

EURAMET e.V.

**European Association of National
Metrology Institutes**

Leslie PENDRILL, EURAMET Chairperson

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Regional Metrology Organisations (RMOs) EURAMET

European Association of National Metrology Institutes



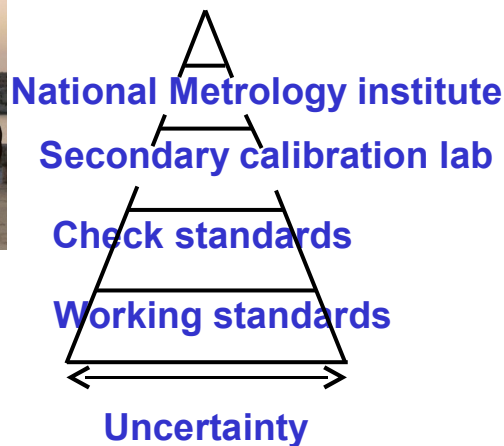
AFRIMETS

GA 2009

European Association of National Metrology Institutes



EURAMET General Assembly Malta
2009



Cooperation quality-assured measurement

Coordinates cooperation of National Metrology in Europe:

A) Traceability of measurements to SI

B) International recognition:

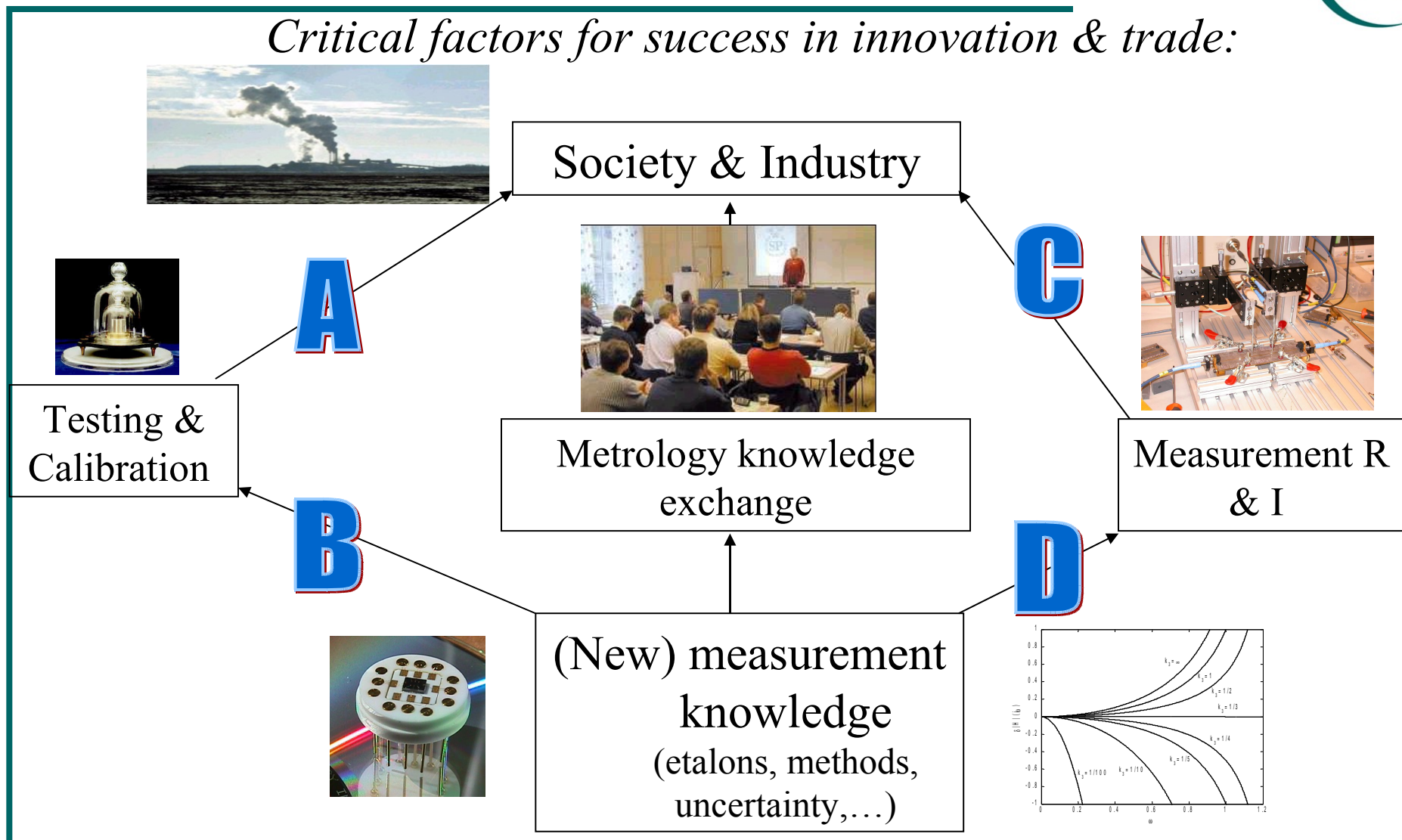
- National measurement standards
- Calibration and Measurement Capabilities (CMC) of members.

