



**NEN**

## **Internationale normalisatie:**

**Wat speelt er, wat heeft u eraan en hoe kunt u meedoen?**

**Françoise de Jong & Jarno Dakhorst**

# Outline

Introduction into standardization

Organization of and participation in standardization

ISO/TC 67

Intermezzo: Oil and gas standardization and regulation

International standards for offshore structures

What's next?

Discussion

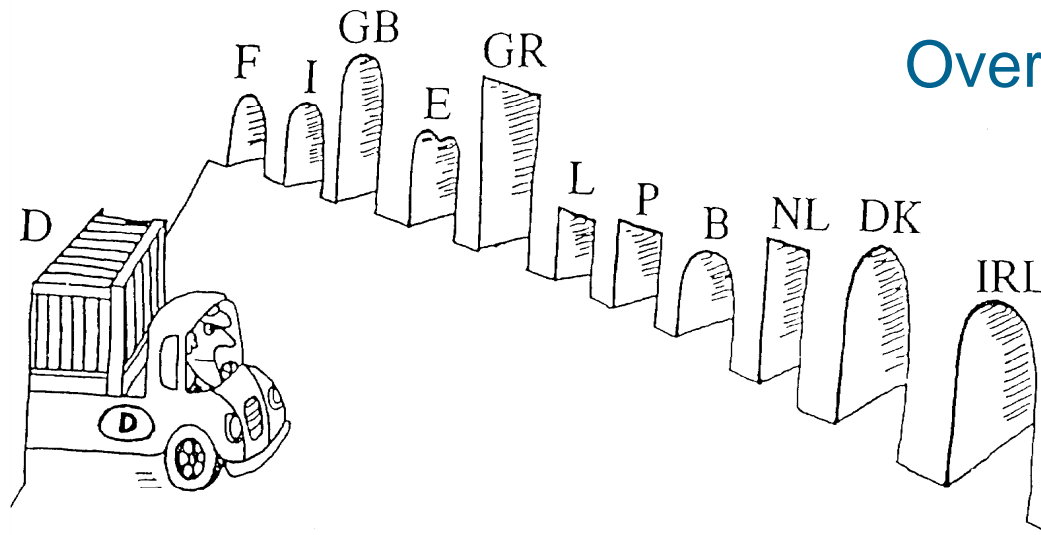
# INTRODUCTION INTO STANDARDIZATION

# Introduction into standardization (1)

## Standards...

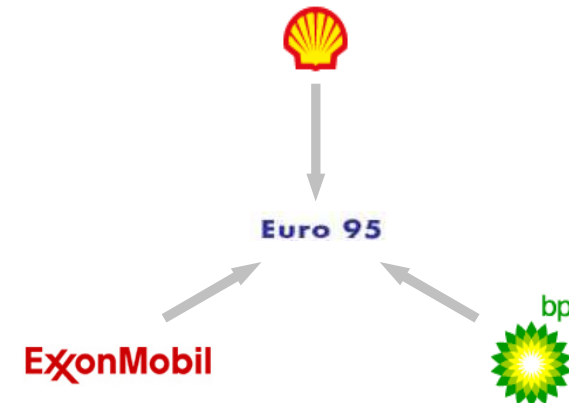
- ... are documents with agreements on products, services and systems
- ... are designed for **voluntary use**
- ... contribute to:
  - (inter)national strength of competition
  - innovation
  - health, safety and environment
  - image
- ... are in accordance with WTO

## Introduction into standardization (2)



Overcoming trade barriers

Vision ISO/TC 67 (oil & gas):  
*Global standards used locally worldwide*



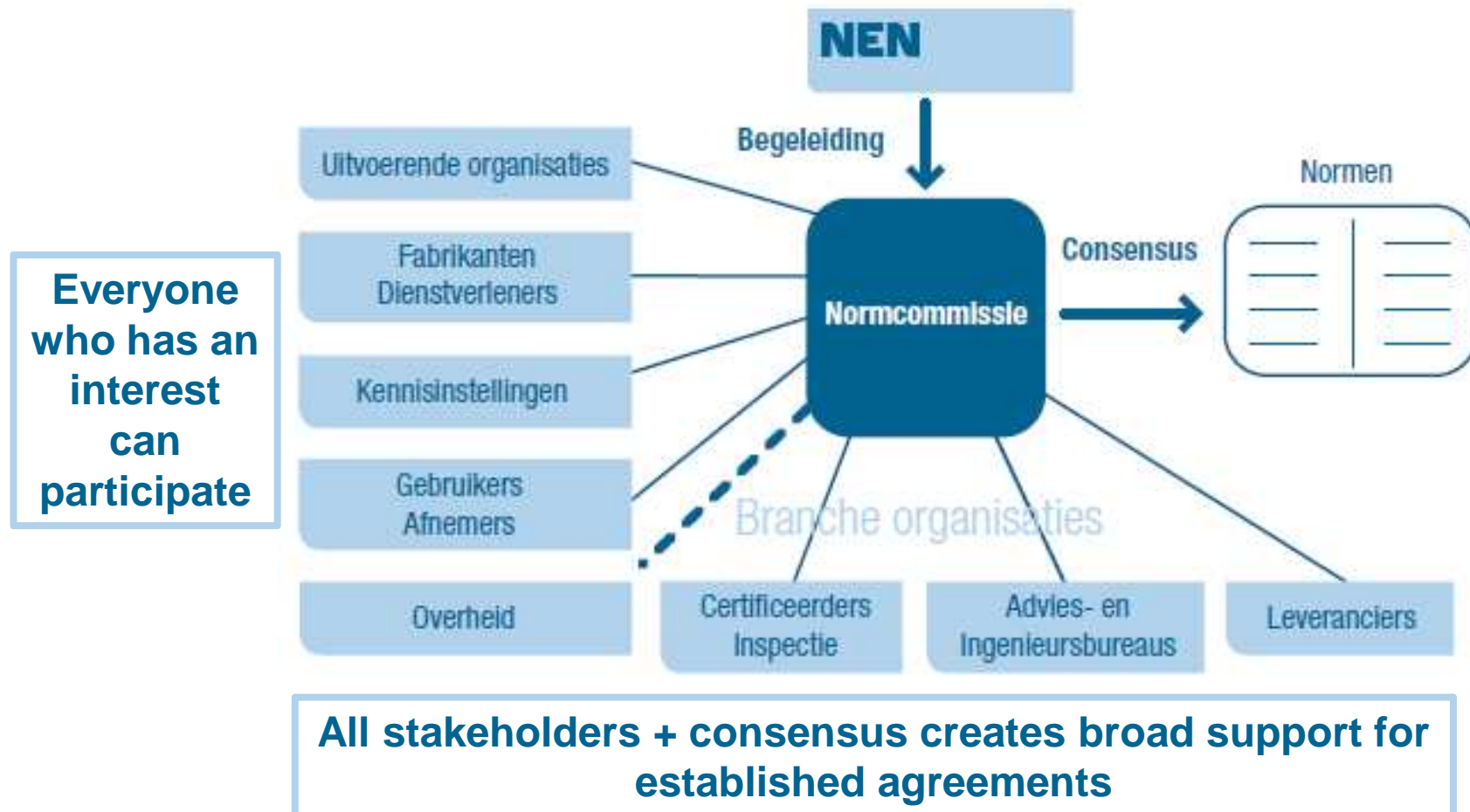
# Introduction into standardization (3)

