Benefits of participation in standards development and in the use of standards

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July 2010, Geneva
Purpose

This presentation sets out to explain the following:

• Shell Standardization Management
• Shell Participation in ISO/TC 67 and ISO/TC193, ISO/TC28, and other SDOs work
• Benefits of International Standards
Background

- Shell operates in more than 110 countries in 6 continents
- Shell is an international company, trading in an international industry, using international (and national) suppliers under many different regulatory regimes.
- For our projects and operations, Shell prefers to use International Standards (ISO and IEC), and is actively supporting this.
- This presentation concentrates on the technical standards for the equipment to build and operate our facilities.
Company Strategic Standardization Management

Executive Technical Standards Board: All Shell Group Businesses

Transparent standards structure: Policy

Internal standards: Provision of standards (DEPs);
Rationalize local operating company variations

External standards: Input to external standards

Procurement: Variety control: type restriction; vendor selection

Process Safety: Identify/mandate requirements

Project use of standards: Facilitate ease of use of standards;
Provision of internal and external standards;
CD-ROMs and company website

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Supports drive towards ESSA

- Eliminate
- Simplify
- Standardize
- Automate
Shell Transparent Standards Structure

Increased resources for critical standards

Management control
Knowledge feedback

External Standards

Shell Group Common Base.
Central organization responsibility

Company Variation

Local Operating
Company responsibility

Project Variation

Business justification to deviate

DEP – Design and Engineering Practice
Company Variation – EGGS in USA; ESTGs in Canada; ERDs in Oman etc

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Shell Technical Standards Policy

In our DEPs and Technical Standards:

• Maximise use of common industry standards (ISO/IEC if possible)
• Minimise additional company requirements
• Ensure variations justified (technical and commercial)
• Ensure continuous improvement (feedback from users)
• Influence external standards bodies. Participate actively in the technical committees and working groups of key external standards

Benefits are maximised when all companies use the same common industry standards
Standardization Bodies - Relationships

- **International**
  - ISO / IEC
  - Vienna Agreement

- **Regional**
  - CEN / CENELEC
  - Other European

- **National**
  - ANSI
  - China
  - Brazil, etc.
  - BSI

- **Industry**
  - API
  - ASME
  - OGP
  - EEMUA
  - EI

- **Companies**
  - OPERATORS
  - CONTRACTORS
  - SUPPLIERS

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Focus on key external standards

- 1,000,000 standards published worldwide
- 100,000 standards made available to Shell
- 20,000 titles accessed each year
- 2,000 standards referenced in DEPs
- 200 standards managed

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Shell participation in external standards work

Shell Group representation on key external standards committees at:

- **International level (priority):** ISO/TC 67, ISO/TC193, ISO/TC28; IEC
  - 15 project leaders; experts in many Work Groups

- **Industry level:** API’s three main standards committees (CSOEM, COPM, CRE); ASTM; ASME; EI; EEMUA; CINI; NFP; NACE; OCIMF; ACI; SIGTTO; ..
  - 15 project leaders; experts in many Work Groups

- **Regional Level:** CEN: CEN/TC12, CEN/TC19
ISO/TC 67 Vision

Global Standards Used Locally Worldwide

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Members of ISO/TC 67

29 Participating (P) Members:

Argentina, Bahrain, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Indonesia, Iran, Italy, Japan, Kazakhstan, Korea, Mexico, Netherlands, Norway, Portugal, Qatar, Romania, Russian Federation, South Africa, Spain, Sweden, Ukraine, United Kingdom, USA

30 Observer (O) Members:

Australia, Austria, Azerbaijan, Bulgaria, Colombia, Croatia, Cuba, Czech Republic, Ecuador, Egypt, Hong Kong, Hungary, India, Ireland, Libya, Malaysia, Moldova, Mongolia, Nigeria, Oman, Poland, Saudi Arabia, Serbia, Singapore, Slovakia, Switzerland, Thailand, Trinidad and Tobago, Turkey, Viet Nam

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ISO TC67 has published 143 standards.

API has adopted 70 of these as joint API / ISO standards.

CEN has adopted 122 of these as joint European EN ISO standards.

China (49), Gulf Region (48), Kazakhstan (59), Russia (11) etc. have also adopted many of these ISO stds.

