The Institution of Engineering and Technology

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Board of Trustees

POLICY AND INSIGHT ANNUAL REPORT 2021

(Note by Alex Taylor, Head of Strategic Engagement. If you have any questions on this paper before the meeting, please contact Alex Taylor on +44 (0)1438 767442 or by email alextaylor@theiet.org)

1. Issue

This report summarises the achievements of the Policy and Insight Team based in the UK, and the wider activity within the IET, seeking to influence and inform policymakers and government, between 1 January and 31 December 2021.

2. Timing

Board of Trustees meeting, 24 March 2022.

3. For Note

The Board of Trustees is invited to note this report.

4. Background

This report of highlights is produced annually for the Board of Trustees. Full details of the IET's policy activity can be found in the Appendix.

5. 2021 Optimising Organisational Structure

5.1. In 2021 there was a reorganisation within the staff structure of the IET in the UK designed to bring together support for the IET's main output-generating volunteer communities, including the UK Policy and Insight Panels, so that their work could align with the IET's new societal challenges and help deliver the aims of IET Strategy 2030.

5.2. The Strategic Engagement Partnership Team (SEP) became the Policy and Insight (P&I) Team, part of the new Strategic Engagement Department. The work of the Policy and Insight Panels was refocused to prioritise policy work.

5.3. In addition, the IET strategic engagement KPI was adjusted to ensure it was driving the appropriate behaviours, measuring impact and engagement with policymakers.

6. IET India: Future Tech Panel 2021

6.1. Supported by staff from the IET's Bangalore office, the policy work in India is driven by the IET Future Tech Panel (FTP). Launched in 2015, the FTP focuses on how future technologies are being, or have potential to be, applied in different sectors.

6.2. In 2021, IET India was recognised as one of the contributors to the Ministry of Electronics and Communications' National Strategy on Blockchain, a critical strategy

document for India. The policy consists of inputs collated across healthcare, smart cities, cybersecurity and standards.

6.3. IET FTP's Future of Mobility and Transport Panel presented its recommendations as a response to the draft Unmanned Aircraft System Rules (UAS Rules), 2021 by the Ministry of Civil Aviation, Government of India.

7. COP26

7.1. In 2021, COP26 came to the UK. The IET was awarded UNFCCC NGO observer status which enabled a delegation of four observers to attend the event, representing the voice of the engineering and technology community at a series of meetings. This was the culmination of two years of work from teams across the IET. Highlights include:

7.1.1. IET became the authoritative voice for the key engineering and technology solutions and challenges with the *IET Guide to Net Zero Technology*

7.1.2. Partnered with London Climate Action Week, and with National Grid for the COP26 Youth Engineering Conference, amplifying our voice among key stakeholders, including young engineers around the world.

7.1.3. Been a founding member of the *Professional Bodies Climate Action Charter*, demonstrating our commitment to sustainability throughout the profession.

8. 2021 UK Outputs

8.1. Achievements of note from the UK included:

8.2. **41 Thought leadership pieces** which can take the form of white-paper style reports, fact files, articles, and online resources:

8.2.1. Reports, 12 in total, among them IET Skills for Net Zero and a Green Recovery 2020 Survey (760 downloads), Addressing the STEM Skills Shortage Challenge (433 downloads), 6G for Policy Makers (370 downloads), and Digitisation for Construction Product Manufacturers: a Plain Language Guide (355 downloads).

8.3. **22 Consultation responses** to calls issued by UK governments and organisations including: Digital Strategy for Scotland Scottish Government, Enabling a High Renewable, Net Zero Electricity System BEIS, Safer Buildings in Wales Welsh Government, The Roll-out and Safety of Smart Motorways Transport Select Committee, Local Government and the Path to Net Zero Housing Communities and Local Government Committee, The Role of Hydrogen in Powering Industry APPG.

9. Public Affairs

In June 2021, the IET launched its refreshed Public Affairs Strategy. The Strategy aims to position the IET by 2030, as a leading global thought leader for engineering and technology.

10. Risk

There are no risk implications arising from this report.

11. Resources

There are no additional resource implications arising from this report. Resources are assigned to this function through the annual planning process.

