

Joint Industry Guideline

Standardised Supply Chain Behaviour – Topside projects

Version 1.0 – April 2019



NORWEGIAN
CONTINENTAL
SHELF



Index

1

Foreword

2

Executive Summary

3

Introduction

4

Best practices

5

KPI and Benchmark

6

Appendices

1

FOREWORD

FOREWORD BY THE NORWEGIAN OIL AND GAS ASSOCIATION AND THE FEDERATION OF NORWEGIAN INDUSTRIES

In 2018 **KonKraft** published the report “Competitiveness - changing tide on the Norwegian continental shelf”. The report highlighted initiatives that can help shape the future competitiveness of the Norwegian continental shelf (NCS). The ambition is to reduce the level of cost back to the year 2000 while having sustainable margins for contractors and suppliers through market cycles.

The KonKraft report recommends several ways to develop profitable solutions:

- Accelerate standardisation and simplifications
- Enable industrial economies of scale
- Reduce intermediate levels
- Involve suppliers earlier in projects to influence and enable smarter solutions
- Risk sharing
- Use of standard contracts

The successful implementation of these recommendations will require close collaboration between all parties in the supply chain.

The project **standardised supply chain** has been one such cross-industry collaboration initiative between The Norwegian Oil and Gas Association representing operators and The Federation of Norwegian Industries representing contractors and suppliers. Their aim has been to contribute to the intention of, and recommendations in the KonKraft report, which has resulted in:

- A guideline describing best-practice collaboration across the supply chain, to reduce total cost of ownership for operators while achieving sustainable margins for contractors and suppliers.
- A benchmark to measure behavioural change towards best practice, improve performance and competitiveness on a project, company and industry level.
- A joint improvement arena between the parties represented by The Norwegian Oil and Gas Association and The Federation of Norwegian Industries, that will drive further improvement initiatives

This **guideline**, together with its governance, will serve as a platform for implementation of the recommendations from the KonKraft report, to the benefit of society, the industry, each player and individual project. The guideline will also serve as an engine to operationalise related ongoing initiatives (common digital language, READI, EPIM JQS, standard contracts etc.).

This guideline describes first version of the recommended best practices. Improvement and update of the guideline will be based on feedback and experience. Governance and control still resides with the individual companies.

*“The Federation of Norwegian Industries, the Norwegian Oil and Gas Association and our respective member companies are pleased to present a joint industry guideline for **delivering smart solutions, cost reductions, sustainable margins and more integrated ways of working** between suppliers and operator companies.*

Above all – this will contribute to maintain the Norwegian continental shelf as one of the best-managed and innovative offshore sectors worldwide”



Karl Eirik Schjøtt-Pedersen
Director general
The Norwegian Oil and Gas Association



Stein Lier-Hansen
Director general
The Federation of Norwegian Industries

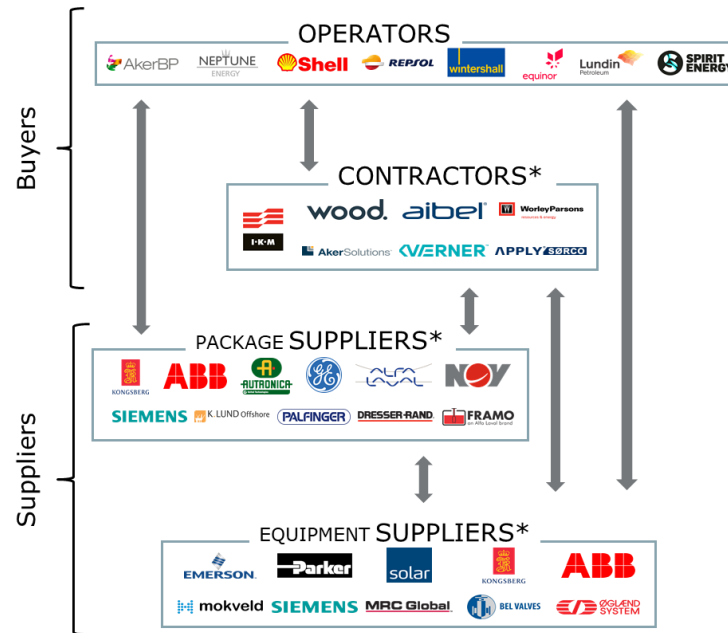


2

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY – Current situation

This guideline is developed to address complex issues in the current supply chain to improve the competitiveness on the NCS. Current main issues include:



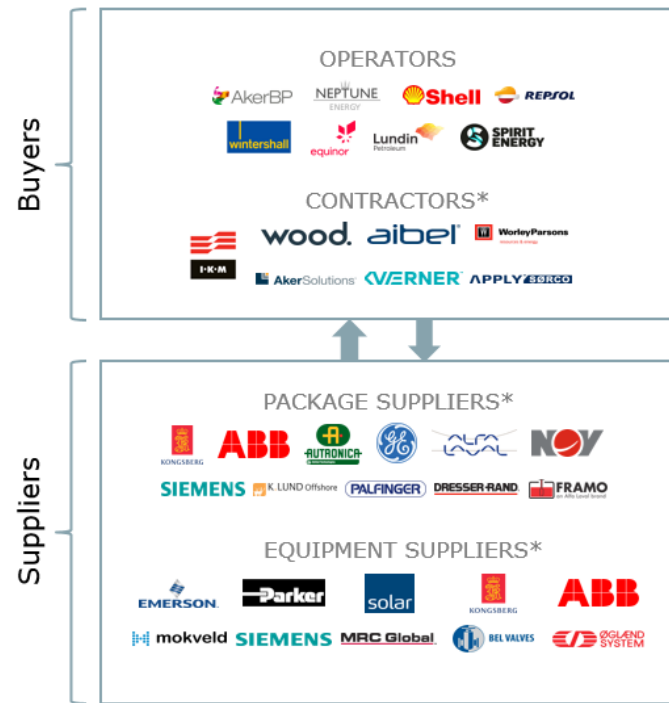
*Examples of representative companies

- The supply chain contains **unpredictable and diverse buyers**
- **Ineffective collaboration** across the supply chain
- Non-value-adding behavior is **driving waste** in the supply chain
- Inefficient processes leading to **increased cost levels** for the operators and **unsustainable margins** for the contractors and suppliers.

