L2 Basic Concepts of Accreditation and Accreditation Process

IAEA
International Atomic Energy Agency

Objectives

In this lecture we will:

- Discuss the necessary actions to get accreditation
- Speak about the effort necessary
- Try to estimate costs

Definition

Accreditation

Accreditation is a formal declaration by an Accreditation Body, after assessment and confirmation, that a laboratory is effective and competent in meeting the requirements of ISO 17025 to perform tests according to its accredited scope.

Aim of accreditation

- Decision are based on data and information
  - Decisions are made by employers, radiation workers and regulators
  - The data is obtained by testing, inspection or certification (conformity assessment activities)
- A test report or a certificate describes the quality of a product

Aim of accreditation

- How do demonstrate the quality of the results of this report?
- A label that adds the dimension of credibility and confidence could do the job. This is the major aim of accreditation, but there is another …

Typical Certificate and Scope of Accreditation

National Accreditation Board for Testing and Calibration Laboratories
(A Constituent Board of Quality Council of India)

CERTIFICATE OF ACCREDITATION

ELCA QUALITY SYSTEMS AND CALIBRATIONS PVT. LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Plot No. S-152, S-Block, Bhosari MIDC,
Pimpri Chinchwad Industrial Area, Bhosari, Pune, Maharashtra

in the field of

TESTING

Certificate Number TC-5744
Issue Date 15/04/2019 Valid Until 14/04/2021

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer (I/c)

Accreditation Certificate

National Accreditation Board for Testing and Calibration Laboratories
(A Constituent Board of Quality Council of India)

SCOPE OF ACCREDITATION

Laboratory: Vibrant NDT Services Private Limited, Plot No. SP 4 & 5, 5th Lane, 1st Main Road, Ambattur Industrial Estate, Chennai, Tamil Nadu
Accreditation Standard: ISO/IEC 17025: 2005
Certificate Number: TC-7863 Page 1 of 2
Validity: 26.09.2018 to 25.09.2020 Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		MECHANICAL TESTING		
I.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous & Non-Ferrous Material	Rockwell Hardness Test HRBW Scale HRC Scale	ASTM E 18: 17e1 IS 1586 (Part 1): 2012 ISO 6508-1:2016	60 to 99 HRBW 20 to 70 HRC
		Micro Vickers Test	ASTM E 384:2017 IS 1501 (Part 2 & Part 3): 2013	HV 0.2 to HV 1
II.	METALLOGRAPHY TEST			
1.	Ferrous & Non-Ferrous	Microstructure	ASM Vol -9:2004 ASTM E 3:2011 (RA 2017) ASTM E 407:2007 (RA 2015) e1	Qualitative (50X, 100X, 200X & 500X)
2.	Steel	Volume Fraction of Phases	ASTM E 562: 11	Qualitative (50X, 100X, 200X & 500X)
		Non-Metallic Inclusion Rating by Method 'A'	ASTM E 45:18 ASTM E 1245:03 (RA 16) IS 4163:04 (RA 2017) BS EN 10247:2017	Qualitative (A, B, C & D Heavy & Thin)
3.	Ferrous Material	Average grain size by Comparison method, Planimetric method & Intercept method	ASTM E112: 13 IS 4748: 2009 (2017)	Qualitative (ASTM Grain size 1 to 8)
4.	Carbon and Alloy Steels	Depth of Decarburization by Microscopic method	ASTM E 1077: 14 IS 6396: 2000 (RA 2012)	10 Micron to 2mm / 100X & 200X
5.	Case Hardened Steel	Total case depth by microscopic method	SAE J 423:1993 IS 6416:1968 (RA 2012)	0.01 mm to 5 mm / (50X, 100X, 200X, 500X)

Deepak Kumar Sharma
Convenor

Anuja Anand
Program Manager

Scope of Accreditation

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Aim of accreditation

CERTIFICATE OF ACCREDITATION

This is to certify that:

NECSA
RADIOANALYSIS

Testing Laboratory No. T0111

is a South African National Accreditation System Accredited Laboratory

for four years commencing **July 2005** provided that

all SANAS conditions and requirements are complied with.

This certificate is valid for:

RADIOACTIVITY ANALYSIS

as per scope on accompanying schedule of accreditation

THE LABORATORY COMPLIES WITH ISO/IEC 17025

While this certificate remains valid,

the Accredited Laboratory named above

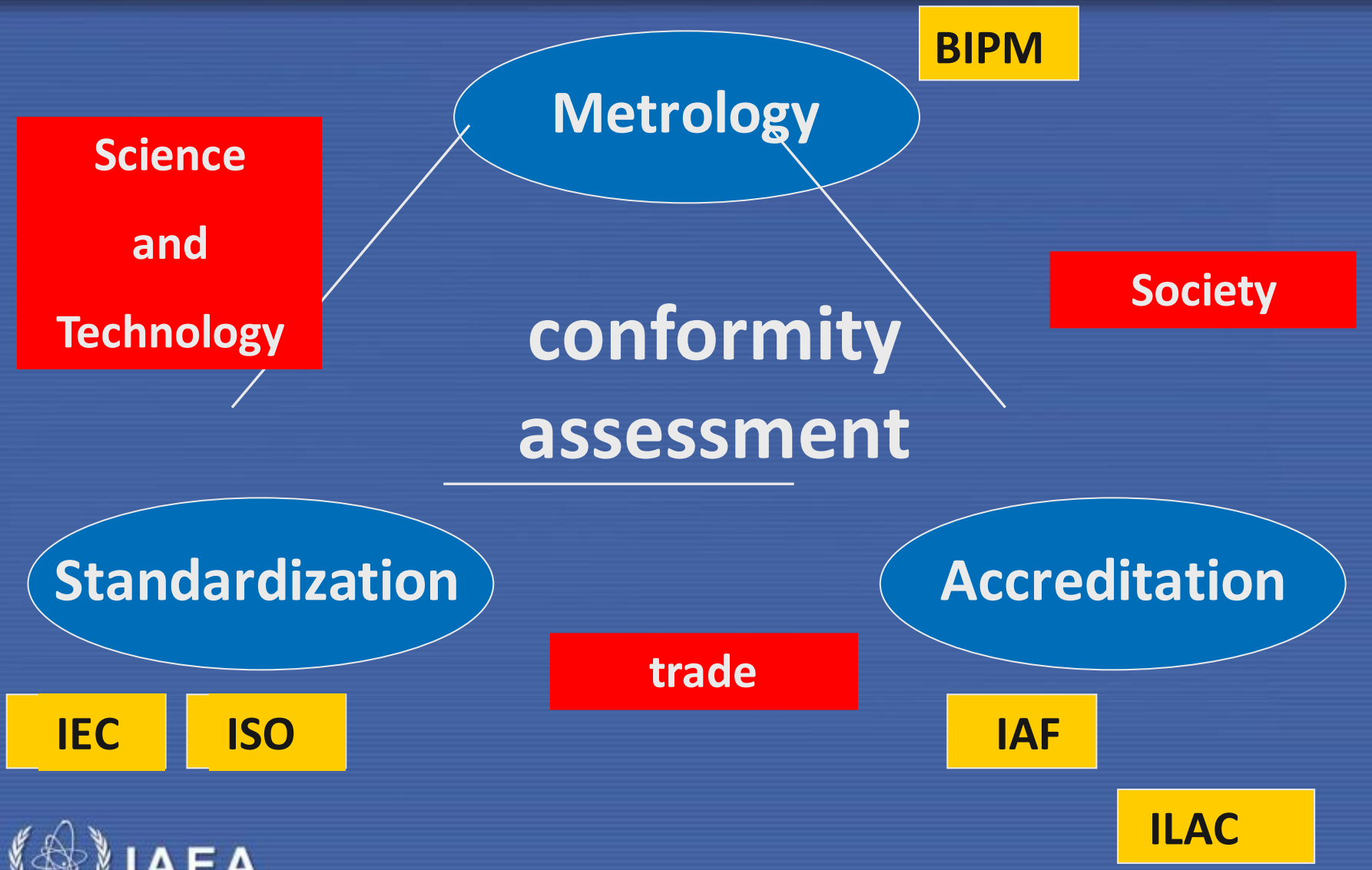
is authorised to issue SANAS certificates.

Programme Manager

"Recognised as the official national accreditation body by the Department of Trade and Industry of the Republic of South Africa"

This certificate is only valid when accompanied by its schedule of accreditation

Conformity Assessment Infrastructure



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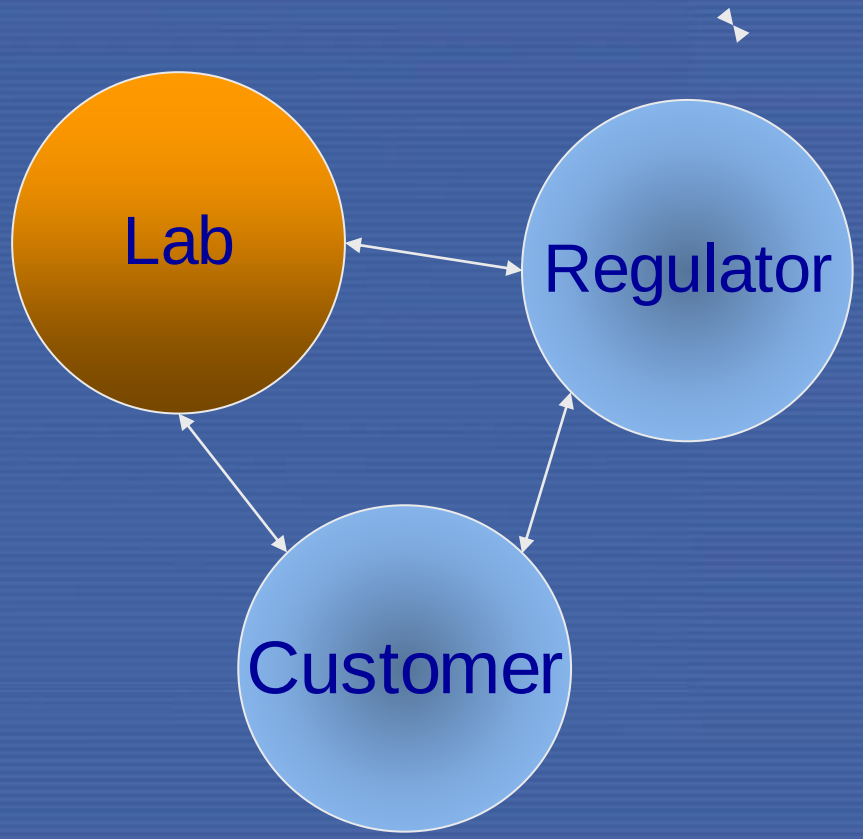
How Accreditation Helps
i. The lab