## Standardization ...

- ... is an **open** process => all parties concerned invited to participate for broad support
- ... is developing agreements based on **consensus** => no sustained opposition
- ... is **transparent** => agreements are publicly available for comments and use
- ... takes place on three levels:
  - national (e.g. NEN, DIN)
  - regional (e.g. CEN, GSO)
  - international (e.g. ISO, IEC)

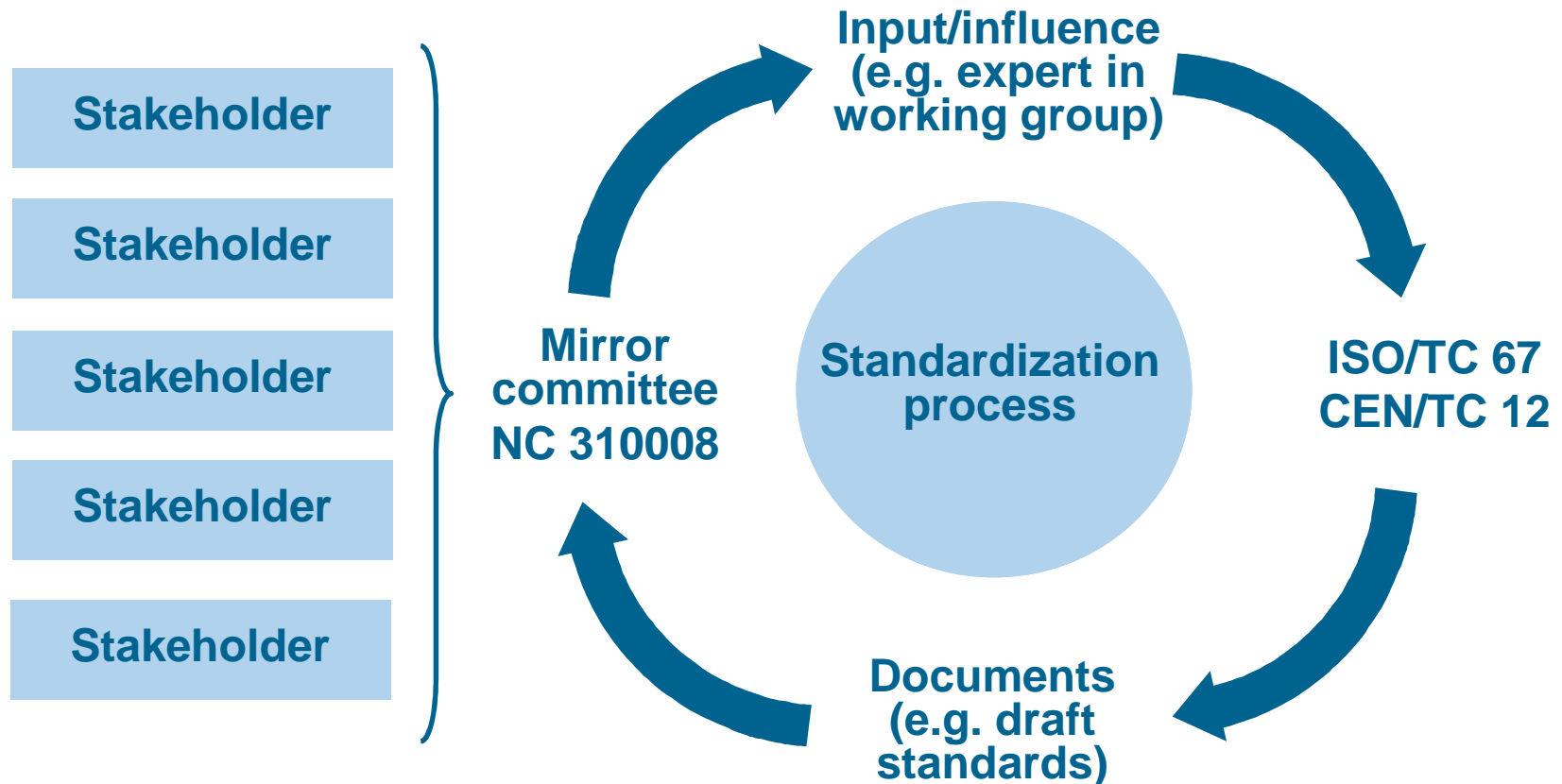
# ORGANIZATION OF AND PARTICIPATION IN STANDARDIZATION

# Organization of and participation in standardization (1)

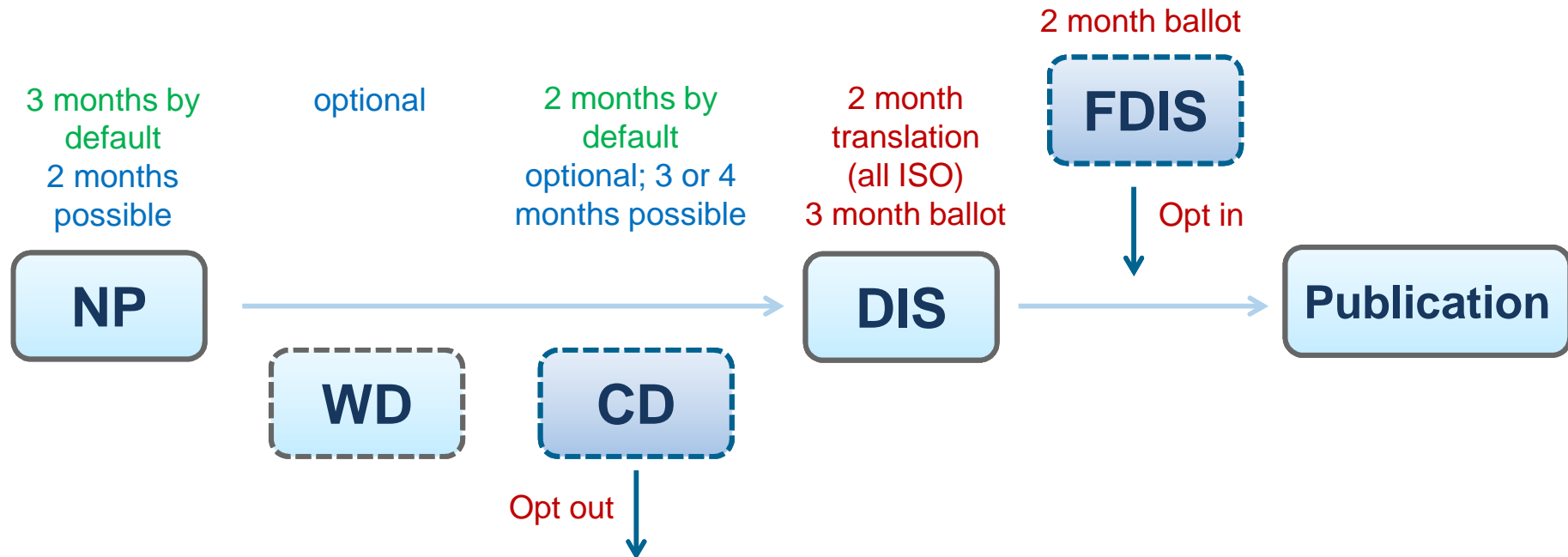




# Organization of and participation in standardization (2)



# Organization of and participation in standardization (3)



- 3 tracks:
  - Accelerated: 12 months to DIS and 24 months to publication
  - Default: 24 months to DIS and 36 months to publication
  - Enlarged: 36 months to DIS and 48 months to publication

# Organization of and participation in standardization (4)

Benefits of participation:

- Influence market developments
- (Inter)national technological and commercial network
- Faster and easier access to (inter)national markets
- New insights in innovation and development
- Positioning and adapting your business strategy
- Knowledge acquisition and sharing

# Organization of and participation in standardization (5)

Financing standardization:

- Different for each country
- In the Netherlands stakeholders pay a fee for participating in mirror committees and/or being an expert in international technical committees
- Fee may depend on extent of activities and number of members/experts

Investment in standardization saves money by increasing interoperability, efficiency, safety, ...

