



Global Quality Infrastructure

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Bureau
♦ **I**nternational des
♦ **P**oids et
♦ **M**esures



Outline

- ◆ Quality Infrastructure
 - What is it and how does it work?
 - Who are the key players?
 - How are we seen by the community?
- ◆ Example of how it works
- ◆ QI as a concept

Learning objectives

- ◆ Understand:
 - the global context of QI
 - where metrology fits
 - why it matters
- ◆ Some of the interconnections
- ◆ And later today...
 - Importance of QI in practice
 - The key international players (OIML, ISO, ILAC...)

Quality infrastructure

Definition adopted in June 2017

by DCMAS Network (BIPM IAF, IEC, ILAC, ISO, ITC, ITU, OIML, UNECE and UNIDO) + the World Bank.

“The system comprising the organizations (public and private) together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services and processes.

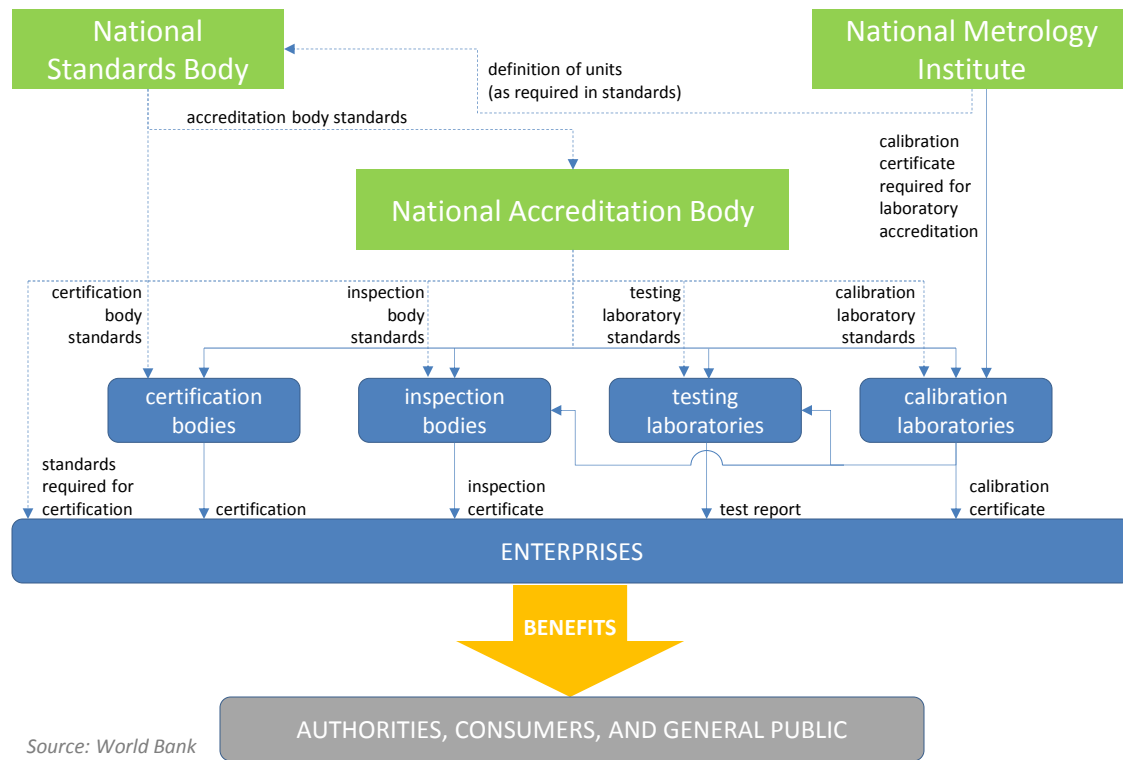
The quality infrastructure is required for the effective operation of domestic markets, and its international recognition is important to enable access to foreign markets. It is a critical element in promoting and sustaining economic development, as well as environmental and social wellbeing.



It relies on

- ***metrology***
- ***standardization***
- ***accreditation***
- ***conformity assessment, and***
- ***market surveillance” (in regulated areas)***

Global “Quality Infrastructure”



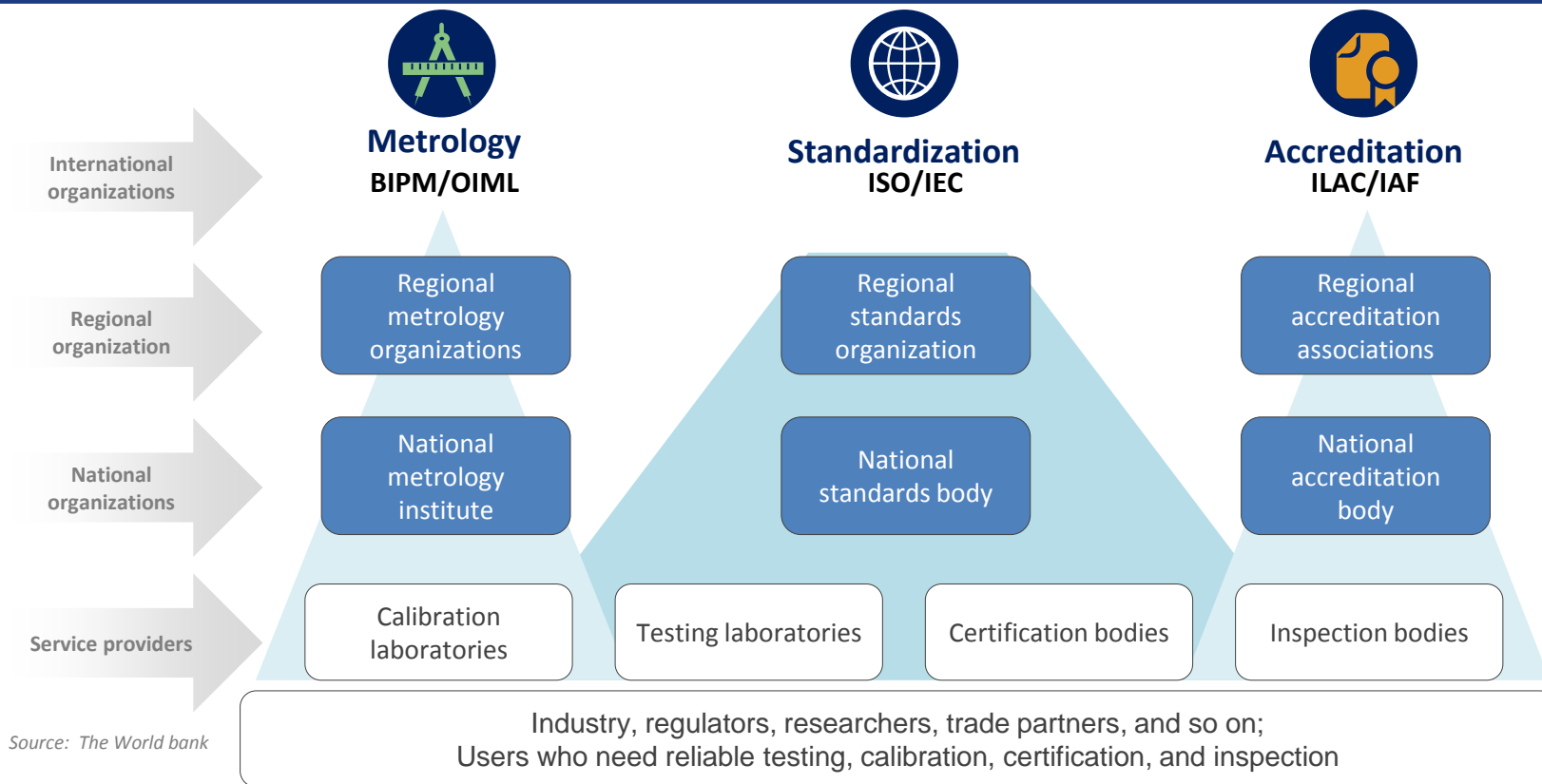
- Enhanced product quality and compatibility
- Enhanced safety and health
- Decreased environmental impact
- Increased trade opportunities
- Facilitating innovations to the market place