- Marketing tool
- Internal and externally less discussion, more efficiency
- Less complaints, re-analysis & errors internally
- Higher customer satisfaction
- Better knowledge management
- More reports in time
- A more proactive risk-based quality culture, not reactive
- Creating an environment of professionalism and pride
- So, at the end less errors and thus costs



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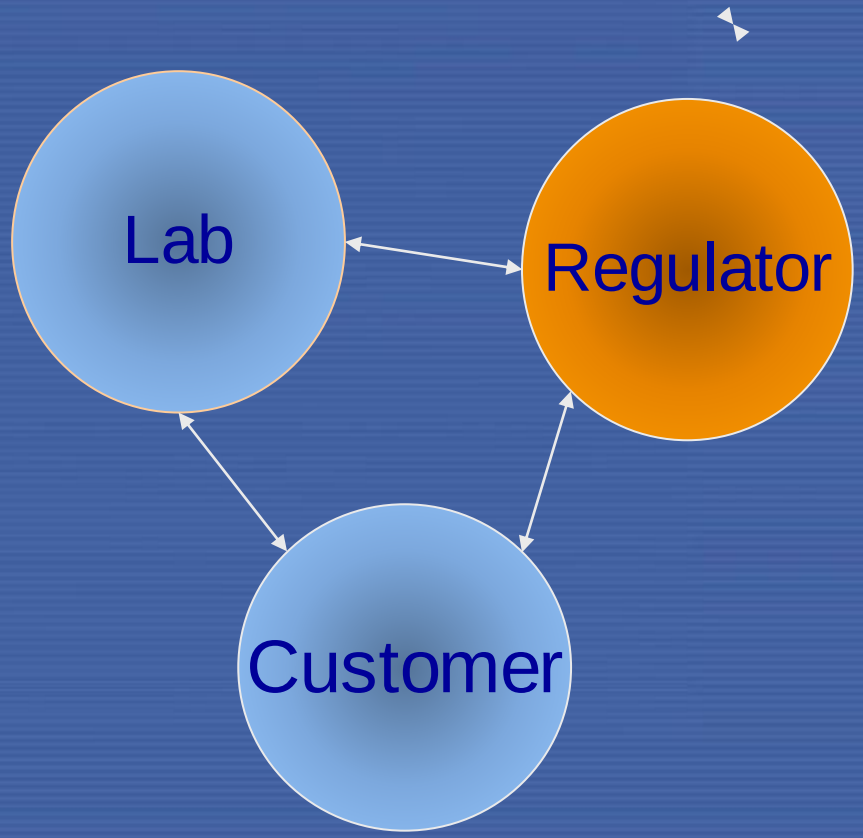
How Accreditation Helps
ii. The regulator

- Reliable testing & calibration services
- Reduce cost of market surveillance and making of regulations
- Self-regulation tool
- Increase transparency, honest competition
- Guaranteed independent service provider
- Better cooperation since competent staff



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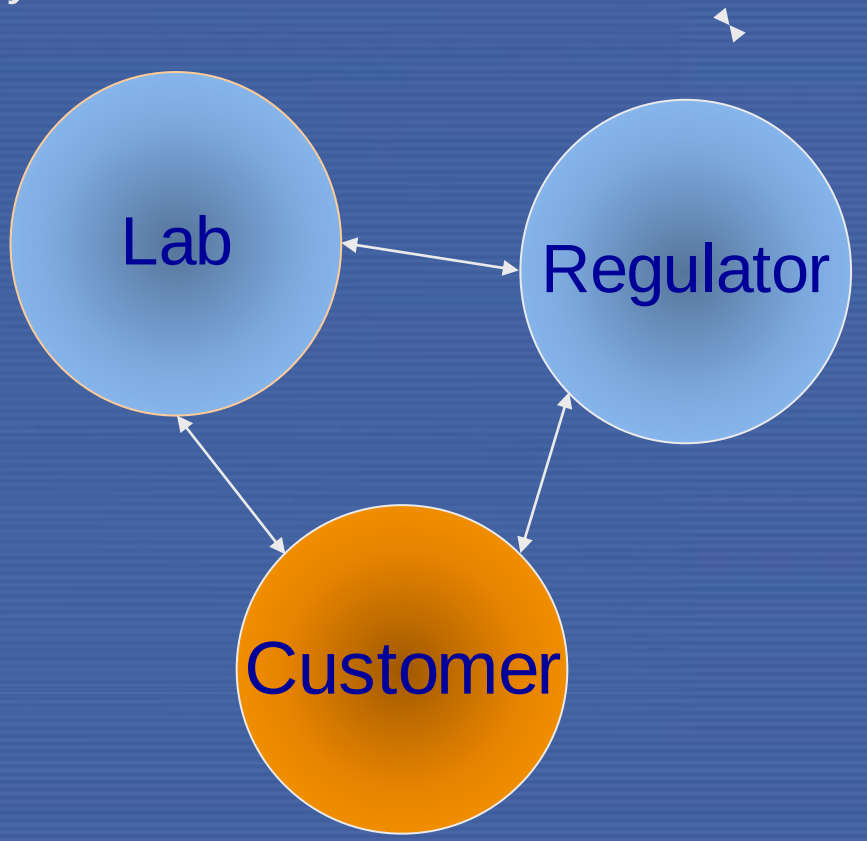
How Accreditation Helps
iii. The customer: the employer & radiation worker

