

Why not use OIML and the International Recommendations in the Quality aspect in the global economy?

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Background (from Sweden)

- Very limited legislation in Metrology
- Industries started to evaluate and develop solutions themselves

The OIML Mission Statement

The mission of the OIML is to enable economies to put in place effective legal metrology infrastructures that are mutually compatible and internationally recognized, through harmonization and the establishment of mutual confidence

Objective 3: *Facilitate domestic and international trade in measuring instruments, goods and commodities, etc.*

OIML Recommendations

Very good !

- Performance requirements/classification
- Test procedures including field tests
- Influence factor tests, disturbance tests
- The differentiation of MPE in initial verification and in service

Not so good

- Too many technical requirements
- Missing real uncertainty evaluations

Uncertainty in OIML recommendations

Example (R 106)

Verification standards.....

- A control instrument capable of.....The error of that instrument shall not be greater than one-third of the maximum permissible error for in-motion weighing.....

Should be:

The measurement process in determining the values of the reference wagons (up to the point and time they are used) should have an uncertainty of maximum one-third of the maximum permissible error for in motion weighing (95% confidence level)

An example of today's measurements in weighing without understanding of quality

Uncertainty in measurement (weighing)

3 years later

OIML R 51 TAC approval >1000 e

Expected

2 %

?

