

Neutron metrology

2007-10 Acoustics and Ionising Radiation Programme



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Programme Manager

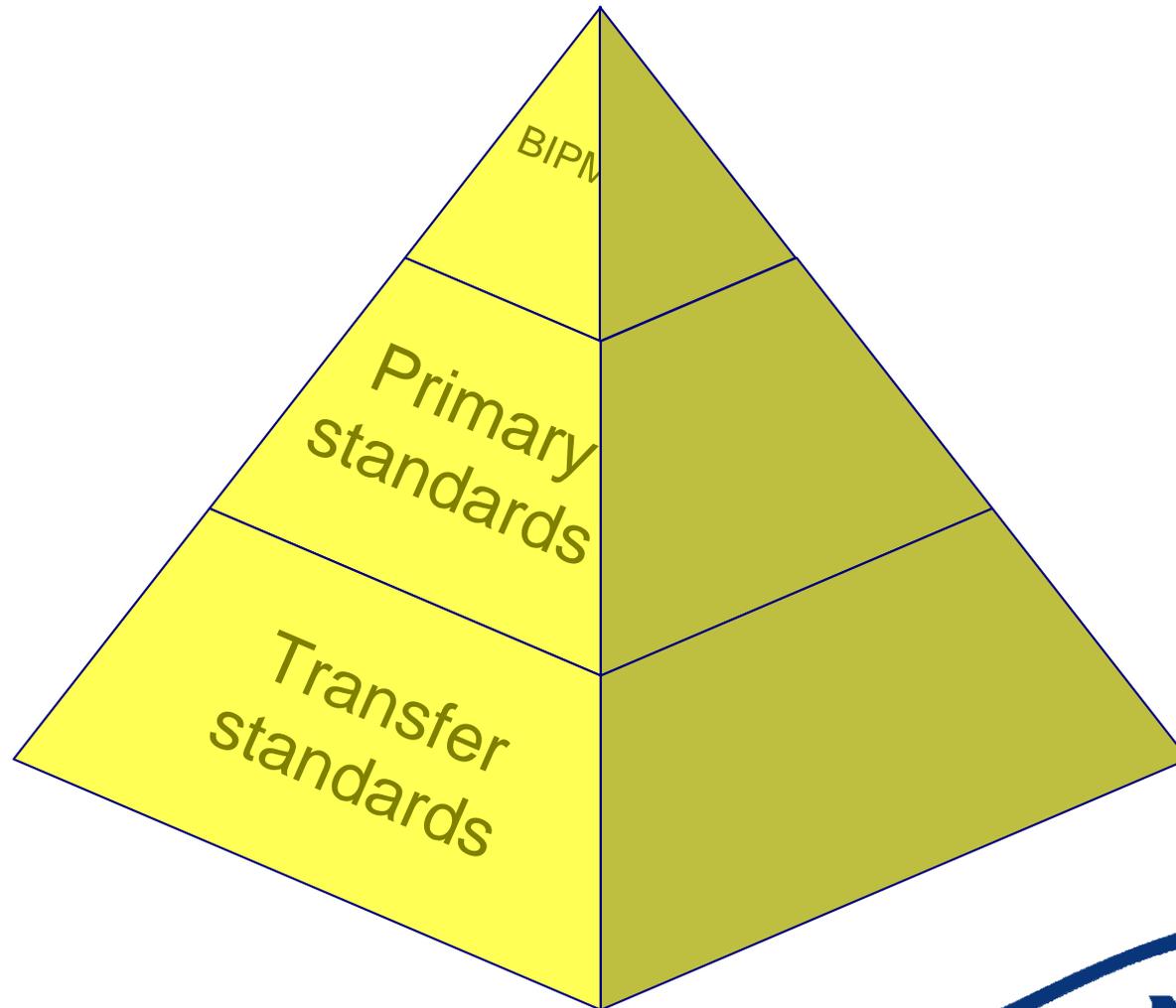
Contents of presentation

- Projects in the new 2007-10 R&D Programme
- Working with NPL: 'Measurement for Innovators' scheme

