

# An Overview about the IECEx System

Prof. Dr. Thorsten Arnhold

IECEx Chairman



# IECEX – building safe bridges for global business

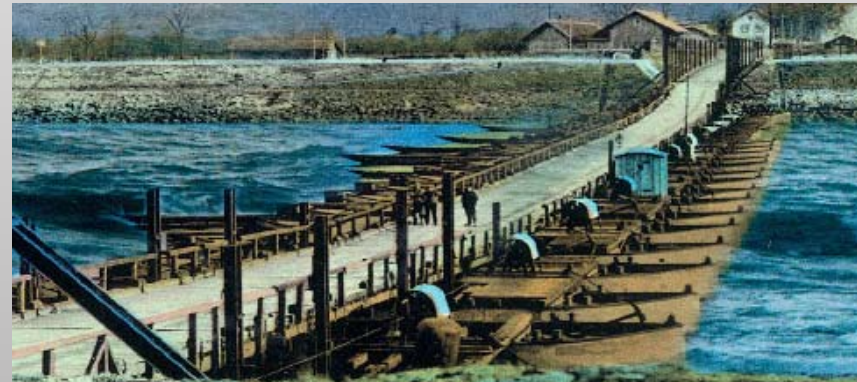


# International Ex - business in the old times





# International Ex - business in the present



# International Ex - business in the future



# IEC Family 164 countries – Global reach







# The two pillars of the IEC building



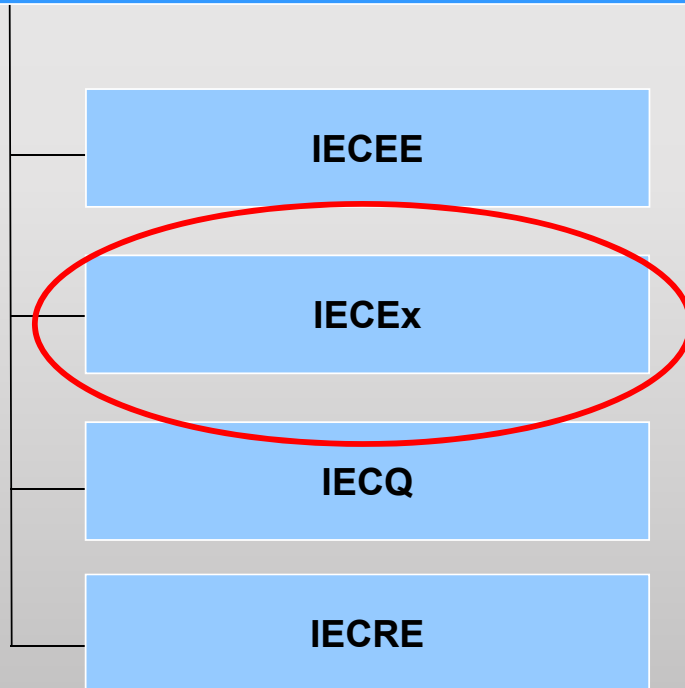
**Standard –  
Generation  
and  
Maintenance**

**Assessment  
Conformity  
to relevant  
Standards**



# IEC Structure for conformity assessment

## Conformity Assessment Board (CAB)







## The IECEx vision remains unchanged since London 1996



Rules of procedure IECEx 02 Paragraph 5.6:  
The final objective of the IECEx – Certified Equipment Scheme is worldwide acceptance of one standard, one certificate and one mark.



## IECEX: Per July 2016 – 33 Member Countries

Australia	India	Russia
Brazil	Israel	Singapore
Canada	Italy	Slovenia
China	Japan	South Africa
Croatia	Republic of Korea	Spain
Czech Republic	Malaysia	Sweden
Denmark	Netherlands	Switzerland
Finland	Norway	Turkey
France	New Zealand	United Arab Emirates
Germany	Poland	United Kingdom
Hungary	Romania	United States of America







# IECEX Management Committee



„Parliament of IECEx“ administers the operation & reports to IEC CAB (2015 Christchurch New Zealand)



# Important elements of the IECEx system

## Ex Testing Laboratory (ExTL):

Directly or indirectly linked to a ExCB  
Carries out Type test  
Issues Test reports



## Ex Certification Body (ExCB):

Issues IECEx – Certificates  
Issues Quality Assessment Reports  
Endorses IECEx Test Reports



## IECEX – Assessor

Assessment of Ex CBs  
Assessment of Ex TLs  
Basis is ISO/IEC 17065  
(former ISO/IEC Guide 65)





# IECEx homepage: www.iecex.com

**INTERNATIONAL ELECTROTECHNICAL COMMISSION SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)**

Information | Publications | Members' Area | Certificates & Licences | Meetings & Events | Contact | Home

**IECEx Rules**

**News Release**

- Bulletin
- Standards
- Guides
- Operational (OD)
- ExTAG Decisions
- Application Forms

**Minimizing**  
IECEx ensures equipment in

**Exploding**  
Staple support from IECEx

**Knowledge supports safety in Ex areas**  
Chris Agius presents at the ATEX Forum in Denmark

**Preventing dust explosions**  
IECEx certification provides high level of protection

**Change under the surface**  
IECEx updates its digital presence

**Restricting the blaze**  
Thorsten Arnhold becomes IECEx Chairman

**Meetings of the IECEx System 2014**  
The Hague, The Netherlands, 25-29 August 2014  
In 2014 the IECEx event will be organised by DEKRA and will take place in The Hague, The Netherlands.  
More info from the meeting website

**Quick Links**

- View IECEx Certificates and Licences (CoC Online)
- Certification Bodies (ExCBs) - Equipment
- Certification Bodies (ExCBs) - Service Facilities
- Certification Bodies (ExCBs) - Certified Persons
- Certification Bodies (ExCBs) - Conformity Mark
- ExTAG Decision Sheets List
- IEC TC31 & IECEx Meeting Schedule

**Featured**

- Malaysia Conference presentations available
- Meetings of the IECEx System 2014: The Hague The Netherlands, 25-29 August 2014
- IECEx systems endorsed by UNECE
- IECEx mobile apps

Information | Publications | Members | Certificates | Meetings | Contact | Copyright © IEC-IECEx 2014. All rights reserved.