Example: Shell uses these as the basis for their company standards.
Identical standards published by ISO and API
Air-Cooled Heat Exchangers for General Refinery Service

API Standard 661, Fifth Edition
March 2002


and CEN

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Trend towards transparency - Benefit of external standards efforts
(Total number of DEPs = 367)

Number of DEPs based on external standards

Year end


No. of DEPs

14 18 22 28 34 38 44 48 56 64 74 78 97 102 109 117 120 127

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Company benefits from standards

Cost Reduction - Increase Business Efficiency
- Simplify design and procurement in Projects; Variety Control
- Interchangeability of equipment
- Promote stable and global market

Enhance Technical Integrity
- Safety, Health and protection of the Environment
- Maximise availability, minimise lost revenue

Establish a Common Technology Base
- Technology transfer / Sharing best practice / Remove barriers to trade (WTO)

Support Legislation, where linked
- Safety and Environmental Regulations (e.g. Process Safety Management)
- Procurement Legislation (e.g. European Directives)
- Essential Requirements (e.g. ‘New Approach’ European Directives)

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Total Cost of Ownership

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Cost/Benefit example from 2000

27 FOCUS ITEMS FOR ISO/TC67

SUBSURFACE
- ISO 10432 (SSSV)
- ISO 11960 (Casing & Tubing)
- ISO 11961 (Drillpipe)
- ISO 13680 (CRA Casing & tubing)
- ISO 10426-1,2 (Well cements)
- ISO 13500 (Drilling fluids)

SUBSEA SYSTEMS
- ISO 13628-1 (Subsea systems)
- ISO 13628-2 (Flexible pipe)
- ISO 13628-4 (Subsea wellhead & christmas tree)
- ISO 13628-6 (Subsea production controls)

OFFSHORE STRUCTURES
- ISO 13819-2 (Offshore structures)

OFFSHORE TOPSIDES
- ISO 10423 (Wellhead & christmas trees)
- ISO 13535 (Hoisting equipment)
- ISO 13702 (Control and mitigation of fire & explosion)
- ISO 13703 (Piping systems)

PIPELINES
- ISO 13623 (Pipelines)
- ISO 3183-3 (Linepipe)
- ISO 13847 (Pipeline welding)
- ISO 14313 (Pipeline valves)

PROCESS FACILITIES
- ISO 10437 (Steam turbines)
- ISO 10439 (Centrifugal compressors)
- ISO 10441 (Flexible couplings - special)
- ISO 13706 (Air-cooled heat exchangers)
- ISO 13707 (Reciprocating compressors)
- ISO 13709 (Centrifugal pumps)
- ISO 14691 (Flexible couplings - general)

TOTAL US $ 20 billion p.a.
Cost/Benefit example from 2000

Total worldwide industry expenditure covered by the 27 ISO/TC67 Focus List Standards = US $ 20 billion p.a
(Shell share 10% = US $ 2 billion)

If only 1% is saved by the use of the ISO standards, then
BENEFIT = US $ 200 million p.a.
Investment to achieve this is COST = US $ 8 million p.a.

Hence \( \text{RETURN} = \frac{\text{BENEFIT}}{\text{COST}} = \frac{200}{8} = 25 : 1 \)
Economic benefits of standards
Research in economic benefits

• Shell supports ISO’s efforts to develop a methodology to quantify the economic benefits of standardization.
• We would be pleased to participate further.
• Keep it simple.
Conclusions

• Standards are a corporate asset, and not a corporate liability
• Shell will maintain a standards system
• Shell needs and uses international standards
• Shell participates in developing international standards
Thank you for your invitation to the WSC Academic Week, in Geneva, to share this with you

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www.iso.org
www.ogp.org.uk
www.ifan.org

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Back-up
Context - In Shell we use both Group Standards and Technical Standards

Group Governance

- **Group Standards**
  - mandatory across Shell, signed by CEO
  - examples: Finance, HSSE (includes AIPSM Standards), IM, Disclosure

- **Group Manuals**
  - mandatory instructions on implementation of Group Standards
  - examples: AIPSM Application Manual; DEM 1 and DEM 2

- **Group Guides**
  - Non-mandatory guidance on good practice

Industry/Engineering

- **Technical standards**
  - **Internal standards**
    - DEPs (Design and Engineering Practices)
    - Local Shell company standards
    - Project specifications

  - **External standards**
    - International Standards (e.g. ISO, IEC standards)
    - national standards (e.g. BS, DIN standards)
    - industry standards (e.g. API, ASTM standards)

- **Regulations**
  - Legal force; may or may not refer to standards

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The basics – What are the DEPs?