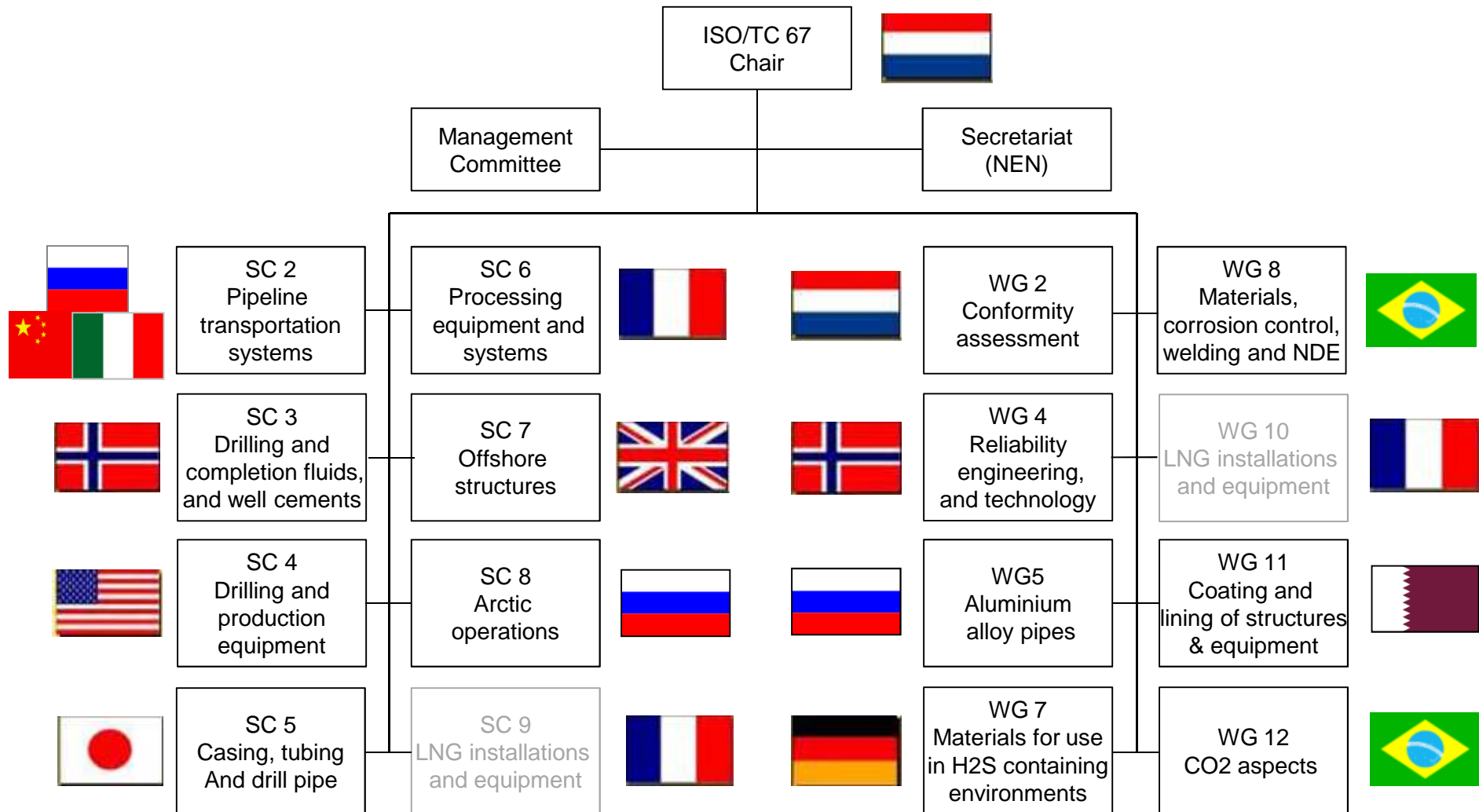
# ISO/TC 67

**MATERIALS, EQUIPMENT AND OFFSHORE  
STRUCTURES FOR PETROLEUM, PETROCHEMICAL  
AND NATURAL GAS INDUSTRIES**

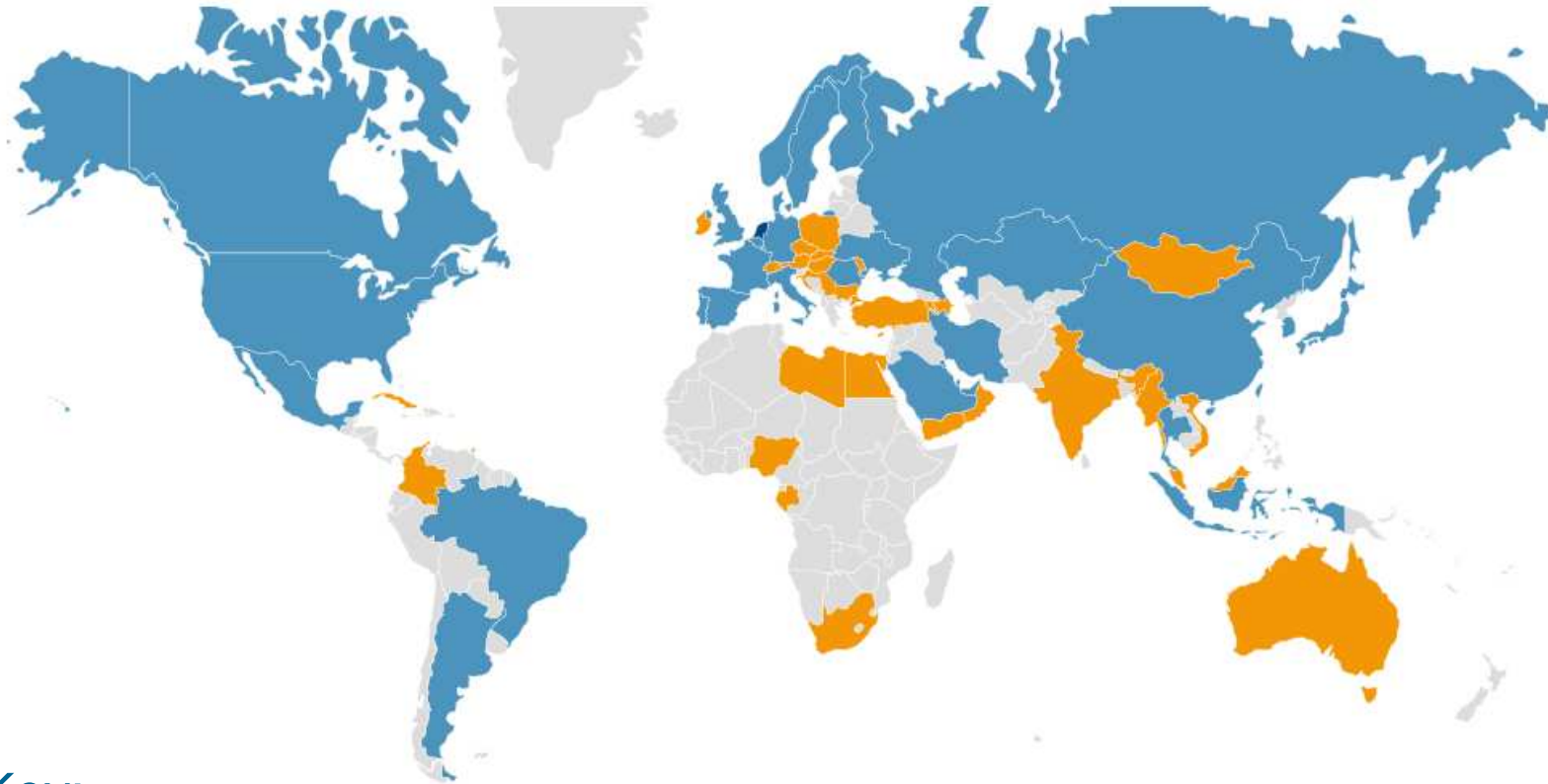
# ISO/TC 67 (1) – Mission, vision & goals

- Mission: To create value-added standards for the oil and natural gas industries
- Vision: Global standards used locally worldwide
- Goals:
  - Prepare standards required by this industry
  - Prepare standards that are adopted worldwide by bodies such as ABNT (Brazil), API (USA), CEN (Europe), GOST R (Russian Federation), GSO (Gulf Region) and SAC (China)
  - Prepare standards that are recognized by regulators
  - Publish standards that enable companies to minimize their specifications
  - Deliver standards to the target dates on the agreed work programme

# ISO/TC 67 (2) – Organization structure



# ISO/TC 67 (3) – Membership



Key:

- Blue: Participation members (33)
- Orange: Observing members (33)



# ISO/TC 67 (4) – Portfolio

## ISO Standards for use in the oil & gas industry

**ISO 10418** Basic surface safety systems  
**ISO 10423** Wellhead & christmas tree equipment  
**ISO 78 12419** Reliability modelling/activity systems (New)  
**ISO 13354** Shallow gas diverter equipment (New)  
**ISO 13353** Drill-through equipment (BOP)  
**ISO 13354** Hoisting equipment – core/rotar  
**ISO 13355** Hoisting equipment – specifications  
**ISO 13626** Drilling and well-servicing structures  
**ISO 13702** Control & mitigation of fires & explosions (Rev)  
**ISO 13700** Offshore piping systems  