Equipment Scheme				
OD 203	140501	Equipment	N	Guidance on the definition of 'manufacturer' in relation to trade agents' and 'local assemblers'
OD 035	090729	Equipment	Y	A procedure to generate, discuss, report and publish ExTAG Decision Sheets
OD 034	090326	Equipment	N	Operational Document - Guidance on the preparation of IECEx Equipment Certificates and Reports covering more than one identifiable item of equipment
OD 033	101116	Equipment	N	IECEx Operations Manual – IECEx Unit Verification Certificates
OD 026	140205	Equipment	N	Guidelines for the qualification of Lead Auditor and Auditors, in accordance with the IECEx System.
OD 025	140205	Equipment	N	Guidelines on the Management of Assessment and Surveillance programs for the assessment of Manufacturer's Quality System, in accordance with the IECEx Scheme.
OD 024	120530	Equipment	N	IECEx Rules of Procedure covering testing, or witnessing testing at a manufacturer's or user's facility
OD 021		Equipment	Y	Guidance document for the Assessment of IS equipment and Systems
OD 020		Equipment	N	Guidance for the Sampling of Group I Ex d Motors for Testing as Representative of a Range for Certification Purposes
OD 018	130801	Equipment	N	Harmonised CHECK LIST FOR TESTING AND CALIBRATION LABORATORIES ISO/IEC 17025
OD017	120510	Equipment	N	Drawing and documentation Guidance for IEC Ex Certification – for use by Manufacturers and ExTSLs
OD 012		Equipment	N	ExTAG Guide for Application of Uncertainty of Measurement to conformity for laboratory tests carried out under the IECEx System OD 012
OD 011-2	100729	Equipment	N	Guidance on Use of the IECEx Internet based "On-Line" Certificate of Conformity System Part 2: Creating IECEx Equipment Certificates of Conformity CoCs
OD 011-2 Special addendum	101122	Equipment	N	Special addendum to IECEx Operational Document OD 011-2
OD 010-2	120817	Equipment	Y	Operational Document - Guidance for the development, compilation, issuing and receipt of ExTRs Part 2: Procedures and guidance
OD 010-1	140912	Equipment	Y	Operational Document - Guidance for the development, compilation, issuing and receipt of ExTRs Part 1: Development and posting of blank IECEx Test Report (ExTR) Documents

# IECEx consists of four schemes:

IECEx Equipment Scheme  
Certification of Ex Equipment



IECEx Conformity Mark License Scheme



IECEx Services Scheme  
Certification of Ex Service Providers, eg  
Repair and overhaul workshops + Install.



IECEx Certified Persons Scheme (CoPC)  
Competency to work in Ex field (New)







# IECEX Certified Equipment Scheme

Type Test => ExTR



**IECEX Equipment Scheme**  
Certification of Ex Equipment + Systems



**Site assessment of the  
Manufacturers QM –  
System => QAR**

IECEX “Certificate of  
Conformity”



IECEX “Component  
Certificate”

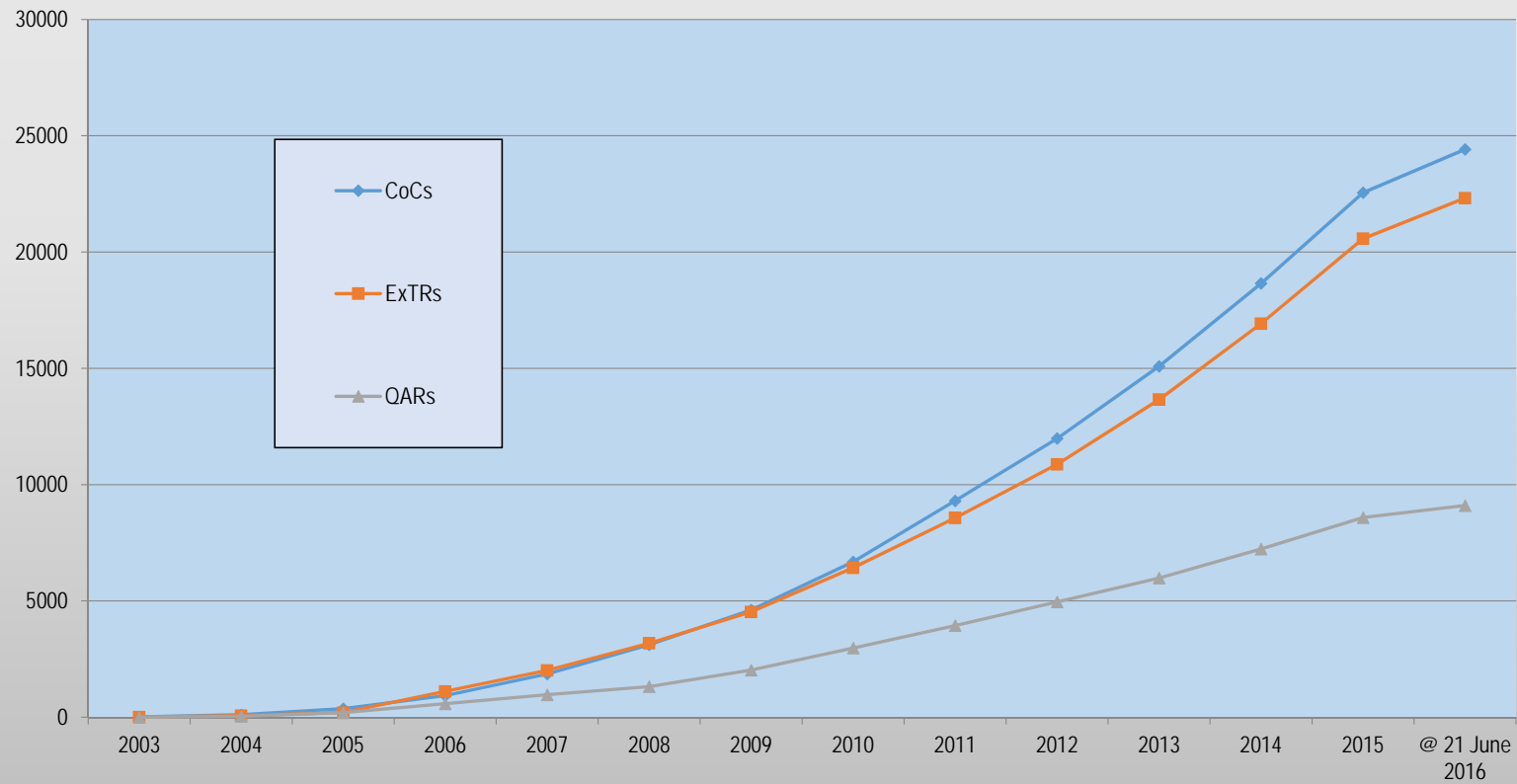


IECEX “Unit  
Certificate”



# IECEx Certified Equipment Scheme Certificates & Test Reports

Cumulative Growth of IECEx Equipment CoCs and Reports



# The „fast track“ procedure





# New: IECEx conformity assessment for Non-electrical equipment

## IECEx Equipment Scheme

Ignition risk analysis

Typprüfung => ExTR



IECEx Equipment Scheme  
Zertifizierung der Ex Geräte + Systeme



Site assessment of the  
Manufacturers QM –  
System => QAR

IECEx “Certificate of  
Conformity”