Aim

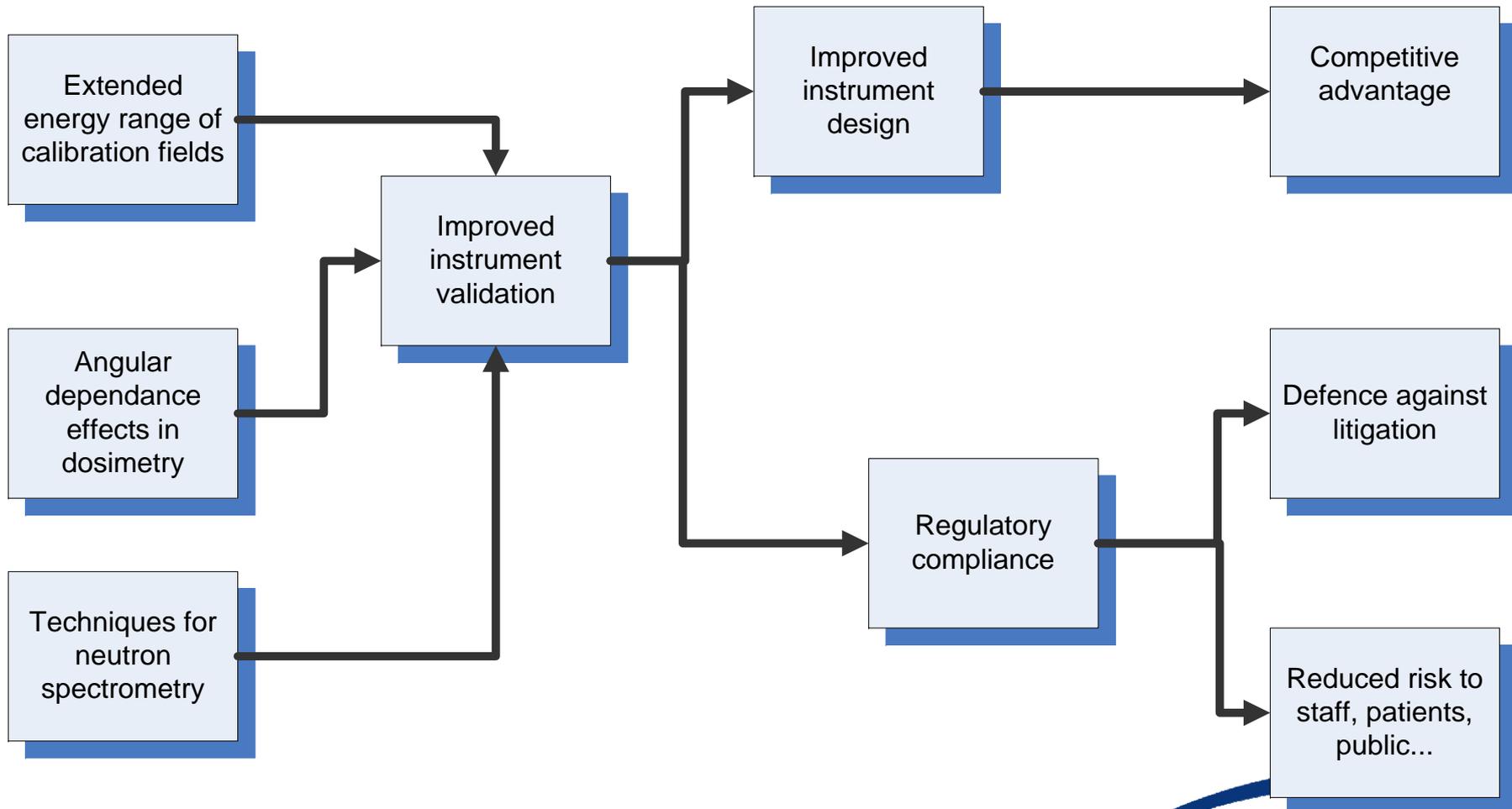
"The aim of the programme is to enable all users in the UK to carry out measurements for acoustics, radiation dosimetry, radioactivity and neutrons to an accuracy that is fit for purpose and at the forefront of good practice internationally."

