



The European Metrology Research Programmes – EMRP and EMPIR

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- Metrology
- EURAMET
- History of the European programmes
- Strengths and weaknesses of the A169/A185 tool
- Implementation issues
- Conclusion

Metrology: the science and application of measurement

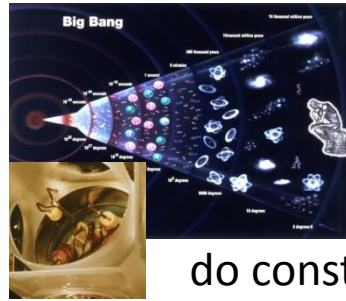


**secure measurements
and reference data**

**do/underpin
basic science**

drive innovation

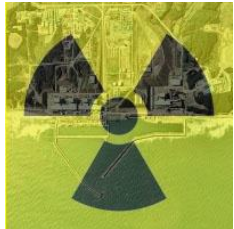
do you get
what you
pay for?



do constants
of nature drift with time?

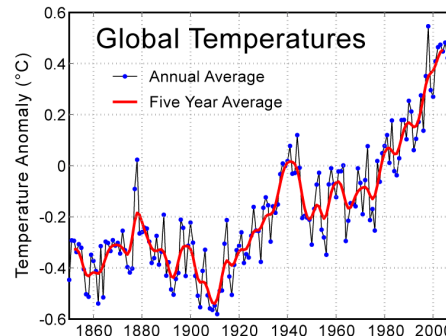


efficiency?
quality control
in production?



safely below
radiation limits?

data quality for
policy making
sufficient?



precise enough
to be
competitive?



EURAMET is...



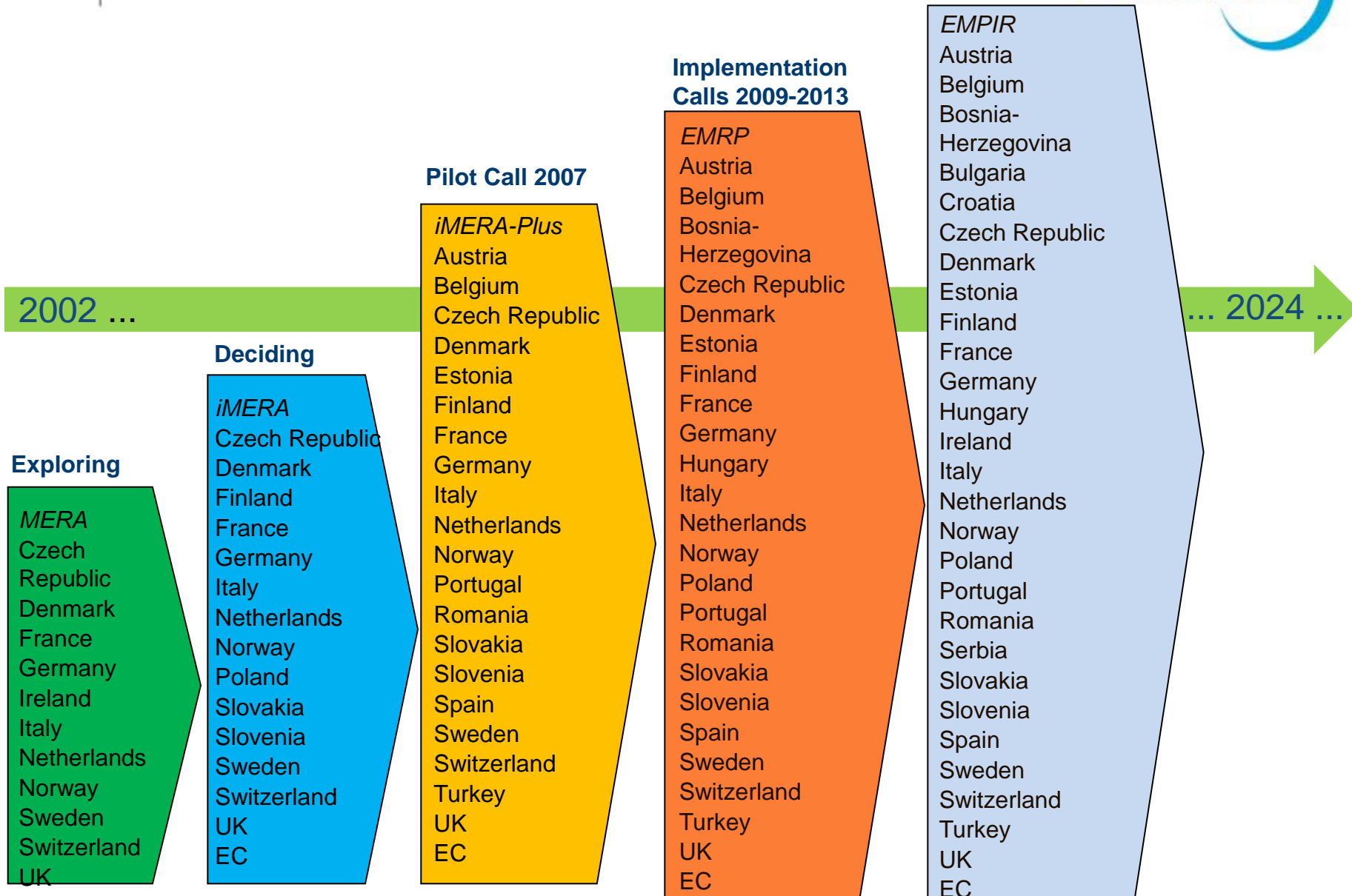
- The gateway to Europe's integrated metrology infrastructure
- It facilitates access to European measurement expertise, and underpins the delivery of globally competitive, high impact metrology
- It ensures Europe maintains its global reputation for excellence in measurement science
- It raises awareness of the value of measurement by demonstrating the impact of metrology on society's grand challenges