EXECUTIVE SUMMARY – Desired future situation

The future supply chain will have a standardised and predictable buyer group catering for sustainable margins

Effective and integrated collaboration across the supply chain



*Examples of representative companies

- Delivery of **standard solutions is the main rule**
- **Key suppliers are actively engaged** in scope optimisation
- Contractor has **smart design as driver**, based on standardised solutions
- **All deviations from standard deliveries are based on cost-benefit analysis in a Total Cost of Ownership perspective**
- **Operator/contractor approves gaps** between standard solutions and customer specifications prior to establishing purchase order
- **Commitment to QA plan** create basis for predictable and effective delivery
- As a general principle **risk should be transparent for all parties** and placed where it is best controlled or mitigated. Standard contracts should be used as a tool to ensure such transparency and correct placing of risk

EXECUTIVE SUMMARY – Recommendations

An analysis conducted by the players in the supply chain identified several recommendations that will improve the supply chain and increase competitiveness on the NCS



Increase use of industry **STANDARD DELIVERY**

By using functional requirements, standard products should be the basis for all deliveries.

Necessary customisation should be based on cost-benefit considerations.



Better and earlier use of **SUPPLIER EXPERTISE**

Early selection and involvement of key supplier(s) expertise for optimisation of scope.

Establish joint effort for smart design in a Total Cost of Ownership (TCO) perspective.



ALIGN DRIVERS across the supply chain

Use compensation formats and incentives to drive value creation for the overall business case as well as cost efficient design and supply chain collaboration.

Compensate key suppliers for significant and value adding engineering contributions.

Use industry standard contracts through the supply chain, ensuring transparent risk allocated where best managed.



Change operator and contractor **CULTURE**

Understand and avoid cost-driving behaviour.

Leadership in the companies to drive change, implement best practice and adjust based on results from benchmark.

Cross-organisational collaboration to utilise competence for value creation.

EXECUTIVE SUMMARY – Alignment of drivers

Use of incentives is needed in order to align players in the supply chain towards a common goal. To stimulate effective collaboration across the supply chain, the following incentives are recommended:



- **Share cost savings resulting from smart solutions** during optimisation of scope with contractor. The intention is to establish incentives to obtain an active collaboration between key suppliers, contractor and operator, securing a cost effective integration, operation and maintenance. This should be combined with incentives for engineering efficiency (e.g. lump sum or target cost).
- **Compensate key suppliers for significant and value adding engineering contributions** (engineering contribution to be separated from sales activities). The intention is to contribute to effective deliveries and sustainable margins in key suppliers' purchase orders.
- Contracts that involve performance during the operational phase, might also incentivise the collaboration through **mechanisms that reward high performance and reduced Total Cost of Ownership after handover to operations.**

EXECUTIVE SUMMARY – Measuring the effect

Measuring the effect of the standardised supply chain behaviour will be based on KPIs and an industry benchmark, measuring ability to change, effect on the project portfolio and benchmark against maritime industry.



Benchmark Maritime industry
(Qualitative survey)



Benchmarking between the oil & gas industry and the maritime industry will be based on an **annual qualitative survey** with input from the suppliers serving both industries



Ability to change
(Qualitative KPI reporting)



Measuring the ability to change through **feedback** from the operator, contractor and supplier at several measure points in a project.



Commercial effect
(Quantitative KPI reporting)



Measuring the commercial effect through **feedback** from the operator, contractor and supplier at several measure points in a project.

3

INTRODUCTION

INTRODUCTION

This guideline is jointly developed and recommended by member companies of The Norwegian Oil and Gas Association and The Federation of Norwegian Industries. The guideline is not a steering document, but a recommended industry best practice. The more the recommendations are complied with, the larger the benefit are on an industrial level. Target groups for utilisation of recommended best practices are project management, engineering management and procurement management in topside projects.

Purpose

By acting in accordance with this guideline, oil and gas parties (operators, contractors and suppliers) will contribute to a more predictable and cost-efficient supply chain on the NCS, ultimately increasing competitiveness for each party as well as the NCS as a whole.

Area of application

This guideline covers topside projects on the NCS. However, several best practices are transferrable to other types of oil and gas projects and compliance with recommendations is encouraged where relevant. Further the guideline is limited to deliveries using proven technology, delivered by pre-qualified suppliers.

The recommended best practices and measurements described in the guideline are categorised according to the phases illustrated below.



HOW TO NAVIGATE IN THE GUIDELINE

The guideline is developed with hyperlinks to easily navigate back and forth.

1	Foreword
2	Executive Summary
3	Introduction
4	Best practices
5	KPI and Benchmark
6	Appendices

From the index, you can click on the coloured numbers to go directly into the selected chapter.

INTRODUCTION

This guideline is jointly developed and recommended by member companies of The Norwegian Oil and Gas Association and The Federation of Norwegian Industries. The guideline is not a steering document, but a recommended industry best practice. The more the recommendations are complied with, the larger the benefit are on an industrial level. Target groups for utilisation of recommended best practices are project management, engineering management and procurement management in topside projects.

Purpose
By acting in accordance with this guideline, oil and gas parties (operators, contractors and suppliers) will contribute to a more predictable and cost-efficient supply chain on the NCS, ultimately increasing competitiveness for each party as well as the NCS as a whole.

Area of application
This guideline covers topside projects on the NCS. However, several best practices are transferrable to other types of oil and gas projects and compliance with recommendations is encouraged where relevant. Further the guideline is limited to deliveries using proven technology, delivered by pre-qualified suppliers.

The recommended best practices and measurements described in the guideline are categorised according to the phases illustrated below.

Scope definition - Equipment and package
What do we actually need?
Available standard solutions?

Optimisation and smart integration of scope
Utilisation of expertise across the supply chain

Execution and installation
Safe, effective and predictable

Operations
Optimal TCO and safe operations

Navigation icons: Home, Back, Forward

Page number: 13

Bottom navigation: FOREWORD, EXECUTIVE SUMMARY, **INTRODUCTION**, BEST PRACTICES, KPIs, APPENDICES

From the top, you have 3 choices:
'Home' icon – back to index
Arrow back – previous page
Arrow forward – next page

Some pages have hyperlinks in the text visualised with underline and blue text.

In the process, you can click on a process step to go directly to it.

At the bottom, you can navigate between chapters by clicking on the chapter name.

4

BEST PRACTICES

INTRODUCTION TO BEST PRACTICES

This chapter presents intentions and recommended best practices to achieve the desired future situation described in executive summary. The best practices are subject to continuous improvement based on feedback and experience, while their intention remains as a foundation to increase competitiveness on the NCS.

Type of procurement processes will vary based on the equipment/package in question, and a clear categorisation is recommended to decide on approach for procurement.