Overview



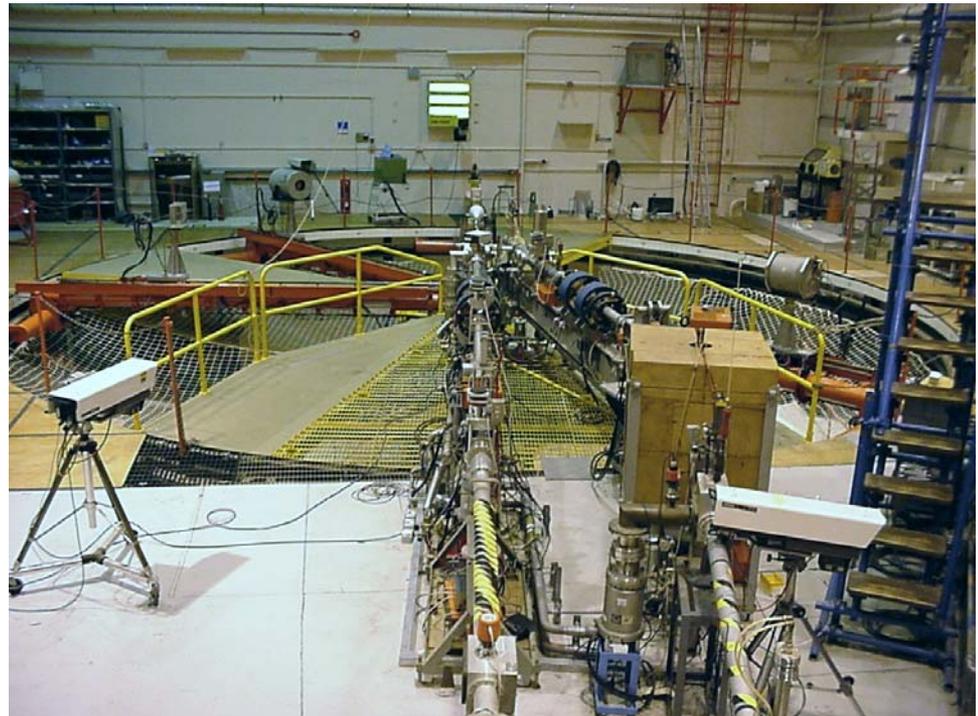
The new programme...