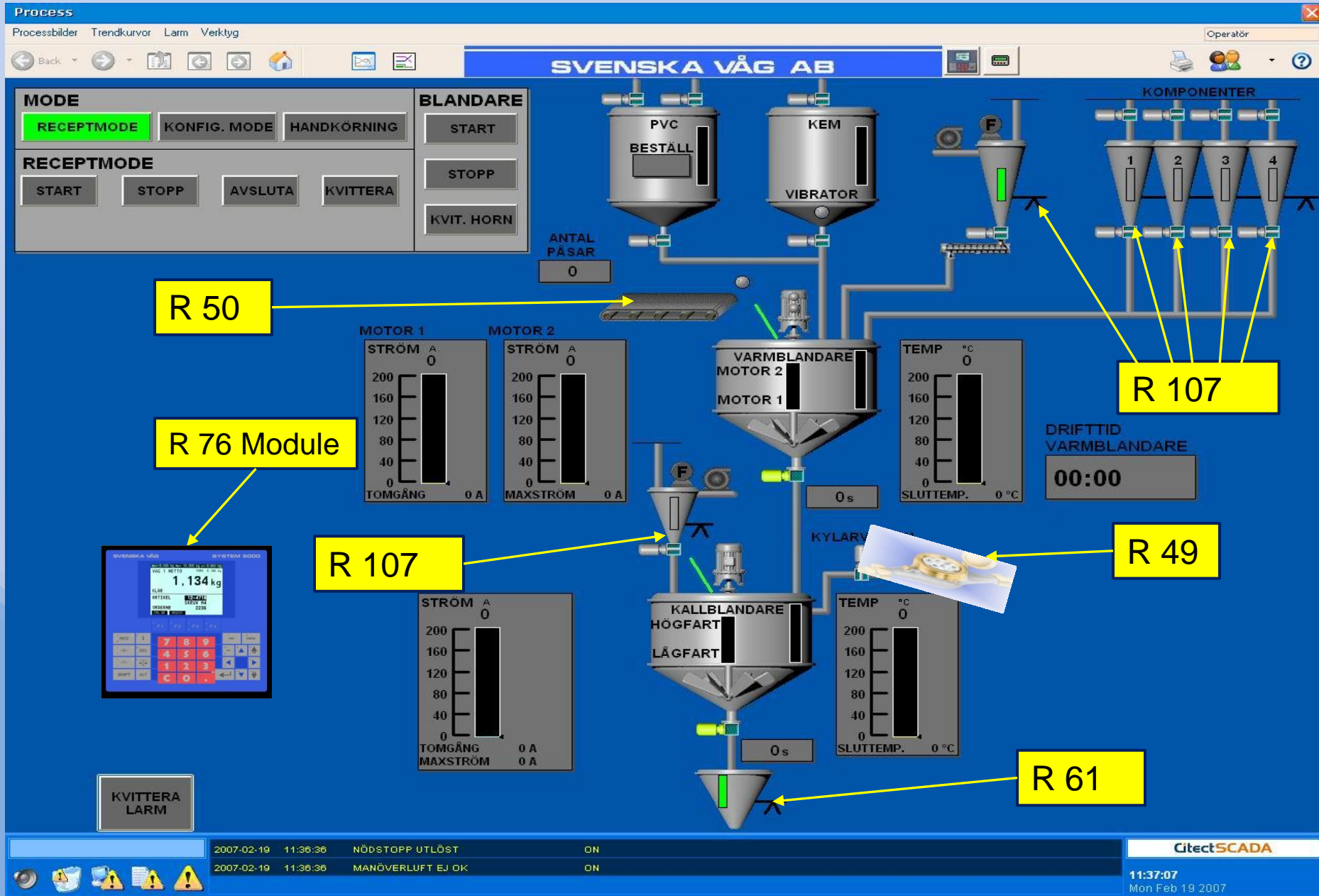
Measured

15 %



Weighing instrument

Receipt production/measurement



R 50
class 1

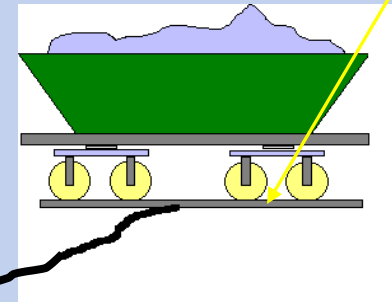
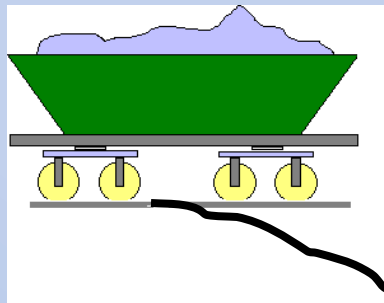


An example of heavy transport

R 106
class 1

Indicated load on an ore train 50 wagons

(From Peter Lau, SP)



