

# Promoting measurement science

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# Content



- Impact Examples – focusing on economic benefit
- What is impact?
- Why is it important?
- How Euramet collates impact.....  
.....and why
- What Euramet can share

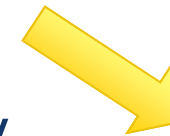


# Impact examples

<https://vimeo.com/290904405>

## Introducing MRI targeted radiotherapy

## Supporting the use of MRI scanning



European Metrology  
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### Safer MRI for metal implant wearers

Magnetic Resonance Imaging (MRI) can detect cancers, as well as joint and spinal injuries. However there are restrictions on MRI scanning for patients with metal implants as the implants can move or generate heat due to the MRI's strong magnetic field interacting with the metal. A better understanding of MRI heating effects will contribute to making this imaging technique as safe as possible.

Europe's National Measurement Institutes working together  
The European Metrology Research Programme (EMRP) brings together National Measurement Institutes in 23 countries to address key measurement challenges at a European level. It supports collaborative research to ensure that measurement science meets the future needs of industry and wider society.

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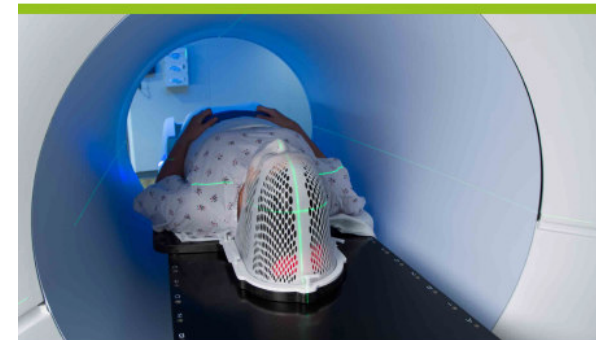


### MRI standards spur innovation

With 30 million scans per year in Europe, Magnetic Resonance Imaging (MRI) is an important medical imaging technique that is increasingly being used during surgical procedures. However, staff tending patients also experience effects from the strong MRI magnetic fields and safe exposure limits are set by EU Directives. Highly accurate magnetic field measurements and ways to relate them to exposure are needed to ensure staff and patients remain safe at all times.

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### Improving radiotherapy success

Radiotherapy is a powerful tool in modern cancer treatment – around 40 % of people who survive cancer do so because of radiotherapy. MRI-guided radiotherapy can further improve the success of radiotherapy by offering more targeted treatment through real-time imaging. However, before this new technique can be widely adopted in clinics, accurate dosimetry needs to be established to ensure patients are consistently treated with safe and effective doses of radiation.

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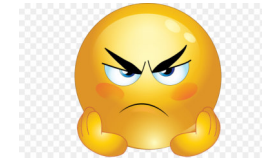
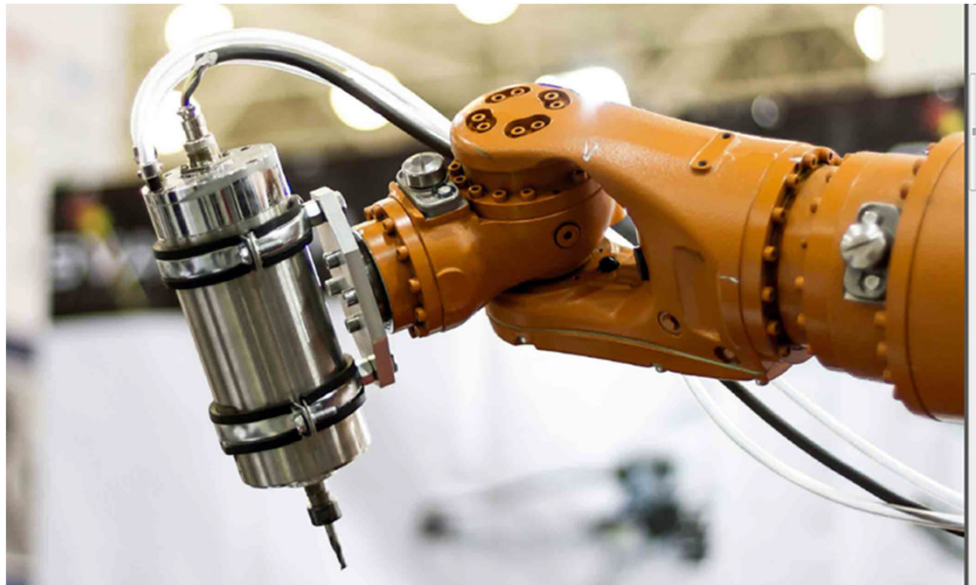
## Impact examples



Success from onerous NMI requirements

Case study: Developing nano-precision positioning

BAM requires precision re-positioning instrument upgrade to fulfil EMRP project delivery .....