1) Mono-energetic neutron fields

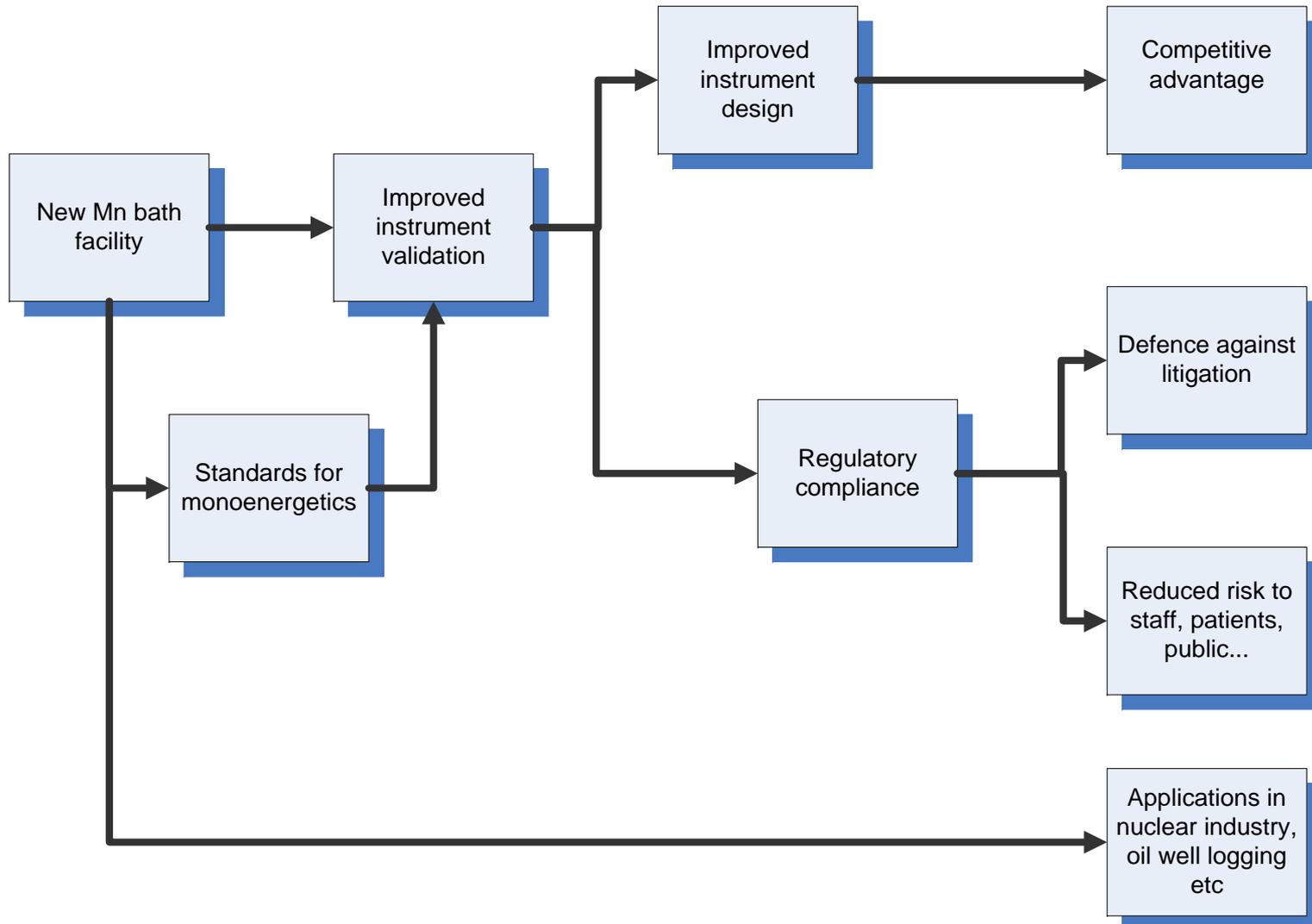


Projects

- Extended energy range (<50 keV, >15 MeV)
- Improvements to thermal pile
- Angular dependence for dosimetry
- Use of digital signal processing techniques
- Time-of-flight techniques to improve characterisation of the fields

