This case study gives an overview of an international joint-industry project (JIP 33) facilitated by the International Association of Oil and Gas Producers, implementing standardisation in the oil and gas sector to improve delivery and reduce costs.

1. Context for standardisation in Oil and Gas industry

Relative to the early 2000s, capital project costs in the oil and gas industry have escalated by a factor of 2-3 on a like-for-like basis\(^1\). Approximately 70% of industry-wide capex escalation comes from inefficient practices\(^1\). Standardisation may hold the key to eliminating some of these inefficiencies and contribute to improving future major oil projects.

2. Project Details

Project name: JIP 33
Location: international
Value: N/A
Date of completion: 4Q 2016 (proof-of-concept)
Duration: 1 year (proof-of-concept)
Participating companies: 17 oil and gas operators (BP, Chevron, Engie, Eni, ExxonMobil, Maersk, OMV, Pemex, PTTEP, Repsol, Saudi Aramco, Shell, Sonangol, Statoil, Total, Wintershall, and Woodside)
Contractor and Project manager: KBR (project management and subject-matter expert services)
Facilitator: International Association of Oil and Gas Producers

Challenge summary: eliminating inefficiencies in delivering major project in the oil and gas industry.
Challenge solution: standardisation of equipment to achieve improvements in cost and schedule as well as better safety, quality and reliability of facilities.

3. Introduction to simplification of the oil and gas industry

Simplification and cost reduction are major challenges facing the oil and gas industry today. The joint-industry project (JIP33), supported by the World Economic Forum Capital Project Complexity initiative and facilitated by the International Association of Oil and Gas Producers, has identified standardisation as a key opportunity to reduce inefficiencies in delivering major projects in the oil and gas industry. With the focus on capital efficiency becoming even greater, industry-level standardisation is likely to gain increasing importance as a competitive strategy for offshore oil and gas projects.

4. What can standardisation do for oil and gas?

To deliver cost savings on projects, operators across the oil and gas industry are looking at standardisation as a way of simplifying the processes from design and construction through to installation and start-up, in order to create safer, more predictable and reliable facilities that start-up on time and stay up.

*Reduce bespoke design*

Although individual companies in the oil and gas industry have been improving standardisation within their own businesses, the industry as a whole lags behind others, such as automotive and aviation sectors, and erodes value by creating bespoke components in each project.

*Simplify procurement*

The initial focus of JIP33 was on standardisation of equipment and bulk materials as these are the building blocks making up the packages and the modules that come together to form an entire project. However, there are savings to be made before this stage. During procurement, equipment specifications (comprised of technical requirements, quality requirements and documentation requirements) are given to an equipment vendor to obtain a potential bid. If these specifications are standardised, the procurement process is more
streamlined and the delivered components are easier to validate and maintain; this will lead to millions of dollars of potential savings per major project.

**JIP33 produced standardised equipment specifications**

Through collaboration of subject matter experts from the participating operators with the independent engineering consultancy’s technical leads, the proof-of-concept stage of JIP33 delivered standardised equipment specifications for procurement of low voltage switchgears, ball valves, subsea wellheads and piping and valve materials. These specifications are based on industry and international standards, as well as operators’ experience and expertise and also incorporate feedback from suppliers.

**Reduce bid-evaluation time**

Furthermore, simpler bid processes and more standard production lines for fabrication and testing can lead to improved supplier efficiency. For example, one of the participating operators (BP) has reduced its bid-evaluation period for major rotating equipment from more than a year to six months as a result of standardised internal specifications.

**Add value and improve safety**

Significant benefits in project cost and schedule can come from minimising preferential engineering; by not re-writing equipment specifications on each project, costs and worktime are reduced. Eliminating inconsistencies and unnecessary requirements also leads to fewer fabrication defects, thereby enhancing equipment reliability, quality and safety.

**Improve industry learning**

In addition to addressing inefficiencies, standardised specifications can also create a new global platform for industry learning, where lessons can be captured and fed directly back into future projects across the globe through updating the specifications.

**Optimise design**

In terms of the civil and structural engineering scope on projects, the predictability offered by standardised equipment specification is highly beneficial in the front-end engineering design stage of offshore platforms and delivery of the relevant equipment packages. Civil and structural engineers are typically involved in technical bid evaluation and delivery of equipment packages in projects, for example lifting equipment such as winches. Standardised specifications can help set clear expectations from the outset for the design of supporting structures, as well as supplier management. Engineering teams can then focus on optimising design rather than re-inventing the wheel or resolving technical issues which may arise from inconsistent or unclear requirements.

**5. Conclusions**

The common objective for major oil and gas projects globally is to deliver safe and economically viable facilities, which start-up on time and stay up. Standardisation has the potential to support this goal and industry-wide collaboration is needed to realise the full benefits.

*Culture change is needed to broaden use to bring larger benefits*
The success of the standardisation initiative in the oil and gas industry will depend on how widely the developed specifications are used by companies globally. This is more of a culture change challenge than a technical one. The true economic benefits of standardisation will only become evident after several years, once standardised equipment are delivered across the industry. The operators participating in this initiative are committed to continue delivering industry-wide standardisation through additional standardised equipment specifications and by supporting the necessary culture change for embedding the published specifications in practice.

To find out more on progress of JIP 33, visit the IOGP website, where you can also sign up to the JIP33 mailing list to receive updates.