The UNECE Sectoral Initiative on Environments Equipment for Explosive
A **global legislative framework** for Explosion Protection
The comprehensive approach of the UNECE Model L Regulation

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Why is the UN here?

- The UN aims at protecting the safety of workers, citizens, consumers: Repeated testing means that safe and reliable equipment is unaffordable for countries that need it the most

- The UN promotes the participation of developing countries and countries in transition in international trade: Barriers to trade are lost opportunities for our membership

UNECE United Nations Economic Commission for Europe

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The United Nations Economic Commission for Europe (UNECE) was set up in 1947 by ECOSOC. It is one of five regional commissions of the United Nations. The others are the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic Commission for Latin America and the Caribbean (ECLAC), the Economic Commission for Africa (ECA) and the Economic and Social Commission for Western Asia (ESCWA).

Its major aim is to promote pan-European economic integration. To do so, UNECE brings together 56 countries located in the European Union, non-EU Western and Eastern Europe, South-East Europe and Commonwealth of Independent States (CIS) and North America. All these countries dialogue and cooperate under the aegis of the UNECE on economic and sectoral issues.

To this end, it provides analysis, policy advice and assistance to governments, it gives focus to the United Nations global mandates in the economic field, in cooperation with other global players and key stakeholders, notably the business community.

The UNECE also sets out norms, standards and conventions to facilitate international cooperation within and outside the region.

The area of expertise of the UNECE covers such sectors as: economic cooperation and integration, energy, environment, housing and land management, gender, population, statistics, timber, trade, and transport. UNECE has 56 member States. However, all interested UN member States may participate in its work. Over 70 international professional organizations and other non-governmental organizations take part in UNECE activities.
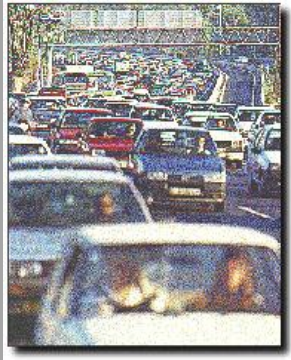
Palais des Nations

UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

UNECE: A bit of history

- Created in 1947

- Original mission: To assist in the reconstruction and economic development of post-war Europe

- UNECE was an important bridge between the two sides of the Iron Curtain: this is why many technical issues are discussed here

- Since the end of the cold war: integration of the newly formed Central and Eastern European countries into the world economy

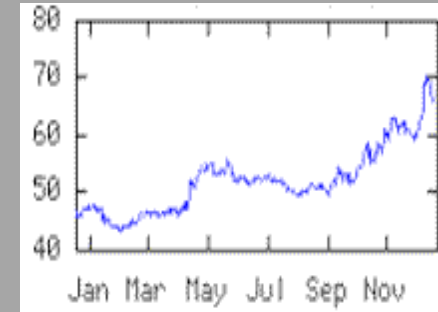- Many UNECE deliverables are developed by top worldwide experts and have global relevance

UNECE Work Areas

Transport

Economic cooperation

Statistics

Housing

Trade

Sustainable energy

Environmental policy

Forests & timber

UNECE Working Party on Regulatory Cooperation and Standardization Policies (WP. 6)

What we are:

- Intergovernmental body
- Participation by: authorities, regional & int'l organizations, business, standards-setting bodies, certification bodies, test houses, civil society
- 1970 – 2017: 46+ years

Our mandate:

- Forum for dialogue on: ☑ Standardization ☑ Technical regulations ☑ Conformity assessment ☑ Accreditation ☑ Metrology ☑ Market surveillance

Our activities:

- Share info & best practice
- Capacity-building
- Develop and maintain a set of recommendations
- Implement a set of initiatives on specific industrial sectors

WP. 6 Main areas of work

Sectoral initiatives:
- Develop a common regulatory framework in specific sectors
- So far: Telecommunications, Earth-moving equipment, ExEquipment, Pipeline Safety

Market surveillance:
- Develop and share best practice/Recommendations
- New recommendation S on "Applying Predictive Risk Management Tools for Targeted Market Surveillance"
- Develop a common terminology
- Advisory services/technical assistance
- Worldwide database of market surveillance authorities