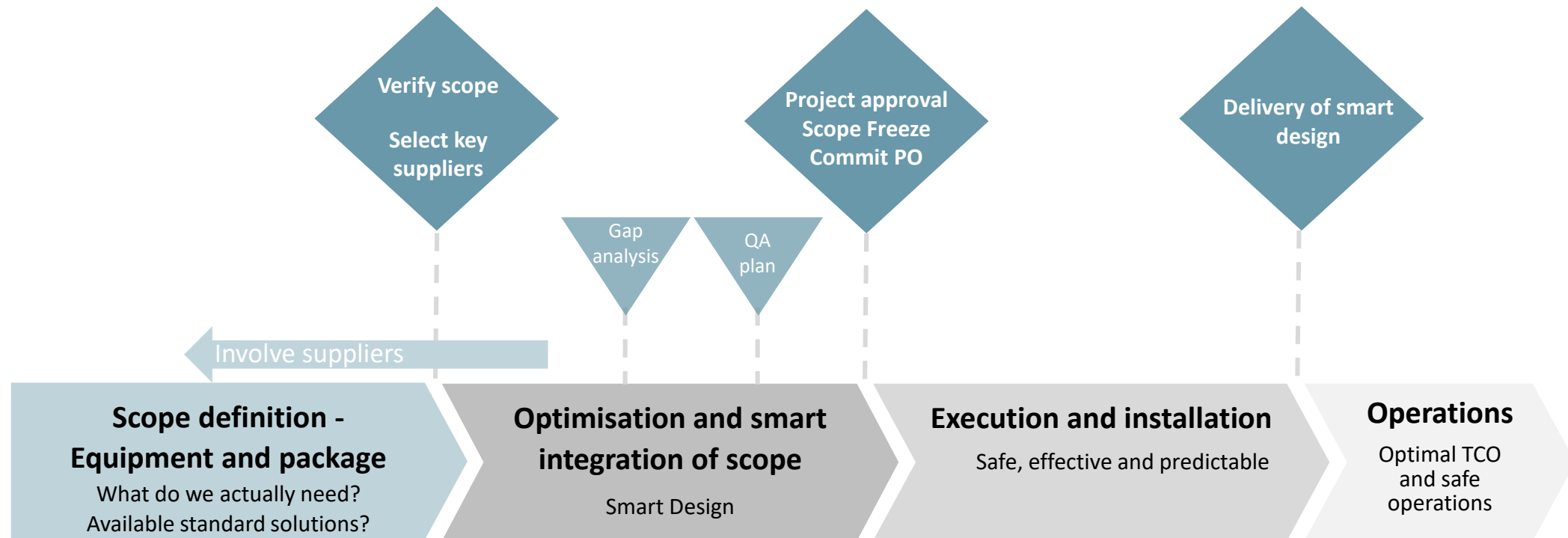
A first group is for procurement of fully standardised products, including corresponding documentation, that shall be procured and managed as efficiently and automated as possible. This group is planned for inclusion in later versions of this guideline.

A second group is for solutions (equipment and packages) with potential for optimisation of interfaces and smart integration. For this group, it is recommended to follow the process for optimisation and smart integration described in this guideline.

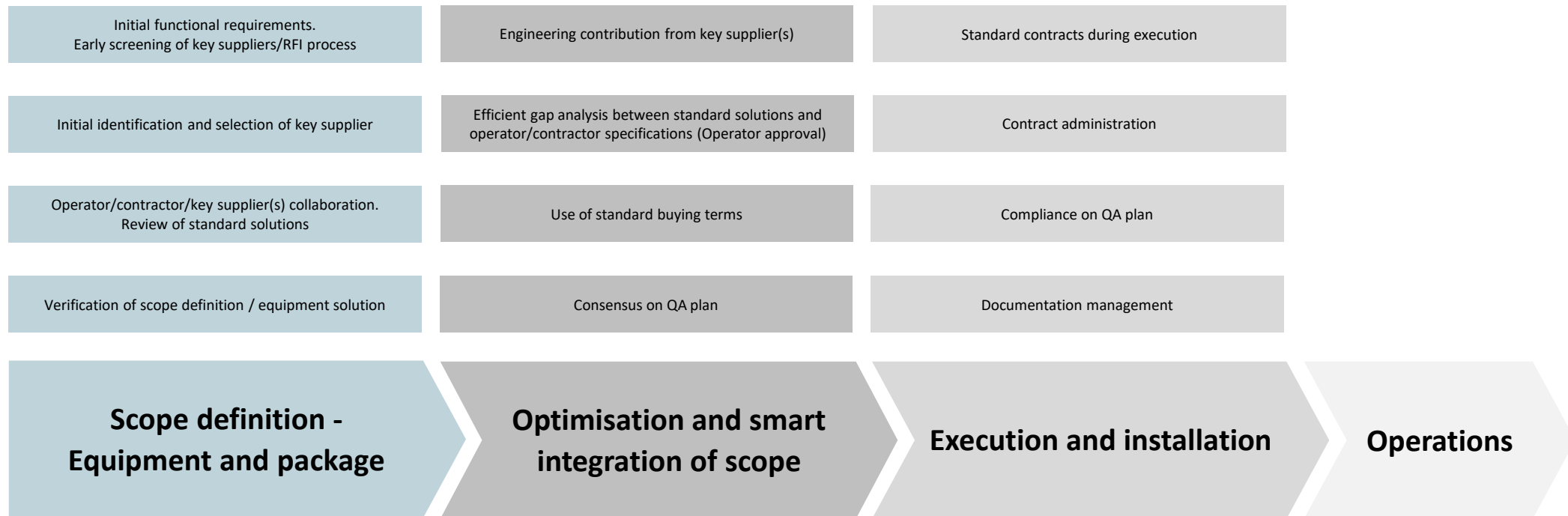
Appendix [equipment categorisation](#) provides an example for categorisation.