Source: World Bank

QI target group



Key players at international, regional and national level



Source: The World bank

Key QI players at international level (examples)

There are many, many other players!
....often sector or regionally focuses

QI links at regional level

Europe	Americas	Asia Pacific	Euro-Asia	Africa	Gulf
METROLOGY					
EURAMET	SIM	APMP	COOMET	AFRIMETS	GULFMET
ACCREDITATION					
EA	IAAC	APLAC	-	AFRAC	GAC
STANDARDS					
CEN/ CENELEC/ ETSI	COPANT	PASC	EASC	ARSO	GCC-GSO

National Quality Infrastructure

Quality infrastructure

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“The NQI are the national institutions that provide the framework and services to advance the quality and safety of products and services offered in local and foreign markets.”

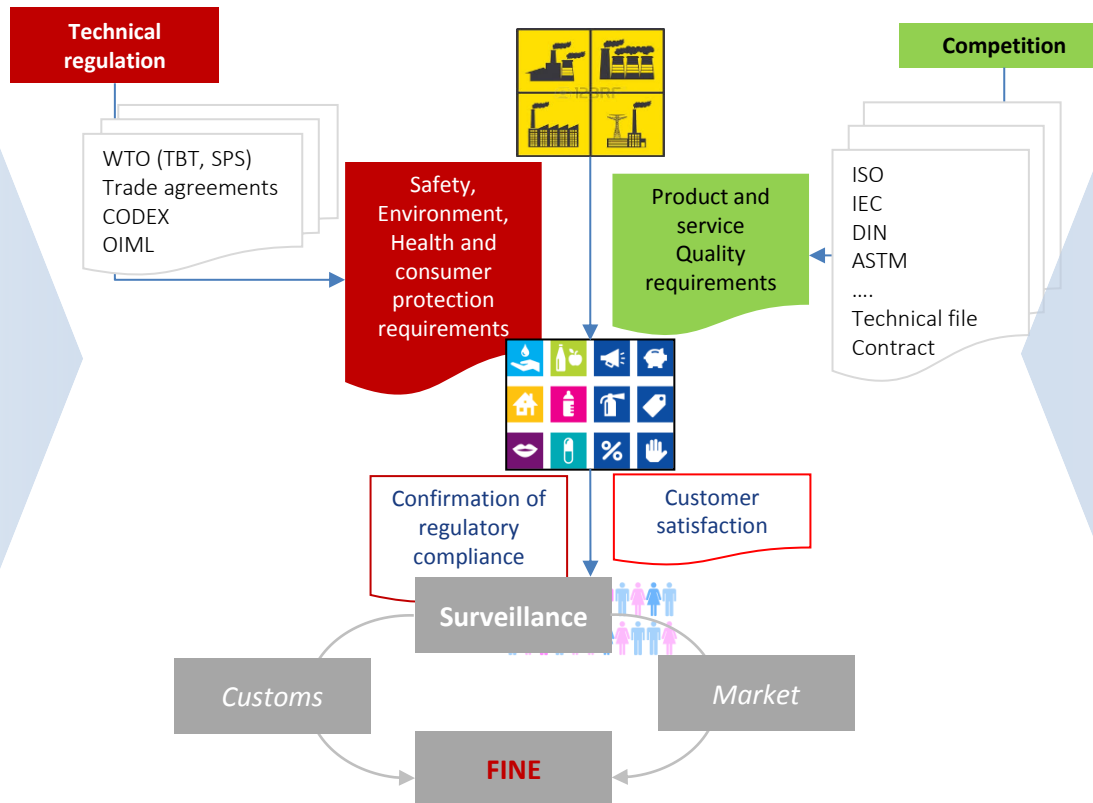
IAAC at the WTO

And internationally the QI is the sum of the NQI + the transnational institutions and systems that effectively link them

National Quality Infrastructure in practice

Government

Market

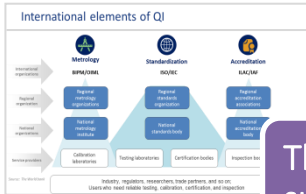


Role of the government



Source: The World bank

Role of the government



The government (ideally) promotes and supports:

- Implementation of the relevant international and regional agreements (WTO TBT & SPS Agreement etc.)
- Participation of national QI organisations in international and regional elements of QI
- The development of capacities of QI organisations
- Education and skills
- Networking of public and private institutions in relevant QI forums

The government (should):

- Set the framework conditions through legislation for the QI organisations,
- Set balanced technical regulation regime and implementation
- Create transparency by facilitating the provision of information (e.g. standards information and the WTO TBT & SPS National Enquiry Point), and by involving industry and consumer associations in QI deliberation and implementation activities

Trade - WTO Agreement on Technical Barriers to Trade (TBT)

