OGUK

Provision of Competent Technical Advice

Guidelines

Issue 01
June 2021

Acknowledgments

In preparing and publishing this document, OGUK gratefully acknowledges the contribution of members of the work group, namely:

- Andrew Sekulin, Serica Energy (Chair)
- Calum Kermack, DNV
- Conor Crowley, Atkins Ltd
- Duncan Talbert, MMI Thornton Tomasetti
- Jamie Harcus, Harbour Energy
- Nikos Evangelopoulos, Bluewater Energy Services
- Phil Vercueil, Petrofac

ISBN: 978-1-913078-36-2
PUBLISHED BY OGUK

London Office:

1st Floor, Paternoster House, 65 St Paul's Churchyard, London, EC4M 8AB
Tel: 0207 802 2400

Aberdeen Office:

4th Floor, Annan House, 33-35 Palmerston Road, Aberdeen, AB11 5QP
Tel: 01224 577250

info@oguk.org.uk

www.oguk.org.uk

Provision of Competent Technical Advice

June 2021

Contents

List of Abbreviations

Abbreviations	Definitions
ACOP	Approved Code of Practice
ALARP	As Low as Reasonably Practicable
EQ	Engineering Query
HAZID	Hazard Identification (study)
HAZOP	Hazard and Operability (study)
IQ	Integrity Query
MAH	Major Accident Hazard
MHSWR	Management of Health and Safety at Work Regulations 1999
MOC	Management of Change
ORA	Operational Risk Assessment
P&ID	Piping and Instrumentation Diagram
PS	Performance Standard
RCA	Root Cause Analysis
SECE	Safety and Environmentally Critical Elements
SME	Subject Matter Expert
TA	Technical Authority
TQ	Technical Query

1 Introduction

1.1 Purpose

This document provides guidance to duty holders of production installations on the provision of competent technical advice on management of SECE integrity throughout the asset lifecycle.

While this document is focussed on the requirements of production duty holders, it may be applied more widely within the offshore or other industries.

1.2 Competent Technical Advice – Terminology and Role Titles

There is a regulatory requirement on duty holders to provide "competent technical advice" throughout the lifecycle of an asset. Each duty holder must determine the most appropriate way to meet this requirement, there is no "one size fits all" model.

A range of role titles are frequently used for people involved in providing competent technical advice with one of the most common being "Technical Authority". Whilst widely used in the industry, both in guidance documents and individual organisations, there is no specific requirement to use this terminology and there is no consistent definition of this term within industry. Where it is used, some organisations may define an individual as a technical authority for a specific discipline or topic area, while other organisations may assign the job title technical authority within each discipline to many people, potentially differentiated by levels of seniority.

While technical authority is one of the most commonly used terms, a wide range of other titles may be used in relation to people providing competent technical advice, such as discipline engineer, operations support engineer, lead engineer, principal engineer or subject matter expert.

Irrespective of the terminology and job titles used, the underlying requirement is to provide competent technical advice throughout the lifecycle of an asset.

1.3 Regulations and good practice

UK regulations do not require that duty holders appoint Technical Authorities "TA", however the HSE guidance provides explicit expectations that duty holders will apply specialist technical knowledge to support decisions on the selection and management of SECE.

The appointment of competent persons is part of the duty holder's demonstration of compliance with Regulation 7 of the Management of Health and Safety at Work Regulations 1999 (MHSWR) which begins:

"(1) Every employer shall […] appoint one or more competent persons to assist him in undertaking the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions".

The regulation then clarifies the responsibilities on employers to ensure that an adequate number of people are appointed, that those appointed are given sufficient time and resources to fulfil the function and that they are competent.

MHSWR applies to all employers, not only duty holders for offshore installations. The HSE has, however, published guidance for duty holders for offshore installations on their expectations for compliance.

The HSE first referenced the term "technical authority" in the 2007 KP3 Asset Integrity Programme which is paraphrased below.

The strategic role of the TA, in this context, is to provide expertise and judgement on key operational engineering issues. The TA is responsible for evaluating and making engineering and other technical judgements on the safety and production implications arising from offshore operational issues.