- Reduce risk of bad results
- A competent lab with experts in case they have questions – better cooperation
- More comparable results
- Eventually cheaper (?)
- No need to reinvent the wheel, use proven technology (since the aim is technical harmonization)
- Less discussion with regulator
- Acceptable test certificates by other external companies/authorities/countries – One-Stop Testing
- So, in general increasing customer confidence



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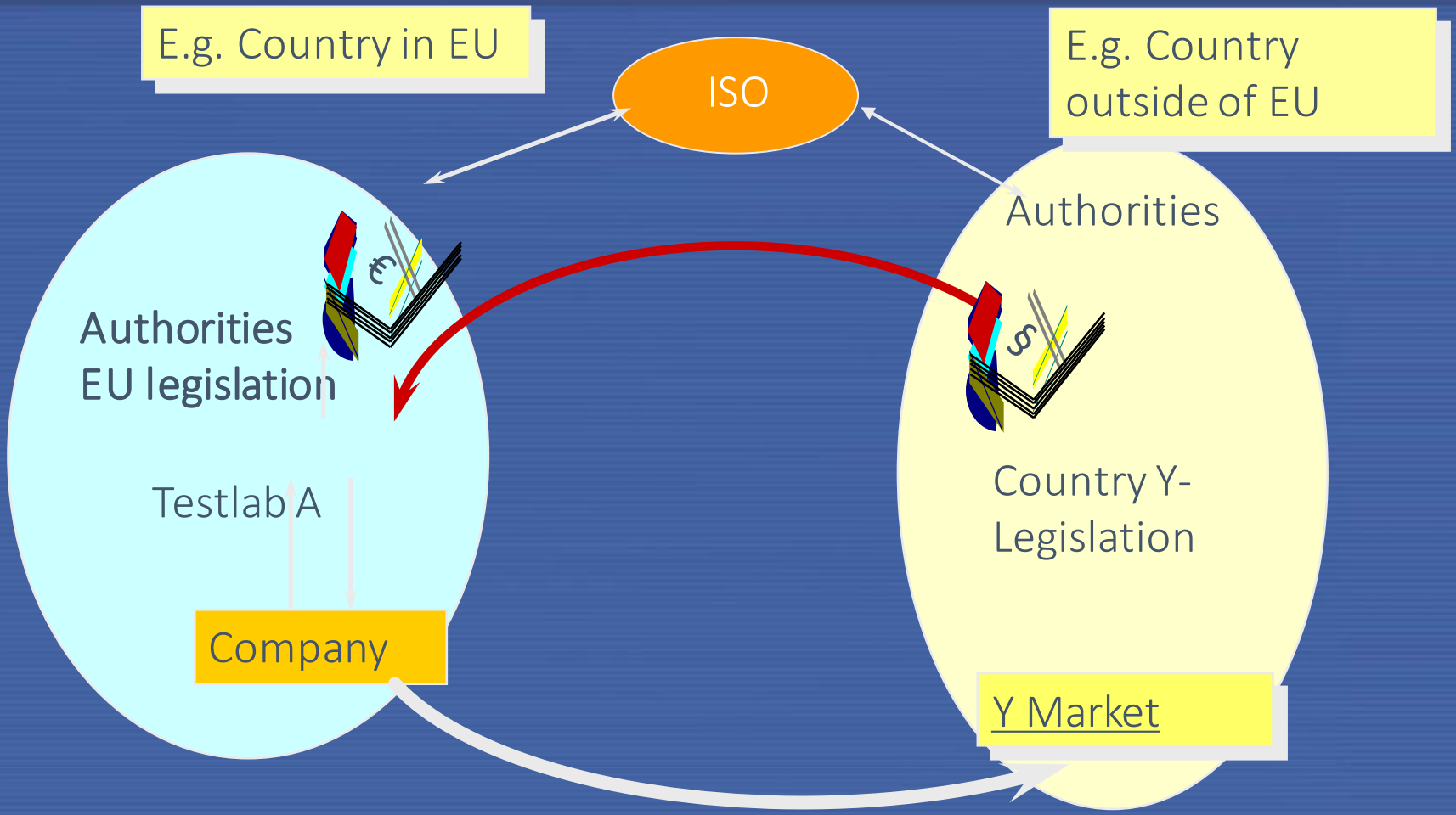
Mutual Recognition and One Stop Testing