Appendix to T(22)26

SUMMARY OF ACTIVITIES IN 2021

1. COP26

1.1 In the run up to COP26 the IET engaged UK Government and took part in a range of events and initiatives in partnership with key organisations to highlight the importance of engineering and technology as part of the climate solution. A number of policy outputs were presented as part of the IET delegation to COP 26:

- Understood and published the public perception of climate change and the implications for engineering and technology in the UK in our Green Preferences Survey,
- Focused on the engineering and technology skills required to achieve net zero through our 2020 Green Skills Survey, and promoted our related IET Academy courses for Net Zero,
- As part of the IET delegation, Craig Lucas. Chair or the IET's Energy Policy Panel blogged about his experiences including his reflections on Al Gore's presentation: Al Gore's perspectives on climate and energy,
- We also themed several of the IET's Engineering and Technology podcasts towards sustainability and climate change.

1.2 Full details of the IET's work at COP26 can be found on the website.

2. IET India Activities

2.1 The Future Tech Panel (FTP) is guided by a Global Advisory Board which includes two past Presidents of the IET (Sir Robin Saxby and Professor Jeremy Watson) along with other industry leaders. The FTP also has a National Advisory Board, supported by specialist tech experts. The National Board oversees the work of 15 Working Groups. Over 130 experts contribute to the work of the FTP in total.

2.2 IET FTP's Healthcare Working Group presented its comments for two consultation papers released by the Ministry of Health and Family Welfare, Government of India. These invited comments on certain strategic and functional fundamentals of the Health Facility Registry and Healthcare Professional Registry.

2.3 The documents presented to the Ministries can be found on the IET India website.

2.4 The IET India Scholarship Awards was re-launched in 2021 in a digital format to commemorate the IET's 150th anniversary. The National Finals took place in October and many members of the IET Future Tech Panel who acted as judges in the regional heats, then went on to mentor and coach the national finalists.

2.5 The IET India Awards were instituted to recognise exemplary contributions, as well as demonstrated potential, across engineering career stages and industries, especially in the areas of strategic focus in India. The nominations were open for 7 categories: India Lifetime Achievement, Youth Engineering Icon of the Year, Young Woman Engineer, India Volunteering, India Future Tech, India Mobility Awards and India Engineering the Future of Work.

2.6 In addition, the FTP working group experts wrote 16 whitepapers, proactive government advisories and approach papers for government in India. All the knowledge outputs produced by the Panel are available here.

2.7 The FTP also delivered 11 of the 18 IET India Digital Conversations – Healthcare (3), Smart cities (3), Manufacturing (3), and Social Impact (2); These 11 events led by the FTP had 51 speakers and 1,500 attendees.

3. Sustainability and Climate Change

3.1 In addition to the work to support COP26, the Energy Sector and Policy Panels were particularly active in 2021 generating work to help accelerate the discourse and pace of development in the move towards a zero-carbon future. Work included:

(a) Responding to an inquiry launch by the All-Party Parliamentary Group (APPG) on The role of hydrogen in powering industry (theiet.org).
(b) Consultation comment on a call for evidence from BEIS on - Enabling a High Renewable, Net Zero Electricity System: Call for Evidence (theiet.org).
(c) A rebuttal to an article in The Daily Mail from Dominic Lawson, questioning the uptake of wind power to reduce the global temperature. Dr Robert Sansom, a member of the IET's Energy panel shared his views which were published by The Times - The energy answer is blowing in the wind (theiet.org).
(d) A report detailing how the UK can better coordinate national interests in offshore energy, highlighting that a more holistic approach is needed from developers, local authorities and regulators. Offshore energy infrastructure landscaping – UK and neighbouring waters (theiet.org).

4. Digital Futures

4.1 As you would expect, the IET's UK Digital Policy Panel was particularly active in work to increase public trust in digital technologies and to help practitioners apply standards, regulation and best practice to their work during a period of rapid change. Work of note in 2021 included:

(a) Report on 6G for Policymakers advising on how to shape the direction of the evolution of wireless-based services, networks and technology over the coming 20 years. The report aims to show policymakers the longer-term opportunities 6G provides to improve current national wireless infrastructures.
(b) Report on Interdependencies and Resilience in Digital Transformation. Digital transition is a key enabler for net zero achievement, the increasing importance of a secure, robust, and resilient operational telecommunications capability needs to be prioritised by the UK energy network operators and government.

4.2 The Panel held regular meetings throughout the year with Chris Philp, DCMS Minister for Tech and the Digital Economy. The discussions focused on what support Government should provide to the Tech Sector, as well as updates on activities within Government and potential collaboration opportunities.