What are the EMRP and EMPIR?



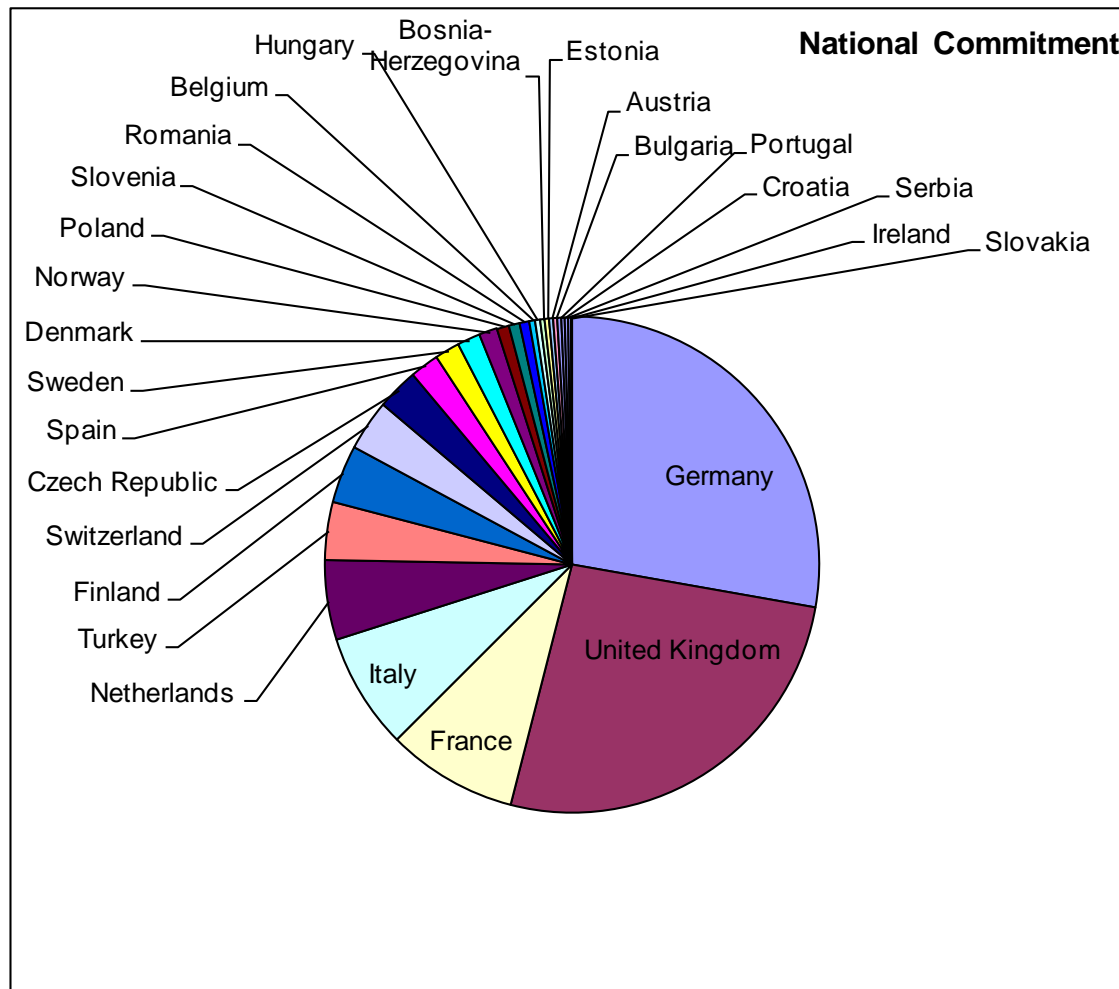
- They are about improving measurement to drive innovation and competitiveness.
- They enable European metrology institutes, industrial organisations and academia to collaborate on joint research projects.
- They are implemented by EURAMET
 - based on Article 169 and then 185,
 - jointly funded by the participating countries and the European Union (over 1 B€)