**ISO 14234** Reliability/maintenance data  
**ISO 14492** GRP piping, Parts 1-4  
**ISO 14493** Drilling equipment

**ISO 15156-1** Selection of cracking resistant materials for use in H<sub>2</sub>S environments  
**ISO 15156-2** Cracking-resistant steels and cast irons for use in H<sub>2</sub>S environments  
**ISO 15156-3** Cracking-resistant alloys for use in H<sub>2</sub>S environments  
**ISO 15138** HVAC  
**ISO 15544** Emergency response  
**ISO 15663** Life cycle costing, Parts 1-3  
**ISO 17774** Assessment of hazardous situations  
**ISO/TS 17669** Guidelines on competency for personnel (New)  
**ISO 20815** Production assurance and reliability management  
**ISO 21457** Materials selection  
**ISO 23936-1** Thermoplastic  
**ISO 23936-2** Elastomers (New)  
**ISO/TS 27449** Method of test for offshore fire dampers  
**ISO/TS 29001** Sector-specific quality management systems

**ISO 13634-1** Marine drilling riser systems  
**ISO/TS 13634-2** Marine drilling riser systems analysis  
**ISO 13625** Marine drilling riser couplings  
**ISO 19901-7** Station-keeping systems for floating offshore structures (New)  
**ISO 19904-1** Floating offshore structures

**ISO 13628-1** Subsea production systems (Amend)  
**ISO 13628-2** Subsea flexible pipe systems  
**ISO 13628-3** Subsea TFL pumpjacks systems  
**ISO 13628-4** Subsea wellhead and tree equipment  
**ISO 13628-5** Subsea control umbilicals  
**ISO 13628-6** Subsea production controls  
**ISO 13628-7** Completion/workover riser system  
**ISO 13628-8** ROT and interfaces