A test report issued by Testlab A under accreditation for a product e.g. free of radioactivity should be accepted in country Y

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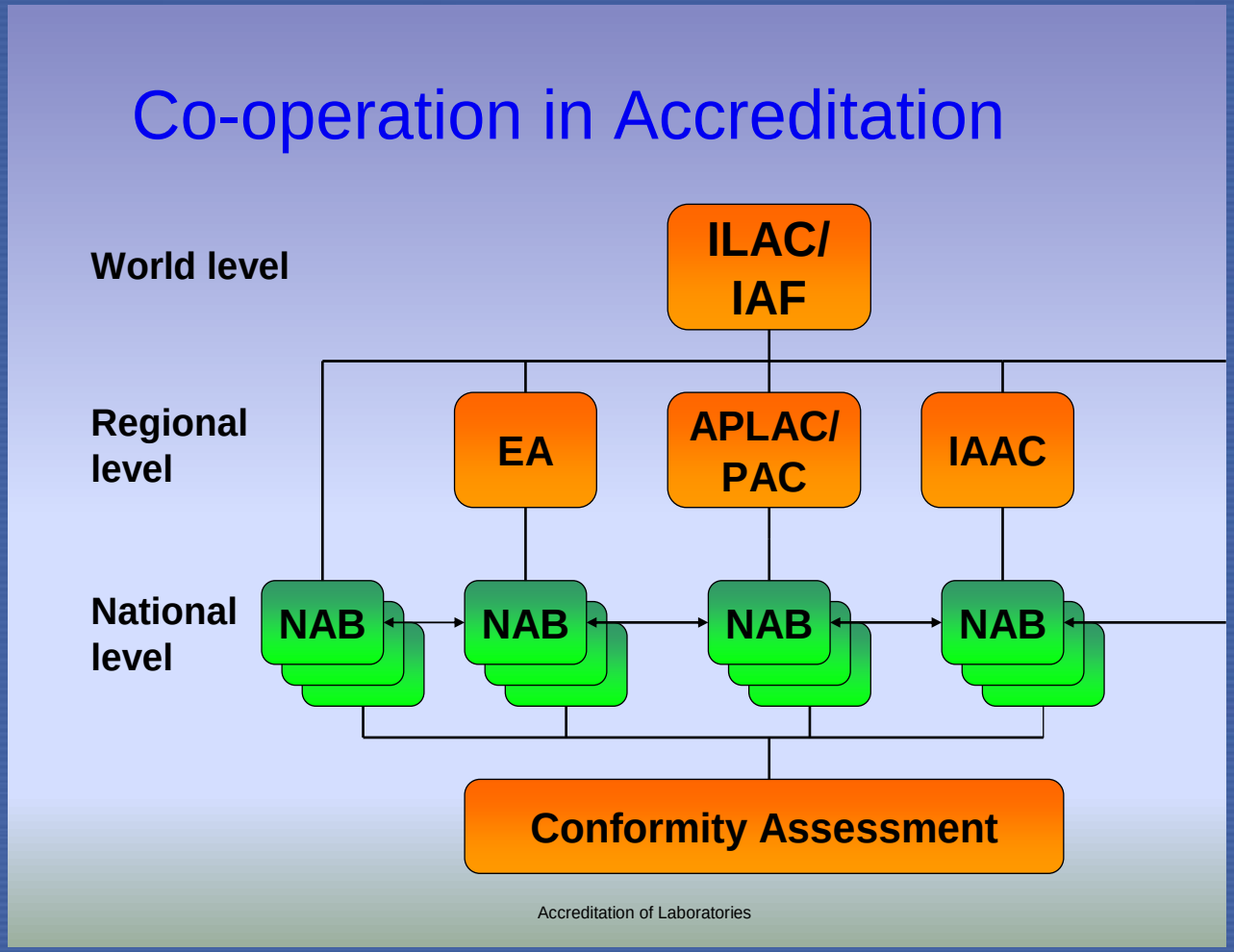
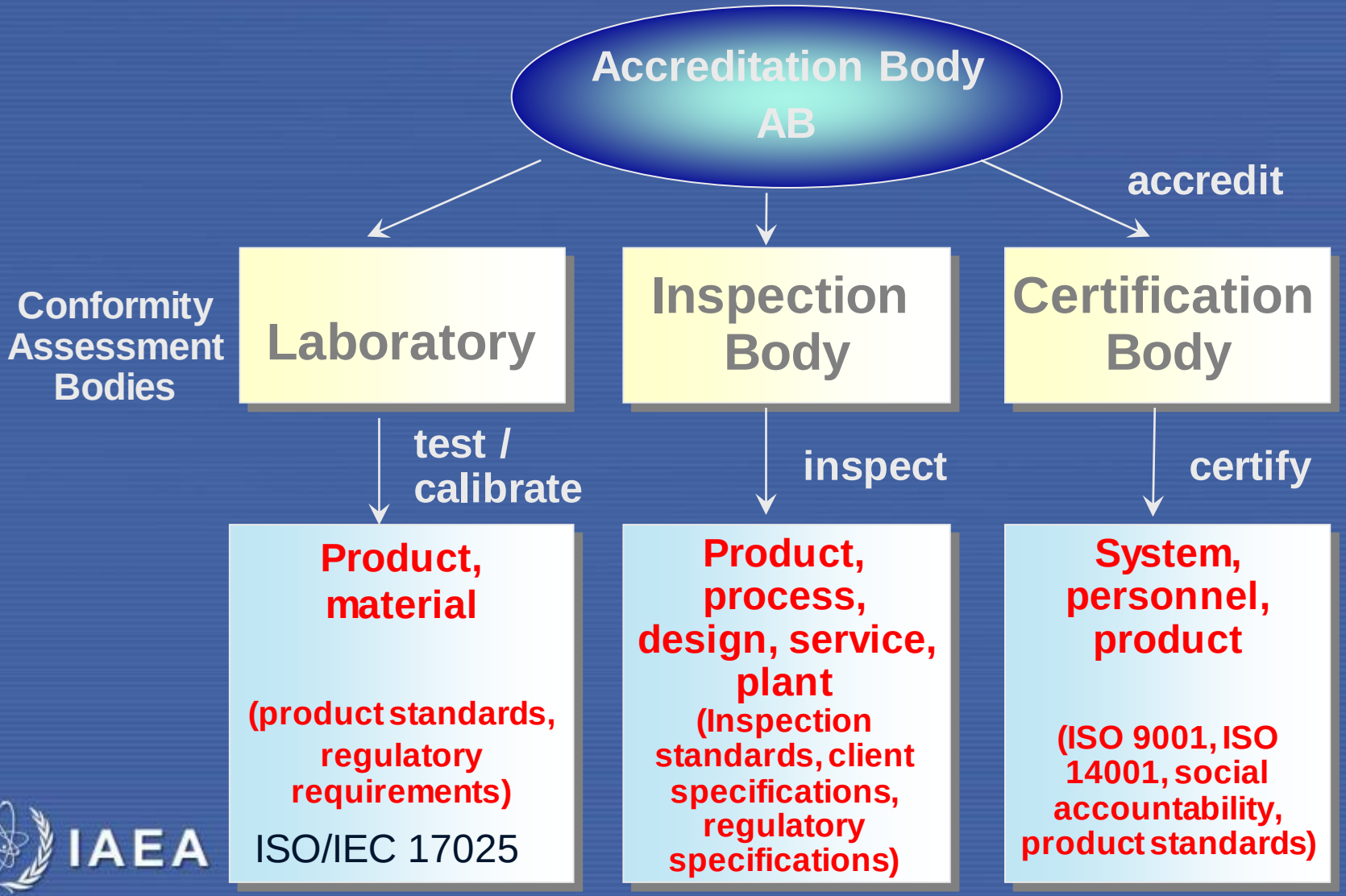
Only on AB per country: no competition