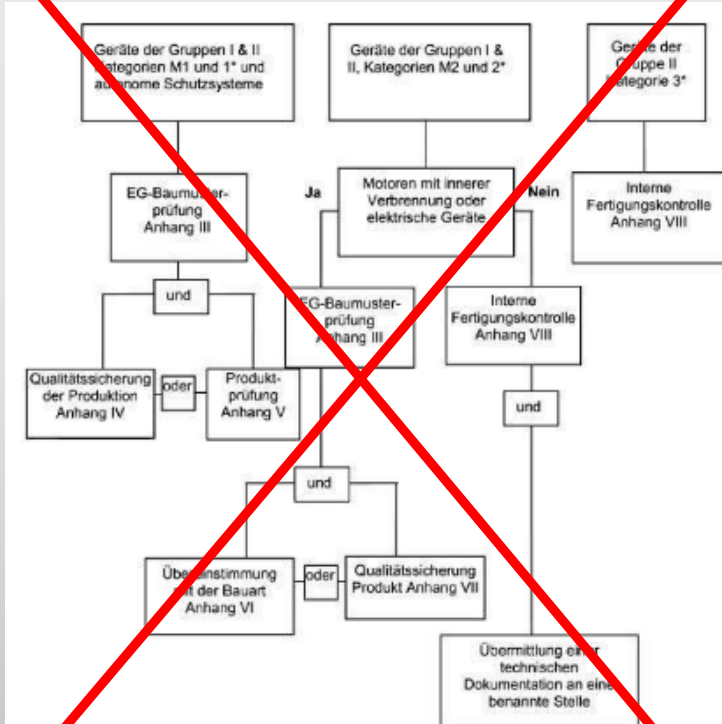
IECEx “Component  
Certificate”



IECEx “Unit  
Certificate”



For all EPL (a,b and c) there is an obligation to type tests/ ignition source analysis and site assessments of the QM systems carried out by IECEx CBs and TLs



# Draft OD 280: Guide to certification of non – electrical equipment



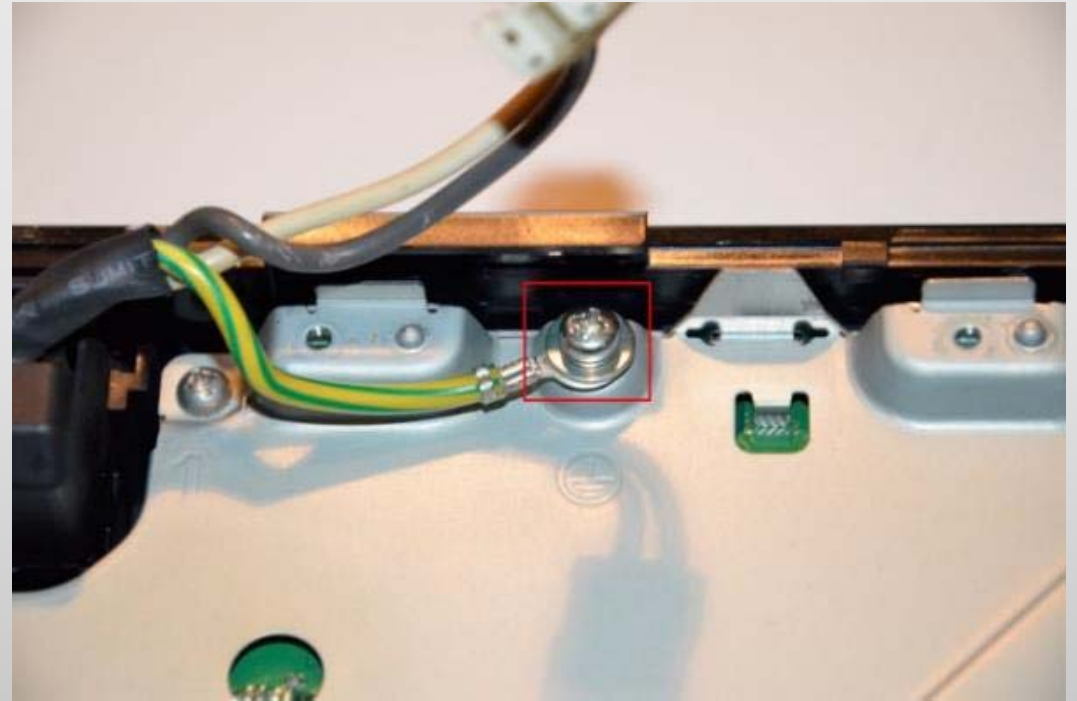
Risk analysis is evaluated by teams consisting of experts from the manufacturers and IECEx - Certification Bodies and Test Labs



If applicable and necessary type tests are conducted by the IECEx - Test Labs

## Draft OD 005-3-Part 3: Supplementary requirements for non-electrical...

- ISO/IEC 80079 – 34: Explosive atmospheres-Part 34:Application of quality systems for equipment manufacturers is the basis document
- Additional requirements for the Quality Assurance during the manufacturing process of non – electrical components critical for the explosion protection of the equipment