Risk Management:
- Best practice/Recommendation on using risk management tools in developing and implementing regulations
- 2 Recommendations on "Crisis Management" and "Risk management in Regulatory systems"
- Book on "Risk Management in Regulatory Systems"

Trade

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About WP6

Recommendations

⁚ Areas of Work

    Education on Standardization

    Regulatory Cooperation

    Risk Management in Regulatory Frameworks

    Standards and Norms

    Market Surveillance

    Conformity Assessment

    Metrology

Sessions

⁚ Ongoing Initiatives

⌄ Sectoral Initiatives

    Telecom (SIT)

    Earth-moving Machinery (SIEMM)

    Equipment for Explosive Environments (SIEEE)

    Pipeline Safety (SIPS)

About WP6

The UNECE Working Party on Regulatory Cooperation and Standardization Policies (WP.6) is a forum for dialogue among regulators and policy makers. The participants discuss a wide range of issues, including technical regulations, standardization, conformity assessment, metrology, market surveillance and risk management.

The Working Party makes recommendations that promote regulatory policies to protect the health and safety of consumers and workers, and preserve our natural environment, without creating unnecessary barriers to trade and investment. They are non-binding, and are widely implemented in the UNECE member States and beyond.

Who takes part in our meetings and in the development of the recommendations?

- governmental authorities
- intergovernmental organizations
- business associations and private firms
- standards-setting organizations
- certification bodies
- test houses
- international schemes for conformity assessment
- civil society
- consumer organizations

Downloads:

- Recommendations (ENG ⤓ FRE ⤓ RUS ⤓)
- Terms of Reference of the Working Party (ENG ⤓, FRE ⤓ RUS ⤓)
- Regulatory cooperation at UNECE (Brochure in ENG ⤓ FRE ⤓ RUS ⤓)
- Common Regulatory language for Trade development (ECE/TRADE/375 ⤓)
- Contribution of UNECE to good regulatory practice ⤓

WP.6 works towards
better and convergent regulations

- In sectors of high concern

- Governments define "common regulatory arrangements" i.e. they define legitimate government concerns (public health, safety, protection of the environment, interoperability, etc)

- And agree on how to reach them

- By reference to international standards

- Specifying:

  - how compliance is assessed

  - which conformity assessment bodies are recognized as competent,

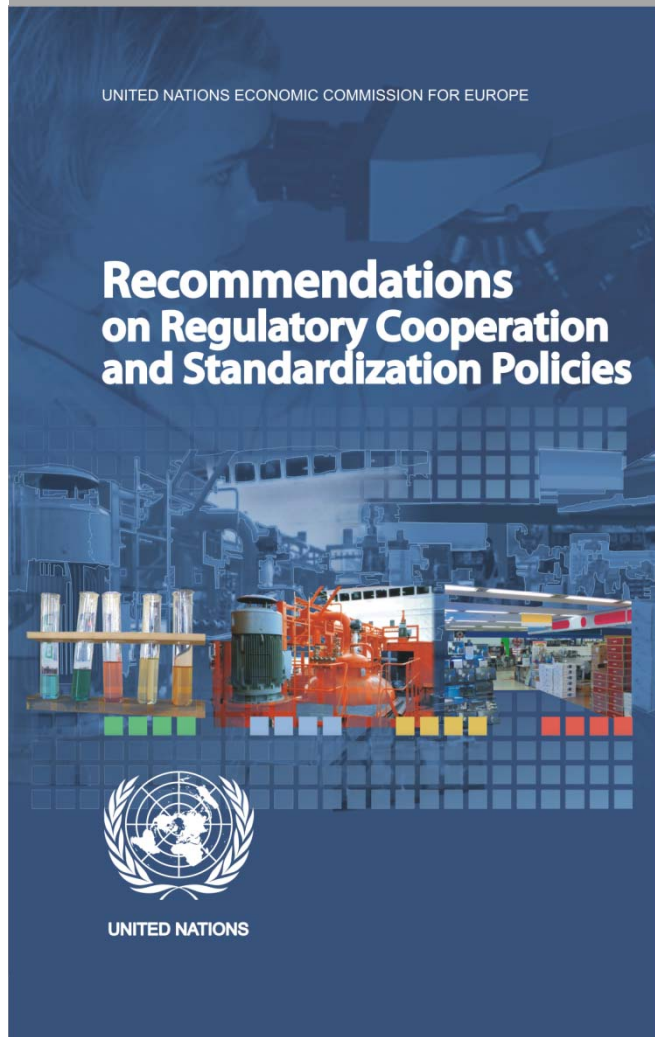 - what competence criteria are to be fulfilled