C) Knowledge exchange & infrastructural support in Metrology

D) Research in metrology

- European Metrology Research Programme (EMRP)

Critical factors for success in innovation & trade:



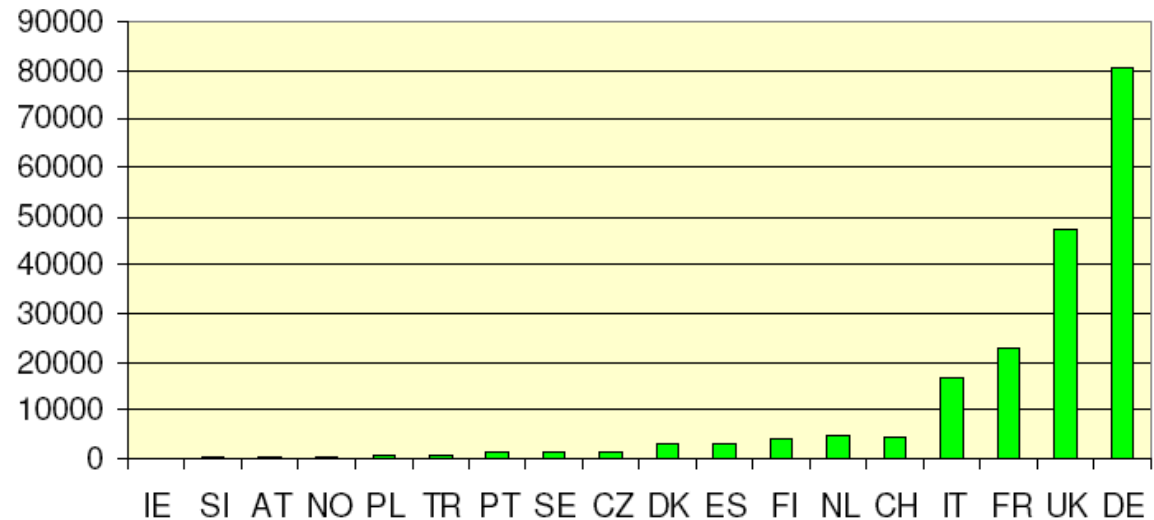
Potential for coordinated EURAMET Research

EURAMET members:

- employ about 4000 persons
- circa 2000 persons work on R&D activities
- spending about 200 M€ per year (50% of total budget) on R&D activities



Metrology R&D budget - k€



Chairpersons and BoD

Period	20..	07/08	08/09	09/10	10/11	11/12	12/13	13/14
L. Pendrill	SE		Ch.E.	Chair			P.Ch.	
A. Leitner	AT	Vice-Chair						
L. Erard	FR	EMRP-Chair						
J. Drnovsek	SI	2nd	3rd					
H. Isotalo	FI	1st	2nd					
J. Bartolo	MT	1st						
K. Hossain	UK			1st				
P. Hetherington	IR	1st						
P. Klenovsky	CZ	1st						

Re-election of BoD members for further term of office:

- Joe Bartolo, Malta, 2nd term
- Paul Hetherington, Ireland, 2nd term
- Pavel Klenovsky, Czech Republic, 2nd term

[PTB](#) > [What's new](#) > [Archives](#) > [Archives Press releases](#) > [Lectures](#)

PTB scientist Prof. Dr. Michael Kühne has been elected the new Director of the Bureau International des Poids et Mesures (BIPM)

State Secretary Wuermeling: "The appointment emphasizes the leading role of Germany in international metrology"



Bundesministerium
für Wirtschaft
und Technologie

12.12.2007



EURAMET Chairpersons

Chairperson: Leslie Pendrill

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Vice-Chairperson (GA) Arnold Leitner

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Fax: +43 1 21110 6000
E-mail: arnold.leitner@bev.gv.at
Internet: www.bev.gv.at



Vice-Chairperson (EMRP) Luc Erard

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E-mail: luc.erard@lne.fr
Internet: <http://www.lne.fr/>



Technical Committees

Period			20..	07/08	08/09	09/10	10/11	11/12
AUV	Enver Sadikoglu	TR		2nd				
	Salvador Barrera	DK				1st		
EM	Beat Jeckelmann	CH		1st				
F	Richard Paton	UK		1st				
IM	Attilio Sacconi	IT		1st	2nd			
IR	Istvan Csete	HU		2nd				
	Hans Bjerke	NO				1st		
L	Michael Matus	AT		1st				
M	Stuart Davidson	UK		2nd				
	Walter Bich	IT				1st		
MC	Bernd Guettler	DE		1st				
PR	Peter Blattner	CH		1st				
Q	Luc Erard	FR		1st	2nd			
T	Jovan Bojkovski	SI		2nd				
	Wolfgang Buck	DE			1st			
TF	Gregor Dudle	CH		2nd				
	Philip Tuckey	FR			1st			
	Andreas Bauch	DE				1st		

EURAMET Liaison Organisations

RMOs:

- **APMP**
- **COOMET**
- **AFRIMETS**
- **SIM**

Corresponding NMIs:

- **DSSU, Ukraine**
- **INPL, Israel**
- **NIS, Egypt**

Corr. Organisations:

- **BIPM**
- **EA**
- **EURACHEM**
- **EUROLAB**
- **NCSLi**
- **WELMEC**

EURAMET “new” member

Cyprus becomes 33rd EURAMET Member 1st January 2009

All former EUROMET countries now part of EURAMET

Cooperation with WELMEC & EURACHEM

Both have become Liaison Organisation with EURAMET

Cooperation with EA

EA Advisory Board, EURAMET is one of 2 Organisations representing Metrology (together with WELMEC)

EURAMET active in 4E + C, PLG, EA LC, EA ILC, QMS etc

CIPM MRA robustness

Greater use of on site peer review within EURAMET likely in future

Cooperation with European Measurement & Testing Organisations

EURAMET active in:

- *4E + C*
- *Permanent Liaison Group (PLG)*



4E + C Meeting LNE (Paris) 2009

Strategy A (Traceability)

A) Traceability of measurements to SI units

EURAMET is a platform for coordination of arrangements for provision of traceability to SI.