Hierarchy of Conformity Assessment



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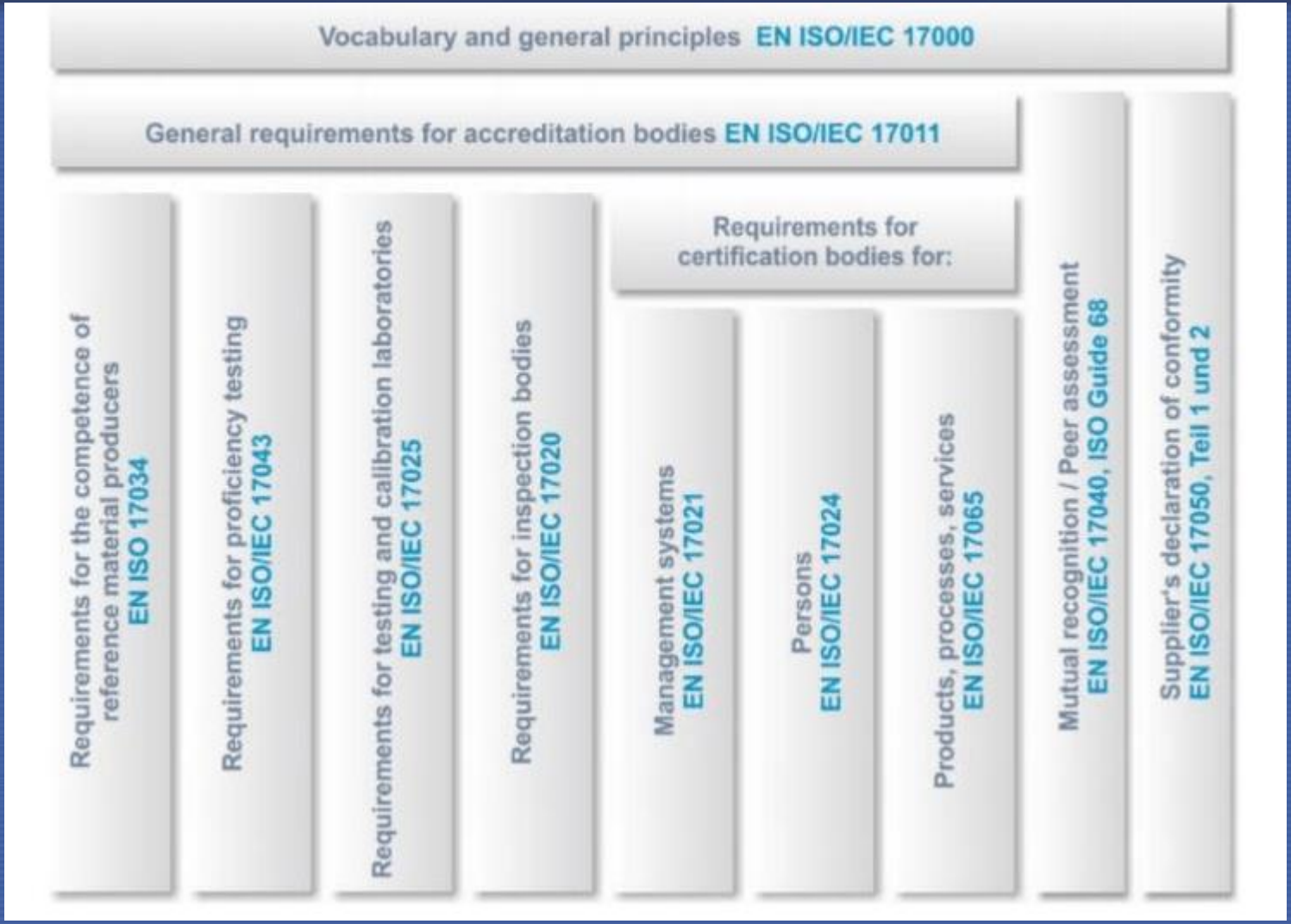
Management Systems Standards