Recommendations

Seventeen UNECE recommendations have been adopted by the Working Party since 1970 to address standardization and regulatory issues. They set out good practice regarding:

- Regulatory cooperation
- Metrology
- Standards and Norms
- Conformity assessment
- Market surveillance

Recommendations are not binding and do not aim at rigidly aligning technical regulations across countries.
Working Party encourages rule makers to base their regulations on international standards to provide a common denominator to the norms that apply in different markets.

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Recommendations on Regulatory Cooperation and Standardization Policies

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Recommendation L

- **Revised in November 2015**

- **A set of tools**

- **Countries can use to harmonize their technical regulations and regulatory systems <u>in any sector </u>at a regional or global level**

- **It has also been used to harmonize regulations <u>in all sectors</u> between two countries or within a customs union**

- **Builds on the principles of the WTO TBT Agreement but goes further**

In practice:

- **Authorities decide to work together on a specific sector**

- **They agree on CRAs**

- **They transpose the CRAs into national technical regulations**

- **Then, when products have been assessed in the exporting country as compliant with the CRAs they can automatically be sold in other markets with no further assessment.**

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About WP6

Recommendations

˅ Areas of Work

    Education on Standardization

    Regulatory Cooperation

    Risk Management in Regulatory Frameworks

    Standards and Norms

    Market Surveillance

    Conformity Assessment

    Metrology

Sessions

> Ongoing Initiatives

˅ Sectoral Initiatives

    Telecom (SIT)

    Earth-moving Machinery (SIEMM)

    Equipment for Explosive Environments (SIEEE)

    Pipeline Safety (SIPS)

Publications

Equipment for Explosive Environments (SIEEE)

Background information and current status:

Explosions in offshore facilities, on vessels or in mines, refineries, chemical plants or mills entail high risks for individuals and the natural environment. Equipment used in explosive environments must therefore have a high level of safety.

The initiative to develop common regulations in this specific sector was based on the international model of Recommendation L ⏋. It was launched in 2006 with a view to developing Common Regulatory Objectives (CROs) covering the definition of area classification, verification of the equipment and its production, installation, inspection, maintenance, repair and the related conformity-assessment procedures for products, services and competency of personnel. The general goal of this sectoral initiative is to promote and enhance safety, while eliminating barriers against the free trade and use of equipment for explosive environments.

The Working Party finally approved the CROs in 2010. A questionnaire was distributed to participating member States to share information about the national norms regulating this industrial sector.

Meeting in Split, Croatia, on 7 and 8 September 2011, policymakers from Australia, Brazil, the European Union (EU), the Russian Federation and the United States declared that "global harmonisation promoted and adopted at UNECE is beneficial", in particular because it "allows for reduced government liability without increasing risk to workers, and consequently enables authorities to allocate more resources to field work" and it is "fully consistent with international obligations under the WTO agreement".

The latest development relating to this sectoral initiative will be the 2012 gathering of business and governmental representatives with a stake in the International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmosphere (IECEx ⏋). This international conference takes place in Dubai and is organized jointly by the International Electrotechnical Commission (IEC), the Emirates Authority for Standardization and Metrology (ESMA ⏋) and UNECE.

The UNECE could not have drawn up CROs in this sector without the partnership with IECEx and the support from the Government of Germany and the Physikalisch-Technische Bundesanstalt (PTB ⏋).