**ISO 13628-9** ROT intervention systems  
**ISO 13628-10** Bonded flexible pipe  
**ISO 13628-11** Flexible pipe systems for subsea and marine applications  
**ISO 13628-15** Subsea structures and manifolds

**ISO 78 10400** Calculations for OCTG performance properties  
**ISO 10405** Core/use of casing/tubing  
**ISO 10407-1** Drill stem design  
**ISO 10407-2** Inspection and identification of drill stem elements  
**ISO 10414-1** Field testing of water-based fluids  
**ISO 10414-2** Field testing of oil-based drilling fluids  
**ISO 10416** Drilling fluids – lab testing  
**ISO 10417** Subsurface safety valve systems  
**ISO 10424-1** Rotary drill stem elements  
**ISO 10424-2** Threading and gauging of connections

**ISO 10426-1** Well cementing  
**ISO 10426-2** Testing of well cements  
**ISO 10426-3** Testing of deepwater well cement  
**ISO 10426-4** Preparation and testing of atmospheric foamed cement slurries  
**ISO 10426-5** Shrinkage and expansion of well cement  
**ISO 10426-6** Static gel strength of cement formulations  
**ISO 10427-1** Flow spacing casing centralizers  
**ISO 10427-2** Centralizer placement and slip-collar testing  
**ISO 10427-3** Performance testing of cement float equipment

**ISO 11960** Casing and tubing for wells (Rev)  
**ISO 11961** Drill pipe  
**ISO 12035** Qualification of casing connections for drilled wells (New)  
**ISO 13085** Tubing elements alloy pipes (New)  
**ISO 13500** Drilling fluids (Amend)  
**ISO 13501** Drilling fluids – processing systems evaluation  
**ISO 13502-1** Measurement of viscous properties of completion fluids  
**ISO 13502-2** Measurement of properties of proppants  
**ISO 13502-3** Testing of heavy brines  
**ISO 13502-4** Measurement of stimulation & gravelpack fluid leakage  
**ISO 13502-5** Measurement of long term conductivity of proppants  
**ISO 13502-6** Monitoring leak-off of completion fluids under dynamic conditions (New)  
**ISO 13678** Thread compounds  
**ISO 13679** Casing and tubing connections testing  
**ISO 13680** CBA members tubes for casing & tubing  
**ISO 14310** Packers and bridge plugs

**ISO 14990** General requirements for offshore structures (Rev)  
**ISO 19901-1** Meteocean design and operating considerations (Rev)  
**ISO 19901-2** Seismic design procedures and criteria (Rev)  
**ISO 19901-3** Topside structure  
**ISO 19901-4** Geotechnical and foundation design (Rev)  
**ISO 19901-5** Weight control  
**ISO 19901-6** Marine operations  
**ISO 19901-8** Marine well investigations (New)  
**ISO 19902** Fixed steel offshore structures (Amend)  
**ISO 19903** Fixed concrete offshore structures  
**ISO 19905-1** Jack-ups  
**ISO 78 19905-2** Jack-ups commentary (New)  
**ISO 19906** Arctic offshore structures

**ISO 3977-5** Gas turbines – procurement  
**ISO 10428** Sucker rods  
**ISO 10431** Pumping units  
**ISO 10434** Bolted bonnet steel gate valves  
**ISO 10437** Special-purpose steam turbines (Rev)  
**ISO 10438** Lubrication, shaft-sealing and control-oil systems, Parts 1-4  
**ISO 10439** Centrifugal compressors  
**ISO 10440-1** Rotary-type positive-displacement process compressors (oil-free)  
**ISO 10440-2** Rotary PD packaged air compressors  
**ISO 10441** Flexible coupling – special  
**ISO 10442** Internally geared air compressors  
**ISO 12211** Spiral plate heat exchangers  
**ISO 12212** Hairpin heat exchangers  
**ISO 13651** Re-grouting gas compressors  
**ISO 13691** High speed enclosed gear units  
**ISO 13704** Calculation of heater tube thickness  
**ISO 13705** Fired heaters for general service  
**ISO 13706** Air-cooled heat exchangers  
**ISO 13707** Heat-purging compressors  
**ISO 13709** Centrifugal pumps  
**ISO 13710** Re-grouting positive displacement pumps

**ISO 3183** Steel pipe for pipeline transportation systems  
**ISO 12490** Activation, mechanical integrity and sizing for pipeline valves  
**ISO 12736** Wet thermal insulation coatings (New)  
**ISO/TS 12747** Pipeline life extension  
**ISO 13623** Pipeline transportation systems  
**ISO 13847** Welding of pipelines (Rev)  
**ISO 14313** Pipeline valves  
**ISO 14723** Subsea pipeline valves  
**ISO 15309-1** Cathodic protection for on-land pipelines (Rev)  
**ISO 15309-2** Cathodic protection for offshore pipelines

**ISO 14990** Accessory completion equipment (New)  
**ISO 15136-1** Progressing cavity pump systems  
**ISO 15136-2** Progressing cavity pump systems – drive heads  
**ISO 15463** Field inspection of new casing, tubing and plain end drill pipe  
**ISO 15464** Gauging and inspection of threads  
**ISO 15546** Aluminium alloy drill pipe  
**ISO 16070** Lock mandrels and landing nipples  
**ISO/TS 16330-1** Well integrity operational phases (New)  
**ISO 17078-1** Side-pocket mandrels (Amend)  
**ISO 17078-2** Flow control devices for side-pocket mandrels  
**ISO 17078-3** Latches & seals for side-pocket mandrels & flow control devices  
**ISO 17078-4** Side-pocket mandrels and related equipment  
**ISO 17824** Sand control screens  
**ISO 20312** Design of aluminium drill string  
**ISO 27427** Aluminium alloy drill pipe thread gauging (New)  
**ISO 28781** Subsurface tubing installed formation barriers

**ISO 14691** Flexible couplings – general  
**ISO 15547-1** Plate & frame type heat exchangers  
**ISO 15547-2** Brazed aluminium plate-fin type heat exchangers  
**ISO 15649** Piping  
**ISO 15761** Steel valves DN 100 and smaller  
**ISO 16812** Shell & tube heat exchangers (Rev)  
**ISO/TS 16901** Risk assessment of offshore LNG installations  
**ISO 16961** Coating of above-ground steel storage tanks (oil-free)  
**ISO 17177** Uncoversited LNG transfer systems (New)  
**ISO 17272** Metal ball valves  
**ISO 21049** Centrifugal and rotary pumps shaft sealing  
**ISO 23251** Pressure-relieving and depressuring systems  
**ISO 24817** Composite repair of pipework (Rev)  
**ISO 25457** Flare details  
**ISO 27509** Compact flanged connections  
**ISO 28300** Venting of storage tanks  
**ISO 28460** LNG – Ship to shore interface