MAIN MILESTONES IN THE SUPPLY CHAIN PROCESS

Significant milestones are shown below - Best practices to optimise and ensure predictability in the supply chain are detailed in this chapter

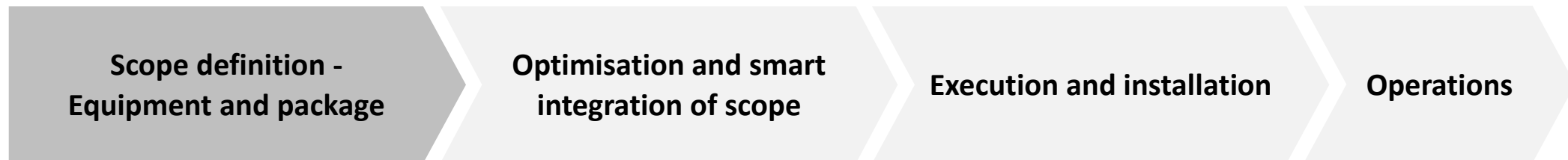


OVERVIEW OF RECOMMENDED BEST PRACTICES

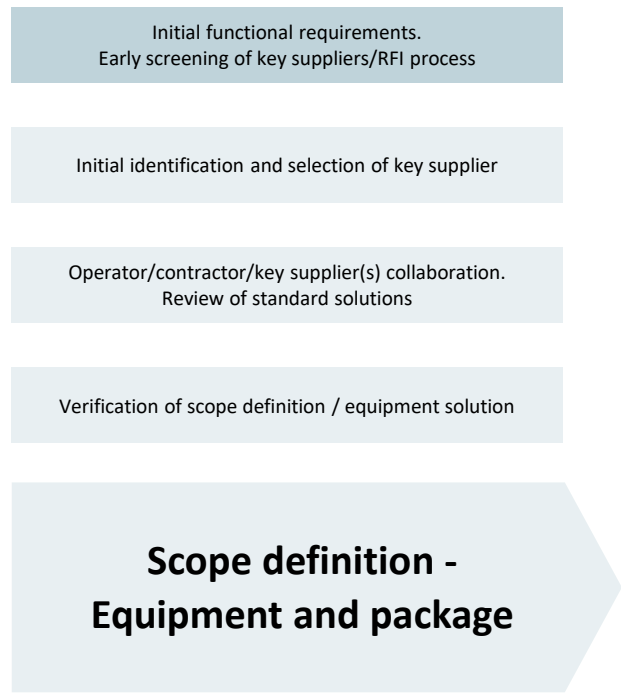


Scope definition - Equipment and package

Suppliers are invited to propose standard solutions for equipment based on functional requirements that do not include operator and/or contractor specific requirements. As early as practically possible key supplier(s) should be selected, in a fair and transparent way, to allow for efficient interaction and collaboration across the supply chain. Review of solutions proposed should be conducted in a Total Cost of Ownership (TCO) perspective, including operational considerations. Standard contracts should be used where relevant.



INITIAL FUNCTIONAL REQUIREMENTS AND EARLY SCREENING OF KEY SUPPLIERS / REQUEST FOR INFORMATION (RFI) PROCESS



The operator and contractor, as buyers, are recommended to perform an initial screening process of key suppliers, using functional requirements as basis for selection of equipment solution and final project delivery. These functional requirements are recommended to have no references to operator and/or contractor specific requirements in order to invite the market to propose standard solutions as basis for delivery.

INTENT

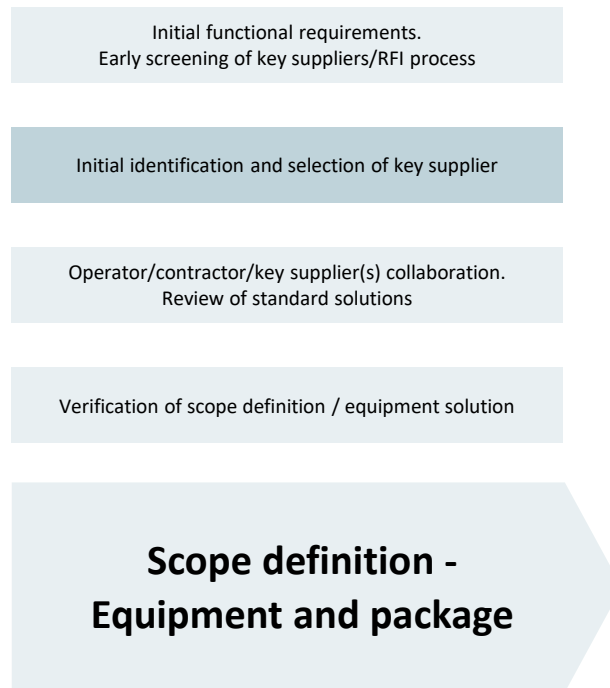
- Identify potential solutions based on standard equipment that meet functional requirements and industry standards
- Reduce waste by fair and early screening of a few possible key suppliers
- Enable suppliers to contribute to optimal and smart solutions at an early stage

RECOMMENDED BEST PRACTICE

- Operator and contractor, as buyers, should use the industry platform EPIM JQS as a source to engage potential suppliers
- Operator should provide functional requirements not including any operator specific requirements. [Link](#) to template in appendix 1.
- Operator and contractor, as buyers, should ensure an early and compact screening process (RFI process/frame agreement) conducted in a fair manner
- Initial offered solution should be based on standard equipment, and if available, based on recognised industry standard specifications (e.g. IOGP)

INITIAL IDENTIFICATION AND SELECTION OF KEY SUPPLIERS

The selection of key supplier(s) provides a foundation for open interaction and collaboration across the supply chain.



INTENT

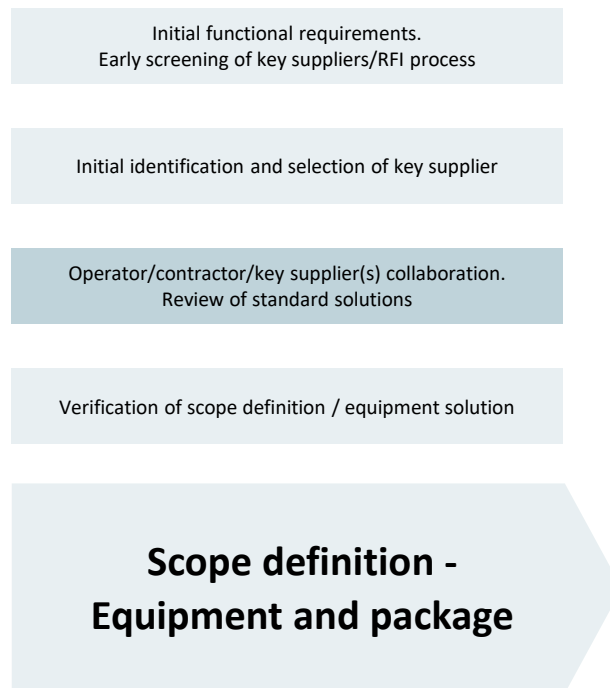
- Lay the foundation for close cooperation and process efficiency
- Lay the foundation for fit for purpose technical solution at the lowest total cost of ownership
- Avoid several parallel, cost-driving processes

RECOMMENDED BEST PRACTICE

- Operator/contractor should as early as practically possible select key supplier(s) to allow for efficient collaboration. Selection must be conducted in a fair and transparent way, including respecting intellectual proprietary rights (IPR)
- Reduce the number of competing key suppliers to a minimum as early as possible while ensuring an optimal business case
- Suppliers not selected, that have contributed significantly, must receive debrief on reason

OPERATOR/CONTRACTOR/KEY SUPPLIER(S) COLLABORATION AND REVIEW OF SCOPE DEFINITION / STANDARD SOLUTIONS

Parties should collaborate prior to selection of equipment solution, in order to come up with the best solutions in a Total Cost of Ownership (TCO) perspective.