Important documents:

- New Country Survey 2013 ENG ⏋
- Terms of reference of the SIEEE ⏋
- Latest progress report (ECE/TRADE/C/WP.6/2013/9) ENG ⏋

Sector Initiative on Equipment for Explosive Environments (SIEEE) *Status Report:*
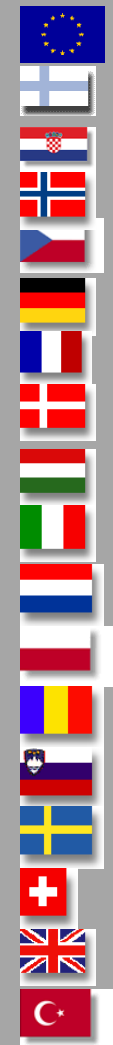
- ✓ 2007: Kick off meeting in Geneva
- ✓ 2008: Survey on regulatory frameworks
- ✓ 2009: Launch of the initiative and presentation of the **Common Regulatory Objectives**

- ✓ **Awareness raising workshops:**
    - 2011 Split
    - 2012 Dubai
    - 2013 Fortaleza
    - 2014 Kuala Lumpur

- ✓ **IECEx International Conferences:**
    - 2012 Dubai
    - 2015 Gdańsk
    - 2017 Shanghai

The workshop idea: Regulators Dialogue Group

Den Haag 2014
Gdansk 2015

Dubai 2012

Kuala Lumpur
2014

Fortaleza
2013

Outputs:
• Comprehensive description of the methodology of the system
• Guidance documents for the various stakeholders (Regulators, Market Surveillance, Manufacturer, Operator, Inspection bodies)

Meetings of the IECEx System
Fortaleza, Brazil : 16 - 20 September 2013

Home   General Information   Meeting Registration   Hotel Reservation   Meeting Documents   UNECE

Fortaleza: tug boat -|-

2015 IECEx International Conference : Gdańsk, Poland, 22 - 23 April 2015
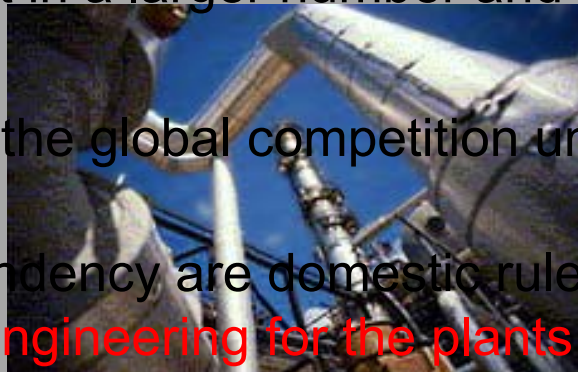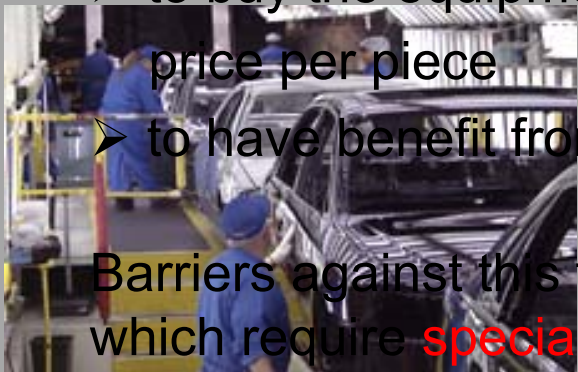
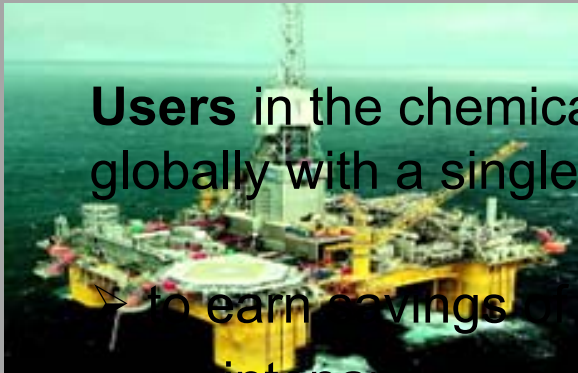# Interest of the Industry <u>using</u> Ex-Products

Users in the chemical and petroleum industry act more and more globally with a single engineering approach for their plants

➢ to earn savings of engineering, installation and maintenance costs

➢ to buy the equipment in a larger number and to get a better price per piece

➢ to have benefit from the global competition under manufacturers

Barriers against this tendency are domestic rules and regulations which require special engineering for the plants from country to country.