TBT Agreement

Pursuit of trade liberalization...

avoiding
unnecessary/discriminatory
barriers to int'l trade



Right of Members' to regulate...

allowing Members to
pursue legitimate
objectives at levels
they consider
appropriate



use of international standards
...as a basis for regulation

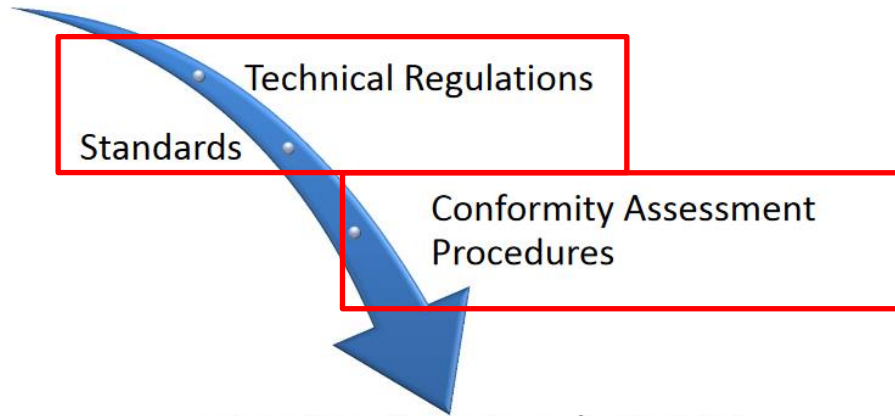
...Harmonization

Slide courtesy
L Locks WTO

WORLD TRADE
ORGANIZATION 

Scope of the TBT Agreement

TBT Measures...



...related to all products (industrial and agricultural) (Art. 1.3)

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Conformity Assessment Procedures (CAP)

“Any procedure used, directly or indirectly, to
determine that relevant requirements in technical
regulations or standards are fulfilled.

Conformity assessment procedures include, inter alia,
procedures for sampling, testing and inspection;
evaluation, verification and assurance of conformity;
registration, accreditation and approval as well as their
combinations.” (TBT, Annex 1.3)

Slide courtesy
L Locks WTO

The value of documentary standards and accreditation is directly recognised

The value of metrology is indirectly recognised

Arrangements to facilitate CAP

(encouraged in TBT Agreement)

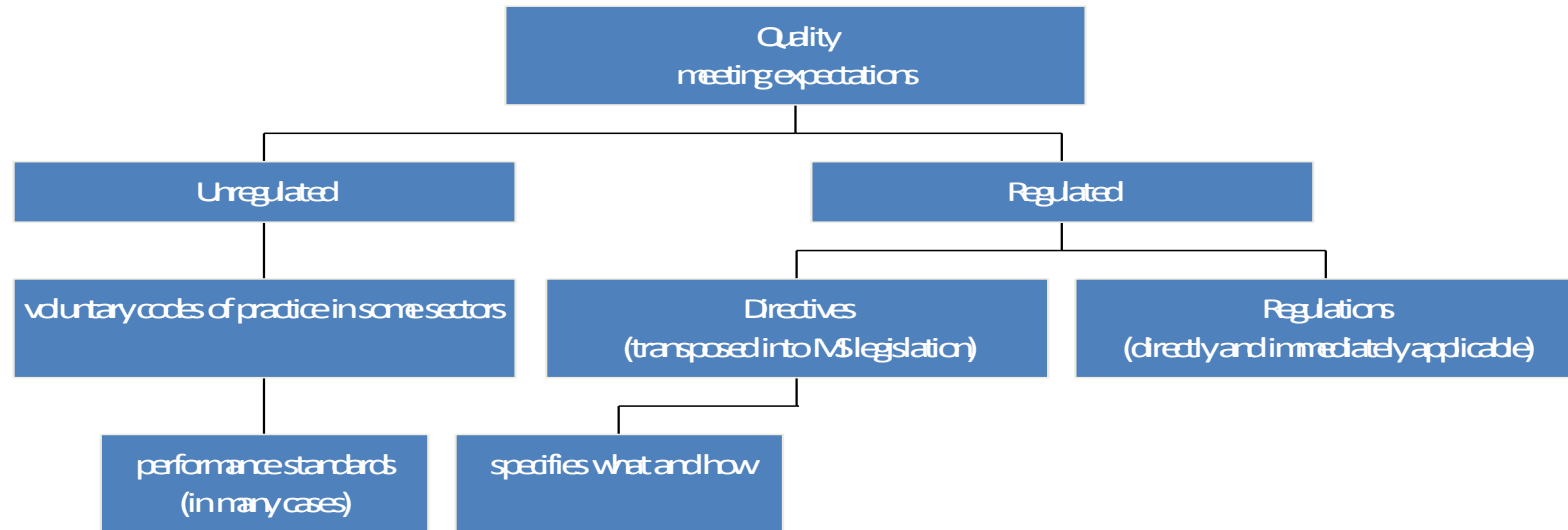
- International or regional systems for conformity assessment
 - “Members shall, wherever practicable, formulate and adopt international systems for conformity assessment”
 - Systems such as ILAC/IAF, IECEE CB are increasingly prominent in TBT Committee discussions
- Recognition of foreign conformity assessment results
 - “verified compliance, for instance through **accreditation**, with relevant guides or recommendations issued by international standardizing bodies shall be taken into account as an indication of adequate technical competence”

Slide courtesy
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The role of Quality in trade (domestic and international)