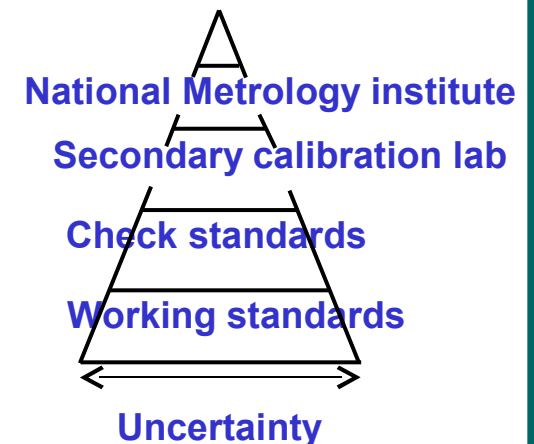


Aim:

- 'Benchmarking' of different countries metrological services



SP's reference equipment for vacuum metrology (static expansion) transferred from NPL (UK)



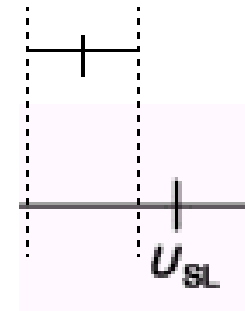
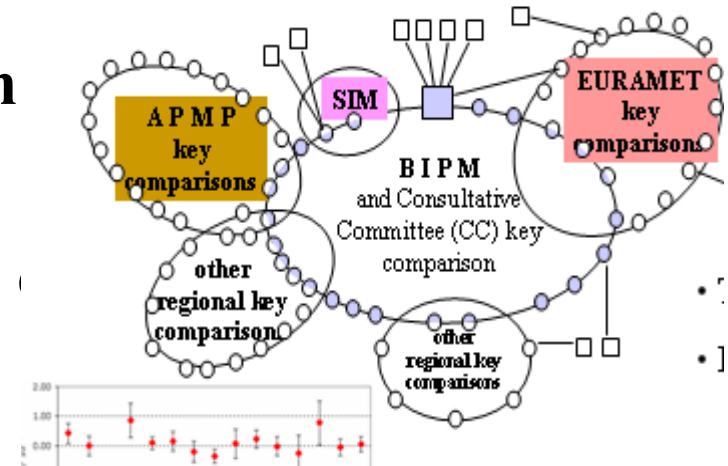
Strategy B (International recognition)

B) International recognition of national measurement standards and calibration measurement capabilities (CMC)

Quality/management systems for EURAMET and its 100+ members and associate organisations

Quality-assured measurement role in conformity assessment

- Traceability, uncertainty, decision-making, risks
- Standards & norms
- Stakeholders (CEC, EA, CEOC, WELMEC...)



Strategy B (International recognition)