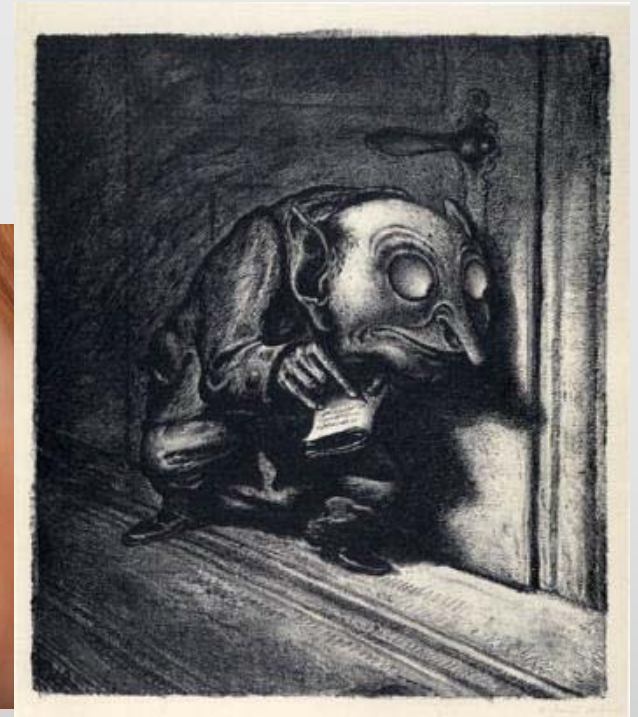




# Outlook

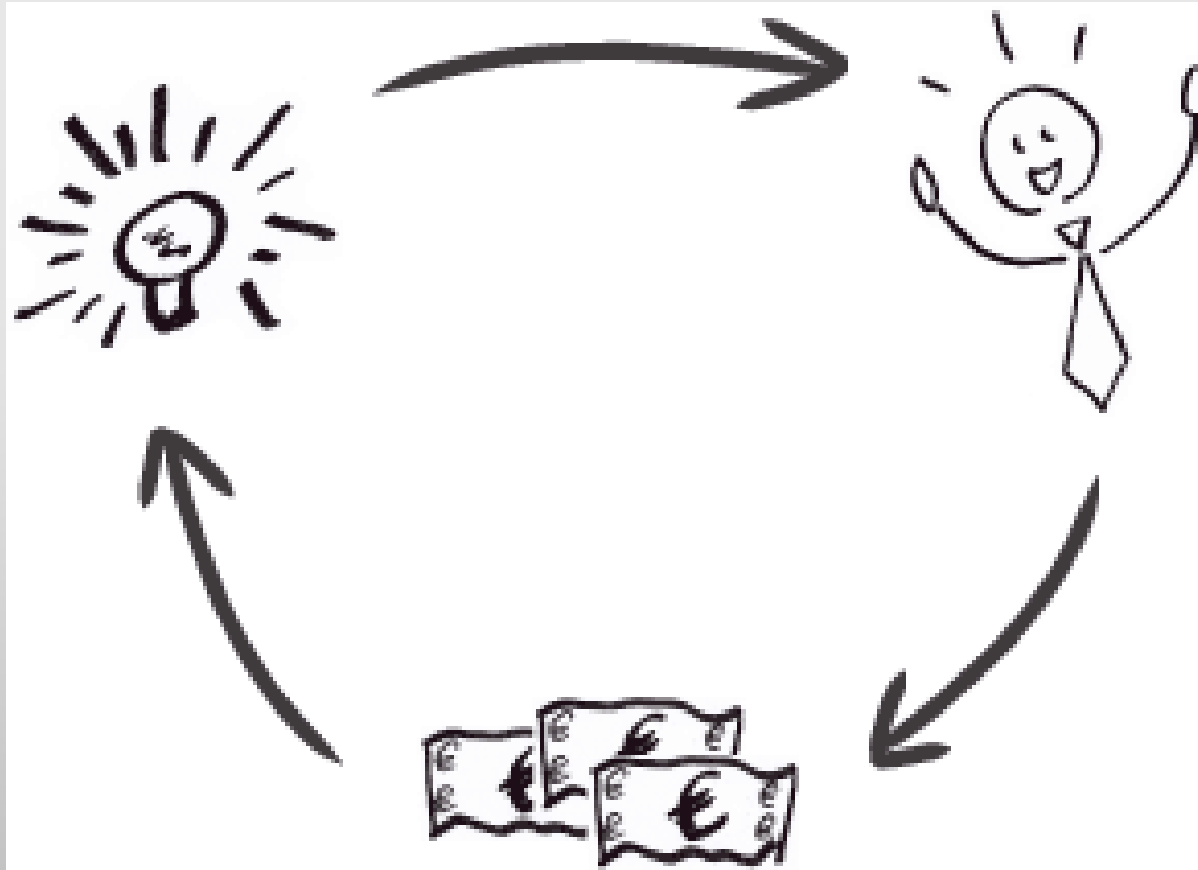


ISO/IEC 800079 – 36 and -37 are published...



...international customers and regulators get the message soon

## Consultants and Certification Bodies recognise the new business opportunities





## Advertisement by the manufacturers



# IECEx consists of four schemes:

IECEx Equipment Scheme  
Certification of Ex Equipment



IECEx Conformity Mark License  
Scheme



IECEx Services Scheme  
Certification of Ex Service Providers, eg  
Repair and overhaul workshops + Install.



IECEx Certified Persons  
Scheme (CoPC)  
Competency to work in Ex field (New)