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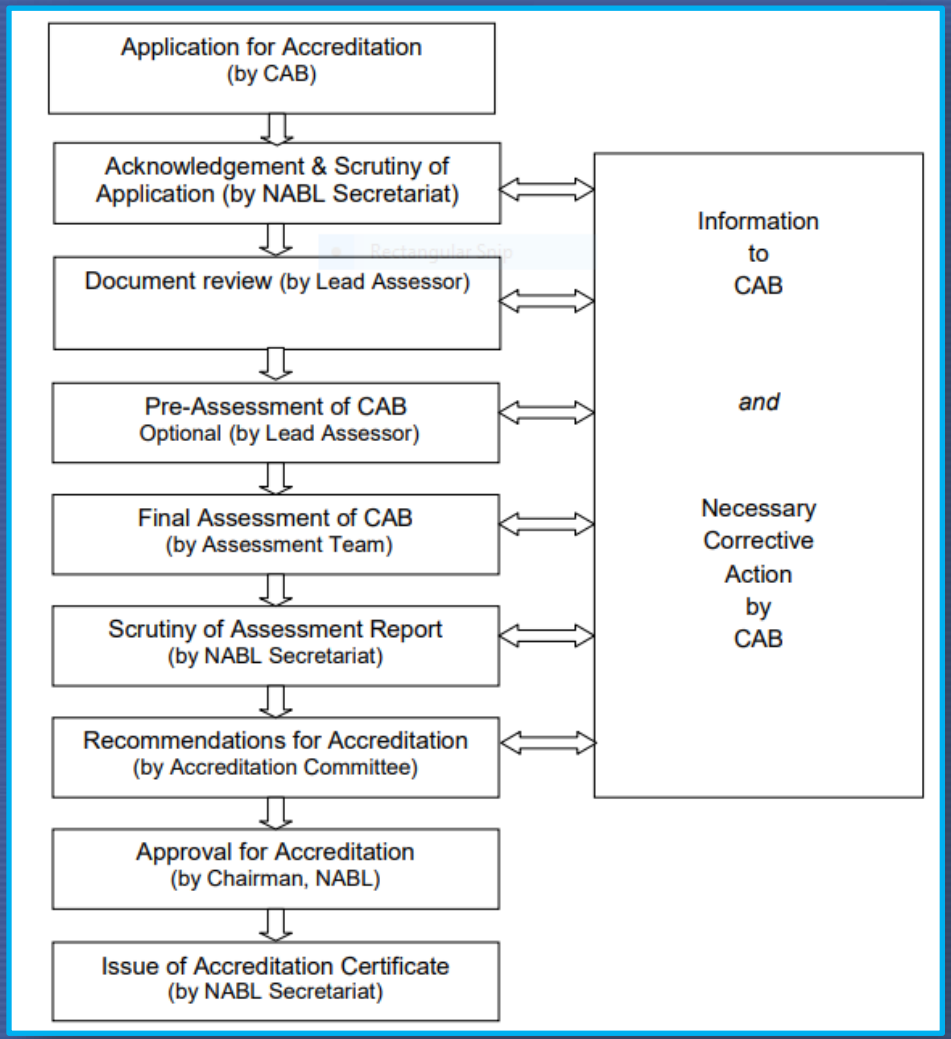
Flow Diagram of Accreditation Process