The Design Engineering Practices are made for cross-business, application e.g. Upstream & Downstream:

- **Engineering**
  - Concept selection guidelines
  - Pre-engineering (selection/variety control; reliability/integrity; purchasing specifications)
  - Life-cycle cost optimised

- **Construction** (preservation, commissioning, inspection, testing)

- **Operation/maintenance**

Governance by Shell Executive Technical Standards Board (ETSB)

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DEP facts

- **367 DEPs**
  - Road map for use of the most appropriate external standards
  - 120 are endorsements, amendments/supplements to external standards
  - 2000+ external standards referenced

- **2000+ website users per day**
  (DEPs, external standards, MESC)

- **Written in same editing style as external standards**
  - Contain a combination of shalls and shoulds

- **DEPs updated based on criticality: learnings and pace of change**

DEPs are approved by Executive VP Projects and Technology

Administered by Shell Standards Team

.... still much to do....

July 2018 Geneva
The complexity of our technical governance is simplified through a single point of access

Shell Technical Standards intranet site:

- Access for all Shell staff worldwide to the internal company technical standards;
- 100,000 external standards from the main standards organizations used by Shell;
- Communication to build shared vision
- Accessed by 2000+ users per day

http://sww.shell.com/standards
...and there are regional / local variations

Upkeep and application of multiple versions costs $$$$$ and Quality

External Standards
Shell Group Common Base. Central organisation responsibility

Several Local / Regional standards - Operating Company responsibility

Individual Project variations

Move to one set of global, cross-business standards
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DEP making process

Feedback

Shell Technical Standards e-mail box

- DEPs licenses, internal & external users comments
- External Standards inquiries
- MESC and TAMAP inquiries

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2010 DEPs Revision Programme

Objectives:
- Simplification
- Ease of Project Application
- Increased commercial incentives
- Maintain Corporate Technical Knowledge
- Efficient & effective global governance

Move to align with Control Frameworks

July 2012 Geneva
Standards + Variety Control = Standardization

Two standardization examples
30% price savings on electric cable, and 50% stock reduction.
30% price savings on valves, and 80% stock reduction.

A catalogue such as MESC is a key enabler for standardization

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ISO/TC 67

Title: Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries

Scope: Standardization of the materials, equipment and offshore structures used in the drilling, production, transport by pipelines and processing of liquid and gaseous hydrocarbons within the petroleum, petrochemical and natural gas industries. Excluded: aspects of offshore structures subject to IMO requirements (ISO / TC 8).
ISO/TC 67 statements

**Mission:**
To create value-added standards for the oil and natural gas industry

**Vision:**
Global standards used locally worldwide

**Goals:**
- Prepare standards required by this industry
- Prepare standards that could be adopted worldwide by bodies such as API and CEN
- Publish standards that enable companies to minimize their specifications
- Deliver standards to the target dates on the agreed work programme
ISO TC67
organisation and secretariat (flag)

- Re-established in 1989 with ANSI/API holding secretariat
- Member countries: 32 participating, 28 observing
- Involves more than 1,500 engineers around the globe
- Last annual plenary meeting, in Canada, 1-2 October 2009
- Next annual plenary meeting in Doha, 26-27 October 2010
- Management Committee meets three times per year
- Next MC meeting in Washington, 28 June 2010
- Published standards: 142
- Current work programme: 71 standards (new + revisions)
Recent change in ISO/TC67 Secretariat

- ANSI/API (USA) have relinquished the Secretariat of ISO/TC67 after 20 years service
- ISO have allocated this Secretariat to NEN (the Netherlands) – July 2009
- Effective from October 2009:
  - Neil Reeve – Chair (Shell)
  - Harold Pauwels – Secretary (NEN)
Recent changes in ISO/TC67

- New Work Group 8 on Materials (Brazil)
- New Work Group 10 on LNG (France)
- Upcoming change in Subcommittee 2 Secretariat
- Steadily increasing membership (new: Bahrain, Belgium, Iran, Kazakhstan and Sweden)
- Steadily increasing participation (Brazil, China, Russian Federation)
- Accelerating national adoption
- More than half the portfolio has been revised at least once or is in revision

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Participating Members

Observing Members

Membership continues to grow

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ISO/TC 67 accomplishments:

Cumulative number of documents published

Note: excluding “fasttrack” ISOs

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Way forward

• ISO/TC67 has a solid portfolio of standards for equipment for our industry.
• They are developed by experts from oil companies, manufacturers, certification bodies and regulators from all over the world.
• Increasingly, they are used by companies and accepted by regulators around the world.
• “Cooperation, not competition” in standards.