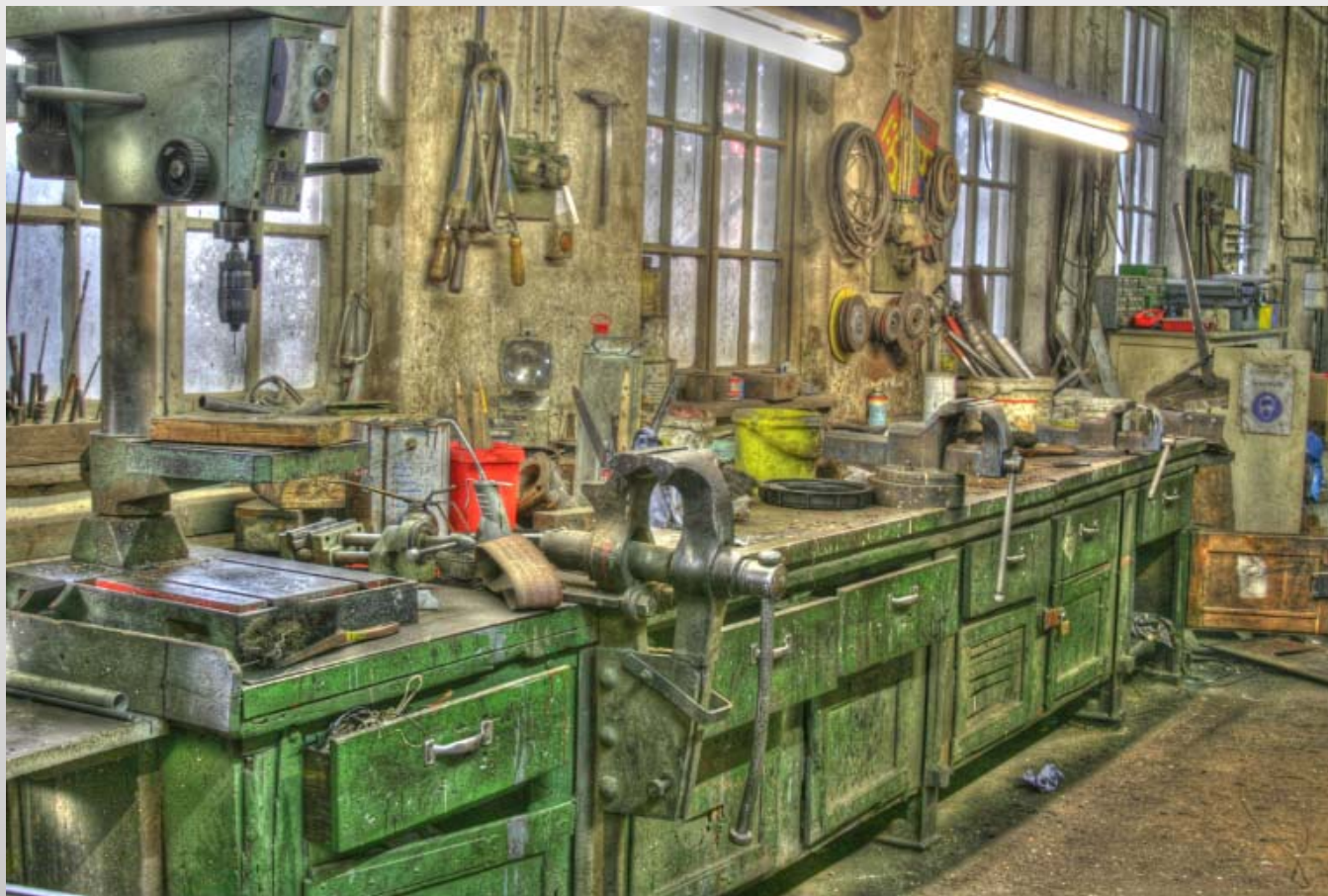


# IECEx Service Facility Scheme





## Basic standard: IEC 60079-19 Repair & Overhaul



Basic question: Does the repair workshop fulfil the requirement of this standard?