EU example

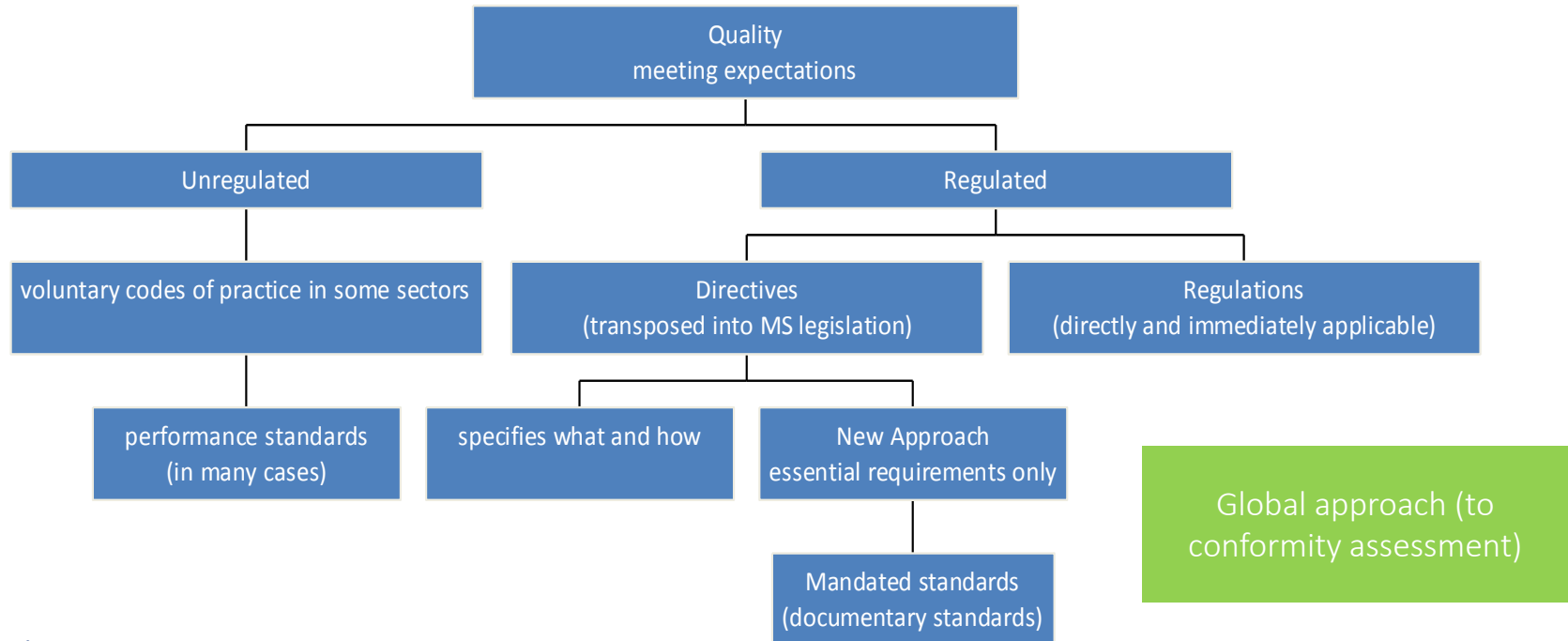
One way of looking at quality in trade - single market



The role of Quality in trade (domestic and international)

EU example

One way of looking at quality in trade - single market



The role of Quality in trade (domestic and international)

EU example

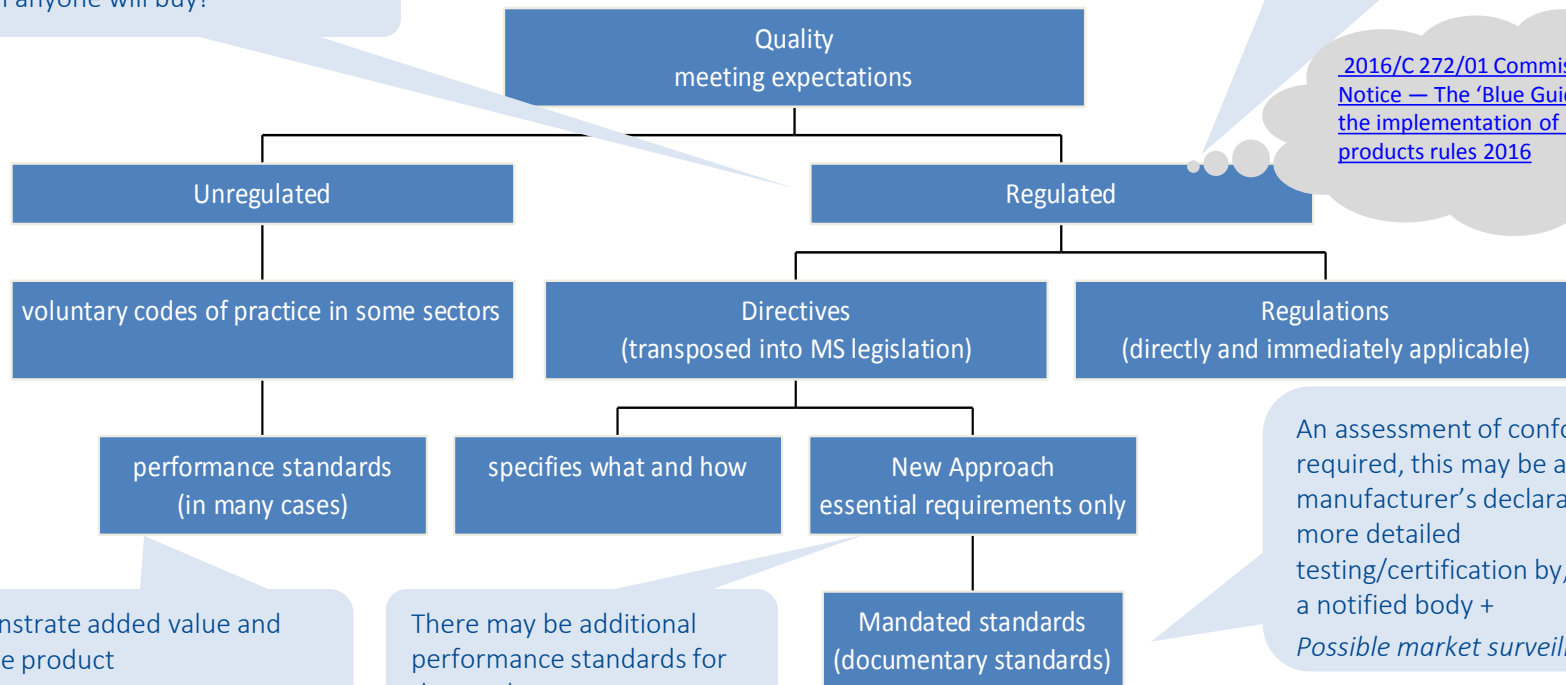
One way of looking at quality in trade - single market

Yes = access to the market

No = exclusion from the market

Remember, compliance doesn't mean anyone will buy!