Probability that the result is within
a given interval

Beltweigher Mine
uncertainty 1 %

3289,5

3345,7

Weighing bridge harbour
uncertainty 1,5 %

Environment : Temperature
during one year +30°C to -40°C

3295,5

50,2

+32,9

3322,4

56,2

3200

3250

3300

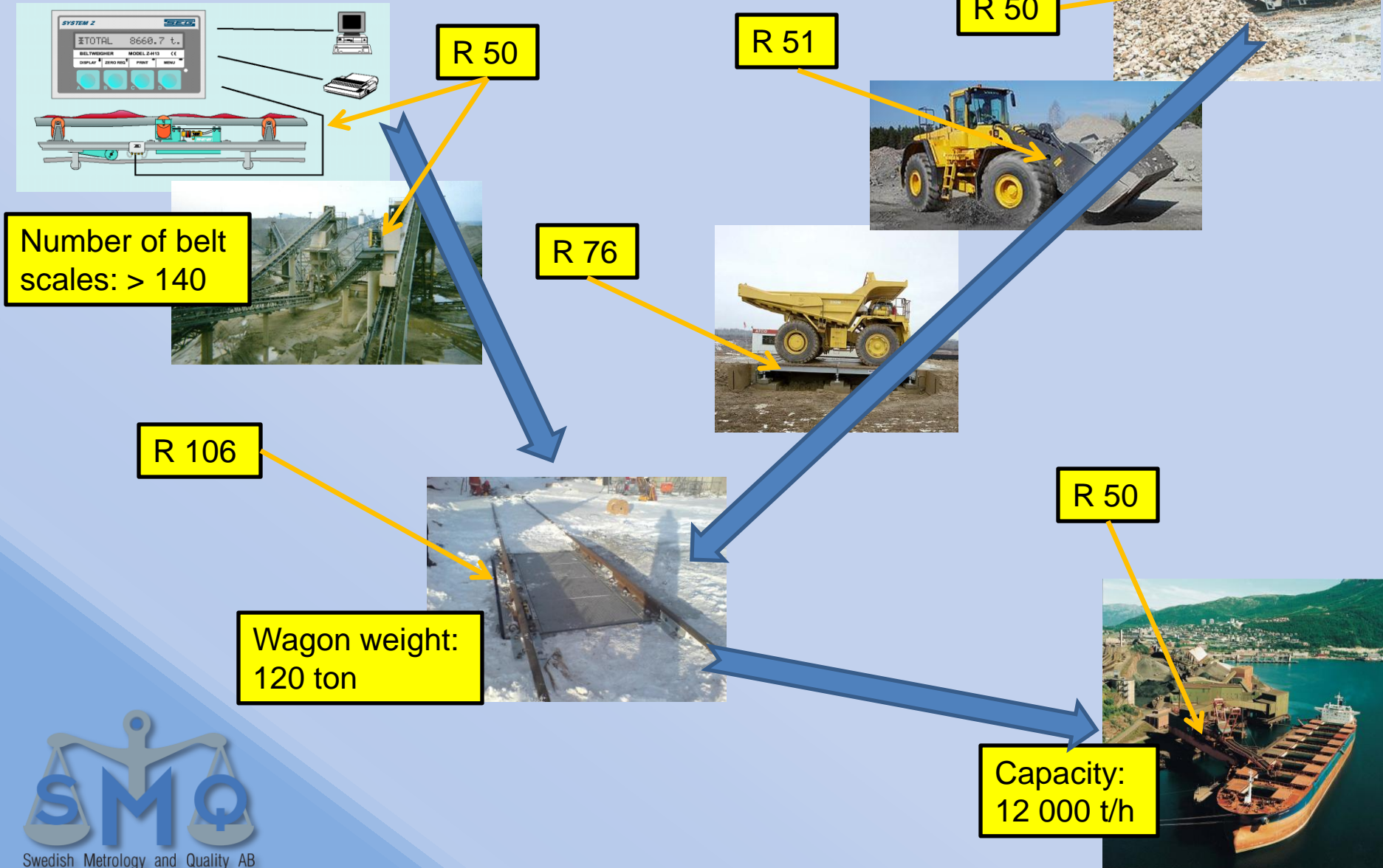
3350

3400

3450

ton

Total logistics: Project- transport of > 43 million ton/year



Different ways to quality

Type Approval Certificate-MAA Certificate

Initial verification

Initial verification

Calibration

Subsequent verification

Intermediate checks

Calibration

Calibration

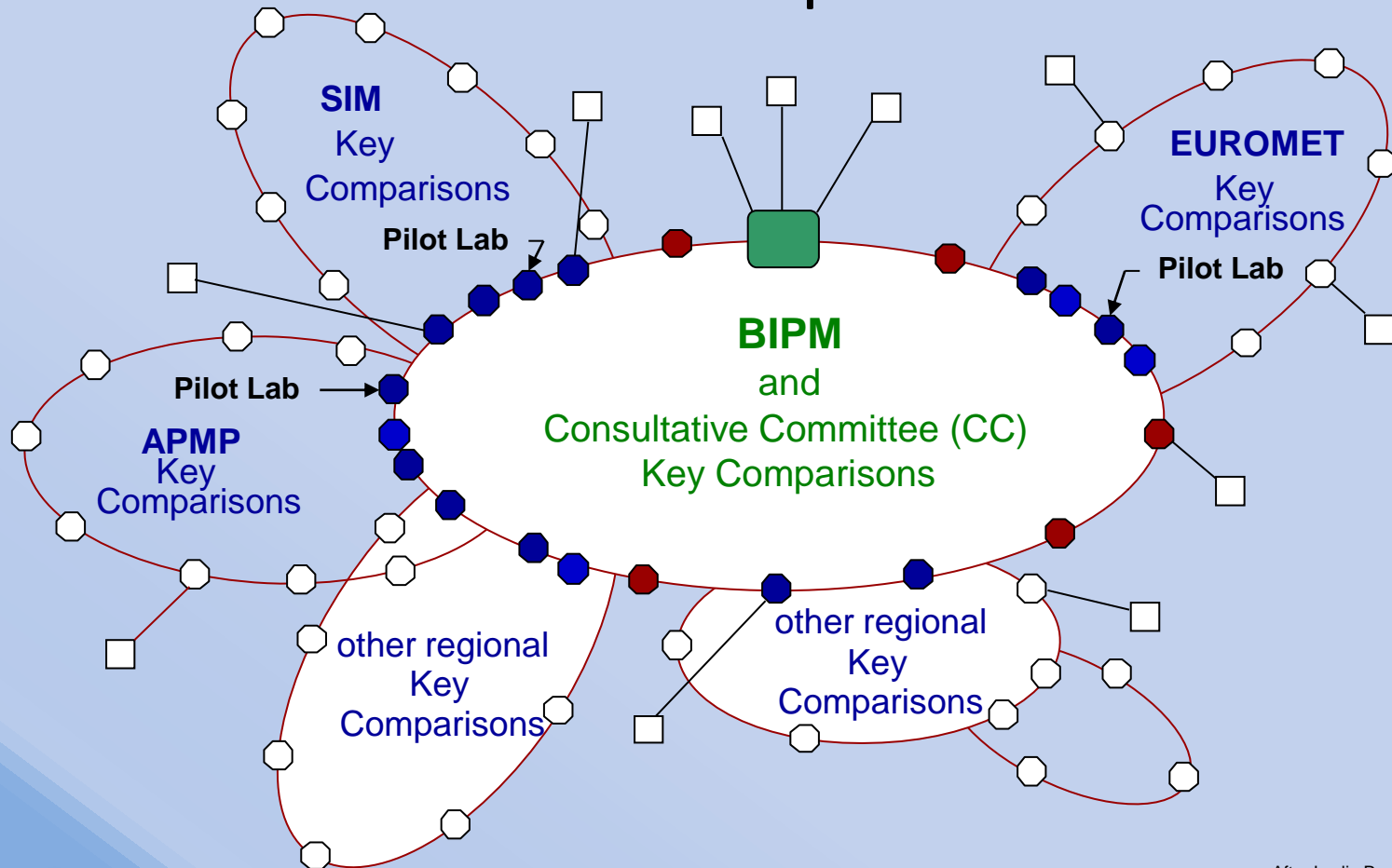
The Legal metrology principle

Maybe the best for stability follow up and evaluation

The accreditation bodies principle



BIPM– Traceability and uncertainty and a World of intercomparisons



After Leslie Pendrill, SP

Where are Intercomparisons in Type Evaluation testing ?
Responsibility of which organisation? OIML -MAA?