INTENT

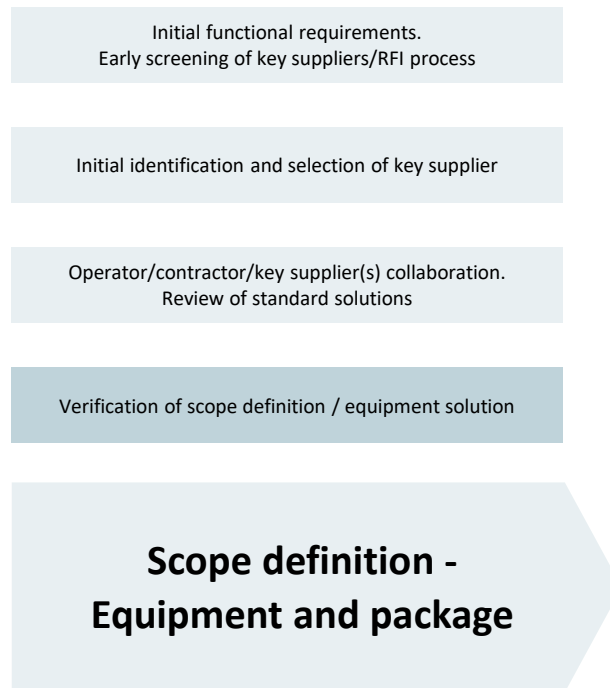
- Establish a collaborative environment and effective work process with focus on smart design
- Capitalise on supplier’s expertise and technology prior to selection of equipment solution to improve overall design
- Challenge the need for customisation with a cost-benefit TCO approach
- Establish high level baseline for optimisation and smart integration

RECOMMENDED BEST PRACTICE

- Initiate a collaboration with the key supplier(s)
- Define scope and critical requirements as foundation for review of standard solution
- Engineering contribution from key suppliers to be separated from sales activities
- Jointly review standard solutions in a TCO perspective (including operational considerations)
- Establish preliminary Total Cost of Ownership estimate at time of scope selection (CAPEX and OPEX), if feasible and expedient

VERIFICATION OF SCOPE DEFINITION / EQUIPMENT SOLUTION

Following consideration of key supplier(s) and review of standard solutions, operator and contractor should verify feasibility of equipment solution and agree on common ground for further engineering. Having verified the equipment solution, a selection is made. This selected equipment solution will serve as basis for optimisation moving towards project execution and placement of purchase orders.



INTENT

- Verify feasibility and establish basis for collaborative environment
- Establish best possible common understanding of scope of work in a lifecycle and portfolio perspective.
- Create basis for involving key supplier(s) in optimisation and smart integration of scope (Front End Engineering Design)

RECOMMENDED BEST PRACTICE

- Operator and contractor to agree on proposed equipment solution as a feasible basis for further engineering
- Operator and contractor should agree on preliminary project execution strategy, and conditions for optimisation of solution.

**Scope definition -
Equipment and package**

Optimisation and smart integration of scope

The selected equipment solution is optimised through smart design and in collaboration between the parties. Important steps are the gap analysis and QA plan consensus: The gap analysis clarifies and reduces risk, while consensus on QA plan provides predicatability and reduces non-value-adding follow-up. Standard contracts should be used where relevant, and standard buying terms should be used as basis for purchase. Key supplier(s) is compensated for significant engineering contributions, and contractor is incentivised to reduce the total cost of ownership through optimisation and smart integration of scope.



ENGINEERING CONTRIBUTION FROM KEY SUPPLIER(S)

To facilitate drivers towards common goal (smart design and reduced Total Cost of Ownership), operators/contractors may opt to compensate key suppliers for early phase engineering contributions where this can improve the overall business case.

Engineering contribution from key supplier(s)

Efficient gap analysis between standard solutions and operator/contractor specifications (Operator approval)

Use of standard buying terms

Consensus on QA plan

Optimisation and smart integration of scope

INTENT

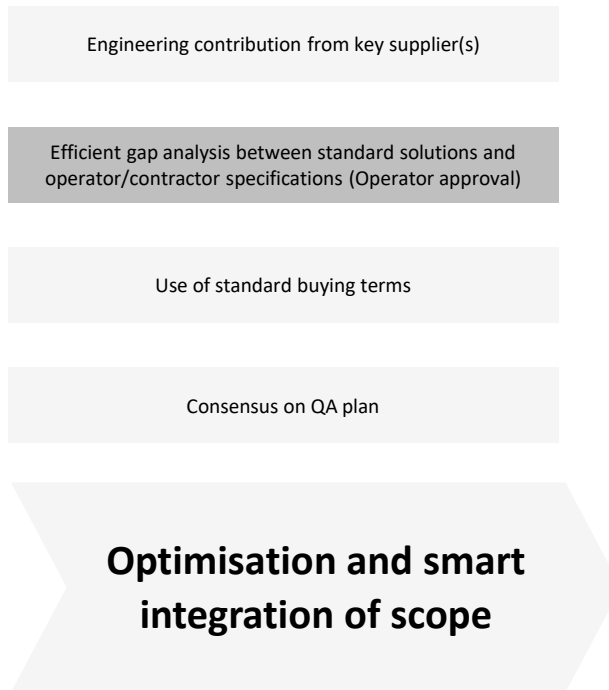
- Avoid different actors in the supply chain performing the same engineering and thereby waste.
- Increase engineering efficiency
- Facilitate drivers towards common goals related to the overall business case

RECOMMENDED BEST PRACTICE

- Include key supplier(s) in operator's and/or contractor's team when relevant
- Re-use engineering from other relevant solutions delivered
- Operators/contractors may opt to compensate key suppliers for early phase engineering contributions where this can improve the overall business case

EFFICIENT GAP ANALYSIS BETWEEN STANDARD SOLUTIONS AND OPERATOR/CONTRACTOR SPECIFICATIONS (OPERATOR APPROVAL)

During this phase (Optimisation and smart integration of scope), a gap analysis should be conducted to identify and approve gaps between standard solutions and operator/contractor specific requirements. Deviations from standard delivery (design, documentation, tag and SPIR) should be evaluated based on cost-benefit analysis. The gap analysis should be formally approved by operator prior to issue of PO.