[2016/C 272/01 Commission Notice — The 'Blue Guide' on the implementation of EU products rules 2016](#)



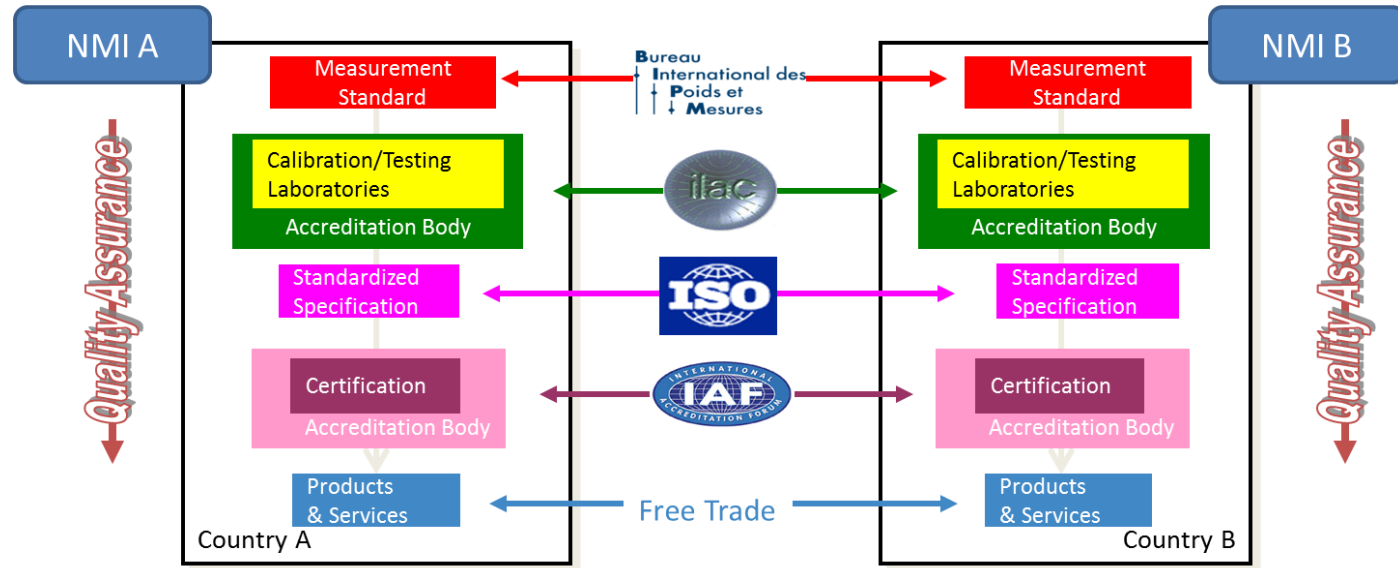
Do we all use the same definition of Quality Infrastructure?

- There are various definitions of quality infrastructure (sometimes referred to as the technical infrastructure)
- All link **metrology, documentary (written) standards, and accreditation**
- They often also explicitly include conformity assessment in some way
 - At its simplest, "conformity assessment" means checking that products, materials, services, systems or people measure up to the specifications of a relevant standard.
 - So often that means testing, certification and inspection, which means measurement

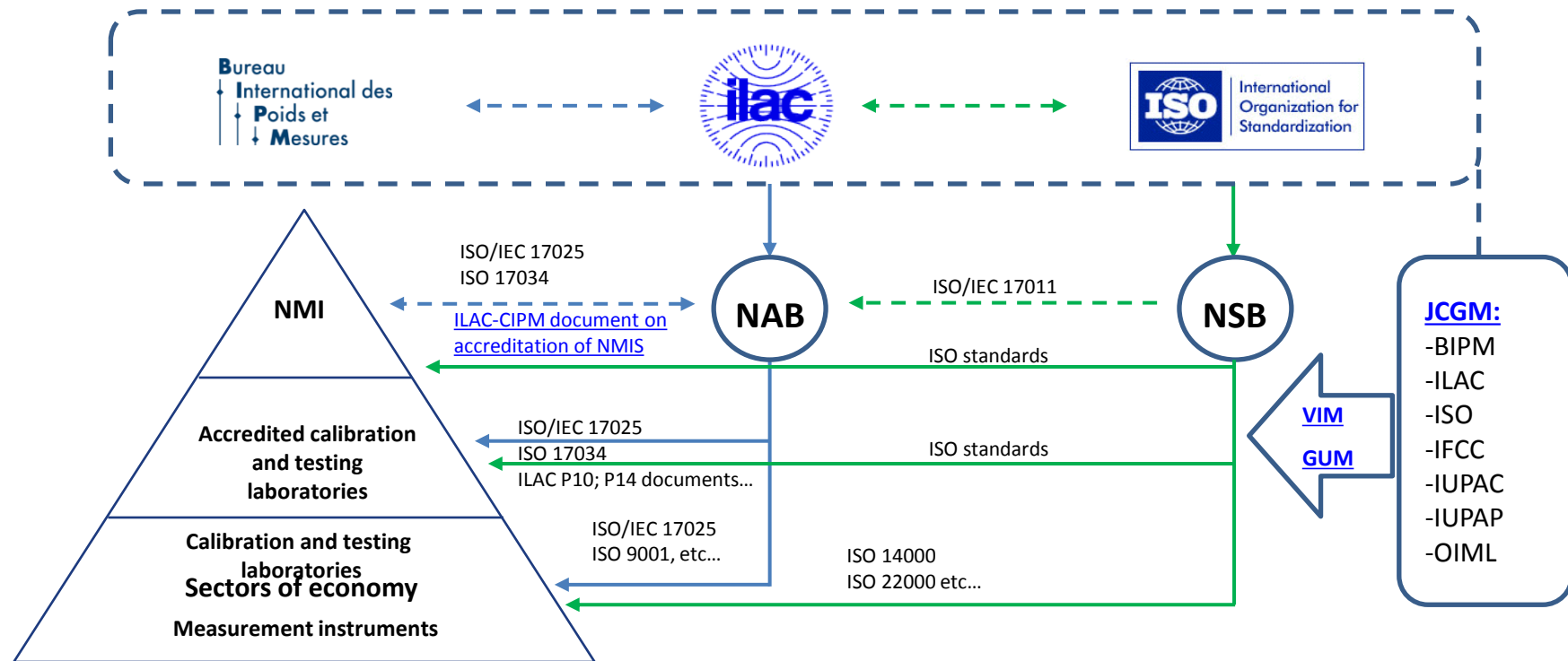
So lets take a look at a selection of the descriptions.....