# IEC 60079 – 19 requires that the repair facility....



...operate a  
QM -system



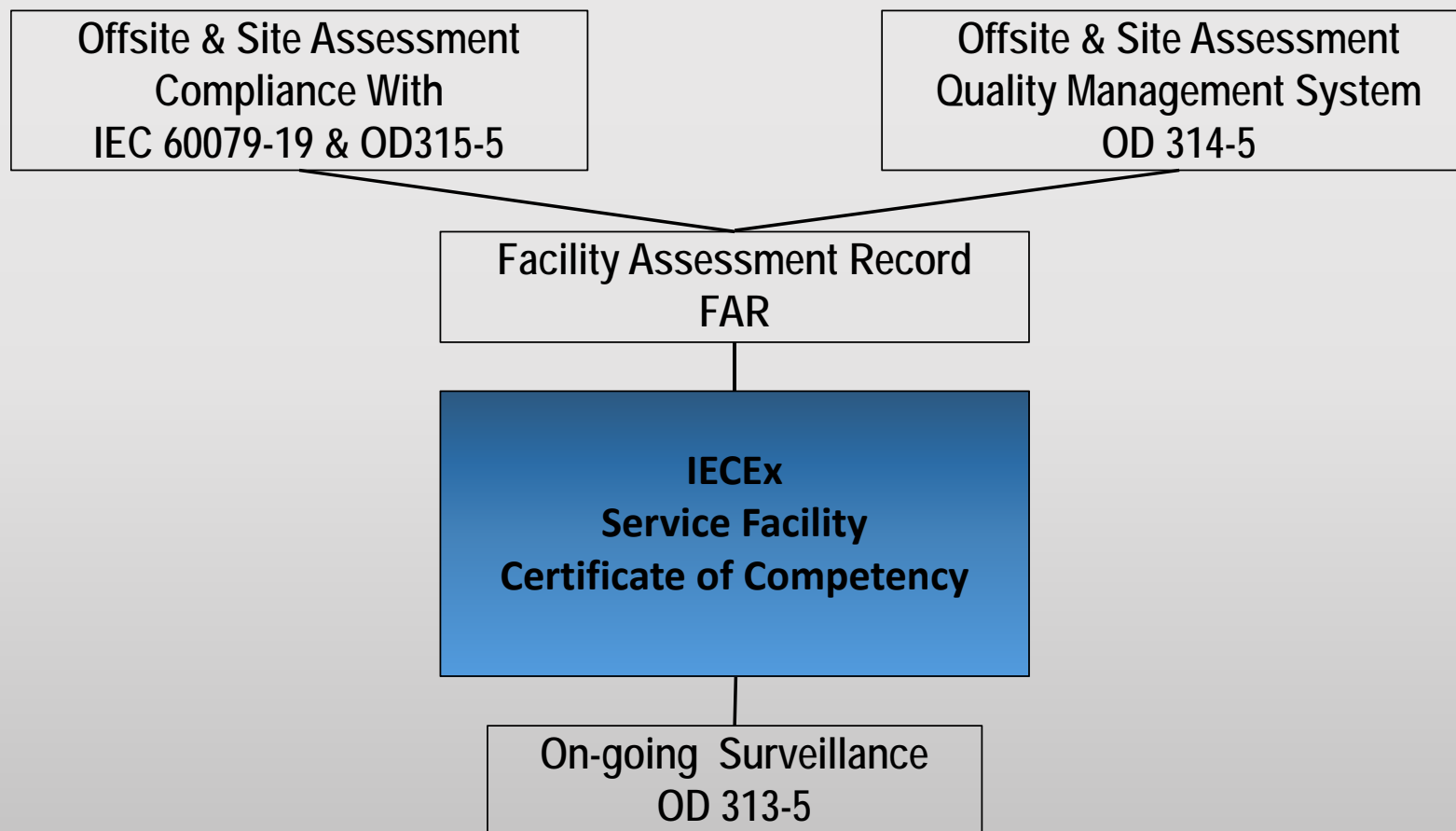
...appoint a res-  
ponsible person



...have adequate  
repair and overhaul  
facilities



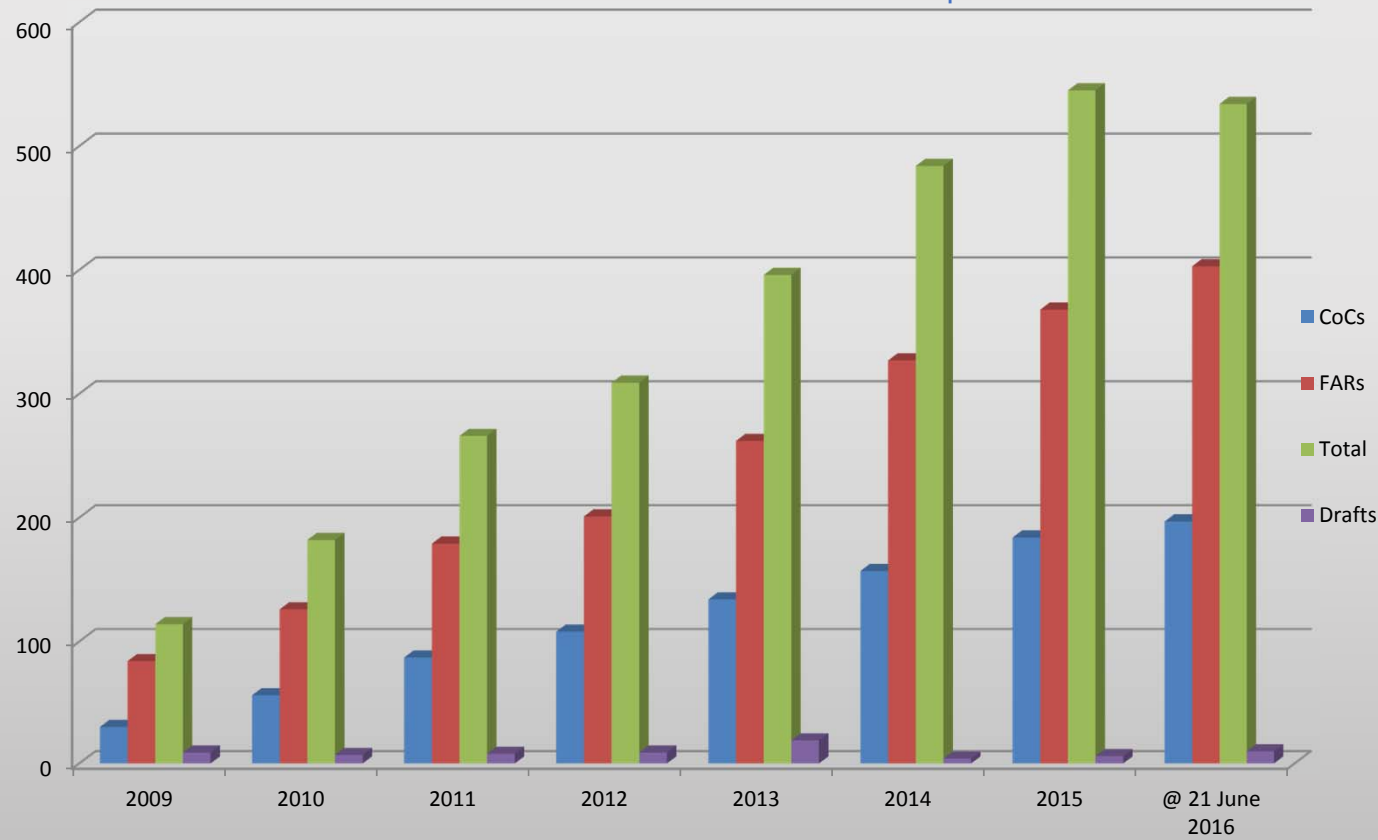
## Certification procedure for IECEx repair facilities





# IECEx Service Facility Scheme

Cumulative Number of CoCs and FARs for Repair facilities





# IECEx Service Facility Scheme – next steps

## Equipment Selection



## Installation & Initial Inspection



## Inspection & Maintenance



# IECEx consists of four schemes:

IECEx Equipment Scheme  
Certification of Ex Equipment



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IECEx Certified Persons Scheme (CoPC)  
Competency to work in Ex field (New)





## Lack of Competence in hazardous areas: some examples



# Lack of Competence in hazardous areas: the consequences





# What is competence?



Knowledge



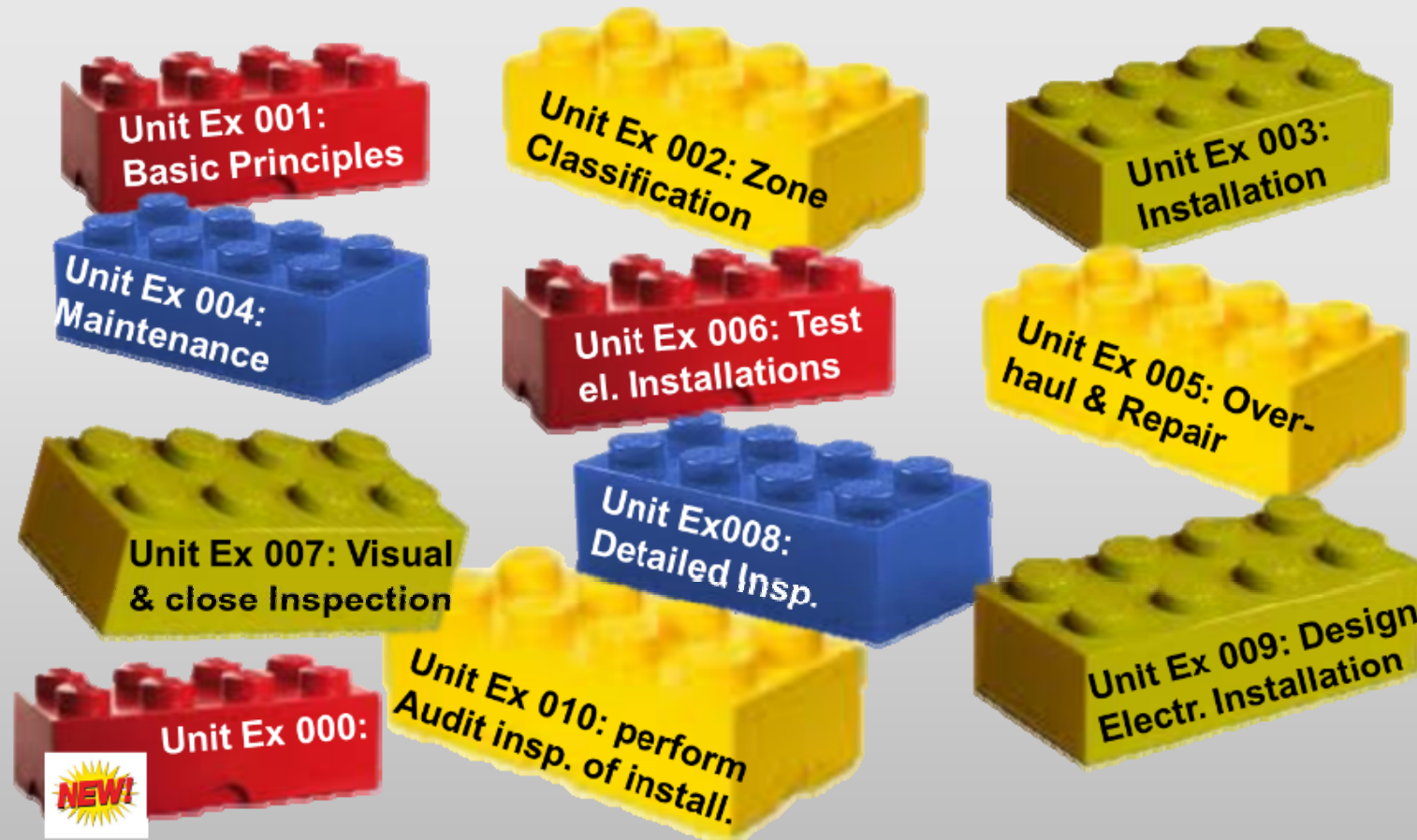
Acquired skills



Tasks duties and responsibilities



# Ex Units of competence



Appropriate Mix of Competences to be certified

Ex CB examines:

Knowledge

Skills

Experience

Surveillance – Re Assessment

Certification Process



## Combination of written & practical examination

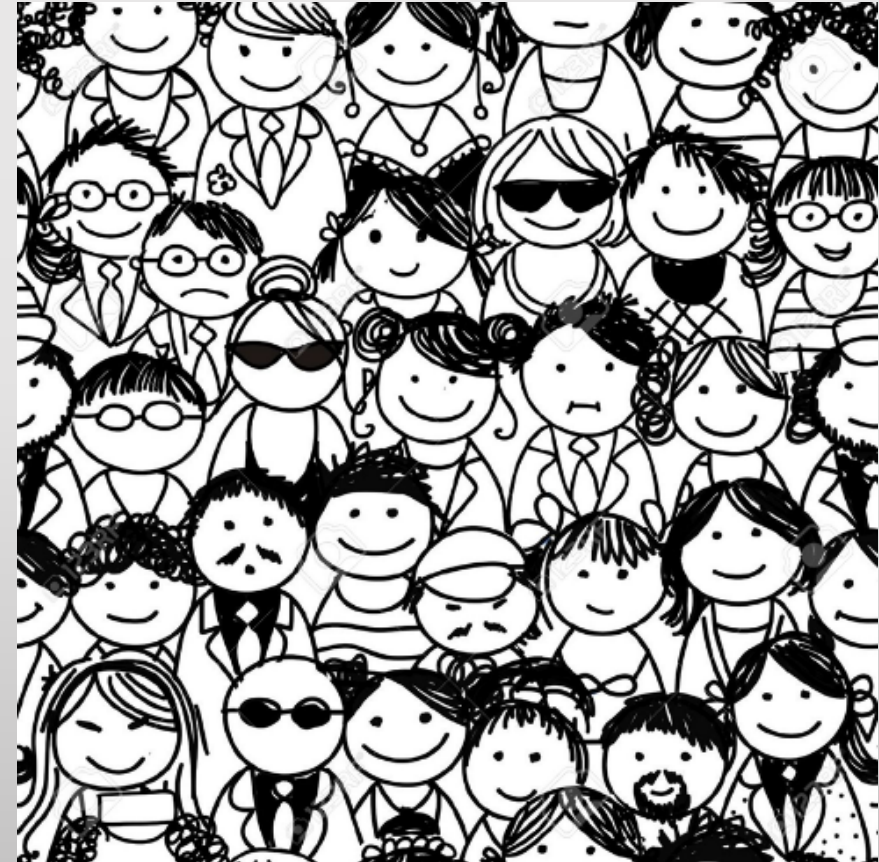
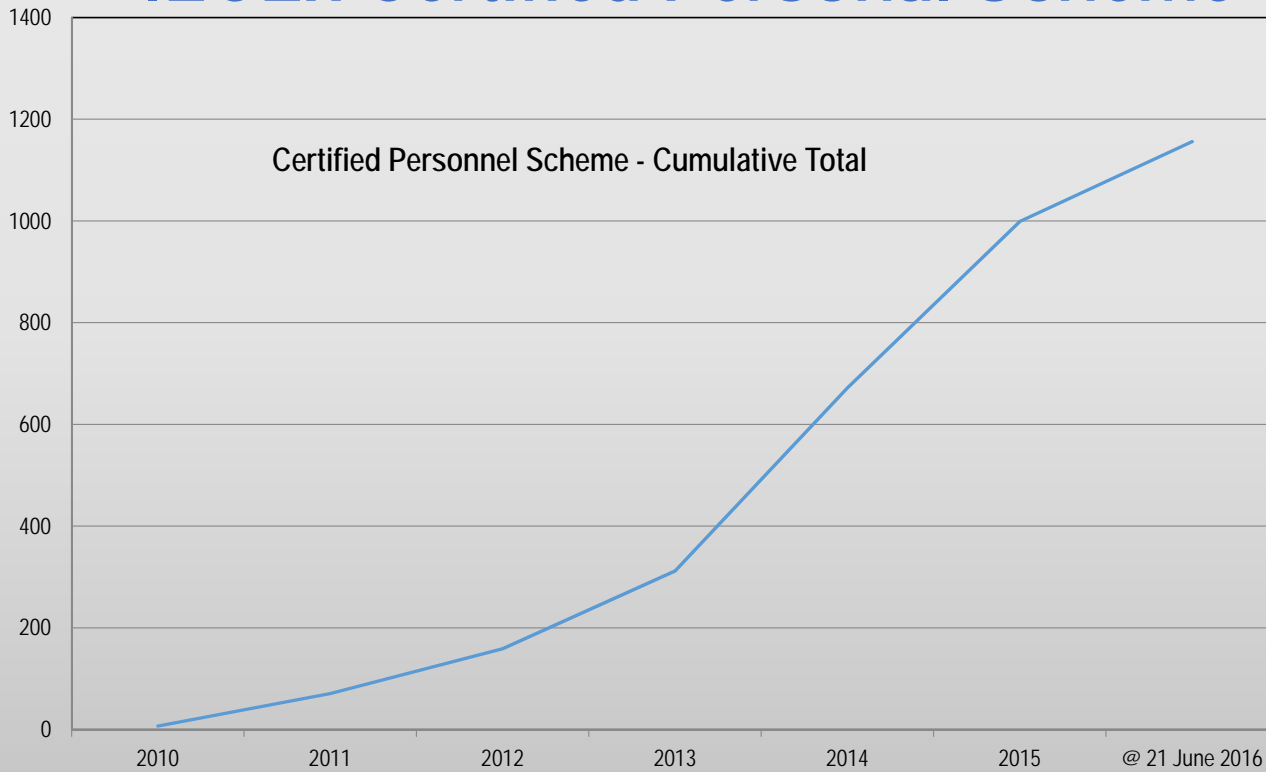


Performance assessment bays for the Unit Ex 003, Ex 007, Ex 008





# IECEX Certified Personal Scheme



International Electrotechnical  
Commission



International Certification System  
for Electrical Equipment  
for use in Explosive Environments