INTENT

- Ensure foundation for scope freeze and predictable execution
- Clarify and reduce risk for all parties during project execution
- Cost-benefit approach should be the basis for necessary customisation
- Eliminate non-value-adding changes and follow-up during execution
- Establish a basis for purchase order

RECOMMENDED BEST PRACTICE

- Operator and contractor should conduct a gap analysis where gaps between operator and/or contractor specific requirements and industry standard requirements are approved or mitigated. Necessary changes to standard solutions should be based on a TCO cost-benefit approach.
- Clarifications towards operations and relevant engineering disciplines should be conducted to ensure operational considerations are accounted for in a Total Cost of Ownership perspective

USE OF STANDARD BUYING TERMS

Engineering contribution from key supplier(s)

Efficient gap analysis between standard solutions and operator/contractor specifications (Operator approval)

Use of standard buying terms

Consensus on QA plan

Optimisation and smart integration of scope

As a general principle procurement management should be familiarised with the relation between the Norwegian Total Contract 2015 (NTK 15) and the terms and conditions used for equipment supplies. Reference to [The Federation of Norwegian Industries](#) and [The Norwegian Oil and Gas Association](#) for more information on the cross-industry collaboration on standard contracts.

INTENT

- Ensure predictability and alignment on risk, terms and conditions across the supply chain

RECOMMENDED BEST PRACTICE

- Operator and contractor are recommended to align its general terms and conditions to the main project contracts in connection with procurement of proven technology

CONSENSUS ON QUALITY ASSURANCE (QA) PLAN

The QA plan is a tool to establish a collaborative and predictable foundation, supporting efficient delivery.

Engineering contribution from key supplier(s)

Efficient gap analysis between standard solutions and operator/contractor specifications (Operator approval)

Use of standard buying terms

Consensus on QA plan

Optimisation and smart integration of scope

INTENT

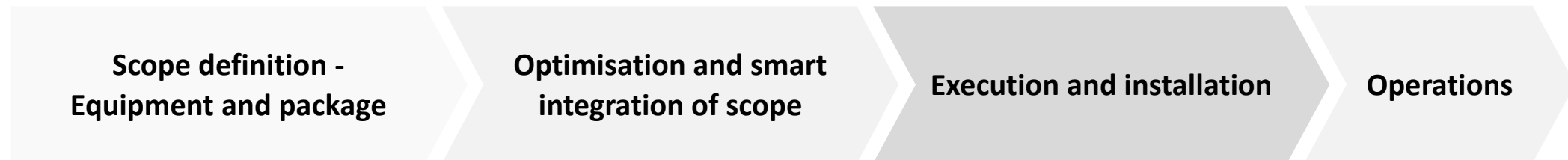
- Establish basis for efficient execution without non-value-adding interruptions (e.g. unplanned and uncoordinated visits (ref QA-plan), documentation reviews, notification regimes, witness/hold points)
- Establish common understanding regarding necessary risk-based follow-up
- Establish predictability for the supplier(s)

RECOMMENDED BEST PRACTICE

- Establish and agree on a common QA plan between operator, contractor and key supplier(s) when POs are issued. The following issues should be clearly defined
 - Plan for document review, approval and delivery (Life Cycle Information)
 - Plan for risk based follow-up and control

Execution and installation

Having conducted gap analysis and agreed on QA plan, a sound foundation for predictable and efficient execution is created. By acting in accordance with the agreed QA plan, non-value-adding follow-up is minimised. During execution operator and contractor contract administration should work integrated with the project management team to support progress and overall project results.



STANDARD CONTRACTS DURING EXECUTION

Risk has been mitigated prior to establishing PO, through approved gap-analysis and consensus on QA plan. This provides a foundation for predictable and efficient execution. Recognised standard contracts should be used, together with available mechanisms to incentivise efficient collaboration (e.g. cap on contractor's financial risk to a constructive level).



INTENT

- Achieve safe, effective and predictable project execution

RECOMMENDED BEST PRACTICE

- Recognised standard industry contracts should be used (e.g. NF 15/NTK 15)

CONTRACT ADMINISTRATION

Contract administration is operator's and/or contractor's personnel responsible for handling contractual issues during execution.



INTENT

- Have contract administration to support progress and overall results of the project
- Facilitate for effective delivery as agreed, across the supply chain

RECOMMENDED BEST PRACTICE

- During project execution, operator's and contractor's contract administration should work integrated with project management in accordance with agreed QA plan

COMPLIANCE WITH QUALITY ASSURANCE (QA) PLAN

The QA plan is a tool to establish a collaborative and predictable foundation, supporting efficient delivery.



INTENT

- Ensure efficient execution without non-value-adding interruptions (unplanned and uncoordinated visits, documentation reviews, notification regimes, witness/hold points) in accordance with supplier’s ISO 9001 certification

RECOMMENDED BEST PRACTICE

- The parties should comply with the QA plan that has been agreed. Deviation from QA plan may have consequences for project cost and progress

DOCUMENTATION MANAGEMENT

Documentation management should comply with mutually agreed QA plan.



INTENT

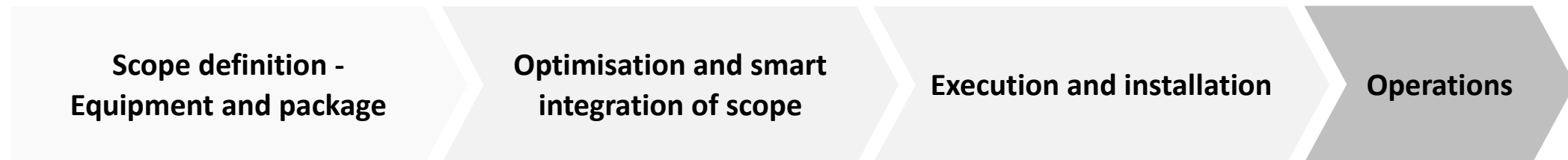
- Reduce non-value-adding document production and handling

RECOMMENDED BEST PRACTICE

- If no circumstances require otherwise, documentation is recommended to be retained at supplier (including Material Record Book), still securing legal rights for operator to control the information through entire lifetime of equipment.
- Utilise recognised digital industry platforms (e.g. EqHub)
- Monitor number of revisions of documents

OPERATIONS

The intention is that successful deliveries from the previous phases will unlock the potential for reduced Total Cost of Ownership (TCO) during operations, including portfolio synergies. An understanding of the smart solutions and intentions from previous phases is needed for these to have the desired effect during operations. Engagement of operations prior to purchase is therefore essential for full utilisation of the benefits.