EURAMET procedures and review criteria for CMCs

EURAMET Guide no. 8

Issued: 02-06-2008

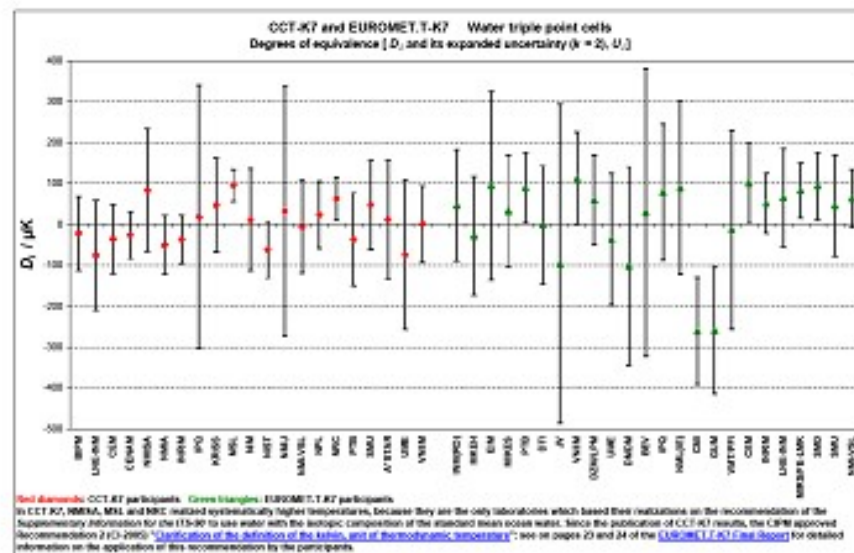
Version: 1.0

EURAMET Guide



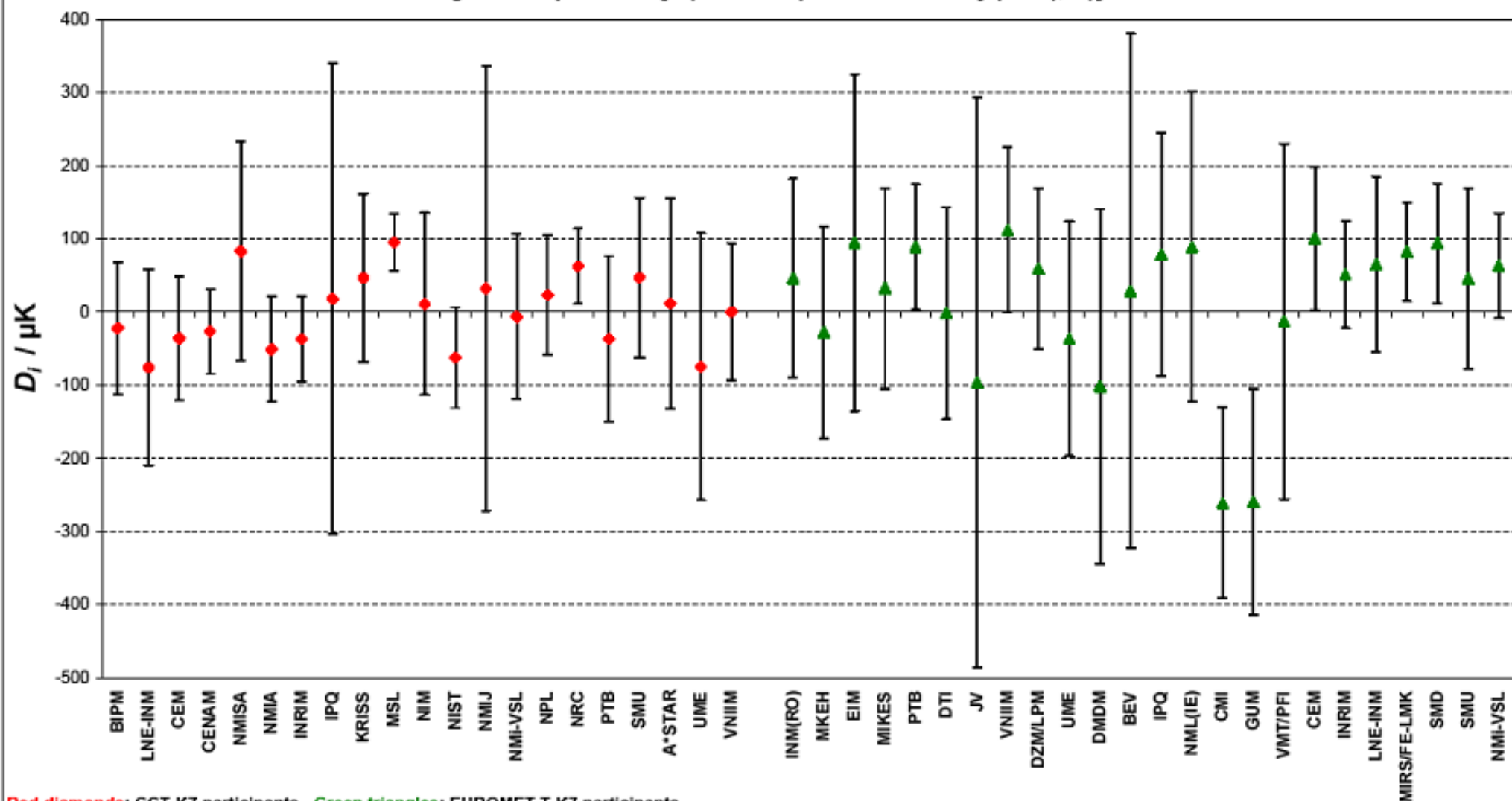
EURAMET.T-K7 comparison of water triple point cells

- Regional extension of CCT-K7 (2002-2004)
- **24 participant NMIs** (9 of them had participated in CCT-K7)
- Robust linkage to CCT-K7
- Powerful tool to evidence the impact of the recently refined definition of the water triple point temperature in terms of VSMOW
- EURAMET.T-K7 reference value 65 μK higher than CCT-K7 KCRV (thus agreeing within few μK with the best estimate of the SI unit)



The BIPM has comparison dates: January 2009

CCT-K7 and EUROMET.T-K7 Water triple point cells **Degrees of equivalence [D_i and its expanded uncertainty ($k = 2$), U_i]**



Red diamonds: CCT-K7 participants **Green triangles:** EUROMET.T-K7 participants

In CCT-K7, NMISA, MSL and NRC realized systematically higher temperatures, because they are the only laboratories which based their realizations on the recommendation of the *Supplementary Information for the ITS-90* to use water with the isotopic composition of the standard mean ocean water. Since the publication of CCT-K7 results, the CIPM approved Recommendation 2 (CI-2005) "[Clarification of the definition of the kelvin, unit of thermodynamic temperature](#)": see on pages 23 and 24 of the [EUROMET.T-K7 Final Report](#) for detailed information on the application of this recommendation by the participants.

EURAMET 924

"Development of a sustainable traceability and dissemination system providing Europe-wide comparable measurement results in water monitoring under the Water Framework Directive (2000/60/EC) (WFD) "