The HSE offshore inspection guide on "SECE Management and Verification (publication dated 01.03.2020)" provides further clarification on their expectations on how duty holders will provide "competent technical advice" particularly with regards to the management of MAH, the identification of SECE and establishing their performance standards.

For SECE management to be effective, the duty holder should be able to demonstrate:

- That competent technical advice on the integrity of SECE is available to the duty holder.
- That those responsible for providing advice on SECE to duty holder management are competent to do so.
- How a duty holder established that those making decisions on SECE understand the work involved, the principles of risk assessment and prevention, the current legislation and health and safety standards.
- That any person providing competent technical advice on SECE is familiar with the installation and the plant on it.
- That personnel involved in providing competent technical advice have suitable levels of engagement with the people involved in day-to-day management and operations to maintain awareness of operations status and any problems.

A useful document to refer to is the OGUK Guidance on the Conduct and Management of Operational Risk Assessment for UKCS Offshore Oil and Gas Operations.

2 Types of technical input

The ways in which technical advice may be provided can be broadly defined into four main categories:

- Discipline stewardship and setting standards.
- Decision making.
- Audit and assurance.
- Support to the team (added value).

These four identified input criteria are supported by a broad review of duty holders' practices undertaken in the course of developing this guidance, refer to the supporting document "Survey of North Sea Duty Holders 2020". Key elements of which are summarised in the following sections.

2.1 Setting standards

Each discipline must provide clear ownership of the relevant technical standards. This may include:

- Knowledge and understanding of the industry codes and standards used in the design and construction of the duty holder's installations.
- Knowledge of the regulations and associated ACOP, guidance and recognised good practice.
- Monitoring developments in relevant new and existing industry codes and standards, for example, to reflect new technologies and changes in regulatory guidance.
- Issuing company engineering requirements in the form of standards or philosophy documents which describe how the duty holder applies the selected industry standards to maintain installation safety, integrity and operational performance.
  - The company standards should address the lifecycle of the equipment to which they apply including design, construction, commissioning, operations, maintenance and assurance, management of ageing and obsolescence.
  - The company standards should address how the duty holder responds to changes in industry standards.
- Communicating company standards and philosophies to relevant people in the company and relevant third parties / contractors.
- Setting, maintaining and assuring SECE performance standards.
- Monitoring compliance through periodic inspection of operations, projects and contractors.
- Setting requirements for the competence of people responsible for operations and maintenance of equipment.