5




KPI AND BENCHMARKING

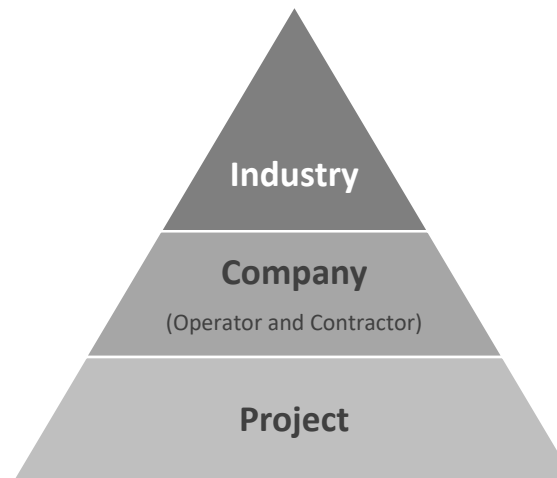
MEASURING THE EFFECT OF THE STANDARDISED SUPPLY CHAIN BEHAVIOUR

Collaboration between The Norwegian Oil and Gas Association and The Federation of Norwegian Industries will build on follow-up of competitiveness on the NCS, and stimulate continuous improvement. Such collaboration will be based on KPIs and an industry benchmark, measuring ability to change, effect on the project portfolio and benchmark against maritime industry.




The analyses will be based on input from projects and an annual survey from suppliers delivering to both oil and gas and the maritime industry.

Input to KPI database:

-  **Benchmark Maritime industry**
(Qualitative survey)
-  **Ability to change**
(Qualitative KPI reporting)
-  **Commercial effect**
(Quantitative KPI reporting)



Analysed output from KPI database:

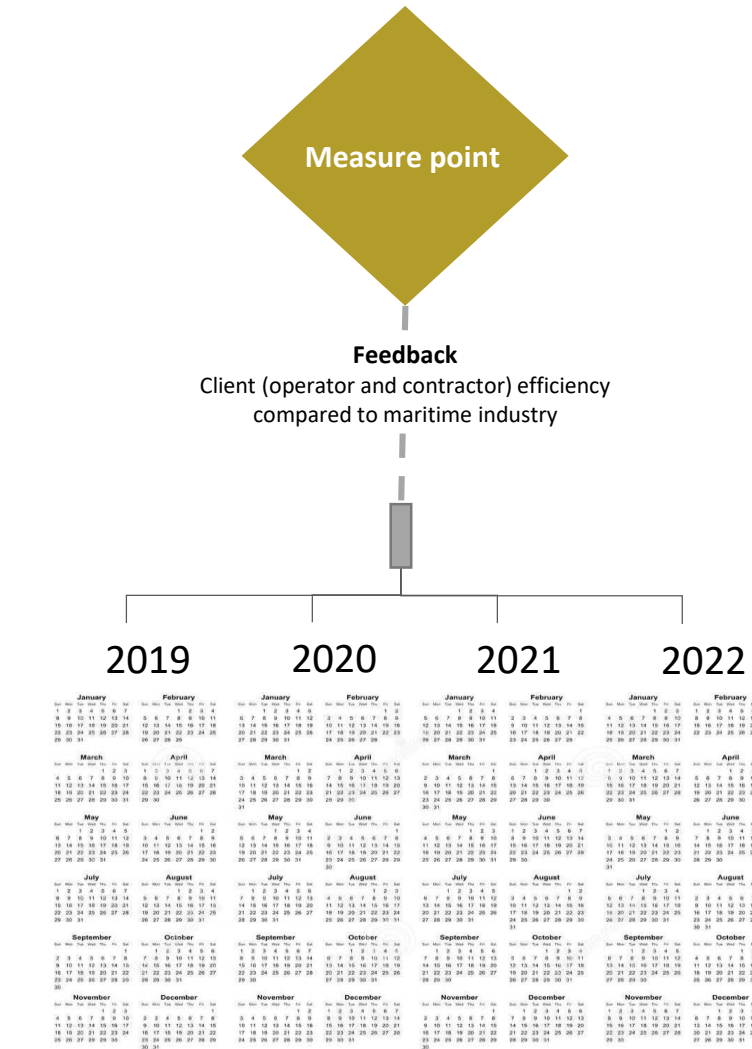
-  Measures and stimulates NCS competitiveness
-  Measures and stimulates company competitiveness on basis of KPIs and benchmarking
-  Measures the effect of recommended best practice

Pre-requisite: Confidential processing and distribution of sensitive information

Benchmark maritime industry

Currently the oil and gas industry has a significantly higher cost on equipment deliveries with embedded services, compared to relevant maritime industry on similar deliveries. The ambition is to be comparable to relevant maritime industry on cost and behaviour.

Benchmarking between oil & gas industry and maritime industry will be based on an annual qualitative survey with input from the suppliers serving both industries. Reference to appendices for details.



Project-based measurements

The defined project-KPIs will be basis for measuring the ability to change and the financial impact of the recommended best practice. The KPI reporting will be process-based and conducted three times during a project. Reference to appendices for details.

Measurement, benchmark and reporting to be developed



6

APPENDICES

APPENDICES INDEX

ABBREVIATIONS AND TERMINOLOGY

FUNCTIONAL REQUIREMENTS

TAG

SPARE PART INTERCHANGEABILITY RECORD (SPIR)

LIFE CYCLE INFORMATION (LCI)