**ISO 15590-1** Pipeline induction bends  
**ISO 15590-2** Pipeline fittings  
**ISO 15590-3** Pipeline flanges  
**ISO 16440** Steel-cased pipelines (New)  
**ISO 16906** Pipeline reliability-based limit state design  
**ISO 21339** Test procedures for pipeline mechanical connections  
**ISO 21809-1** Polyethylene coatings (3-layer PE and 3-layer PP)  
**ISO 21809-2** Fusion bonded epoxy coatings (Rev)  
**ISO 21809-3** Field joint coatings  
**ISO 21809-4** Polyethylene coatings (2-layer PE)  
**ISO 21809-5** External concrete coatings



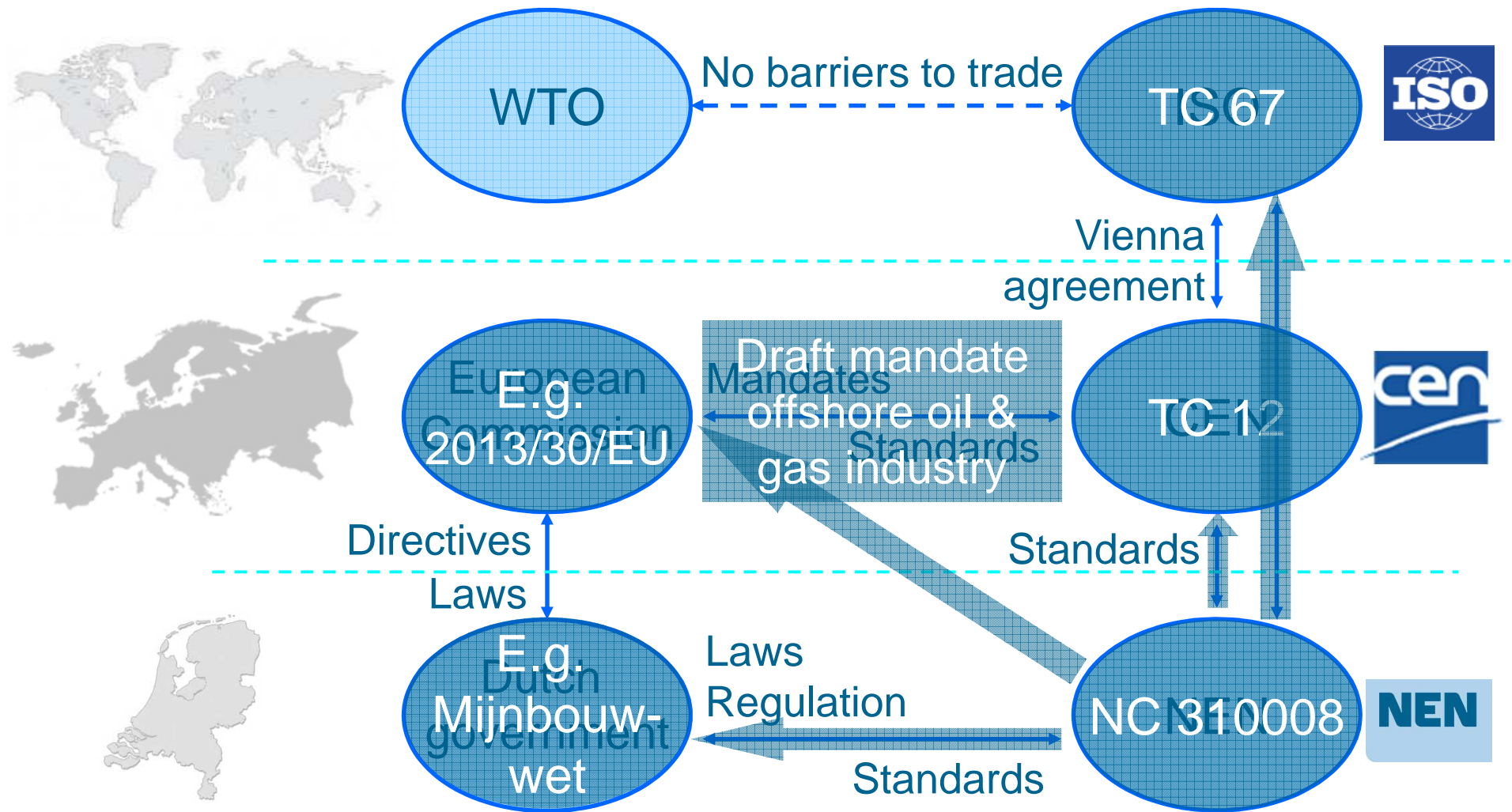
Standards in brown issued in 2013  
 Standards in green are a priority for 2014 issue  
 These ISO standards are only a core collection of several hundreds of International Standards available for the oil & gas industry

Source: IOGP | [www.iogp.org/international-standards](http://www.iogp.org/international-standards)

# INTERMEZZO

## OIL AND GAS STANDARDIZATION AND REGULATION

# Oil and gas standardization and regulation



**NEN**

**Legislation**

**Standardization**

# INTERNATIONAL STANDARDS FOR OFFSHORE STRUCTURES

# International standards for offshore structures (1) – ISO/TC 67/SC 7

Standardization in the field of offshore structures used in the production and storage of petroleum and natural gas, including procedures for assessment of the site specific application of mobile offshore units.