Interest of the Industry <u>manufacturing</u> Ex-Products

Manufacturers want to sell and manufacture their products

➢ without additional national differences for the product and delays to the market.

➢ in accordance to one global standard (IEC / ISO)

➢ without double-testing of their product

➢ without formal restrictions to place it on the market

Barriers against this tendency are domestic rules and regulations which require special differences for the product from country to country.

Principal of Ex-Business

Operation

Product

Standardization

Protection

Construction

Fundament

Market
Surveillance

Manufacturer

Certification

Operator

Regulation

Knowledge, Research, Development

History/Structure

	National	European		International	
Regulation	Up to the seventies	"Old"	"New" Approach	Common Regulatory Arrangements (CRA)?	
Standardi-zation	DIN DKE	CEN Cenelec		ISO IEC	
Certification	Product	Product	Product + Production	Product + Production	Installation Maintenance Repair

Some basics of Ex-Equipment

Levels	Very High risk Zone 0	High risk Zone 1	Normal risk Zone 2
Certification by Third Party	Yes	Yes	Yes/No

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A Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere
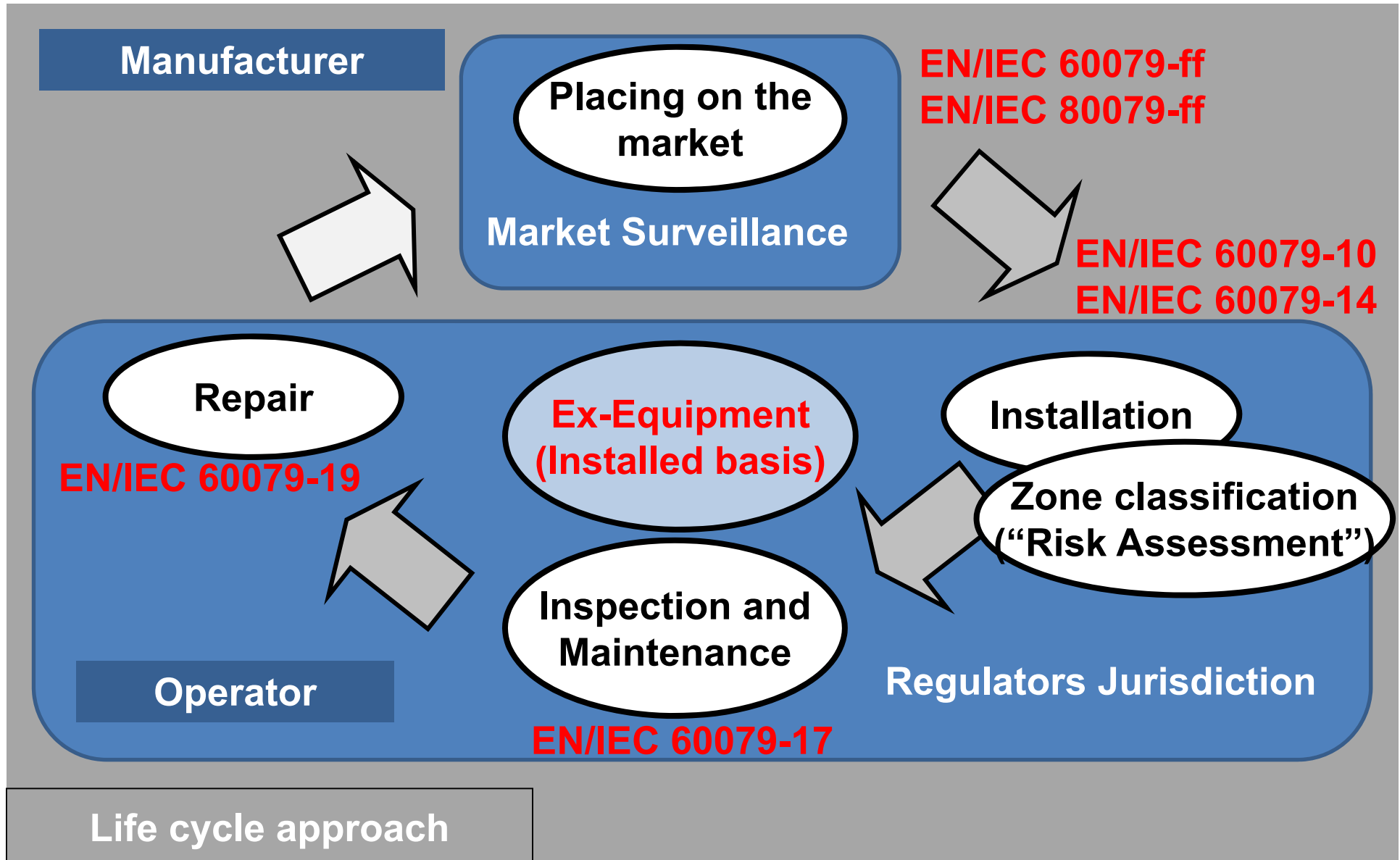