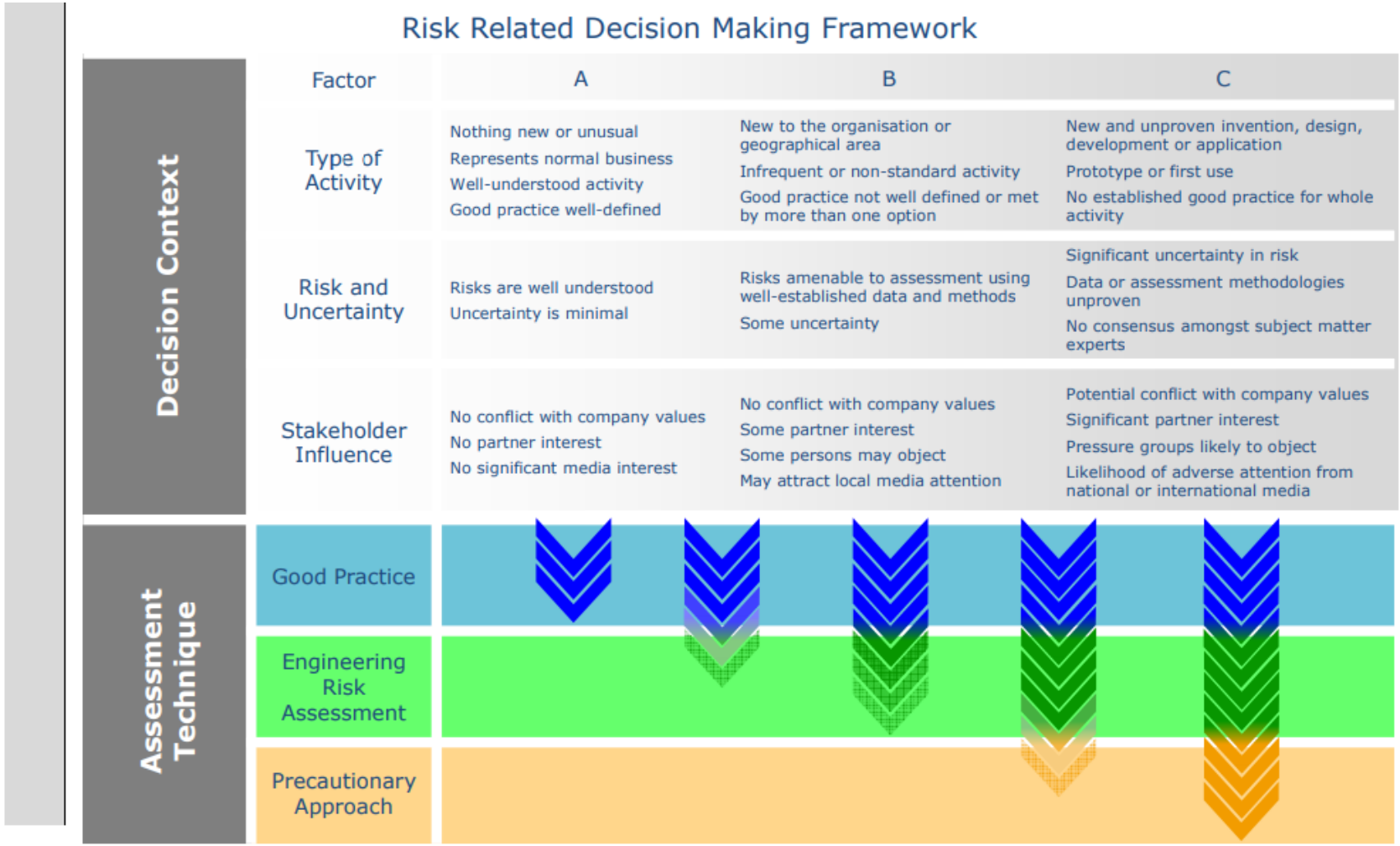
2.2 Decision making

Competent technical input to a range of decisions is required throughout the installation lifecycle. The nature of technical input depends on the type of decision being made. The provision of competent technical advice may contribute to decision making in one of these ways:

- As sole or primary decision maker.
- As part of a wider team agreeing a way forward.
- Supporting another decision maker, including management decisions.