Related issues from ILAC

Important guides related to measurements in industry and OIML recommendations

- ILAC-G17:2002
- EA-4/02 (from EA)

Important knowledge

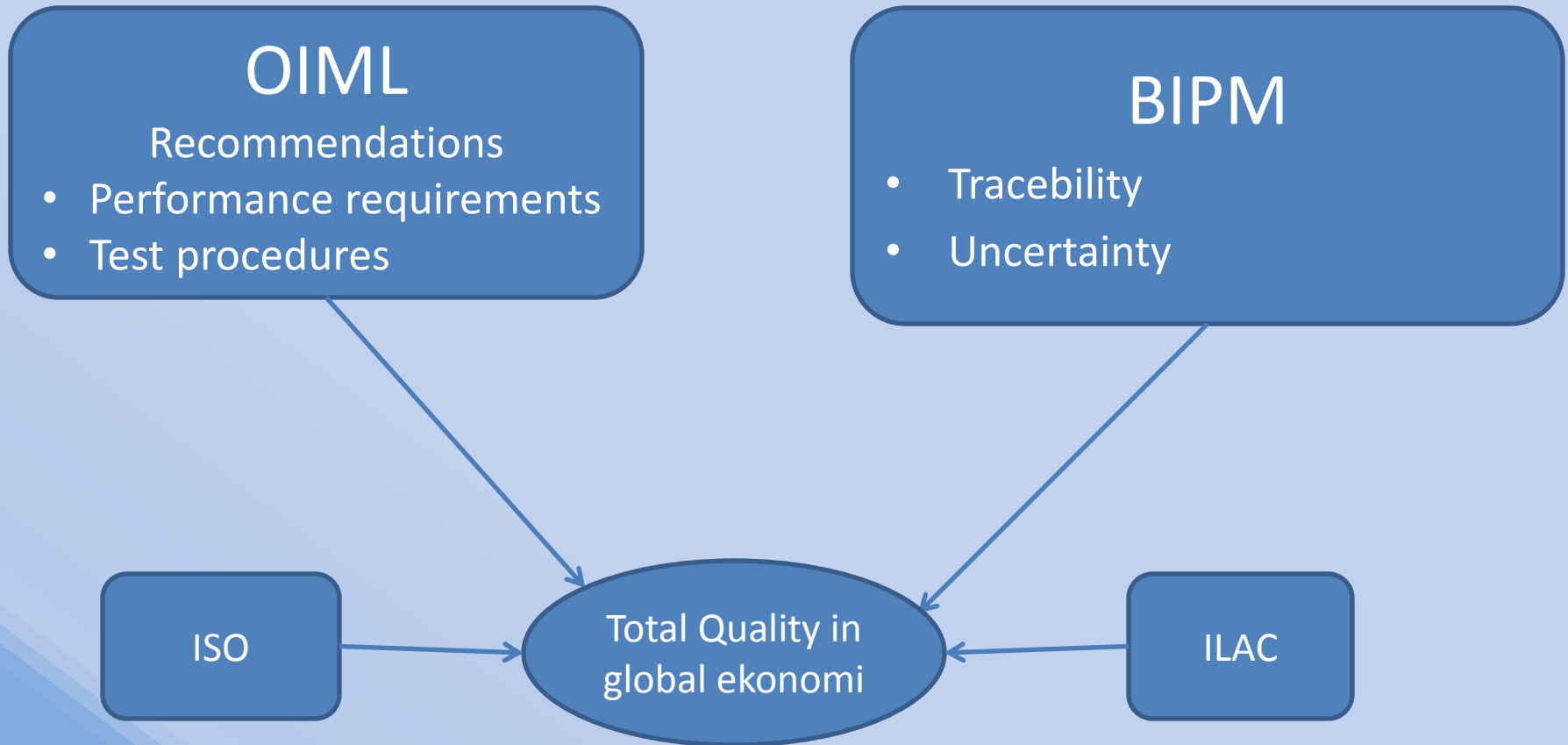
- Lead assessors understanding the OIML work and especially the Recommendations and the MAA

Related issues from ISO

Important standards related to measurements in industry

- GUM
- ISO 17025
- ISO 17020

The future ?



Tell me where the weighing instrument is ?



Thank you for your attention



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