## CERTIFICATE OF RECOGNITION

**IECEX Recognised Training Provider Program**

This is to confirm that

***R. STAHL Schaltgeräte GmbH***

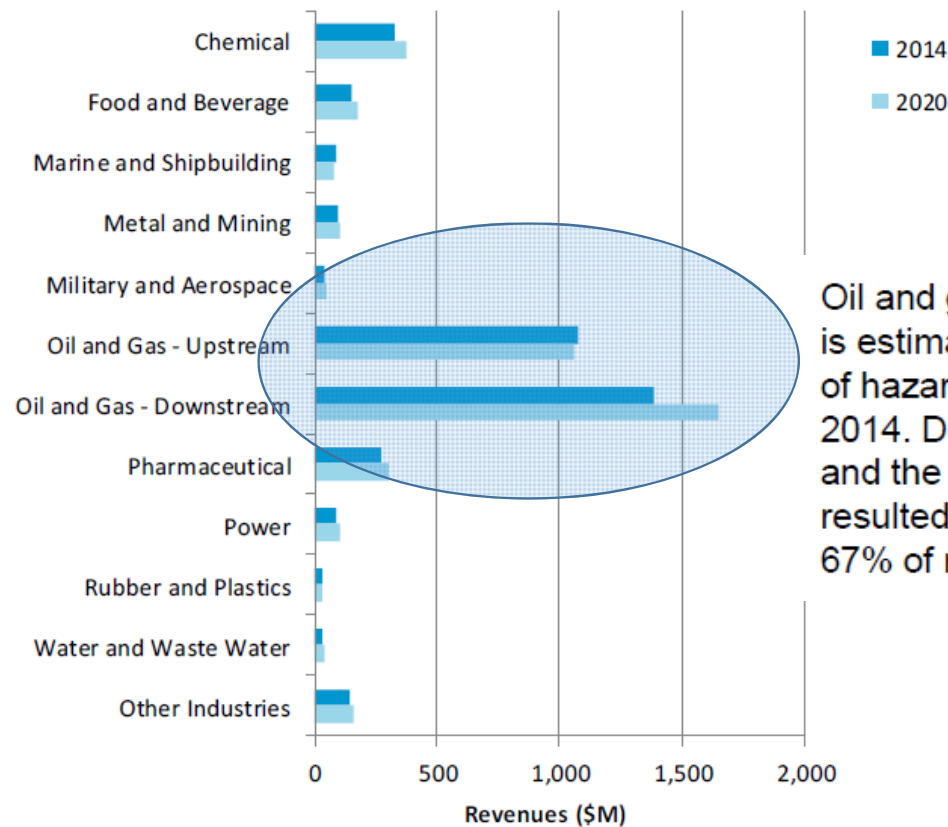
has been recognised in accordance with  
IECEX System Rules and IECEx OD 521 Procedures



A handwritten signature in black ink, appearing to read 'Chris Agius'.

Chris Agius  
Executive Secretary IECEx  
September 2015

The market for hazardous area equipment by product type: World  
2014 and 2020

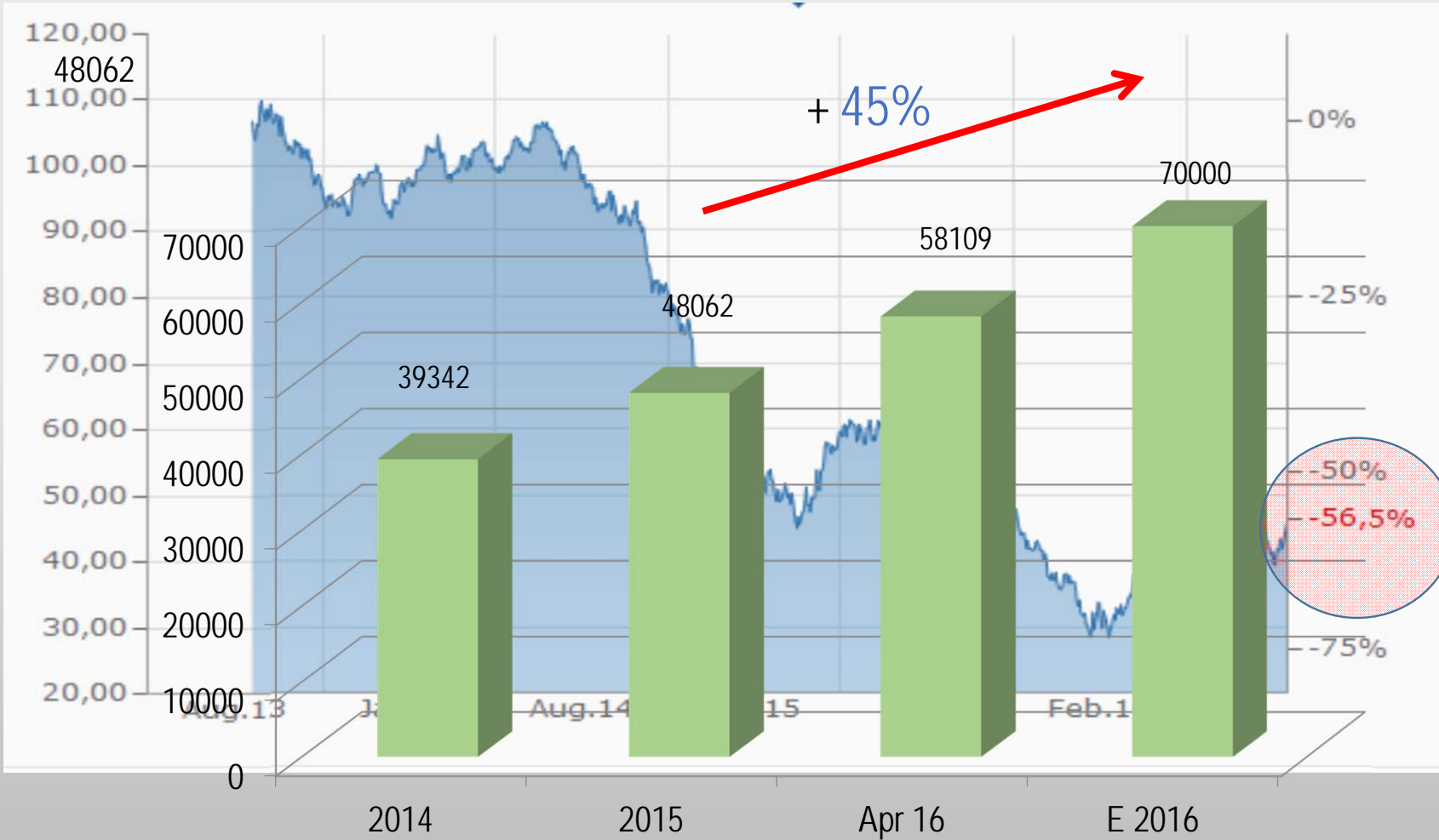


Oil and gas (up-stream and down-stream) is estimated to have accounted for 66.4% of hazardous area equipment revenues in 2014. Despite the rapid fall in oil prices and the cuts in capital expenditure that resulted, this is forecast to still account for 67% of revenues by 2020.

Data issued: February 2016  
Source: IHS

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IECEX  
 Certificates &  
 Test Reports  
 Absolut von  
 2014 - 2016



Thank You !