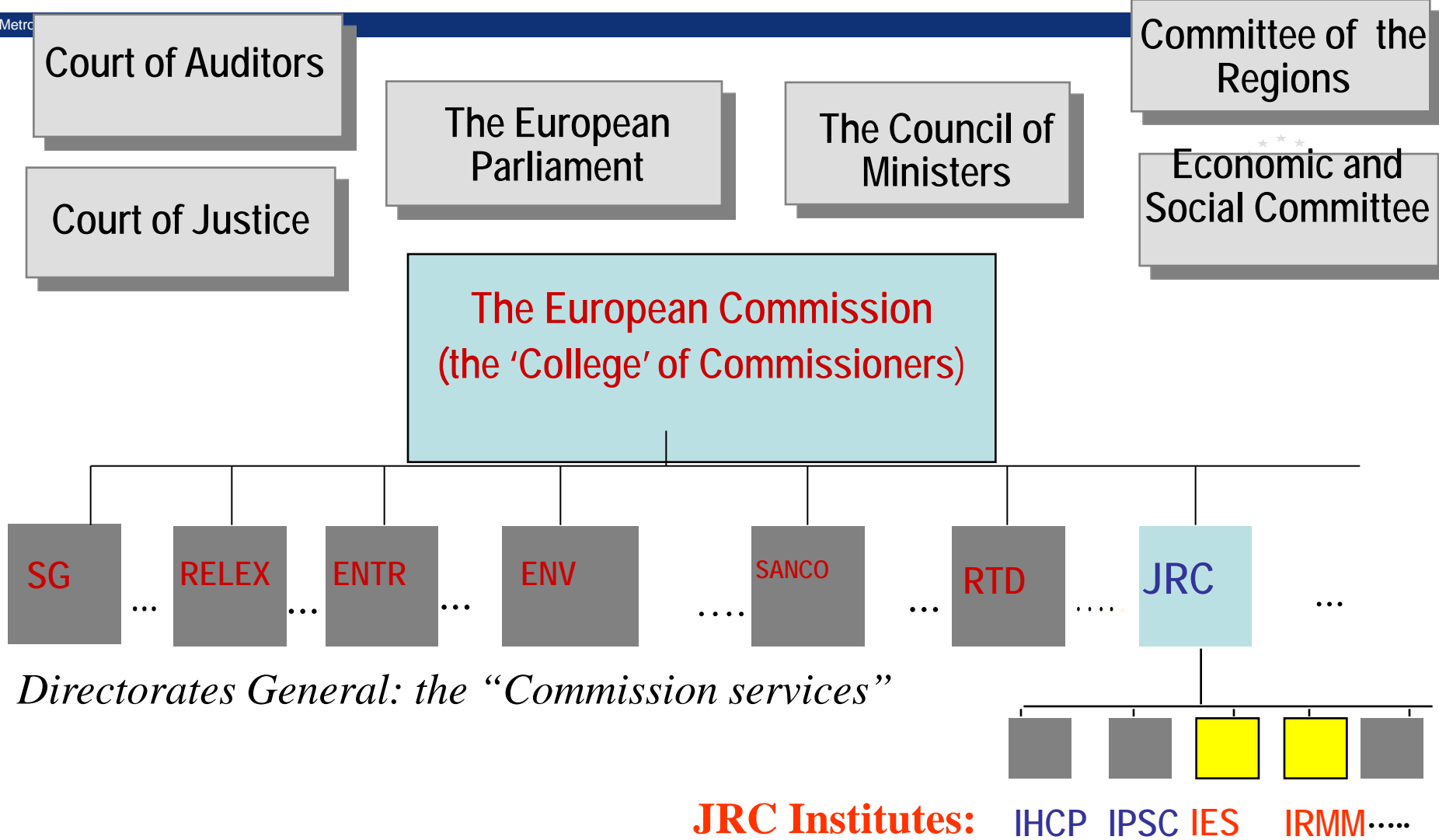


# Trends in Metrology in Europe

***Philip Taylor***

World Metro



*Directorates General: the “Commission services”*

**JRC Institutes:** IHCP IPSC IES IRMM.....

- 
- The mission of the IRMM is to promote a common European measurement system in support of EU policies.

*IRMM, a metrology institute  
and part of the European Commission*



## Boiling frog : the danger of slow change





**EU as 1 market**

## Celebrating the world metrology day

in past years, BIPM  
Chose as themes for this day

metrology in sport , commerce ...

**relevance**

# Why do we need metrology, ... the minister asked



**perhaps there is EU legislation ?**

- National metrology institutes are not mentioned by name
- This is very different compared to accreditation (new Legislative Framework re: accreditation and market surveillance)
- There are only some functions mentioned
- *“While legal metrology is the responsibility of public authorities, industrial and scientific metrology generally is not. It concerns parties, most of which are in the (semi-)private sector.*

## Directives linked to measurements

- Directive on units of measurements (1980)
- Directives on pre-packed products (1970s)
- Framework Directive (1971) and measuring instruments specific directives
- Non- Automatic Weighing Instruments (1990)
- Measurement Instruments Directive (2004)

**"legal metrology"**

**If there is no explicit EU legislative framework,  
each sovereign country decides  
amount of resources to spend  
(principle of subsidiarity)**