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Intention of the Common Regulatory Arrangements (CRA)
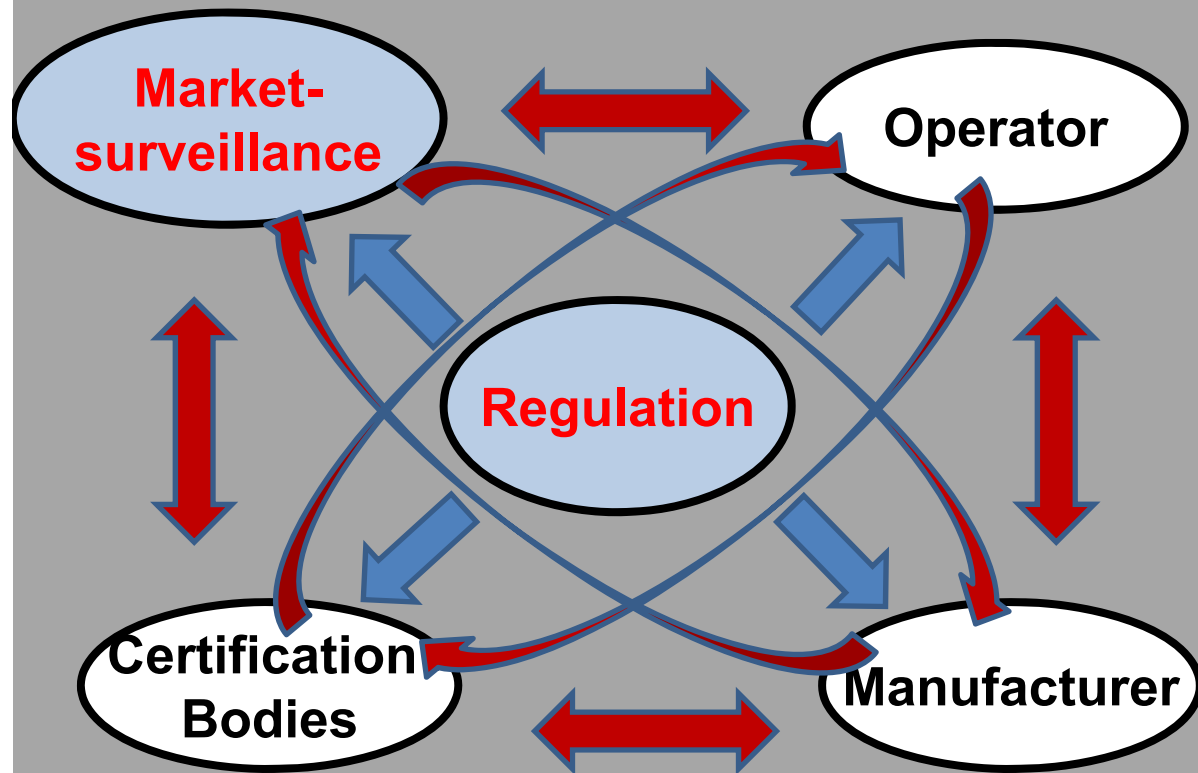
White paper approach

➢ to cover comprehensively all relevant issues
   in order to achieve a globally accepted safety level

➢ to provide a global „Best Practice" model as template
   for national regulation

➢ Focus to the main objectives
   – Easy to understand
   – Open for national modifications

➢ Specify the distributed roles and related responsibilities of
   the involved parties:
   – Regulator
   – Market Surveillance
   – Certification Body
   – Manufacturer
   – End user/Operator