- P-members: 23
- O-members: 9

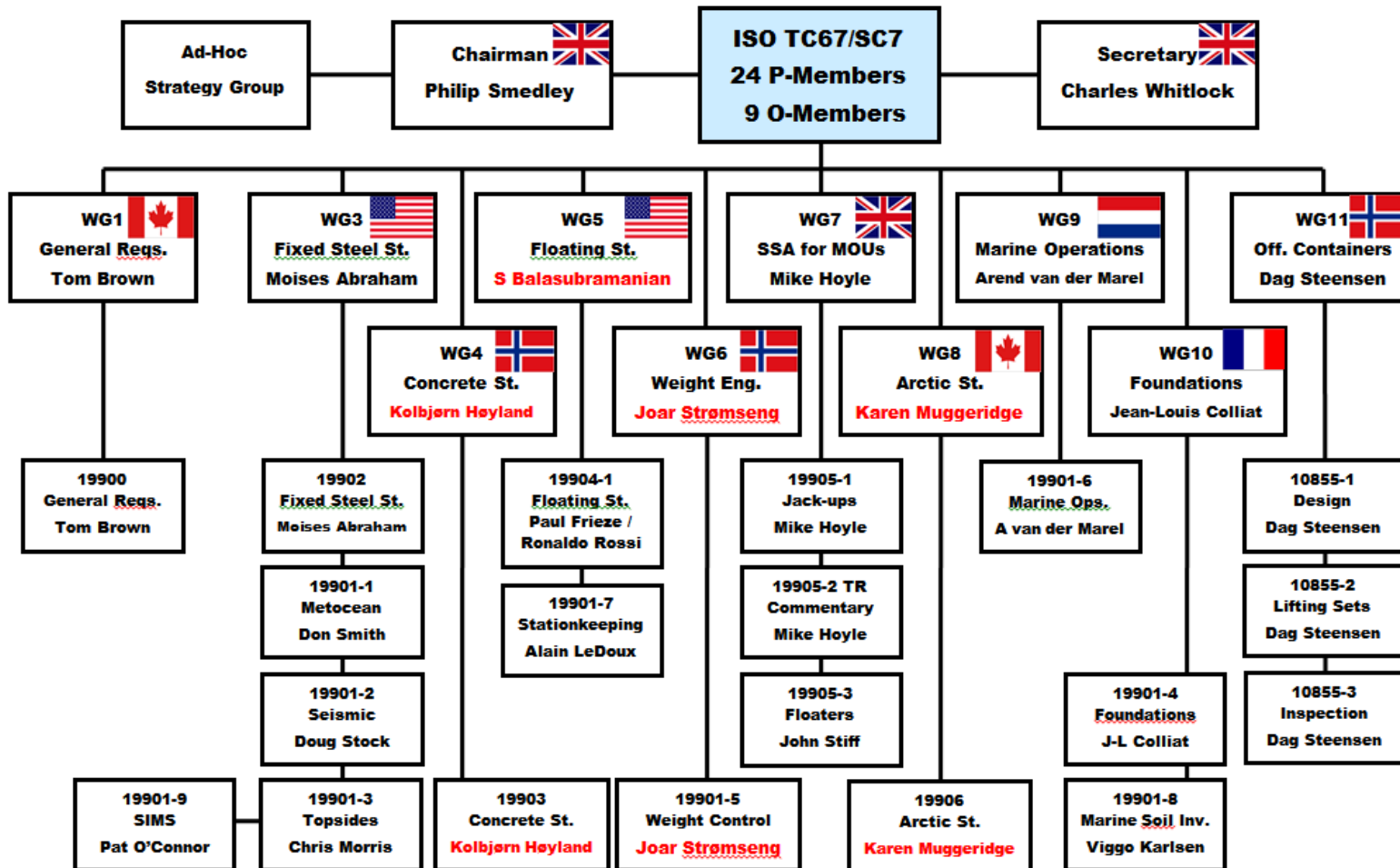
## Work Program

- Number of published ISO standards under the direct responsibility of ISO/TC 67/SC 7 (number includes updates): 17
- Currently 15 standards under development

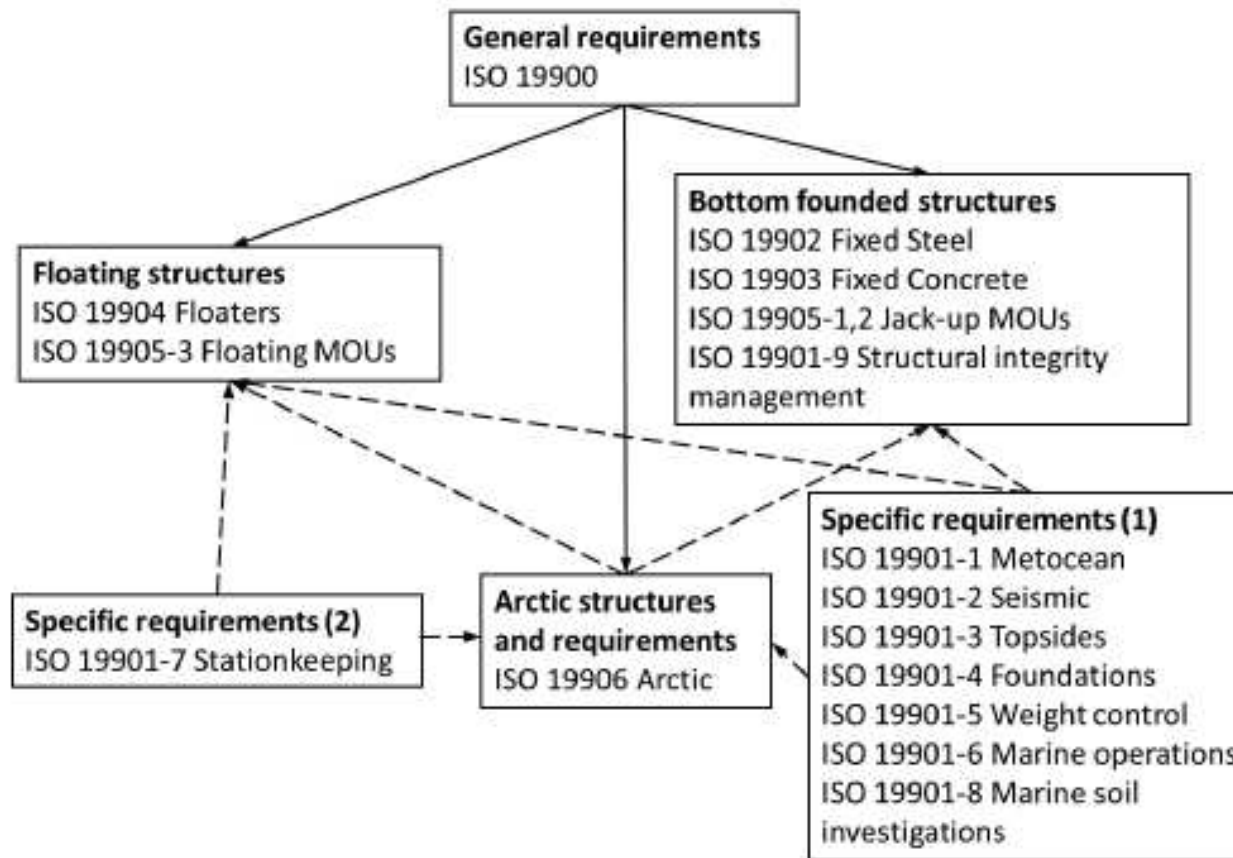
# International standards for offshore structures (2) – ISO/TC 67/SC7