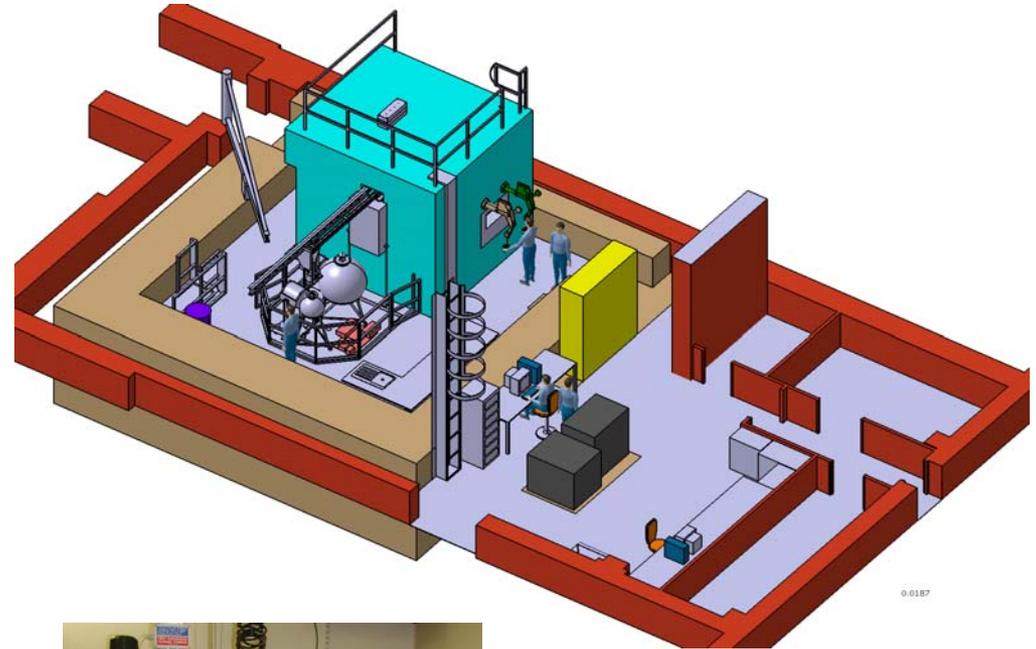


2) Neutron source emission



Neutron source facility projects

- Old facility has been closed
- Much work to do in installing and testing source transfer system and validation / benchmarking the measurements
- Knowledge transfer – for example, on the issue of ^{250}Cf impurities
- Official opening of the facility expected in December



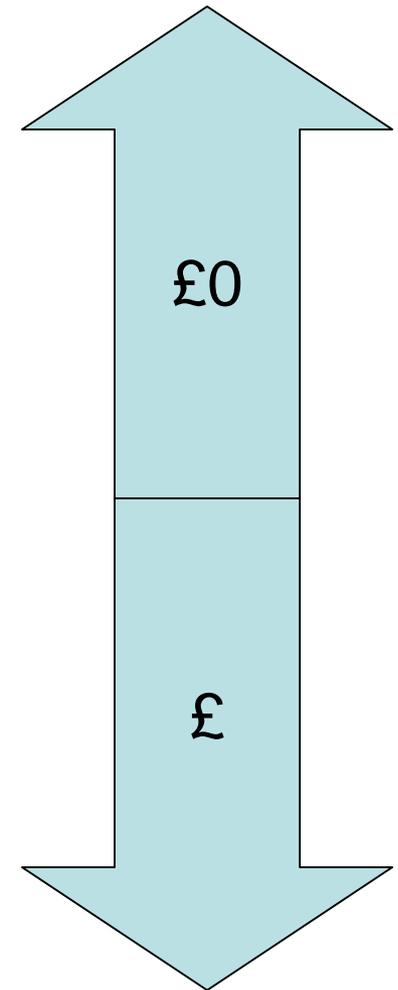
Knowledge Transfer Projects

- A new 'Good Practice Guide' is planned on the use of neutron survey instruments



Working with NPL...

- Rolling formulation: R&D, Good Practice Guides, technical enquiries (free of charge)
- Measurement for Innovators scheme (DIUS supported)
- Calibration services (market rate)
- Technical consultancy (market rate)



Measurement for Innovators

Helping
small
businesses

Measurement
for innovators

- You've had the innovative idea, designed and built the product, but how do you accurately show your design is better than what's gone before? Is a measurement problem blocking your route to market ?
- There's a measurement problem, but you're not sure how to solve it. Alternatively, the equipment you need is prohibitively expensive, you'd only need to use it for a short time and there's no commercial service supplier in the UK...
- Three DIUS-supported methods
(http://www.npl.co.uk/measurement_for_innovators/)
 - Joint Industry Projects
 - Secondments
 - Consultancies

Joint industry projects

Helping
small
businesses

Measurement
for innovators

- Short-term (12 months)
- R&D or feasibility study, new test methods, models or databases, new standards and reference materials, best practice and benchmarking
- Co-funded consortium with DIUS paying for NPL's contribution

Secondments

Helping
small
businesses

Measurement
for innovators

- Improve the performance of the UK NMS by exchanging knowledge and skills between scientists and specialists, using a two-way secondment scheme
- To and from UK Industry, Universities, Trade Associations and Government Departments, Regional Organisations
- 1 week – 3 months

Consultancies

Helping
small
businesses

Measurement
for innovators

- Up to 4 days consultancy from NPL staff (free of charge)
- Must not compete with existing products
- Only for SMEs or trade organisations

Summary

- The new Mn-bath facility for neutron source measurements is being validated
- The range of services from the mono-energetic neutron facility is being expanded
- R&D is continuing to support instrument development and address specific measurement issues
- New ways of working in partnerships are encouraged