4.3 The Panel continued to build engagement with TAS-UK (the Trustworthy Autonomous Systems Hub), a team comprised of individuals from the Universities of Southampton, Nottingham, and King's College London. The hub sits at the centre of the £33m Trustworthy Autonomous Systems Programme, funded by the UKRI Strategic Priorities Fund. They are similar in size and scale to PETRAS and there are opportunities for the IET to collaborate with them on policy, as well as potential events and IET Academy courses.

4.4 The IET's UK Healthcare Policy Panel was also active in developing key outputs related to harnessing digital technologies to accelerate advances in healthcare:

4.5 Following an IET-led virtual policy roundtable on the future of interoperability in our healthcare systems which received active participation and contribution from Dr Lisa Cameron MP, Chair of the Health APPG, and 4 Scottish parliament MSPs (Emma Harper, Lewis Macdonald, Brian Whittle and Jonathan Cameron) the IET developed a policy report based on the intelligence: The Digital Advantage: Realising the interoperability benefits for health and social care in England

4.6 Through a series of case studies, this report defined and summarised the difficulties inherent in achieving interoperability and analysed accomplishments to date. Additionally, it involved working with the senior industry roundtable stakeholder and volunteers to help address the next set of interoperability challenges that need to be overcome and the policy steps that should be taken to deliver on the digital transformation of the National Health Service (NHS) and social care across England - backed up by evidence of what works.

4.7 In the second quarter of 2021 the Healthcare Policy Panel delivered a report about using Artificial Intelligence for Drug Discovery, which was endorsed by a foreword written by Dr Philippa Whitford MP, Chair of the APPG on Vaccinations for All. The report explores the urgent engineering action that is required to equip the pharmaceutical industry with the AI tools, business models, and finance it needs to meet current challenges. The IET set out recommendations to support the acceleration of AI for drug discovery and the reduction of attrition rates, ultimately making more novel drugs available to citizens, in a faster and cheaper way.

4.8 The IET's UK Design and Manufacturing Sector and Policy panels also played an active role in helping advance the discourse around technologies for a digital future. For the fourth successive year, the IET played an active part in Digital Manufacturing Week, the sector's leading conference, exhibition, and awards event.

4.9 A cross-directorate IET team including staff and volunteers played an active role at the event, some presenting IET content in the seminar theatres. Five topics featured including Horizontal Innovation™ and sustainable manufacturing. Some 90 delegates took part in these sessions. In total, Digital Manufacturing Week generated 62 on-stand enquiries. As a direct result of one of the enquiries received at the event, Corporate Partners subsequently signed a deal with a major automotive manufacturing brand.

4.10 The IET's UK Transport Policy Panel published a consultation response on The Roll-out and Safety of Smart Motorways in April 2021. Evidence shows that smart motorways are safer, but public perception is influenced by the adverse publicity generated by cases of stopped vehicles in live lanes. The Panel made a series of recommendations including educating and regulating drivers better to reduce the frequency of stopped vehicles, alongside better use of technologies to alert drivers of hazards ahead.

4.11 The Panel also published a report on Advancing Safety in Transport through Automation which examines potential approaches to advancing safety in transport through automation. It was written for the transport industry and covers road, rail, maritime and air and looks at how automation can transform the way we move people and goods safely and with cost benefit to industry.

4.12 The IET's UK Built Environment Policy Panel had great success in 2021 with the publication of Digitisation for Construction Product Manufacturers - a Plain Language Guide. Endorsed by Dame Judith Hackitt (former Chair of the Independent Review of Building Regulations and Fire Safety and current Chair of manufacturing trade body Make UK which was formerly EEF), this white paper was launched on the 6 October

on the UK BIM Alliance stage at UK Construction Week and via a Panel session 7 October "Digital pitfalls - Data, Security and Technology".

5. Healthy Lives

The IET's UK Healthcare Policy Panel delivered a podcast series called The Evidence Space. The series featured experts from a variety of disciplines taking part in evidence-based discussions to help explore what appropriate evidence for widescale clinical adoption looks like; along with how to go about collecting it to ensure new technologies are clinically effective and offer economic value.

6. Skills and Innovation

6.1 The UK's Innovation and Skills Policy Panel published the Local Authority Guide to Skills which highlighted the £1.5bn loss that the UK economy suffers every year due to STEM skills shortages. The report identifies the role local authorities can play in preparing all people with more engineering skills. This report led to the Panel's engagement with Government's (BEIS) Skills and Productivity Board.