Organized by PTB, BAM, LNE and IRMM

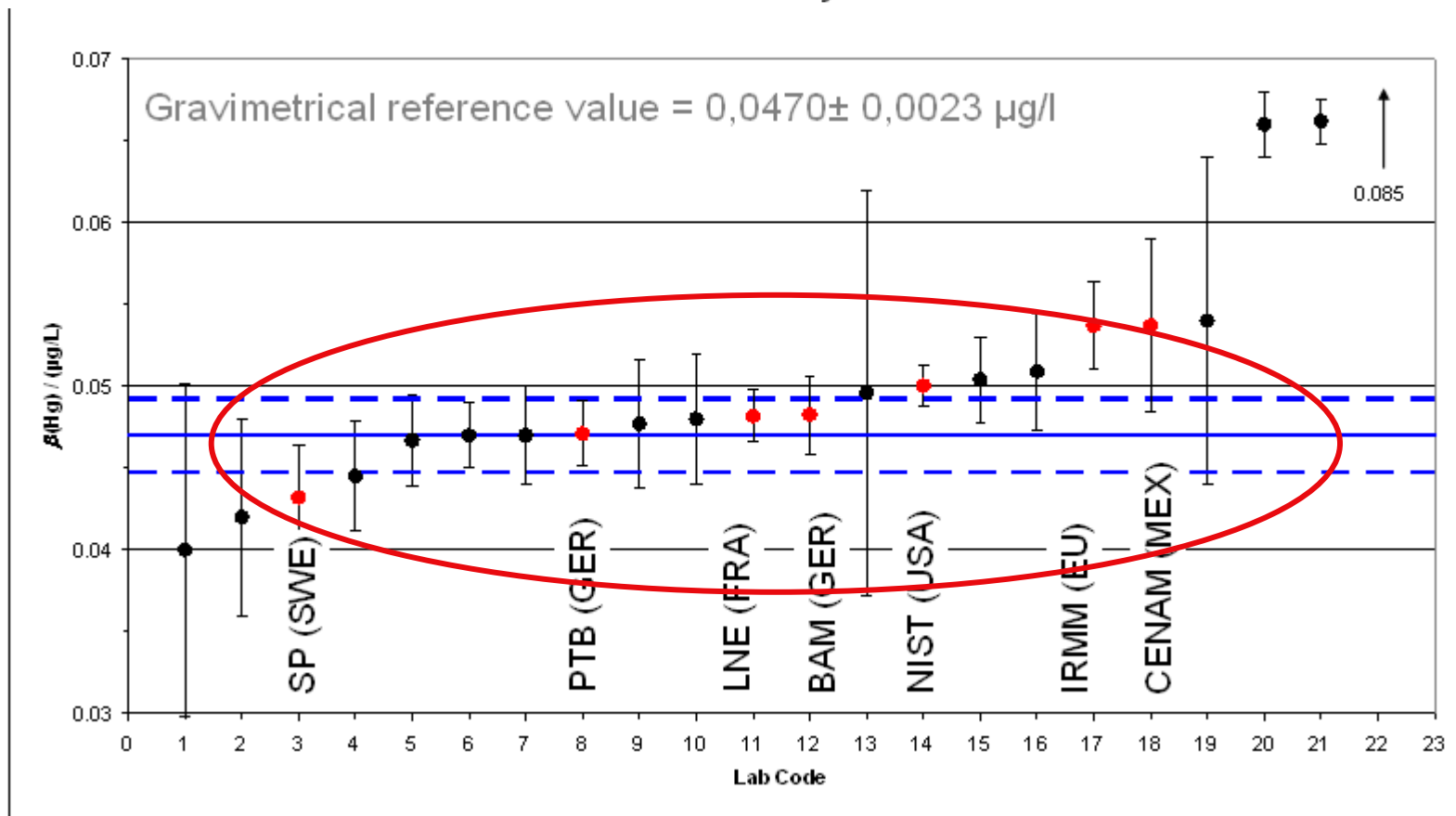
WFD:

- Good quality of surface, ground and coastal water in the EU by 2015
- WFD requires comparable measurement results for assessments
- Priority list of substances (Ni, Cd, Pb, Hg)
- Environmental Quality standards (c_{EQS} (Hg) = 50 ng/l)

Strategy B (International recognition)

mercury in ultrapure water

CCQM-P100.1 / Euramet924
Results Mercury



Strategy C (KT)

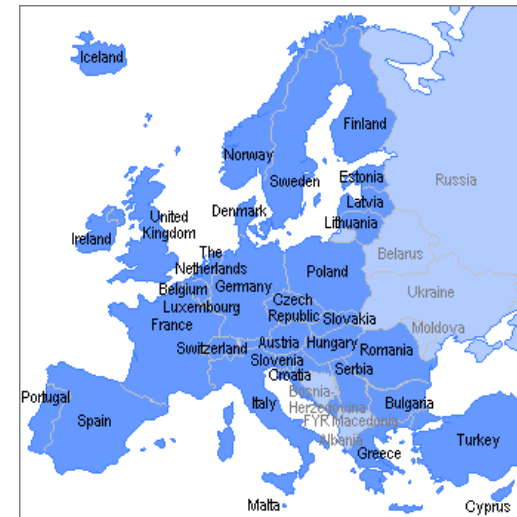
C) Metrology knowledge transfer and infrastructural support in quality-assured measurement

- EURAMET website up-dated
- Coordination of metrology education & training material
- EURAMET Focus Group "Metrological Infrastructure"