QI - various models (1)

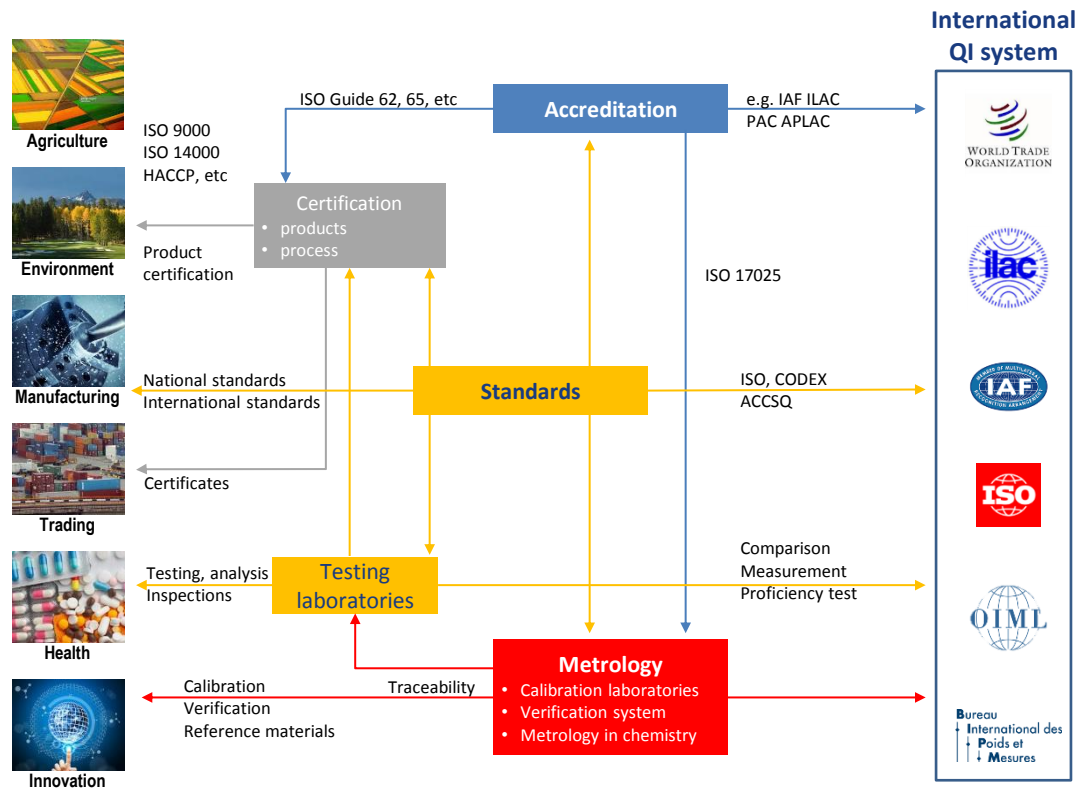
Measurement standards are provided through **an internationally recognized framework** through which suppliers of products can demonstrate **compliance with specification**.



QI - various models (2)



QI - various models (3)