.....but company  
unable to meet  
demanding  
specification

# Impact examples

Company makes technical break through.....



..... linear drive supplied too late for project,

but has great commercial potential



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## Nanoprecision positioning

The biomedical, semiconductor and robotics industries need precision positioning techniques to underpin the development and production of high-performance products. Positioning systems are driven by linear drives, which control the position and orientation of surgical or manufacturing tools or measurement devices with extreme precision. Improvements to the size, speed and accuracy of linear drives will support the development of new and improved techniques in many diverse applications.

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# Impact examples – case studies

Supporting EU goals for self-sufficiency / protecting the environment / economic growth / improving healthcare

Reducing pollution (air monitoring)

Introducing greener energy supplies (Smart grids)

Safeguarding communications (GNSS – Galileo)

Increased standardisation for disease diagnosis

Future proofing economic growth through measurement innovation (TofSIMS, AFM)



## Impact examples – case studies



Supporting EU member state industries to promote a resilient economy

- The Dutch healthcare and energy companies
- The Czech drive towards semiconductor production
- The Finnish wood products industry
- The Belgium diamond bourses



# What is impact?



Uptake of programme outcomes by the user community to create:

Economic benefit (quantifiable?) – new / upgraded products or services

Social benefit – improved healthcare / assessment of risks and their mitigation / regulatory compliance

Input to standards / regulations???





# Why is Impact important?



Demonstrating the importance of metrology to the EC and meeting Euramet's key performance indicators

400 m€ quantifiable economic benefit from their 1 b€ investment in EMRP and EMPIR programs (NB real benefit significantly greater! Factor of 10 or more)

Demonstration of value to a community of the financial investment made

Influencing decisions on future / further funding

Increasing recognition of the metrology community's contribution to society



# How Euramet collates impact and why



At project finish, co-ordinator sends MSU final reports - including the Output and Impact Report. Used for:

- Generating theme statistics
- Checking content in Final Summary Impact section

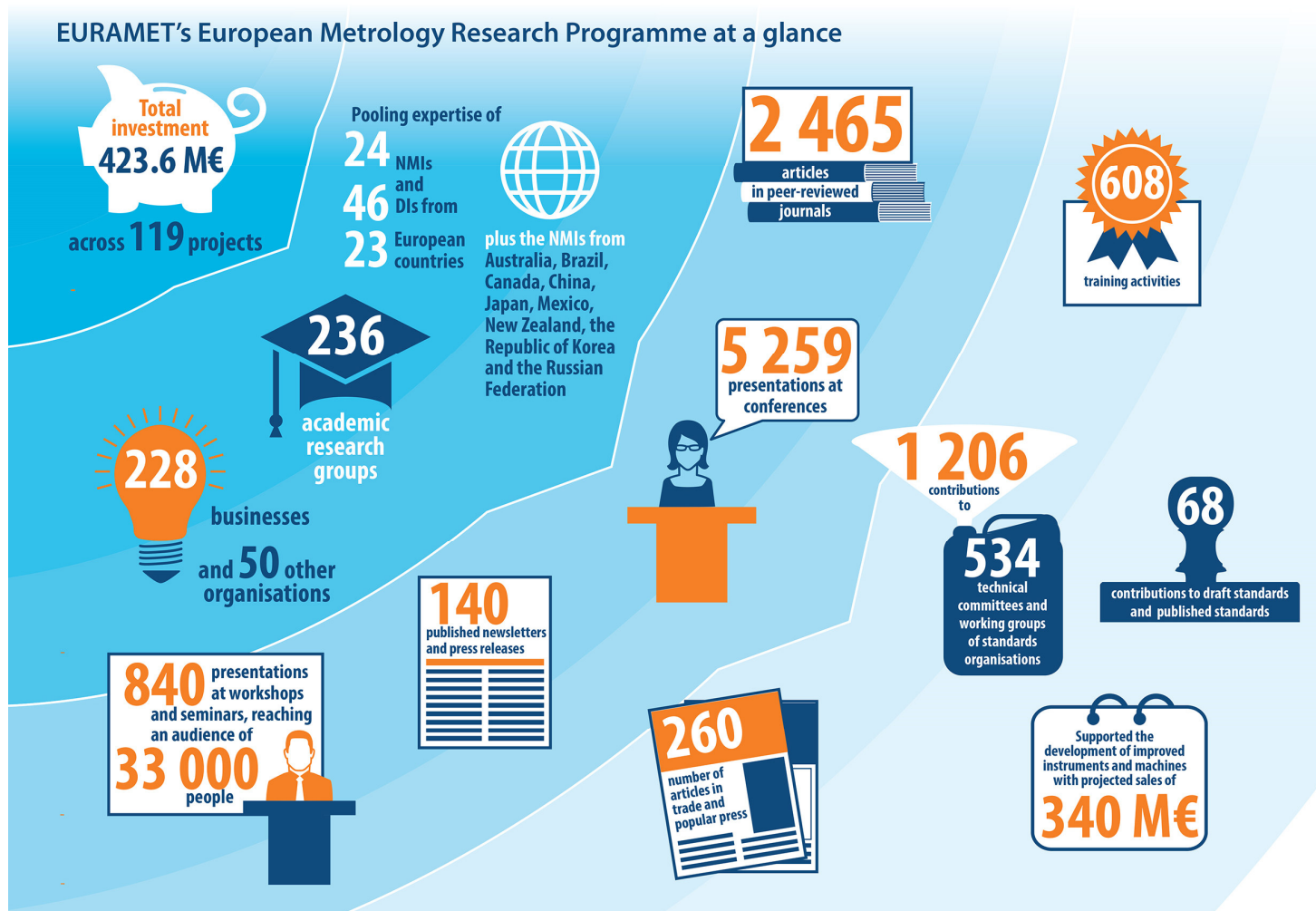


To collect impact examples for case studies:

Project co-ordinator (and others) interviewed to gain understanding of:

- Who has used project outcomes, and what these enable them to do better
- Attributable financial benefit from using outcome (contribution to achieving Euramet KPI of 400 €m in economic benefit to EU)

# How Euramet collates impact and why



# How Euramet relays impact to non-technical target groups e.g. EC stakeholders



Theme impact reports:

## Highlights

**Key technical achievements** - Project summaries

**Focus on impact** - short case study texts featuring generation of competitive advantage to EU companies.....

.....or.....

.....outcome uptake supporting grand challenges, improvements to regulatory compliance etc



# How Euramet relays impact to non-technical target groups e.g. EC stakeholders



Euramet website:

- Impact and Innovation pages
- Good news stories based on project developments

The screenshot displays the Euramet website's 'Metrology for Society's Challenges' section. It features a large background image of an industrial factory floor with robotic arms. On the left, a green sidebar contains the text 'CREATING IMPACT BY ADVANCING MEASUREMENT SCIENCE' and a paragraph about EURAMET's research programmes. Below this is a link to 'Browse the menu to find out more'. On the right, under the heading 'FIND OUT MORE', there is a list of links: 'Metrology for Health', 'Metrology for Environment', 'Metrology for Energy', 'Metrology for Industry', 'Measurements for New Technologies', 'Future measurement standards', and 'Metrology and Standardisation'. At the bottom, a blue banner reads 'EURAMET's European Metrology Research Programme at a glance' and includes a graphic showing 'Total investment' of '2 465' and 'Pooling expertise of'.

≡ Metrology for Society's Challenges

**CREATING IMPACT BY ADVANCING MEASUREMENT SCIENCE**

EURAMET's European Metrology Research Programmes (EMRP and EMPIR) are fostering international collaboration, driving research excellence, addressing society's grand challenges, including health, energy and the environment, and contributing to Europe's economic turnover

[Browse the menu to find out more](#)

**FIND OUT MORE**

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**EURAMET's European Metrology Research Programme at a glance**

Total investment: 2 465

Pooling expertise of

[Dive in and discover selected highlights from the EMRP and EMPIR projects >>](#)



## Sharing information



Case studies are available to contributors and featured NMI/DI for translation and use as electronic or hard copy

NMI/DI with case studies are (so far):

Austria	Finland	The Netherlands	Spain
Belgium	France	Norway	Sweden
Czech Republic	Germany	Poland	Switzerland
Denmark	Ireland	Portugal	Turkey
Germany	Italy	Slovenia	

# Euramet MSU Impact Team



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