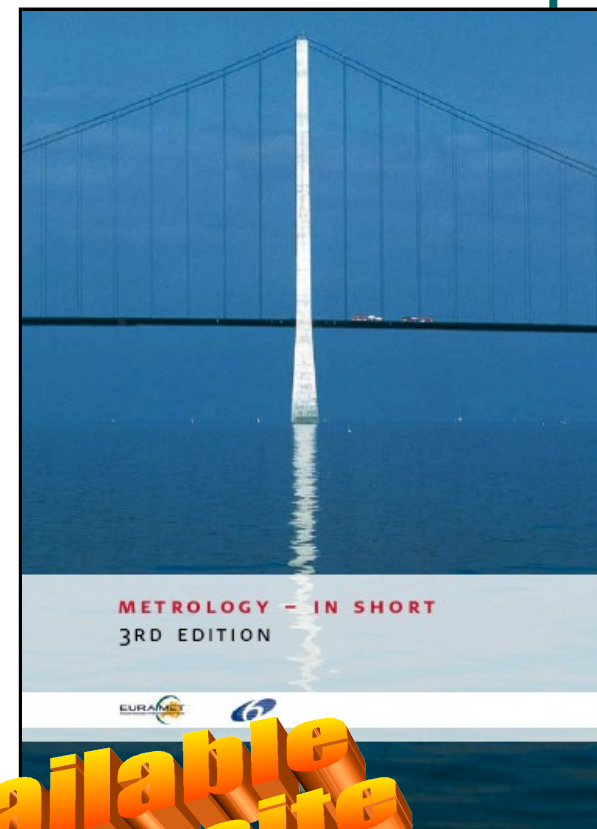
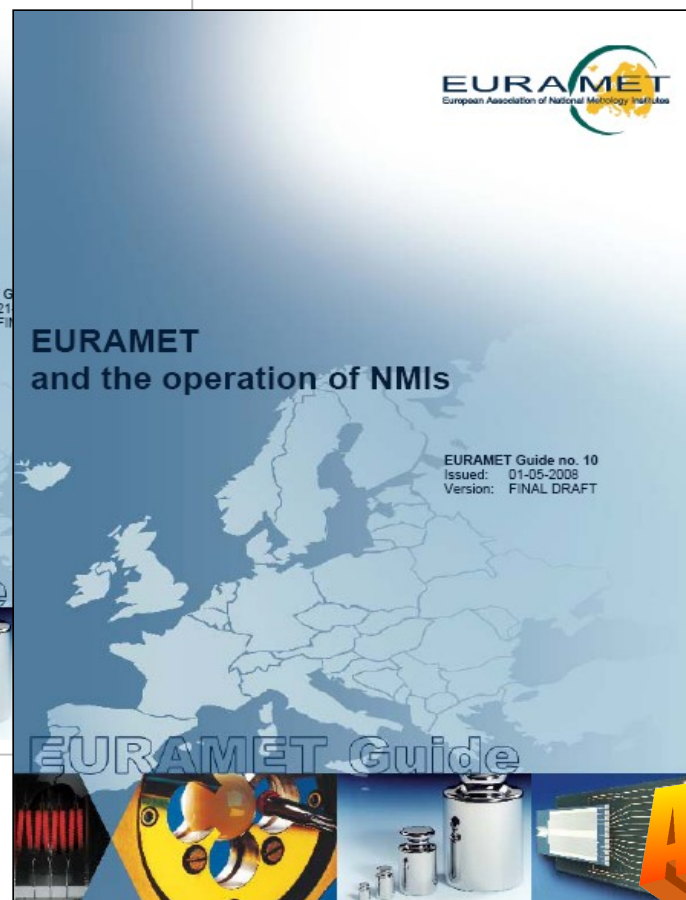
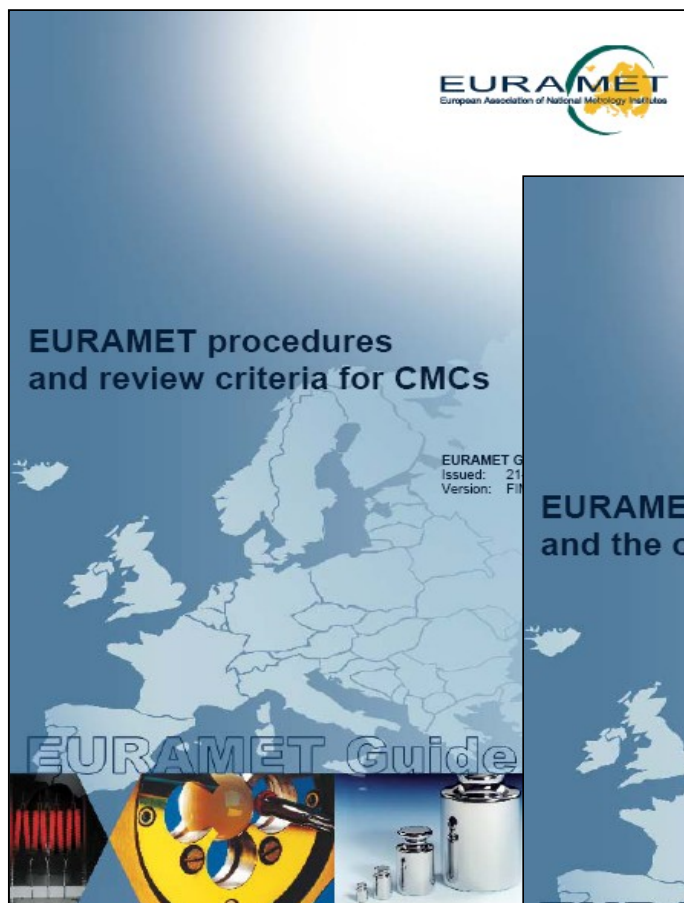
The screenshot shows the EURAMET website with a search bar and a navigation menu. The main content area is titled "Focus Group on Facilitating National Metrology Infrastructure Development". It includes a description of the group's purpose, a list of tasks, and a table of members.