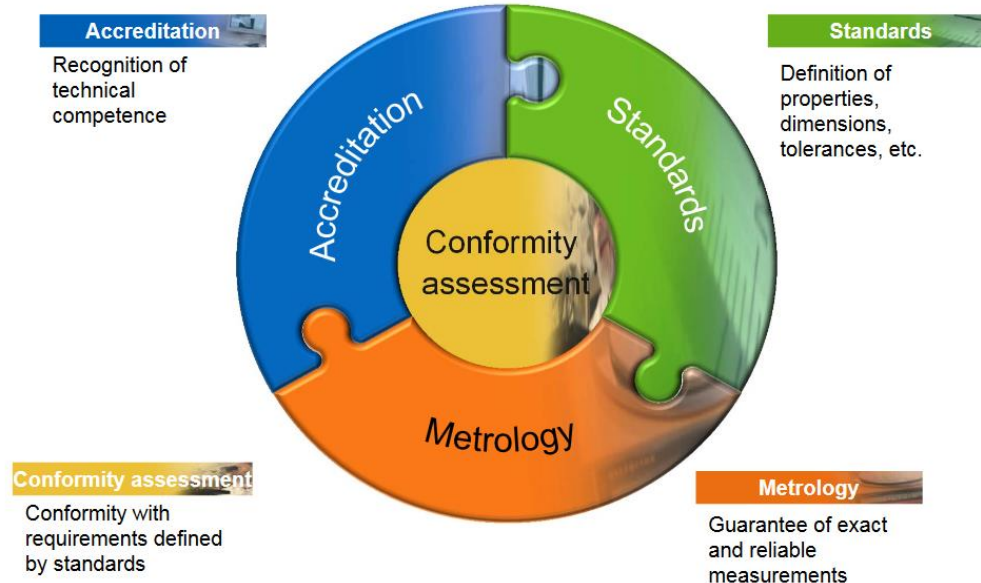


Source: PTB

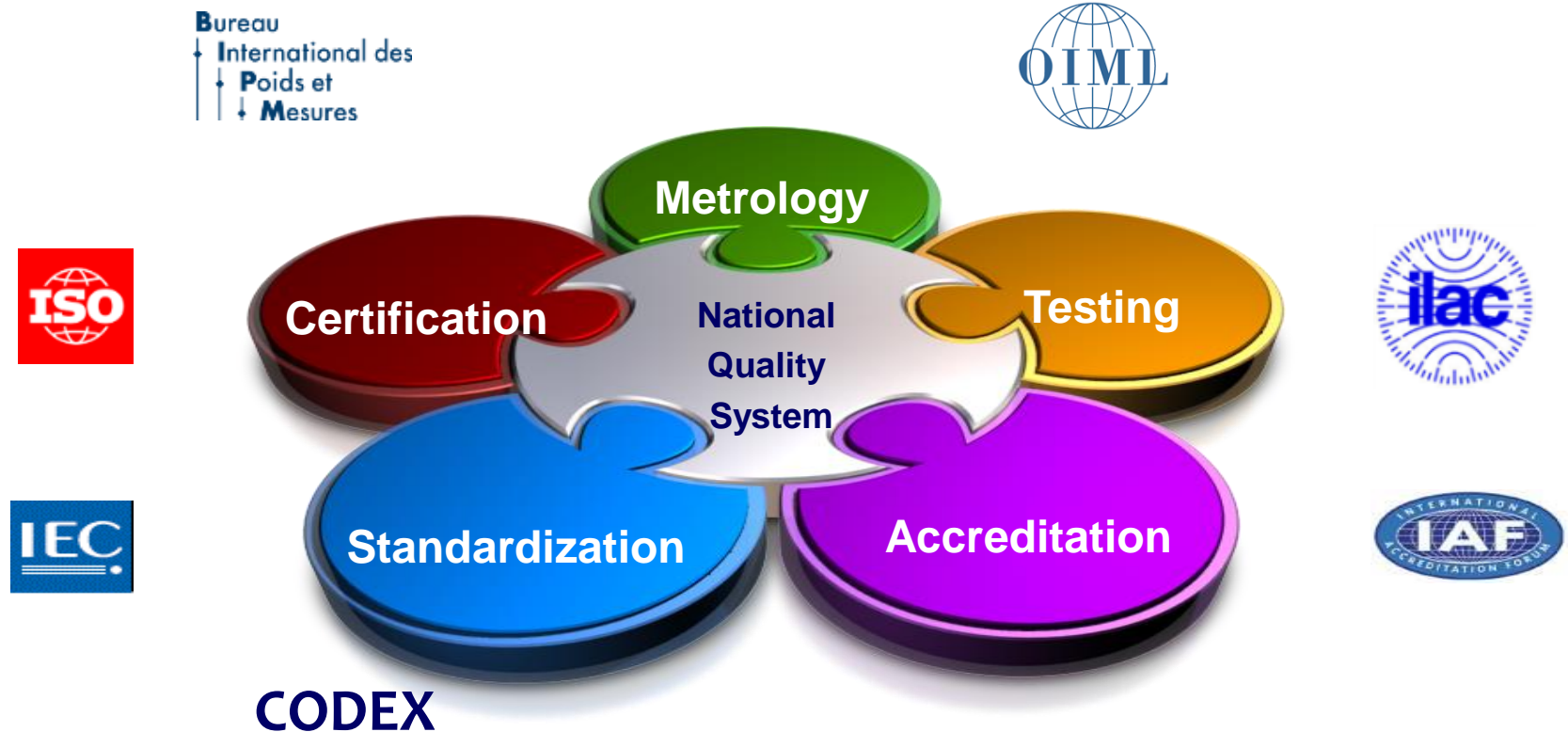
QI - various models (4)

African Quality Infrastructure has three key elements namely: metrology, standardization and accreditation of conformity assessment services such as certification, testing, calibration and inspection

These elements are independently managed however, they form a close network based on a technical hierarchy.



QI - various models (5)

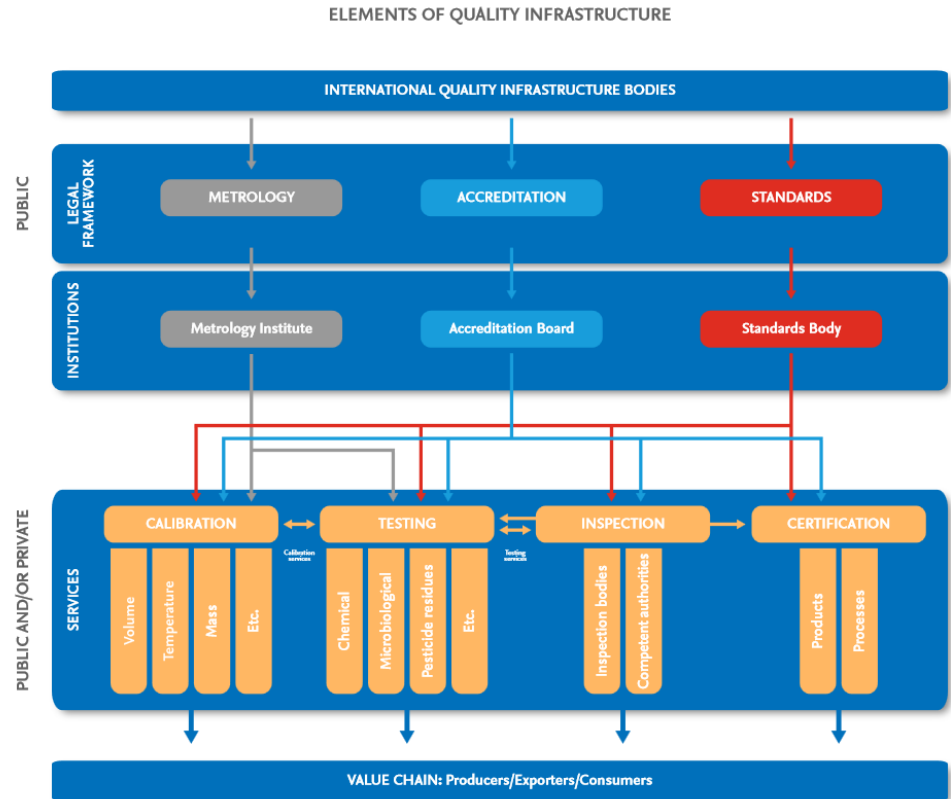


QI - various models (6)

UNIDO

Quality Infrastructure is generally understood to be the totality of the institutional framework (public and private) required to establish and implement standardization, metrology (scientific, industrial and legal), accreditation and conformity assessment services (inspection, testing and product- and system certification) necessary to provide acceptable evidence that products and services meet defined requirements, be it demanded by authorities or the market place.

https://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Competitive_and_trade/5_QI_highres.pdf



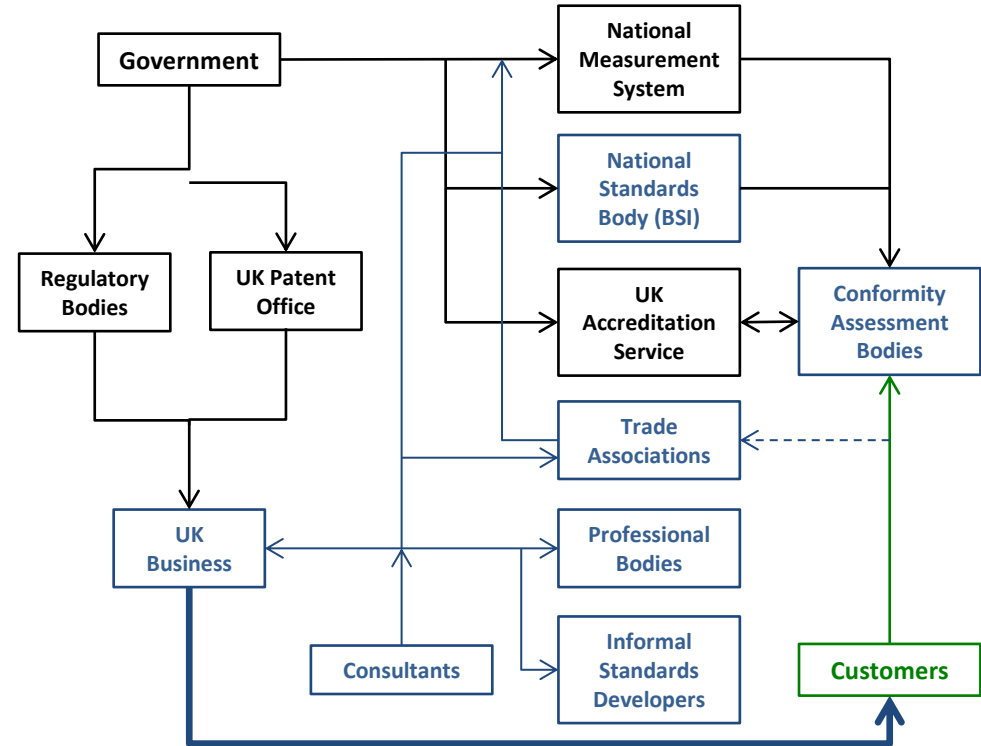
QI - various models (7)