➢ Open for ongoing maintenance and modification

Intention of the Common Regulatory Arrangements (CRA)

Manufacturer

Placing on the market

Market Surveillance

EN/IEC 60079-ff
EN/IEC 80079-ff

EN/IEC 60079-10
EN/IEC 60079-14

Repair

EN/IEC 60079-19

Ex-Equipment (Installed basis)

Installation

Zone classification ("Risk Assessment")

Inspection and Maintenance

Operator

Regulators Jurisdiction

EN/IEC 60079-17

Life cycle approach

Interaction/Relationship within the SIEEE-System

CRA Part 1: Requirement for the equipment
Placing on the market

» Elimination of possible ignition sources in accordance to intended use of the equipment, typical ignition sources are:
  » Hot surfaces
  » Electrical sparks
  » Mechanical sparks
  » Electrostatic

  13 Ignition sources

» Validated protection concepts ("Types of Protection") have to be applied

  IEC/ISO 60079-"X" / 80079-"X"

» Instructions (manual) about the intended use, installation and repair

  IEC/ISO 60079-"X" / 80079-"X"

» Conformity assessment procedure in accordance to an international certification scheme such as IECEx (IECEx procedure can be seen as a reference)

  IECEx-02

CRA Part 2: Safe use of the equipment

» Classification of the explosive substances in accordance to:
  » Ignition Temperature
  » Explosions Groups (Ignition Energy)

Ex d e IIC T3 Gb

» IEC-Zone Classification Concept (Zones for Gas and Dust) with the applicable Equipment Protection Levels

IEC 60079 -10

» The equipment and its installation need to be inspected and maintained

IEC 60079 -14, -17,-19

» Requirements for the competency of persons (selection, installation, use of the equipment)

IECEx-05

» Requirements for service facilities (e.g. repair workshops)

IECEx-03

» The Explosion risk assessment of an individual plant needs to be documented in the "Explosion Protection Document"

CRA Part 1 and 2:

Testing

ISO/IEC 17025
IECEx 02

Production

ISO/IEC 17021

IEC ISO IECEx

Certification

ISO Guide 65 / 67
[ISO/IEC 17065]
IECEx 02

Service

IECEx 03

Persons Competency

ISO/IEC 17024
IECEx 05

CRA Part 3: Standards reference list

» Accepted Standards (ISO/IEC) are listed in an annex to the regulation (State of the Art)

» The standards has to be accepted by a Standard Acceptance Group

» After the acceptance the Standards can be applied by manufacturers and end users to show compliance with the regulation

» All countries which have implemented the Regulation enjoy the advantages like barrier free trade of explosion protected equipment and equal conditions for operating a plant bearing explosion risks

» The accreditation body has to be a member of ILAC/IAF

» The accreditation of
  » Conformity Assessment Bodies
  » Test Laboratories
  has to follow the applicable ISO/IEC-Standards

» One member of the assessor team needs competence in the field of explosion protection (see e.g. the list of approved IECEx assessors).

» Procedures and Rules of the IEC Conformity Assessment System IECEx is to take as a reference for conformity assessment

CRA Part 5: Steering Committee

» An Explosion Protection Steering Committee is to formed and operated under the umbrella of UNECE WP.6 (ExSC) to monitor the application experiences

» All member having implemented the CROs can participate in the Explosion Steering Committee (ExSC)

» ExSC notifies the members of the Standard Acceptance Group

» Observers like
  » Standardization Organization (IEC/ISO)
  » Market Surveillance
  » IECEx
  are also invited to attend the meetings

» A Market Surveillance network specialized in Ex-Equipment is to be formed and operated (UNECE-ExMars)

» For critical non-conformance of Ex-Equipment an Alert-System is necessary

Ex - Market Surveillance Concept based on the general concept of the „**MARS**" Group

Strategy:
• Developing a general procedure for market surveillance (GMSP)
• Increasing cooperation with stakeholders and sharing the work of Market Surveillance internationally
• Increasing the visibility of Market Surveillance to the outside world

Guidelines for the Ex-Market Surveillance

Contents:

Thank you

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UN Economic Commission for Europe

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