



# Constant Evolution of the OIML

**Stephen Patoray**  
**BIML Director**



## Outline

- Who am I?
- A few bits about WMD 2018
- Why is there an OIML?
- What is the OIML?
- Metrology in our life
- What is legal metrology?
- Constant Evolution of the OIML
- Quality Infrastructure



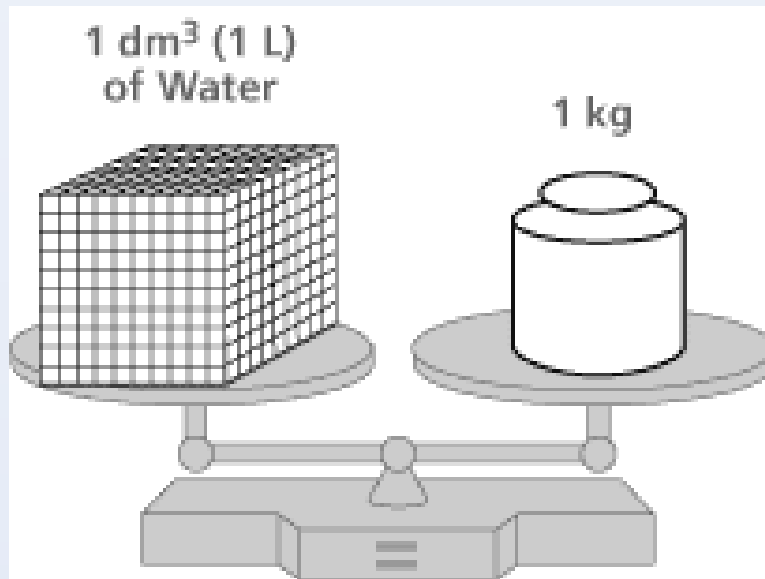
### **Stephen Patoray: BIML Director**

- Mechanical Engineer by education
- Masters in Business Administration
- Certified Association Executive
- Auditor for ISO 9001 and 17025
- Certified Six Sigma Green Belt
  
- Over 25 years experience in Industry
- Over 8 years serving as NTEP Director in US
- Federal Agent for US Department of Agriculture
- BIML Director for the past 7+ years
  
- Retiring at the end of 2018



This may be a bit of an over simplification from my Director's message for this year's World Metrology Day event:

“[This] revision will not directly impact **legal metrology**, since users will be able to obtain traceability to the revised SI from the same sources used at present.



## Standard Unit Definitions

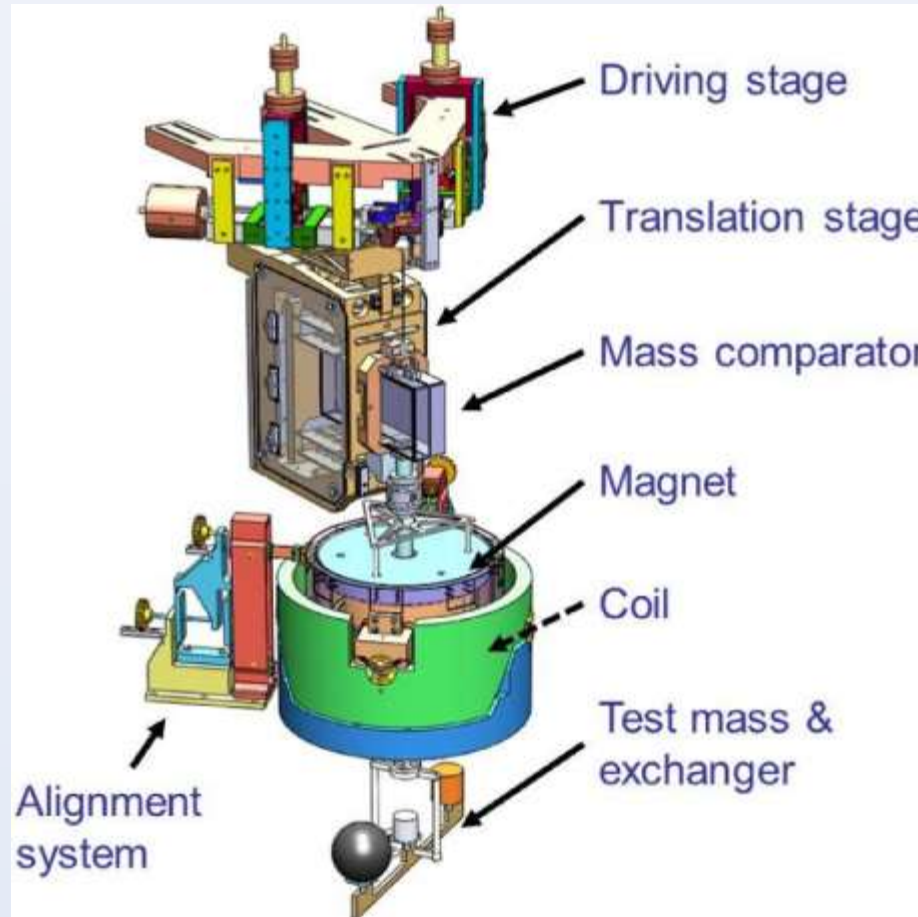
### ▶ Kilogram:

- Old: mass of exactly one cubic decimeter of water (1790)
- NOW: "the mass of the international prototype of the kilogram" (1899)



Photo from:  
<http://physics.nist.gov/cuu/Units/kilogram2.html>







## Why is there an OIML?





The **OIML** is an intergovernmental treaty organization.

It was established in 1955  
in order to promote the global harmonization  
of legal metrology procedures.



## The OIML,

with the help of technical experts which work through Technical Committees and Project Groups,

creates **written standards** for use in **legal metrology**



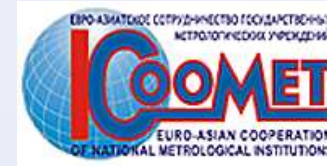
- R 111 Weights of classes E1, E2, F1, F2, M1, M1-2, M2, M2-3 and M3
- D 2 Legal units of measurement
- R 76 Non-automatic weighing instruments
- R 117 Dynamic measuring systems for liquids other than water



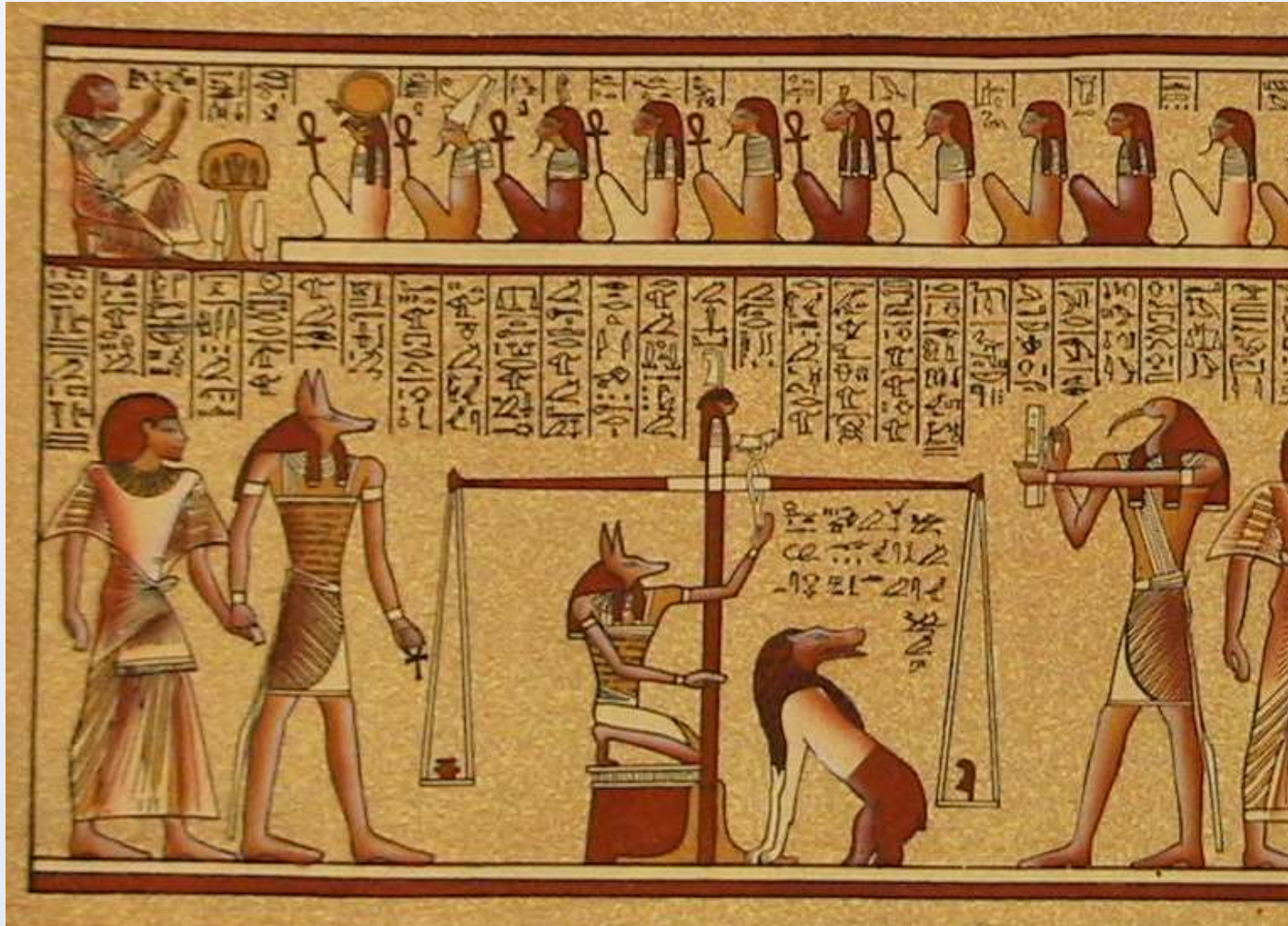
## Regional Legal Metrology Organizations