Accreditation Process



The way to accreditation

- Decision to go for accreditation - define your analysis method, matrix, parameter to be accredited, so define your scope e.g. OSL Dosemeter, Photons, Hp(10) or TLD Dosemeter, Bèta's Hp(0.07)
- Document your lab activities;
- Perform a gap-analysis between your documentation and the standard
- Implement the QM-system;
- Live and improve the system for some time
- Check the system through Internal Audits, Quality Control, …
- Enhance the system with help of improvement possibilities

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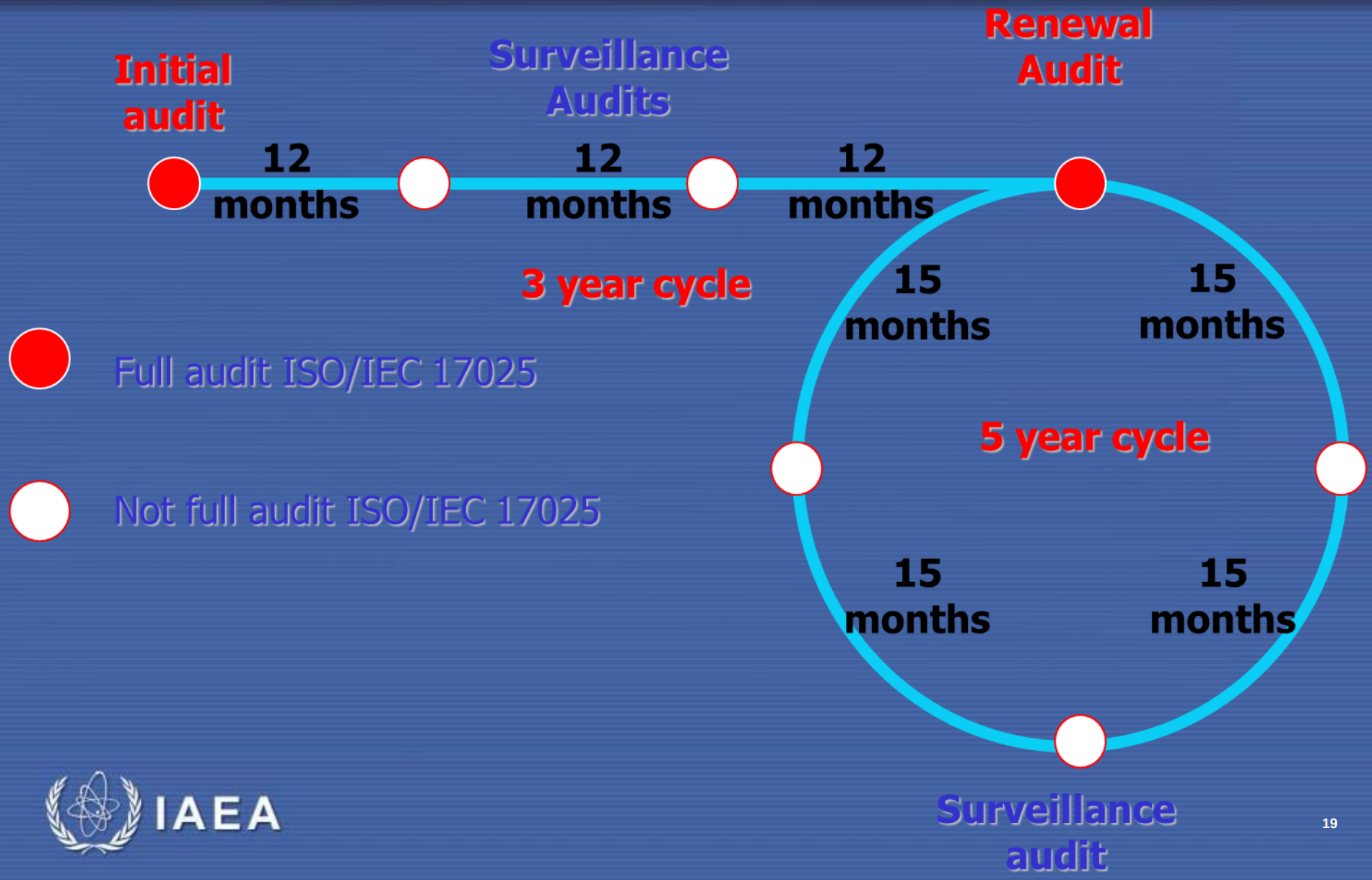
After all this, still continuous improvement

Accreditation cycle example (Belgium)



The external audit

- Depending on the size of the organization, the volume of the quality documentation and the amount of accredited test method there will be an number of external auditors assigned to the job.

- The audit may last from one day to several days depending on the volume of documentation and number of methods to check.

Costs

Costs of an accreditation are a sum of different contributions:

- Implementation costs of a QM-system
- Costs of maintenance of the QM-system e.g. internal audits, quality control, intercomparisons, …
- External audit costs: mainly personnel costs of the external audit team consisting of a lead auditor and one or more technical experts
  - Accreditation bodies very often are state run, where costs will are fixed for a general administration fee, but floating for the audit part depending on the numbers of auditors and the duration of the audit. Mostly the hourly rates are fixed, but will vary depending on an acceptable hourly rate in a country.