

CEO'S Introduction

Our vision is to deliver extraordinary impact from excellent science and engineering as an exemplary national laboratory. I have been delighted with our many achievements that show how we are making progress towards this vision.



It was an honour to witness the revision of the International System of Units (SI), so that all SI units are now defined in terms of constants that describe the natural world. This was a historic, once in a lifetime change; with scientists working at NPL over many decades making pivotal scientific contributions as part of this worldwide collaboration. The late Bryan Kibble, who developed the Watt balance while working at NPL, was internationally recognised as a critical contributor to the revision, and in recognition of this, the SI community renamed the Watt balance as the Kibble balance.

Our people are our greatest asset and continue to demonstrate leadership in a wide range of scientific fields. Helen Margolis, Martin Seah and Andrew Hanson were recognised with MBEs in the Queens Honours list, while Graham Machin, Gareth Hinds and I became Fellows of the Royal Academy of Engineering. Martyn Sené, NPL's Deputy CEO, became President of the International Committee for Weights and Measures (CIPM) Consultative Committee on Ionizing Radiation, the first person from NPL to hold such a position in 25 years. Perdi Williams was selected as one of the UK's Top 50 Women in Engineering for her work on helping to redefine the kilogram. We also recognised three of our own scientists as new NPL Fellows: Josephine Bunch, Olga Kazakova and Paul Brewer, for their expertise in Biomolecular Analysis, Quantum Materials and Sensors, and Chemical Metrology, respectively.

We are a values-led national laboratory and I am very proud that our diverse and international workforce continues to deliver impact that is global in nature. NPL is the first non-university to achieve the Institute of Physics' Juno Practitioner status, for addressing gender equality, and recently offered 4 Daphne Jackson fellowships to support and mentor researchers back into STEM careers after breaks. Our outreach activities, involving many of our staff as STEM ambassadors, take science and measurement out to the community to promote STEM careers and increase public engagement with science. Annually we organise over 300 activities and engage with over 70,000 people.

Recent scientific highlights include a publication in *Science* magazine describing laser-based techniques to develop an innovative method of detecting underwater earthquakes, using undersea communication cables. We are also involved in working on the world's most advanced network of air quality monitors to better understand Londoners' exposure to air pollution; have helped create a synthetic virus to tackle antimicrobial resistance; and continue to lead a multi-disciplinary consortium to build a 'Google Earth' of cancer, funded by one of the biggest grants ever awarded by Cancer Research UK.

Partnerships are key to our success. Our relationship with our strategic partners, the University of Strathclyde and the University of Surrey, has enabled the Postgraduate Institute (PGI) to grow to well over 200 students.

We led an industrial engagement initiative on behalf of Sir Mark Walport that helped shape the second phase of the National Quantum Technologies Programme, and our independent report on

superconducting materials informed the shape and size of the new National Quantum Computing Centre. I am pleased to report that construction of our Advanced Quantum Metrology Laboratory is nearing completion. This new laboratory will provide world-leading facilities and will further enable NPL's work in conducting frontier research in quantum technologies.

We launched the new Metrology for Medical Physics Centre (MEMPHYS) to help accelerate the development and implementation of innovative early diagnostic and therapeutic technologies. This new approach will see NPL focus on tackling some of the world's biggest health challenges, from supporting the diagnosis and treatment of diseases such as cancer and dementia, to drug efficacy evaluation.

We continue to support businesses both small and large through the Analysis for Innovators (A4I) programme, helping companies like Adaptix develop an innovative new technology that could revolutionise medical imaging, and Precision Products UK to better understand its chrome plating process and make major efficiency improvements.

Our Measurement Services grew 12% in the last year, and our *NPLTime*[®] service has expanded to support more companies in the finance sector. We reached a significant milestone in our quest to commercialise our diabetic foot ulcer device, with the formation of a subsidiary - Footprint Medical Limited.

Over 900 companies responded to a survey on the impact of the National Measurement System (NMS). As the UK's National Metrology Institute we deliver the NMS in line with the UK Measurement Strategy along with other Designated Institutes. We found that customers are highly satisfied with the NMS: there was high satisfaction with the reputation of the NMS, the quality of outputs, value for money of services, and the flexibility of and relationships with staff. In response to feedback we are focusing on continuing to improve the timeliness of our responses and delivery.

All of this means that NPL is continuing to maximise its impact on UK prosperity and quality of life. We have seized new opportunities and are responding rapidly to our customers' needs and continue to play a leading role in the international metrology community. We aim to further enhance our impact by taking the lead on further national challenges where measurement has a key role to play; continuing to develop products and services that our customers can benefit from; and extending our presence across the UK to enable more companies to benefit from our expertise.

[Dr Peter Thompson FEng](#)

Chief Executive Officer