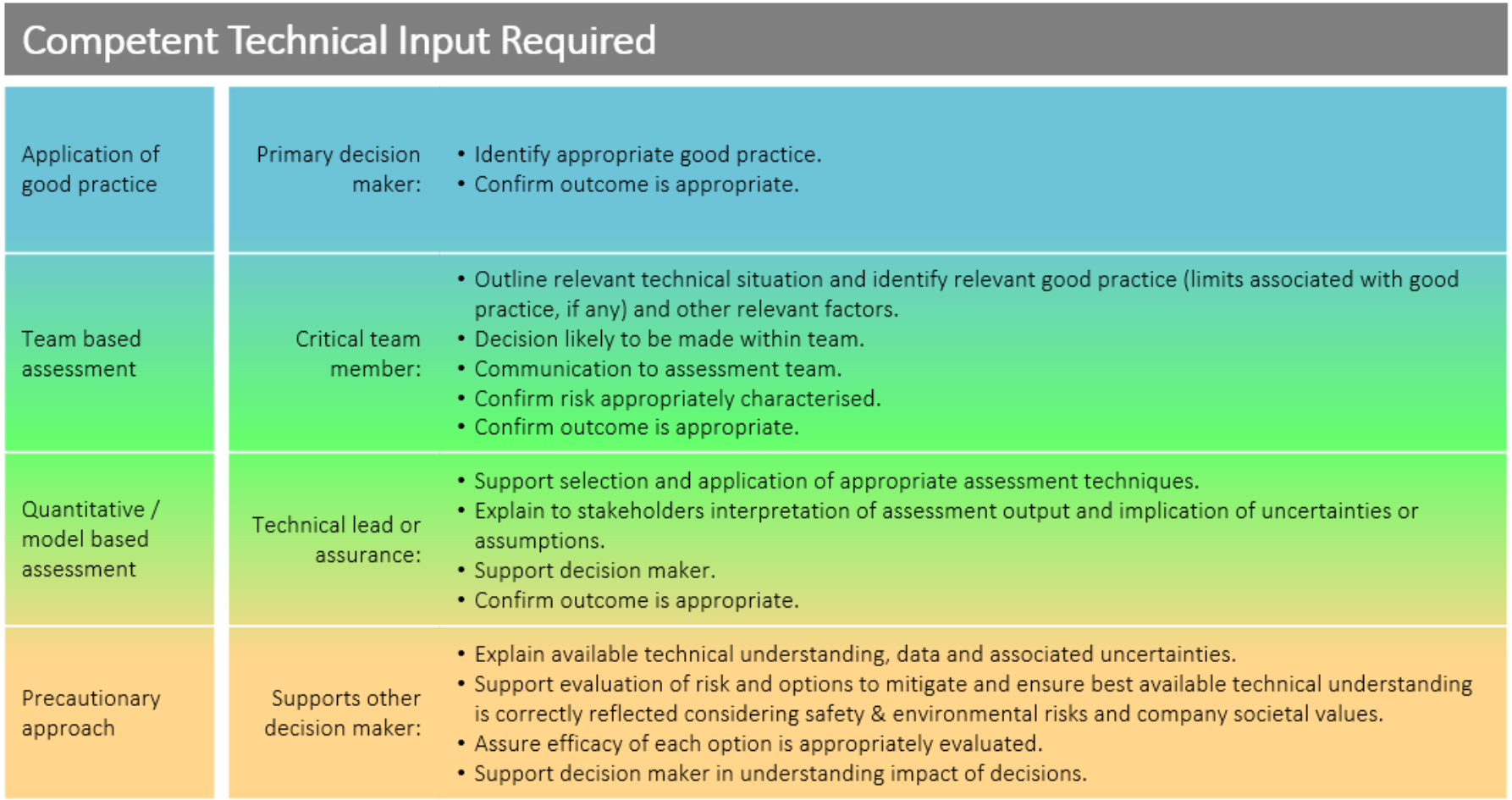
Many of these decisions relate to engineering or technical risks. The OGUK document "Guidelines on Risk Related Decision Making" provides an accepted framework for assessing the type of decision being made. The technical input to decision making can be described with reference to this framework.

Figure 1: OGUK Guidelines on Risk Related Decision Making – Issue 2



Source: OGUK

Figure 2: Competent Technical Input Required



Competent Technical Input Required		
Application of good practice	Primary decision maker:	• Identify appropriate good practice. • Confirm outcome is appropriate.
Team based assessment	Critical team member:	• Outline relevant technical situation and identify relevant good practice (limits associated with good practice, if any) and other relevant factors. • Decision likely to be made within team. • Communication to assessment team. • Confirm risk appropriately characterised. • Confirm outcome is appropriate.
Quantitative / model based assessment	Technical lead or assurance:	• Support selection and application of appropriate assessment techniques. • Explain to stakeholders interpretation of assessment output and implication of uncertainties or assumptions. • Support decision maker. • Confirm outcome is appropriate.
Precautionary approach	Supports other decision maker:	• Explain available technical understanding, data and associated uncertainties. • Support evaluation of risk and options to mitigate and ensure best available technical understanding is correctly reflected considering safety & environmental risks and company societal values. • Assure efficacy of each option is appropriately evaluated. • Support decision maker in understanding impact of decisions.

