Workshop on Confidence in the use of Data

A two-day workshop to explore the future role of National Measurement Institutes in supporting the intelligent and effective use of data.

Date: [tbc - week commencing 30th April 2018]
Location: National Physical Laboratory, London UK

Overview

For over 100 years NMIs have been enabling confidence in the use of measurement data, which has been and continues to be critical for industrial manufacturing and international trade, for sustaining the quality of life and the global environment, and for scientific discovery and innovation.

Today we are in the midst of a digital revolution: digital technologies, including new measurement modalities, are generating exponentially increasing amounts of data, offering new possibilities and setting new modelling and analysis challenges. Businesses and society are increasing reliant on automated analysis and decision making based on large data sets to address their challenges. This will revolutionise practice in areas ranging from precision medicine to climate change modelling and from energy distribution networks to Industry 4.0 manufacturing supply chains.

What is the role of NMIs and the International Measurement System in providing confidence in the use of data in this new environment?

NPL would like to invite you to a workshop to explore this question and would welcome your input into the topics to be covered. Potential areas of discussion are the role of NMIs in providing confidence in:

- Data and metadata standards to improve the provenance, security, reuse and sharing of data;
- Digital Standards (E.g. reference data sets from reference measurements, reference simulations, reference algorithms)
- Decision making from multiple sources of information and data streams with different characteristics;
- Quantification of data quality to ensure fitness for purpose;
- Quantification of imaging and other data to drive decisions and provide associated uncertainties;
- Trustworthy real-time Data and information management – including use of artificial intelligence, machine learning and related technologies;
- Propagation of uncertainties from sensing through to curation methods and data analytics and machine learning [Including: Design of experiment; and extent to which GUM be applied]
- Development of trusted algorithms(e.g. machine learning) for data processing and analytics;
- CMC entries for data alaytics;

Proposed Format:

- Session 1: **The challenge**
  Invited contributions from organisations across different sectors of the economy and society, e.g. advanced manufacturing; life sciences and medical; energy and environment; digital and telecommunications; financial.
- **Dinner & overnight stay in London**
- Session 2: **Current NMI work and plans**
  Request for presentations/contributions from a range of NMI attendees with a focus on planned research programmes.
- Session 3: **Workshop and discussion**
  Identification of areas of potential collaboration and focus for NMIs in the future.

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