**So, what is the priority for our country ?**

# Strategic planning with broad public consultation



## Why do we need metrology, ... the minister asked

**... the importance of the 1875 metre convention**

**Metre Convention is an extremely nice tool,  
but ... what is its convincing power in today's world ?**

## Metre Convention and international Measurement capability in BIPM database (CMC)

- electrical quantities
- length
- mass
- time
- etc etc

**historic orientation of metrology institutes : physical quantities**

**Why do we need metrology, ... the minister asked**

**who are the customers ?**

## customers ?

- NMI needs to identify them
- priority setting
- industry ? calibration activities risk distorting the market and competing with private companies

## Very big area of legislation where measurements are crucial

- Agriculture
- Customs
- Energy
- Environment
- External trade
- Fight against fraud
- Fisheries
- Food safety

**Big need to have  
access to reliable  
measurement  
standards**

- Health
- Internal market
- Consumer affairs
- Science/Technology
- Security policy
- Trade
- Transportation

**"state" as customer ?**

***creating confidence in measurements***

## Why do we need metrology ? ... the minister asked

### because an NMI can secure confidence in measurements ...

- when **alcohol breath tests** are done which is important for enforcement of traffic rules and protection of individual rights
- when **radars are used to do speed measurements** which is important for enforcing traffic rules
- when **assay of precious metals** is done which is important for consumers
- when the **quality of wine** is assessed which is important for export
- when **pollutants are measured in our sea water** which is important for tourism

## Why do we need metrology ? ... the minister asked

**because an NMI can secure confidence in measurements ...**

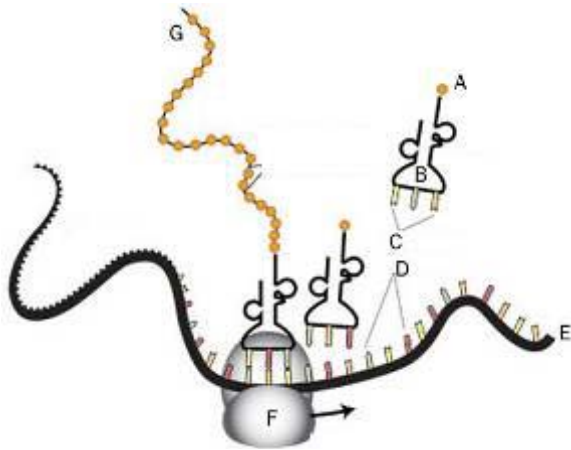
- when **food analysis** is done which is important for public health
- when **air quality measurements** are done for environmental protection and public health
- etc etc

**... now I understand the relevance**

The problem is ...

many of these new measurement capabilities are not linked  
to the international metrology system  
(Metre Convention)

## Confidence in measurements : new skills are needed



**bio-analysis**



**GMO**  
**Reference Materials**  
**from IRMM:**

**GM Maize**

**GM Soya**

**GM Sugar beet**

**GM Cotton seed**

**GM Potato**

## The competence of providing measurement references

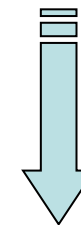
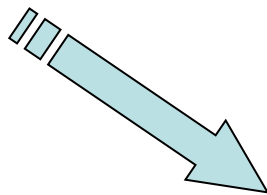
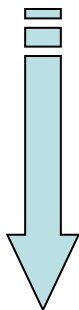
- many of these competences do not exist at NMI
- impossible to have in one institute
- probably it is present within the country (e.g. because of EU legislation)
- what is needed : link such capability to the BIPM system, via the NMI
- major rethinking and communication exercise between organisations

## **The future for Metrology : increasing research activities**

**as in the long run, these are the few ones that remain  
justifiable as a public service**

**EU Research €**

**National €**

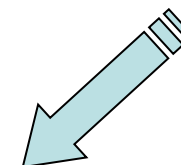
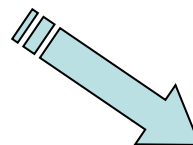


**EURAMET e.V.**

**Art 169  
Co-funding**

**National  
Programmes**

**7th Framework  
Programme  
Research  
(there is no  
metrology research  
programme here)**



**European  
Metrology  
Research  
Programme**

**400M€**

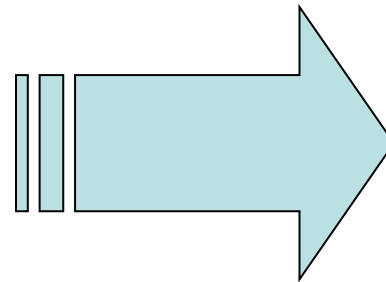
**approved in EU parliament**

## How can a research programme be set up in a country ?

- ... and which research to focus on ?
- probably most important in the new measurement areas

## Metaphor for the transformation challenge :

from unique state telephone companies to multiple mobile providers



*(by the way : most NMIs face this challenge)*

## State national telephone company

- Fixed static network, fixed phones, fixed subscriptions
- Monopoly of service
- Guaranteed income
- Predictable, easy to manage

# Changed environment

- New technology : GSM
- De-regulation
- Open market
- Clients vote with their feet : they want a particular (good) service

## So is it possible that NMIs ...

- See themselves as “just another **service provider**” that needs customers. Not “enforcers”
- Focus experimental activities to (real) national **priority areas**
- Perform metrology **research** (at NMI or designated institutes)
- Set up **distributed** metrology infrastructure for new measurement areas
- Recruit people with **different competences** than today
- Reorient/limit their **legal metrology** activities to some critical areas

## the first step : recognising the problem



**EU as 1 market**

**The issue is ...  
how do metrology institutes transform  
themselves ...**

**To stay relevant in today's world**

**?**

## Puzzling : how can this be done ?



**But then it is simple,  
once you know how to do it !**