The road to EMPIR



- Long term alignment of strategies, infrastructure and relationships on shared challenges
 - Call topics known for up to 5 years ahead
 - National budgets committed for up to 8 years ahead
 - Research providers often have plan for 10 years ahead
 - Additional, generic annual calls give flexibility
 - 50 % success rate promotes well developed proposals

- Diversity of inputs



The diversity of EURAMET members



- Large NMI
 - PTB, Germany >1900 employees
- Focus on R&D
- Long experience in metrology
 - PTB and NPL >100 years
- Centralised system
 - Netherlands, VSL
 - Bulgaria, BIM-NCM
- Small NMI
 - MNS-NMS, Malta 4 employees
- Focus on services and KT
- Being established
 - Cyprus, Luxembourg
- Network of labs
 - France LNE + 9 DIs
 - Slovenia MIRS + 9 DIs

- Diversity of inputs, not all contributors are research led, others have priorities in:
 - Regulation
 - Calibration and testing services
- Diverse political strategies e.g. Nuclear
- Institutional controls may prevent best use of EU funds e.g. staff number caps, financial control by ministry.

A169

- Freedom to match processes to the community
- Own contract
- Budget and calls agreed at start
- Outsider participation through Grants
 - fixed rates,
 - no financial reporting
 - no audits
- Transparency of cofunding

A185

- Required to follow H2020 rules for participation
- Contract defined by EC
- Annual workplan needs EC approval
- Outsider participation as H2020
 - H2020 funding rules,
 - full financial reporting
 - audits by EURAMET
- Cofunding model unsustainable

Metrology is ideal for A169 / A185



- All states maintain institutes for metrology as part of their scientific-technical infrastructure
 - common core mission gives a “natural” interest in a joint programme
 - history of mutual trust
 - stable national commitments
 - common activities beyond research in services to industry, conformity assessment, standardisation,
- Measurements at primary level must be better than all applications leading to cutting edge measurement science aligned with real-life needs
- But with research embedded in the wider mission, the long-term implementation of results is guaranteed along with a wide impact of results in all European states

Article 185 is a powerful instrument



- It produces a multi-annual programme with above-critical mass
- It aligns the long-term research strategies of the member states
- It allows the existing responsible expert community to establish the implementation body:
 - central management in EURAMET e.V.
 - well defined decision making in EMPIR committee with representation of all participating states with fair weighted voting rights