AFRIMETS  
APLMF  
COOMET  
GULFMET  
SIM  
WELMEC









## **What is legal metrology?**



## **Legal metrology:**

Legal metrology is the practice and the process of applying regulatory structure and enforcement to metrology.





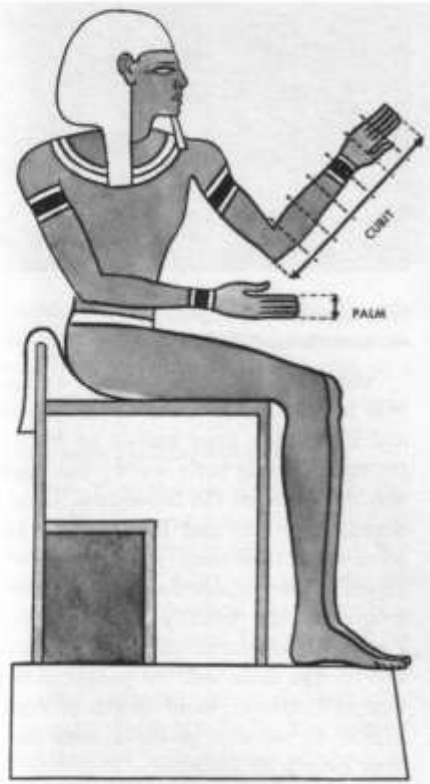
**Legal metrology** relies on the following activities  
by a government:

1. **establishing** a law
2. **enforcing** the law; and
3. **providing traceability** for measurements  
related to that law

100% ← Primer Foro sobre metrologia legal

  
Industria y Comercio  
SUPERINTENDENCIA

Cubit



Wordpress Blog  
*EIGHTEEN INCHES*  
I by Elijah Lim on August 8, 2010



How does **legal** metrology help society?

Reducing technical barriers to trade

Promoting good governance

Collecting government revenue

Improving health

Reducing deaths and injuries

Managing inventory control and reducing fraud







- Prepackaged goods
- Software
- Technology's rapid advancement



- Smart “everything”
- “the cloud”
- Self-driving vehicles, Drones, AI, On-line shopping
- Climate change, Alternative energy sources
- The Internet of Things
- And the list goes on



“It is dangerously easy to lag behind, to serve yesterday's world instead of today's, neglecting to prepare for tomorrow's. To be boxed in by the trivial chores of every day and let the world change unnoticed, like the driver who concentrates so hard on keeping his car in the lane on the motorway that he does not [notice the exit].”

*Knut Birkeland 1998: Legal Metrology at the Dawn of the 21<sup>st</sup> Century: The Role and Responsibilities of the OIML*





- Is the traditional thinking about legal metrology relevant today?



- 1) Pattern (type) approval
- 2) Conformity to type (CTT) Pre-Market surveillance
- 3) Market surveillance
- 4) Verification
- 5) Subsequent Verification



- Legal metrology is more than just price computing scales and petrol pumps!



