very difficult for a national government to accept that another country's vendor is secure enough for their critical infrastructure," he explained, adding that academia could offer "clear metrics to stress-test the vulnerabilities as well as stress-test the security bugs in any infrastructure."

Professor Tafazolli said that 5G could accelerate economic recovery after Covid-19. "If we already had automation... we could have factories and manufacturers running using robots while people are observing social distancing and isolation," he said. However 5G is implemented, said Professor Tafazolli, we should remember that it was delivered via international collaboration. "5G, 4G, these are global standards," he said. "No one country, one company, or one continent can dictate the whole standard."

How can technology and innovation address a global health crisis?

THE PANEL

Sarah Custer, digital editor, *Times Higher Education* (moderator)
Sebastien Ourselin, head of school, School of Biomedical Engineering and Imaging Science, King's College London
Geraint Rees, pro-vice provost (AI), dean of the Faculty of Life Sciences, UCL
Olga Kostopoulou, reader in medical decision making, Imperial College London

Geraint Rees noted that, during the Covid-19 crisis, AI was facilitating activities such as online grocery shopping and load balancing for broadband networks, but older technologies such as apps have been at the forefront of our response. Sebastien Ourselin argued that this was data-related.

Citing King's College London's challenges when developing its symptom tracking app, Professor Ourselin said that "federated learning" – where machine learning trains algorithms to interrogate data across multiple decentralised sources – was needed to seed innovation.

The Covid-19 crisis had changed the way doctors see patients, said Olga Kostopoulou, but consulting via video was not fundamentally innovative. She added that the myriad symptoms related to Covid-19 underscored how crucial it was that new technologies supported diagnosis at the earliest stage possible.

Engaging partners in the private sector is really important

Annette Bramley

What makes a successful innovation district?

THE PANEL

Jack Grove, deputy features editor, *Times Higher Education* (moderator)
Annette Bramley, director, N8 Research Partnership
Ian Campbell, interim executive chair, Innovate UK
David Price, vice-provost of research, UCL

The panel spoke of the importance of flexible and varied funding structures to support innovation. "Speaking as a funder, we have been quite radical in that we have been giving 100 per cent grants upfront," said Ian Campbell. "We are taking more risk." This risk, however, had to be off-set against Innovate UK's responsibilities as a public funder. Value for tax-payer money was crucial, he said.

"The developing of regional ecosystems, building on regional strengths, engaging partners in the private sector is really important," said Annette Bramley. Schemes such as the Strength in Places Fund were positive but needed to be scaled-up to maximise their impact.

David Price said that UCL's planned Stratford campus has the potential to support urban regeneration in east London but he encouraged universities to think nationally and harness the benefits of collaboration with other institutions to create pockets of innovation across the UK.

How can UK universities maintain international research collaboration?

THE PANEL

Phil Baty, chief knowledge officer, *Times Higher Education* (moderator)
Nora de Leeuw, executive dean, Faculty of Engineering and Physical Sciences, University of Leeds
Michael Hill-King, collaboration director, Huawei Technologies
Tim Softley, pro vice-chancellor (research and knowledge transfer), University of Birmingham

Phil Baty opened the discussion by outlining some of the challenges facing international research collaboration. There are closed borders, laboratories and campuses. Nationalism has created a volatile geopolitical landscape, with Brexit a particular challenge for British universities. And yet, we are seeing some of the most vital international research collaborations as humanity tackles a global health crisis.

The level of collaboration has been extraordinary, said Michael Hill-King. He saw it as a new culture of problem-focused collaboration. But it was important we consider the work involved in maintaining international relationships. "You can't just create these collaborations overnight," he said. "Most are built on years and years of long-term relationships."

Nora de Leeuw said that technology had proven that travel was not a prerequisite for



The benefits of spending time in someone else's labs are immense

Nora de Leeuw

fruitful international collaborations, but we have lost the informal interactions arising from sharing lab space. "The benefits of early-career researchers spending time in someone else's labs are immense," she said. "You cannot really see the it in direct outputs but the amount of cultural and professional development that this gives a researcher can't be put in figures."

Professor Softley expressed concern that Brexit could hamper such interactions. EU funding might be replaced, but British universities could struggle to replace a culture of free collaboration. "There is going to be a lack of trust that the UK is going to be able to participate," he said. "I think we are seeing signs of our diminishing ability to collaborate in Europe." He added that strategic partnerships with individual European universities could compensate for post-Brexit shocks, however.



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