Chairperson	Arnold Leitner (BEV, AT)
Co-Chair for Organization	Zijad Džemić (IMBiH, BA)
Facilitator for the Board of Directors	Janko Ormovšek (BoD)



Strategy C (KT)

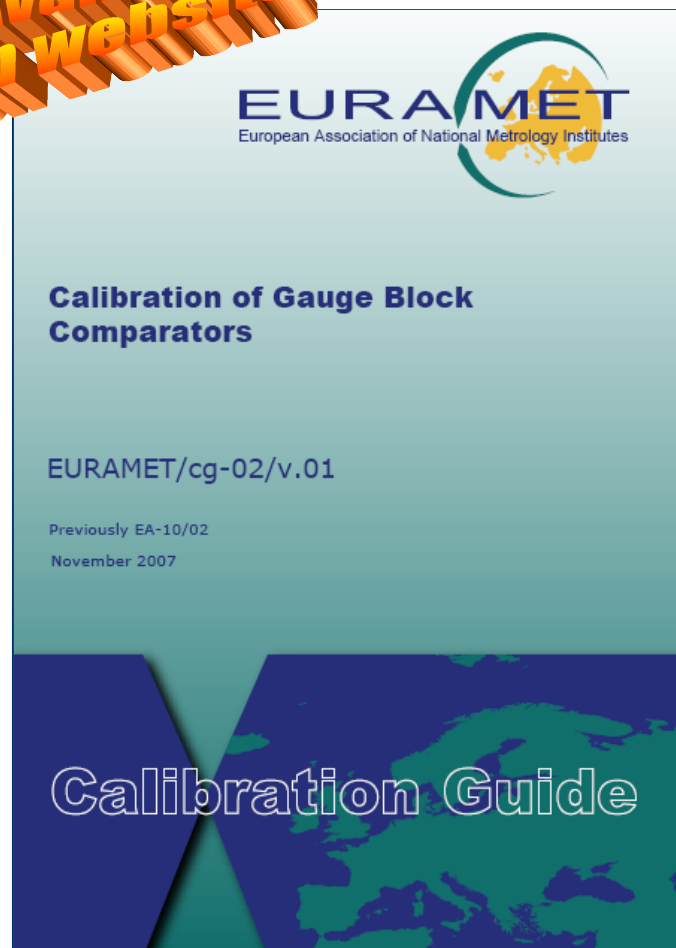
Elaboration of Guidance Documents



Available
on website

Strategy C (KT)

Available
on website



N°	Calibration Guides	TC
01	Calibration of Stylus Instruments for Measuring Surface Roughness *	L
02	Calibration of Gauge Block Comparators	L
03	Calibration of Pressure Balances *	M
04	Uncertainty of Calibration Results in Force measurements *	M
05	Co-ordinate Measuring Machine Calibration *	L
06	Extent of Calibration for Cylindrical Diameter Standards	L
07	Calibration of Oscilloscopes *	EM
08	Calibration of Thermocouples	T
09	Measurement and Generation of Small AC Voltages with Inductive Voltage Dividers	EM
10	Determination of Pitch Diameter of Parallel Thread Gauges by Mechanical Probing	L
11	Guidelines on the Calibration of Temperature Indicators and Simulators by Electrical Simulation and Measurement	T
12	Guidelines on the Evaluation of Vector Network Analysers (VNA)	EM
13	Guidelines on the Calibration of Temperature Block Calibrators	T
14	Guidelines on the Calibration of Static Torque Measuring Devices	M
15	Guidelines on the Calibration of Digital Multimeters	EM
16	Guidelines on the Estimation of Uncertainty in Hardness Measurements	M
17	Guidelines on the Calibration of Electromechanical Manometers	M
18	Guidelines on the Calibration of Non-Automatic Weighing Instruments	M

Strategy C (KT)

SIM adopts and publishes EURAMET Guide 18



Strategy C (KT)

Measurements in Commerce

World Metrology Day – 20 May 2009



Metrology Underpinning Economic Development

World Metrology Day 2009
May 20th

Metrology Measurements in Commerce	NIST National Institute of Standards and Technology Technology Administration U.S. Department of Commerce
Healthcare The composition and dosage of medications are carefully measured to ensure their safety and effectiveness.	Energy Energy supplies are carefully measured to promote efficiency and ensure proper billing.
Food Food and water supplies are carefully measured to ensure their quality and for distribution.	Goods Products and services are carefully measured to ensure their value and safety.
Underpinning Economic Development World Metrology Day – 20 May 2009 www.worldmetrologyday.org	

Strategy C (KT)

International Congress of Metrology 2009

Organiser: College Francais de Metrologie

Coorganisers: EURAMET, BIPM, EA, OIML

http://www.metrologie2009.com/index_en.php



Strategy C (KT)

Comparing and contrasting studies of Metrology Education & Training in Europe and the US

NCSLi 2007 St Paul (MN, USA)

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gharris@nist.gov

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SP Technical Research Institute of Sweden