Source: OGUK

2.3 Monitoring, audit and assurance

During the operational phase, those providing competent technical advice are likely to have responsibilities for monitoring SECE performance and audit as part of the company's assurance program.

The responsibilities for ongoing monitoring and assurance of performance of specific SECE may include:

- Suitability of planned testing / maintenance / inspection programs.
- Technical review of findings of inspections and maintenance activities.
- Trending of findings and advising future strategic improvements.
- Developing suitable metrics.
- Monitoring and raising awareness of deviations, degradation, or threats to SECE performance.

These responsibilities are often met through formal SECE performance review processes, periodic barrier review meetings and other performance reporting processes.

There may also be the requirement to support a formal assurance program, which may include:

- Leading or supporting the assurance programme, which may include the development of terms of reference, audit implementation, including assurance that risk control barriers are sufficiently robust, audit and assurance delivery and reporting.
- Providing feedback to the business on any significant or general issues arising out of assurance activities.
- Providing support and input to the development of assurance activities, including the identification of common themes.

There may also be involvement in technical audits, which look at the processes and procedures which form part of the arrangements for SECE management, such as inspection, maintenance and testing procedures. The purpose of such audits is to confirm these arrangements are suitable, are being correctly applied, and give appropriate outcomes.

Involvement in assurance activities of other operational processes and procedures, such as control of work, isolations, overrides and inhibits, lifting, etc. may be required.

Individuals may also be involved in the assessment and audit of third parties, including suppliers, service providers and consultants. This may include:

- Assessment of technical ability of a third party.
- Review of competence of personnel provided by a third party.
- Evaluation of technical proposals and bids.

There may also be involvement in specific assessments or workflows, such as:

- Input to project stage gate reviews – assurance.
- Input to the MOC process – monitoring.
- Review of TQ/EQ – dispensation – assurance.
- Input to anomaly management IQ – assurance.

The OGUK Assurance Toolkit is a useful resource when planning or reviewing assurance activities.

2.4 Support the team

Additional to the core role of providing technical input, those providing competent technical advice can add further value by supporting the wider team. This may include:

- Organisational leadership roles – acting as a team leader, discipline head or manager.
- A formal role in competence management and development of others.
- Informal mentoring and coaching.
- Providing technical advice and explanation on their technical discipline to members of the team who work in different disciplines.
- Identifying requirements for external support.

3 Examples of life cycle requirements

This section provides some examples of the type of technical input typically required at key stages in the life cycle of an operating installation.

3.1 Design, projects and management of change

	Setting Standards	Decision Making	Audit and Assurance	Support the Team
Compliance with codes and standards	Identify and define applicable codes and standards. Maintain internal codes and specifications so they are kept up to date with legislative requirements. Provide advice on technical integrity of operational and future assets.	Apply appropriate standards, recognising latest guidance / industry expectations. Approve any deviations from codes and standards. Endorse technical queries relating to the application of codes and standards	Provide adequate audit / assurance of projects / MOC.	Develop, or support the development of, technical training and competency training matrices.
Design option decisions	Highlight risk reduction hierarchy and assure robust optioneering completed.	Review and approve design decisions / option selection confirming all relevant statutory provisions can be met.	Review project optioneering records and assure robustness of decision making.	Support MAH awareness and provide discipline leadership.
Approving controlled documents	Define appropriate quality / content requirements for controlled documents.	Review and approve controlled documents.	Review controlled documents as deemed appropriate.	Support MAH awareness and provide discipline leadership.
Assurance	Provide adequate technical representation at hazard identification studies.	Implement appropriate level of assurance required on projects / MOC.	Ensure adequate audit / assurance of projects / MOC.	Identify requirements for adequate resource / competence to successfully implement assurance activities, including the need for external support as required.