6.2 The biennial IET Skills Survey was published in December. Working with YouGov the Innovation and Skills Panel identified that engineering employers are recovering from the uncertainty that COVID posed in 2020 but sounded a cautionary note that businesses should have a greater awareness of the skills they are likely to need in the near future to help build resilience and preparedness into their current strategies.

6.3 The UK's Manufacturing Policy Panel undertook a research collaboration with colleagues from the IMechE's Manufacturing Industries Division, to explore what the future of the manufacturing sector, and roles within it, might look like. The joint report The Future Manufacturing Engineer - ready to embrace major change? which was based on the results from 346 completed survey questionnaires, ranked communication, creativity, and design, together with automation, AI, and sustainable manufacturing as the most important knowledge and skill sets for engineers in the sector.

6.4 The findings featured in a 1,000-word article published in the September 2021 edition of industry magazine 'The Manufacturer'. They also provided the basis for a joint speaker platform at Smart Factory Expo and a series of four hour-long 'Future of Manufacturing' webinars which attracted 1,075 viewers.

6.5 The survey has also helped to inspire the work of an IET / All Party-Parliamentary Group report on Delivering Net Zero through Digital and a Design and Manufacturing Panel working group which is exploring the creation of a vision for UK manufacturing in 2040.

7. Public Affairs

7.1 The House of Commons' Environmental Audit Select Committee held an oral evidence session on Green Jobs. Josie Fraser, a member of the IET Education and Skills Policy Panel, and Deputy Vice Chancellor of the Open University, gave evidence. Josie impressed upon the Committee the need to consider and incentivise adult skills, recognising the need for retraining as we transition to net-zero must be a high priority.

7.2 To mark International Women's Day, the Chancellor of the Exchequer, Rishi Sunak MP, held a virtual meeting with IET President, Professor Danielle George, IET Trustee

Yewande Akinola, and finalists of the IET Young Woman Engineer of the Year Awards. It is believed this is the first time that an IET President has met with the Chancellor.

7.3 To coincide with the IET's 150th anniversary in May, Stephen Metcalfe MP, Chair of the AI All Party Parliamentary Group, tabled an Early Day Motion in Parliament relating to the IET's 150th anniversary. Early Day Motions (EDMs) are motions submitted for debate in the House of Commons for which no day has been fixed. EDMs are used to put on record the views of individual MPs or to draw attention to specific events or campaigns. The text of the Motion was as follows: "That this House congratulates the Institution of Engineering and Technology on its 150th anniversary; notes the Institution's considerable work to share and advance independent engineering expertise; further notes the opportunity that the anniversary brings to engage and inspire young people so that engineering and technology is seen as a force for good and key to solving many of the biggest challenges facing the world." There was cross-party support for the Motion, including from Carol Monaghan MP (SNP, Glasgow North West), SNP Spokesperson for Education, Jim Shannon MP (DUP, Strangford), and Tahir Ali MP (Lab, Birmingham Hall Green).

7.4 To celebrate 150 years of the IET, the Team worked with a number of Parliamentarians to appear on the IET's The150Show. Guests included Greg Clark MP (Con, Tunbridge Wells), Chair of the Science & Technology Select Committee, Darren Jones MP (Lab, Bristol North West), Chair of the Business, Energy & Industrial Strategy Select Committee, Stephen Metcalfe MP, Co-Chair of the AI APPG, Chi Onwurah MP, Shadow Digital Minister and Jack Sargeant MS (Lab, Alyn and Deeside), a Member of the Welsh Parliament.

7.5 The IET worked in partnership with the National Engineering Policy Centre, which brings together many of the PEIs, to respond to HM Government's Spending Review consultation. Entitled: Six engineering ambitions for the UK Spending Review, the document set out six priorities for investment for the government to deliver its ambitions to 'build back better'.

7.6 The IET hosted a Parliamentary reception in December to mark the end of the IET's 150th anniversary celebrations. Over 50 guests attended, including 15 Parliamentarians. Speeches were given by: Chi Onwurah MP, Shadow Minister for Digital, Science & Technology, Lee Rowley MP, Parliamentary Under-Secretary of State for the Department for Business, Energy and Industrial Strategy and Net Zero Industry Champion, and Sir Julian Young and Professor Danielle George from the IET.