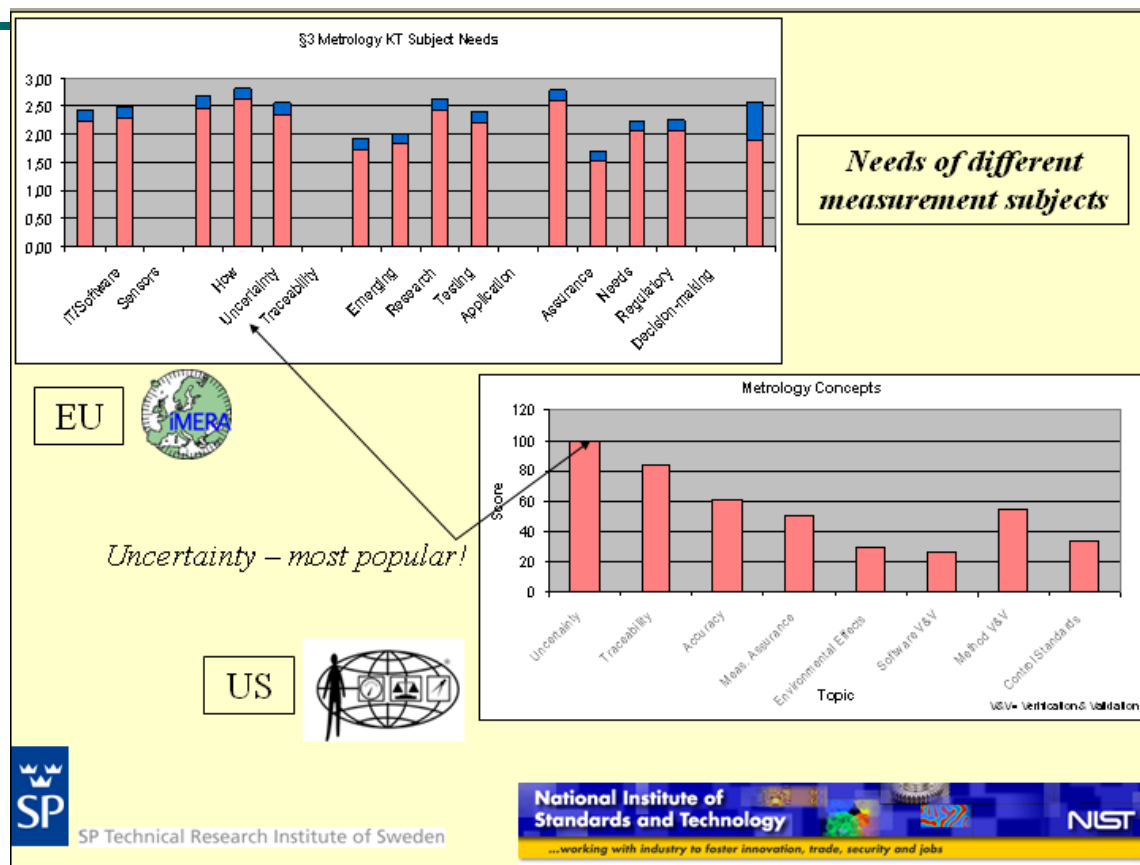
National Institute of
Standards and Technology

...working with industry to foster innovation, trade, security and jobs

NIST

**Harris G and Pendrill L R 2008 “Comparing and Contrasting
Studies of Metrology Education and Training in Europe and
North America”, *NCSLi Measure*, Vol. 3, no. 2, pp 38 – 45**

Strategy C (KT)



Harris G and Pendrill L R 2008 “Comparing and Contrasting Studies of Metrology Education and Training in Europe and North America”, *NCSLi Measure*, Vol. 3, no. 2, pp 38 – 45

Strategy C (KT)

Comparing and contrasting studies of Metrology Education & Training in Europe and the US

Number of critical drivers (outreach, human resources, KT subjects and modes, and infrastructure) in future development of Metrology KT identified in the NCSLi study may be compared with key aims of coordinated programme in the corresponding European arena.

Concerning *infrastructure for education & training*, NCSLi and iMERA studies have in common:

- need for coordinated forum for ensuring that right people and resources are brought together to ensure that metrology staffing needs are met at all levels.



SP Technical Research Institute of Sweden

National Institute of
Standards and Technology

...working with industry to foster innovation, trade, security and jobs



NIST

**Harris G and Pendrill L R 2008 “Comparing and Contrasting
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North America”, *NCSLi Measure*, Vol. 3, no. 2, pp 38 – 45**

Strategy D (R&D)

European Metrology Research (EMRP)



Grand Challenges

Health
Energy
Environment
New technologies for nanosciences and security

European Metrology Research Programme

Outline 2008

R&D for fundamental and applied metrology

Fundamental metrology
Focused single discipline and Applied metrology

Mobility, Capacity Building, KE

www.euramet.org



Strategy D (R&D)

“Metrology” from FP6 to FP7

Art. 169 Preparation period

400M€ (50% from EU 7 years)

EMRP 169

Evaluation &
negotiation period

iMERA ERA-NET +

63 M€, 1/3 from EU 3 years

iMERA ERA-NET

6th FP

7th FP

2005

2006

2007

2008

2009

2010

Things we are thinking about

Strategy B (International recognition)

At EURAMET level:

- **Greater role contributing to policy issues within Europe**

Strategy C (KT)

At CIPM MRA/ RMO level:

- **Supporting new RMO Afrimets**
- **BIPM initiative: Forum on Coordination of NMI International Activities**

Key meetings

3rd EURAMET General Assembly

Location:

Malta

8 – 10 June, 2009

4th EURAMET General Assembly

Proposed:

Portugal

May/June 2010

Invitations to:

BIPM, APMP, COOMET, **SADCMET/AFRIMETS**, SIM, EA,
EUROLAB, NCSLI, EURACHEM, CEOC, NIS(Egypt), INPL(Israel),
DSSU(Ukraine), NIST, JRC, WELMEC, OIML, ...

Thank you for your attention