- AG Advisory group – Strategy
- WG 1 General requirements
- WG 2 Regional annexes
- WG 3 Fixed steel structures
- WG 4 Fixed concrete structures
- WG 5 Floating systems
- WG 6 Weight engineering
- WG 7 Site specific assessment of mobile offshore units (MOUs)
- WG 8 Offshore Arctic structures
- WG 9 Marine operations
- WG 10 Foundations
- WG 11 Offshore freight containers

# International standards for offshore structures (3) – ISO/TC 67/SC7



# International standards for offshore structures (4) – ISO 19900 series





# International standards for offshore structures (5) – Work programme

ISO TC67/SC7 Programme - Kunming 26 June 2014

Doc: ISO TC67/SC7 N 738

|   | 2010        | 2011        | 2012         | 2013        | 2014        | 2015        | 2016        | STATUS          |
|---|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-----------------|
| ISO 19900<br>General Requirements         |             | CD<br>Apr   | DIS<br>May   | FDIS<br>May | ISO<br>Dec  |             |             | ---             |
| ISO 19901-1<br>Metocean                   |             | NWI<br>Oct  |              | DIS<br>May  | FDIS<br>Jul | ISO<br>Dec  |             | Pre FDIS Ballot |
| ISO 19901-2<br>Seismic                    |             | NWI<br>Nov  |              |             | DIS<br>Nov  | FDIS<br>May | ISO<br>Oct  | Pre DIS Ballot  |
| ISO 19901-3<br>Topsides                   | FDIS<br>Aug | ISO1<br>Dec |              | NWI<br>Sept | DIS<br>May  | ISO<br>Nov  |             | In DIS Ballot   |
| ISO 19901-4<br>Foundations                |             | NWI<br>Nov  | WD1<br>Oct   |             | DIS<br>Jul  | FDIS<br>Jun | ISO<br>Nov  | DIS formatting  |
| ISO 19901-5<br>Weight Engineering         | WD3<br>Jun  |             |              | DIS<br>Aug  | FDIS<br>Jan | ISO<br>May  |             | Pre FDIS Ballot |
| ISO 19901-6<br>Marine Operations          | ISO         |             | Corr1<br>Dec |             | NWI<br>Feb  |             | DIS<br>Jun  | Pre DIS         |
| ISO 19901-7<br>Stationkeeping             |             | DIS<br>Mar  | FDIS<br>Sept | ISO<br>May  | NWI<br>Sept | DIS<br>Sept | FDIS<br>May | Pre DIS         |
| ISO 19901-8 Marine Soil                   | WD3<br>Apr  |             | DIS<br>Dec   |             | FDIS<br>May | ISO<br>Nov  |             | In FDIS Ballot  |
| ISO 19901-9<br>SIM Fixed Steel Structures |             |             |              | NWI<br>Jan  |             | DIS<br>Jan  | FDIS<br>Mar | ISO<br>Oct      |
| ISO 19902<br>Fixed Steel Structure        |             |             |              | Amd1<br>Aug | NWI<br>Sept | DIS<br>Dec  | FDIS<br>Jan | ISO<br>May 17   |
| ISO 19903<br>Fixed Concrete               |             |             |              |             | NWI<br>May  |             |             | NWIP Ballot     |
| ISO 19904-1<br>Floating Structures        |             |             |              | NWI<br>Jun  |             | DIS<br>Feb  | FDIS<br>Jan | ISO<br>May 17   |
| ISO 19905-1<br>SSA Jackups                |             | FDIS<br>Jul | FDIS2<br>Mar | ISO<br>Aug  |             | Corr<br>Jul |             | Corrigenda      |
| ISO TR 19905-2<br>SSA Jackups Comm        | WD<br>Oct   | CD<br>Jul   |              | FDTR<br>Nov | TR<br>May   |             |             | ---             |
| ISO 19905-3<br>SSA MOUs                   |             | NWI<br>Nov  |              | WD<br>Nov   |             | DIS<br>Mar  | FDIS<br>Mar | ISO<br>Sep      |
| ISO 19906<br>Arctic offshore              |             | ISO<br>Dec  |              | NWI<br>Nov  |             | DIS<br>Oct  |             | Pre DIS         |
| ISO 10855-1<br>Offshore Containers        |             |             |              |             | NWI<br>Jul  | DIS<br>Sep  | FDIS<br>Nov | ISO<br>May      |

London Singapore Houston Pau Rio Copenhagen Kunming Holland Canada

● = systematic review



# International standards for offshore structures (6) – Work programme

- Active work items:
  - 19901-1, Metocean design and operating considerations [FDIS]
  - 19901-2, Seismic design procedures and criteria [WD]
  - 19901-3, Topsides structure [FDIS]
  - 19901-4, Geotechnical and foundation design considerations [DIS]
  - 19901-5, Weight control during engineering and construction [FDIS]
  - 19901-6, Marine operations [NP]
  - 19901-7, Stationkeeping systems for floating offshore structures and mobile offshore units [WD]
  - 19901-9, Structural Integrity Management [WD]

# International standards for offshore structures (7) – Work programme

- Active work items (continued):
  - 19902, Fixed steel offshore structures [WD]
  - 19904-1, Monohulls, semi-submersibles and spars [DIS]
  - 19905-3, Floating units [WD]
  - 19906, Arctic offshore structures [WD]
  - 19903, Fixed concrete offshore structures [WD]
  - 19905-1, Jack-ups [FDIS]
  - 10855 Offshore containers and associated lifting sets [DIS]
    - > Part 1: Offshore container - Design, manufacture and marking
    - > Part 2: Lifting sets - Design, manufacture and marking
    - > Part 3: Periodic inspection, examination and testing

# WHAT'S NEXT?

## What's next? (1)

- Consider to attend ISO/TC 67/SC 7 meeting in Delft on 11 & 12 March as observer [learn more about topics and meet experts from all over the world]
- Consider to become an expert in one or more ongoing standardization activities [benefit from participation in international standardization]

## What's next? (2)

- NEN will check amongst experts and other stakeholders if there is interest in organizing periodic meetings related to offshore oil and gas standardization
- Possible advantages of such meetings:
  - Information exchange
  - Reports on progress and concerns of ongoing standardization activities and how to act on this
  - Coordination to determine Dutch position and bring forward this position in international arena
  - Identification of topics that would need new international standards or revision of existing ones

# DISCUSSION

# Discussion

- Are people interested in participating in work of ISO/TC 67/SC 7?
- Do people see merits in organizing national meetings on offshore oil and gas standardization?
- Are there ideas for topics that need standardization?
- ... [anything else one would like to discuss]



# THANK YOU FOR YOUR ATTENTION

francoise.dejong@nen.nl  
jarno.dakhorst@nen.nl

[www.nen.nl/energy](http://www.nen.nl/energy)

**NEN**