EQUIPMENT CATEGORISATION

KPI REPORTING

ABBREVIATIONS AND TERMINOLOGY

Business case	A business case captures the reasoning for initiating a project by evaluating; HSE and commercial implications in a total cost of ownership perspective, company and portfolio strategy context etc.
CAPEX	Capital Expenditure
EPIM	E&P Information Management Association. A non-profit membership association governed by the operators on the Norwegian continental shelf
EPIM JQS	A joint qualification system for suppliers to the oil and gas industry in Norway and Denmark
Industry Standard	International and Norwegian industry standards and guidelines (e.g. NORSOK, ISO, API, IOGP etc.), as opposed to customised specifications
Key supplier	Supplier with significant impact on the value add to the total scope (e.g system/layout design), using competence to optimise and enable smart integration. Key supplier is defined by project management individually for each project scope.
NF & NTK	Norsk Fabrikasjonskontrakt & Norsk totalkontrakt. Standard contracts for the petroleum activities on the Norwegian continental shelf. Link for more information
OPEX	Operating Expense
Pre-qualified supplier	Supplier with references to previous deliveries to the NCS, and certified (e.g. ISO 9001:2015) by accredited body. The supplier should also be represented in the industry's join qualification system (e.g. EPIM JQS)
Proven Technology	Industry proven technology with references
Qualified technology	Technology where appropriateness and quality is demonstrated/confirmed (technology where qualification is not required)
RFI	Request For Information
Smart design	Cost efficient and robust configuration based on standard solutions
Standard Equipment	Equipment/components from supplier catalogue, or assembled from standard components, and produced in accordance with offshore industry standards/requirements
Standard solutions/delivery	Solution/delivery based on Qualified Technology and Standard Equipment
Total Cost of Ownership (TCO)	The intention of using TCO as a term, is to secure a holistic view to key value elements beyond CAPEX. This includes efficient considerations of impact on engineering hours, portfolio, operation, CO2 footprint, maintenance and future modifications, as examples

FUNCTIONAL REQUIREMENTS

Functional requirements describe necessary capacities, limitations, framework conditions and premises for integration and interface towards other systems, without detailing how.

Below is a typical template for use by operators and contractors.

[Back to guideline](#)

Functional requirements of equipment delivery

Functional Description

What	Description
Type of equipment	<input style="width: 95%;" type="text"/>
Placement	<input style="width: 95%;" type="text"/>
Dimensions	<input style="width: 95%;" type="text"/>
Capacity	<input style="width: 95%;" type="text"/>
Handling/lifting	<input style="width: 95%;" type="text"/>

Scope of Supply

What	Description
Quantity (Supplier to identify accessories)	<input style="width: 95%;" type="text"/>

Design Criteria

What	Description
Design life (time)	<input style="width: 95%;" type="text"/>
Realibility (when relevant)	<input style="width: 95%;" type="text"/>
Noise	<input style="width: 95%;" type="text"/>
Temperature	<input style="width: 95%;" type="text"/>
Protection of equipment	<input style="width: 95%;" type="text"/>
Wind loads	<input style="width: 95%;" type="text"/>
Earthquake loads	<input style="width: 95%;" type="text"/>
Other limiting factors	<input style="width: 95%;" type="text"/>

Integration and interfaces

What	Description
Integration in/interface towards other systems	<input style="width: 95%;" type="text"/>

Reference list

What	Description
Industry standards adhered to	<input style="width: 95%;" type="text"/>
References from previous deliveries to NCS (or similar)	<input style="width: 95%;" type="text"/>

TAG

A tag is a unique identifier to identify functional location in a facility/system. Further, the purpose of tags are to enable cost effective development, operation, inspection, maintenance, modification and management of technical information (Documentation for Operation/Life Cycle Information) of a facility/system throughout its lifecycle. Expansion of, and revisions to, tag structure is a cost driver and should in general be avoided.

Functions related to safe, reliable and efficient operations are subject to tagging.

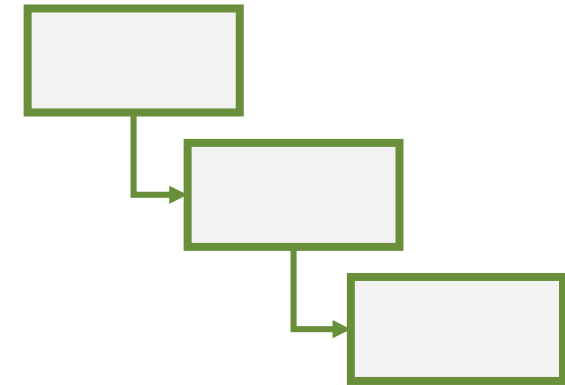
Equipment always subject to tagging:

- a) Equipment subject to certification
- b) Equipment subject to inspection-/maintenance-programs
- c) Equipment performing a safety function
- d) Equipment included in the facility's P&IDs
- e) Signals required to operate the facility/system in a safe manner

Recommended practice

As a general principle, equipment identification is recommended to follow supplier's numbering system, and this should form the basis for necessary further linking to a facility's documentation.

It is recommended that supplier follow recognised industry standards for equipment numbering/identification (e.g. Norsok Z-TI/READI or ISO 81346-2:2009 Industrial systems, installations and equipment and industrial products).



SPARE PART INTERCHANGEABILITY RECORD (SPIR)

SPIR is a list of spare parts rated on criticality for availability, and provides a recommendation for quantity of spare parts needed for a given system.

The intent is to align the parties and establish a best practice for efficient processing of necessary SPIR information across the supply chain. Information quality must enable the identification of interchangeability, map relevant materials across operators and avoid duplication of spare parts.

Recommended practice

Discussions around best practice is ongoing in several joint industry initiatives, and recommendation is planned for inclusion in version 2 of this guideline in Q3 2019.



LIFE CYCLE INFORMATION (LCI)

Need for documentation beyond supplier's standard deliveries drives cost and should be limited to information necessary to integrate delivery into plant documentation.

Recommended practices

As a general principle, only project specific engineering/interface documents should be submitted for review processes. Standard documentation should not be submitted for review processes, however the operator will still have legal rights to control the information.

Agreement on LCI requirements should be established as early as possible, and be in line with industry standards (e.g. NORSOK).

Supplier Document Requirements List (SDRL) should include a minimum number of documents. Avoiding "nice to have" document requirements will increase efficiency related to documentation management and reduce cost.

The use of company specific logos should be minimised, with the intention to enable effective sharing and re-use of documentation across companies.



EQUIPMENT CATEGORISATION

Procurement processes will vary based on type of equipment. Below is a categorisation example on categorisation of different equipment and short description of the procurement process.



Category	Procurement process
1 - Standard equipment based on recognised industry standards (CE, ISO, ASME, etc.). E.g. detectors, electro-/instrument-components	Procure and manage as efficiently and automated as possible (commodity)
2 - Standard equipment with some additional company specific requirements*	
3 - Complex multi-discipline packages. E.g. packages related to processing of oil and gas (handling of produced water as an example)	Follow process for optimisation and smart integration (subject to best practices in this industry guideline).

*Include expertise from key suppliers for optimisation of integration when relevant

KPI REPORTING

Measurement, benchmark and reporting to be developed