The 'quality infrastructure' ...comprises the physical facilities and the interrelated systems of organisations, structures and people that help organisations to implement quality practices and improve performance.

The principle parts of the infrastructure relate to:

- regulation - government, regulators
- standards - documentary, physical/ reference, other codified intellectual property
- conformity assessment and accreditation
- economic operators and their collective representatives
- consumers

<http://www.thecqi.org/Knowledge-Hub/Knowledge-portal/Concepts-of-quality/Quality-infrastructure/>



DCMAS Network

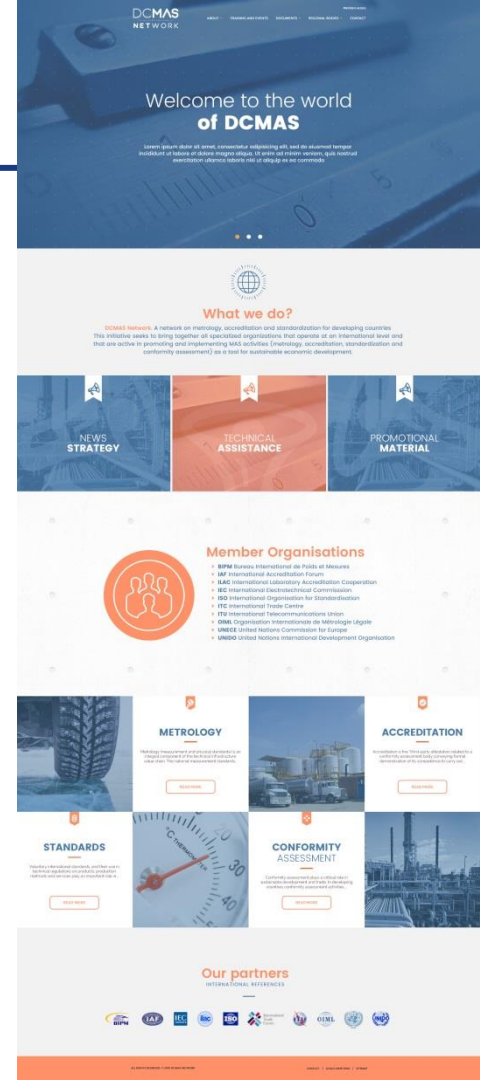
What we do?

DCMAS Network. A network on metrology, accreditation and standardization for developing countries. This initiative seeks to bring together all specialized organizations that operate at an international level and that are active in promoting and implementing MAS activities (metrology, accreditation, standardization and conformity assessment) as a tool for sustainable economic development.

Member Organisations

- › **BIPM** Bureau International de Poids et Mesures
- › **IAF** International Accreditation Forum
- › **ILAC** International Laboratory Accreditation Cooperation
- › **IEC** International Electrotechnical Commission
- › **ISO** International Organisation for Standardisation
- › **ITC** International Trade Centre
- › **ITU** International Telecommunications Union
- › **OIML** Organisation Internationale de Métrologie Légale
- › **UNECE** United Nations Commission for Europe
- › **UNIDO** United Nations International Development Organisation

www.bipm.org



Quality Policy Guiding Principles Document is under development

National Quality Policy

The NQP is the basic government instrument for establishing and overseeing the QIS. It sets out the objectives of the QIS and a road map and schedule for setting it up. The government can use the development of the NQP as an opportunity to increase awareness of the importance of the QIS and how the different national actors can benefit from it. It can do this by inviting broad stakeholder participation to develop the NQP. Examples of stakeholders include representatives of its own ministries and agencies, regulatory bodies, trade and industry associations, chambers of commerce, consumer associations, and providers and users of calibration, testing, certification and inspection services. Their input will help ensure that the NQP and QIS meet the needs of the nation, while their participation will encourage implementation of the policy and “buy-in” of the Quality Infrastructure System.

QUALITY INFRASTRUCTURE BUILDING TRUST FOR TRADE



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



QI: Point to note!

...so many definitions and diagrams!

...IT DOES NOT MATTER!

Its fine to define QI in a way appropriate for the circumstance...

But the lesson to take away..

Metrology doesn't and can't work in a vacuum...!

Standardization and Accreditation

bring measurements to industry

Metrology provides

Measurement
technologies

Measurement
methods

Nationally and
internationally aligned
standards

Knowledge Transfer

International standards
*a key exploitation and dissemination
vehicle for best practice*

Generate, optimise and
assure confidence
in the technical data
innovators need
(calibrations, CRMs, advice...)

Accreditation
*an internationally recognised **conformity
assessment** mechanism that ensures
metrological traceability*

Industry Needs

Validate new ideas

Improve process efficiency

Reduce waste/downtime

Increase reliability

Meet standards/regulation

Conclusions

- ◆ The world economy, society and citizens depend on the international “quality infrastructure” – metrology, standards and accreditation, particularly when underpinning conformity assessment activities
- ◆ The international and national quality infrastructure plays a major role in ensuring good metrological practice is carried from the laboratory to the application
- ◆ At national level the relationship between the QI players is important
- ◆ The value of metrology isn't easy for the everyday person to understand.....
- ◆ The metrology community needs mechanisms that help embed its principles and practices such that they are adopted (even if that adoption is often invisible)
- ◆ Metrology is a major winner from the QI association



Thank you

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