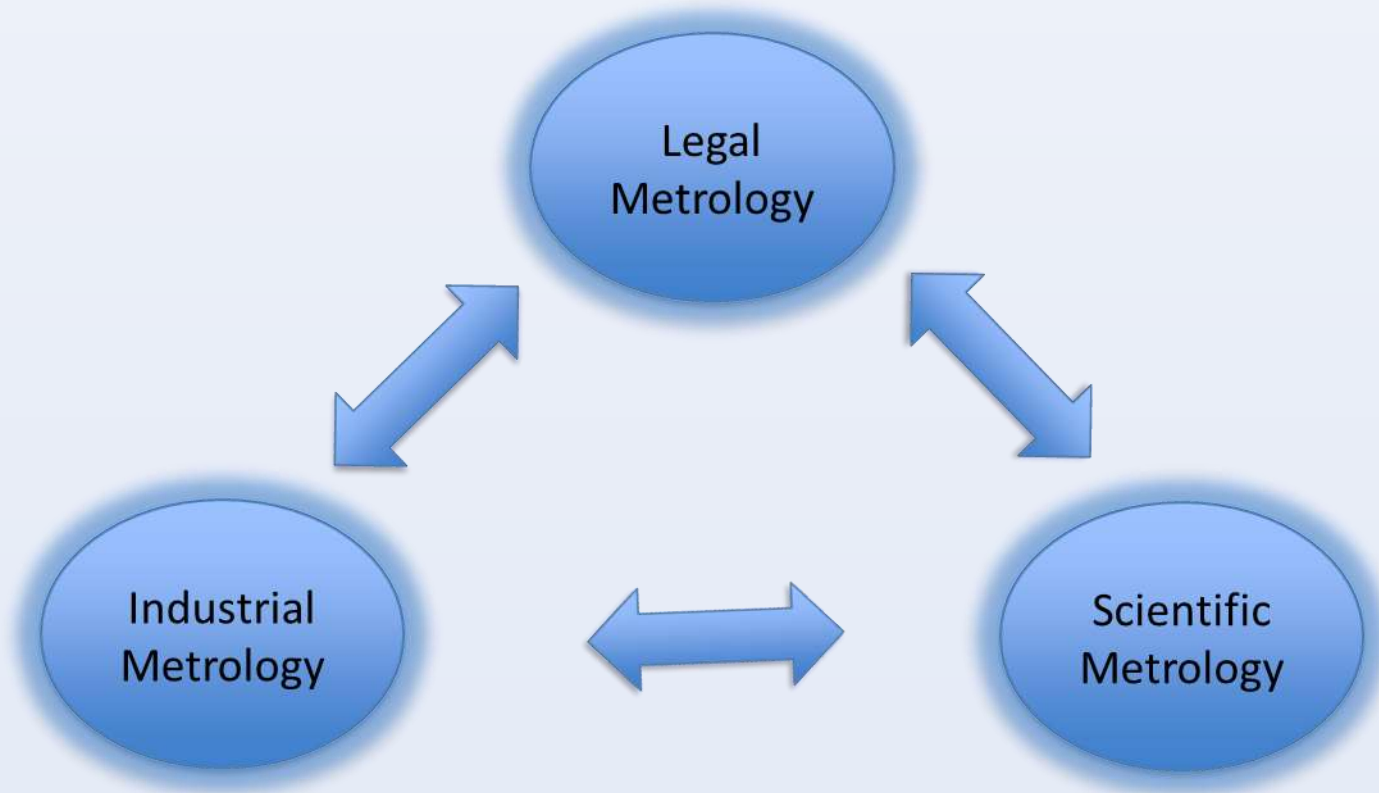
## Fragmentation



“These new areas are all characterized by the usual problems caused by inconsistent, fragmented and non-coherent legislation, with metrologically unrelated regulators, implementing bodies and user groups. It impedes a rational use of the global measurement system and cost-effective compatibility.”

*Knut Birkeland 1998: Legal Metrology at the Dawn of the 21<sup>st</sup> Century: The Role and Responsibilities of the OIML*

## Fragmentation



Fragmentation



- **Legal** metrology touches each of us every day.
- In fact **metrology** touches each of us every day
- I suggest that there is only metrology.....

that is used in many areas including:

scientific, legal and industrial areas

And if I may suggest, it touches all aspects of a Quality Infrastructure



- Are we able to see a way forward?





- The cooperation between **OIML, BIPM, ISO** and **ILAC** along with **IEC** and **IAF** has been in effect for some time
- this cooperation must be **improved** and **expanded**
- many other international organizations that are not directly standards or metrology based must also be engaged at a much more significant level.



# DCMAS Network

Bureau  
International des  
Poids et  
Mesures



<https://www.dcmass.net>



# A quality infrastructure must

combine the **standards, regulations, metrology, accreditation, certification, conformity assessment** and other parts to form a consistent set of requirements that will begin to remove the fragmentation that now exists in metrology.



## **Legal metrology:**

Legal metrology is the practice and the process of applying regulatory structure and enforcement to metrology.



- Is a national, regional, and even **international**

**quality infrastructure essential?**

## Regional Legal Metrology Organizations



AFRIMETS  
APLMF  
COOMET  
GULFMET  
SIM  
WELMEC



## Regional Metrology Organizations (RMOs) recognized within the framework of the CIPM MRA





- Can we begin to build a similar framework within legal metrology, that will encompass an International Quality Infrastructure?
- With the Regional Legal Metrology Organizations taking a lead role.





# Metrology and

- an International Law on Metrology
- an International Mutual Recognition System
- an International Quality Infrastructure



- Embrace Change
  - Cooperate
- Eliminate Fragmentation
  - One Metrology
- International Quality Infrastructure



It is a great honor to be with you today.

May all of your measurements be accurate.

**Thank you, for your time and attention.**

Stephen Patoray  
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