3.2 Operations and decommissioning

	Setting Standards	Decision Making	Audit and Assurance	Support the Team
SECE Performance	Set and maintain performance standards for SECE. Propose alterations to performance standards. Set metrics.	Define performance standard pass/fail metrics.	Complete SECE performance standard reviews. Periodic review of SECE barrier health / PS relevance.	Support MAH awareness and provide discipline leadership. Identify the need for external support as required.
Maintenance Management	Approve maintenance strategies and assure optimisation.	Provide input to changes to maintenance intervals of SECE. Provide technical advice on deferment of safety critical maintenance.	Review the assurance activities / documents associated with SECE.	Feed back findings and assure consistency across assets.
Inspection / Asset Integrity Management	Approve the inspection strategy and risk-based inspection scheme.	Provide input to changes in inspection intervals for relevant SECEs. Provide technical advice on deferment of safety critical inspections and repair orders.	Review quality and adherence to company inspection strategies and their alignment with good industry practice.	Support MAH awareness and provide discipline leadership.
ORAs / Deferrals	Define requirements for personnel involved and information needed to support ORA and deferrals.	Review and provide advice on deviations from company PS. Assure MAH risks are reduced to ALARP.	Review quality and adherence to company standards / industry guidance.	Support MAH awareness and provide discipline leadership.
MOCs	See 3.1. Design, projects and management of change			
Breakdowns / failures	Consider need for RCA and review versus industry / company learnings.	Support identification of impairments to SECE caused by breakdowns and requirements for ORA.	See “investigations” below.	Seek to share lessons and thus minimise such occurrences.

	Setting Standards	Decision Making	Audit and Assurance	Support the Team
		Support failure investigations. Support decisions-making around repair and mitigation options.		
Investigations	Investigation and remediation of issues raised / RCA at appropriate instances.	Agree team members / support investigations as required.	Review investigation output to relevant ensure root causes are understood and company standards and procedures are updated to prevent re-occurrence.	Accountable for identifying need for external support when required.
Approving controlled documents	Owner of in-house technical documents. Ensure all engineering / operational support activities complies with good practice, procedures and specifications.	Approves key documents. Define / agree critical documentation for safe operation of plant.	Reviews critical documentation onshore and offshore and assure validity / consistency.	Supports MAH awareness and provide discipline leadership. Feed back findings and assure consistency across assets.

4 Organisational models

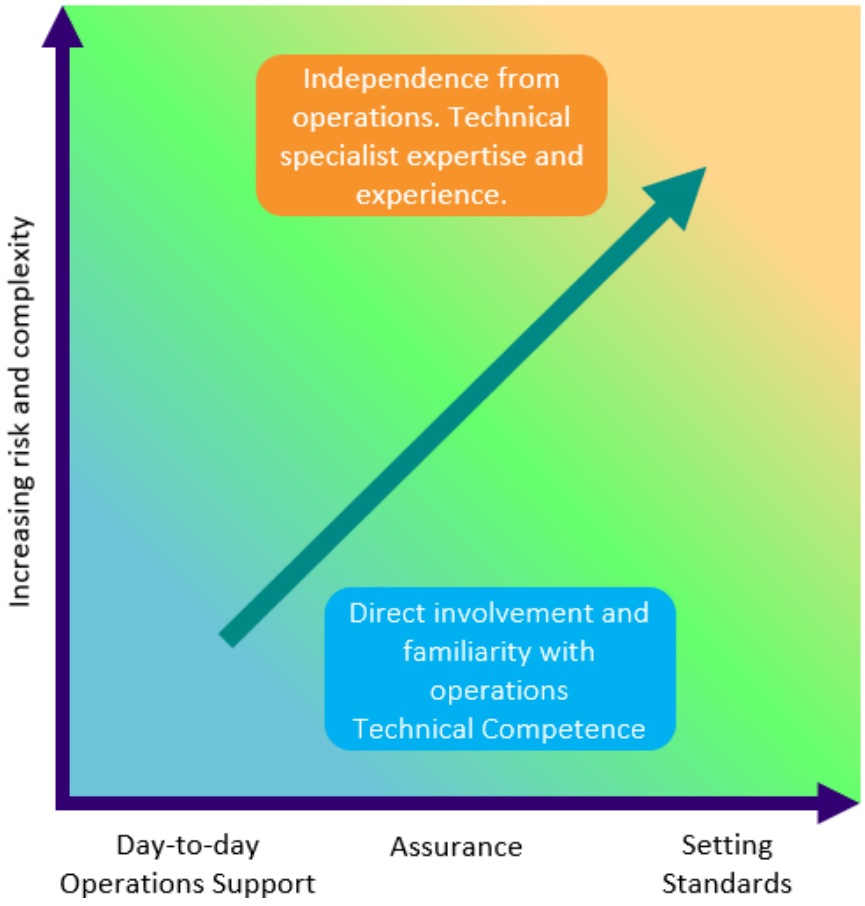
This document identifies that there is a wide range of types of technical input and circumstances under which such technical input is likely to be required.

Given the varying scale of operations within the UKCS sector, there is no "one size fits all" model which can be applied to meet these requirements.

A key concern for many duty holders is that people providing technical advice can do so without being unduly pressurised by production or operational factors. This may lead to a need to maintain independence of those providing technical advice from operations. This should be balanced with the requirement to have a suitable degree of involvement in day-to-day operations and familiarity with the operation, the installation and management arrangements, to allow them to provide relevant, timely input.

The relative importance of "independence" versus "involvement" varies dependent on the type of input required and the risk or complexity of the situation or decision being made. The decisions requiring higher independence are frequently also those which may require more experienced or specialist technical advice. This relationship is shown in Figure 3 below.

Figure 3: Relationship between risk & complexity of a decision and the independence, involvement & experience of the people providing competent advice



Source: OGUK

It is considered good engineering practice that individuals cannot check their own work. The requirement for formal independent checking becomes more important for safety critical, higher risk or higher complexity work. Examples of activities which require such checking may include:

- Updates to documents such as P&ID, single line diagrams, cause and effect drawings.
- Safety critical calculations, such as relief valve sizing, hazardous area zoning or riser ESDV leak rate calculations.

These requirements may be met within an organisation by providing technical support through a multi-level or multi-department arrangement, with different people taking on different responsibilities within a framework for providing technical input at the various points where it is required.

Some organisations provide direct or "dotted line" reporting lines for a technical team which are independent from the operational management of the asset.

Irrespective of the organisational models, duty holder's management systems should clearly describe the organisational structure and the roles, responsibilities and decision-making authority of each part of the organisation. Key requirements of the management system are likely to include:

- Clear processes for ensuring suitable technical input is included in the key activities described in section 3.
- Clear definitions of the decision-making authority each role has.
- Processes to escalate decisions based on clear criteria, these may include, for example, technical complexity or risk.
- Arrangements to align levels of responsibility with seniority.
- Arrangements to provide a suitable balance between independence from and involvement with the day-to-day operations.
- Arrangements to provide independent assurance, review or checking of technical input as appropriate.

4.1 Types of organisational model

Different organisational models may be described as asset-focussed, or function-focussed.

- For an asset-focussed model a team including all relevant disciplines is provided for each asset, or group of assets, with all people in that team reporting to an asset or operational manager.
- For a function-focussed model a much smaller dedicated asset operations team is supported by technical or functional organisations which contains the technical specialists, who are often providing technical support to a wide range of assets.

Each of these models has strengths and weaknesses. The asset-focussed model will provide strong involvement, but with potential for independence to be challenged. Conversely the function focussed model will provide strong technical independence but may be less involved with day-to-day operations. In many cases the organisation is likely to adopt characteristics of each of these models to try to strike a sensible balance between involvement and independence. There is no correct answer, and many different models have been employed within the industry, for example:

- A team of asset-focussed engineers supporting the most commonly required disciplines, with a functional organisation providing more specialist technical support.
- A matrix organisation where technical personnel are "seconded" from the functional organisation to support a specific asset but retain a separate reporting line into the function.
- A team of asset focussed engineers from all main disciplines covering all day-to-day operations, with a technical assurance organisation which provides periodic review of the asset's technical performance.

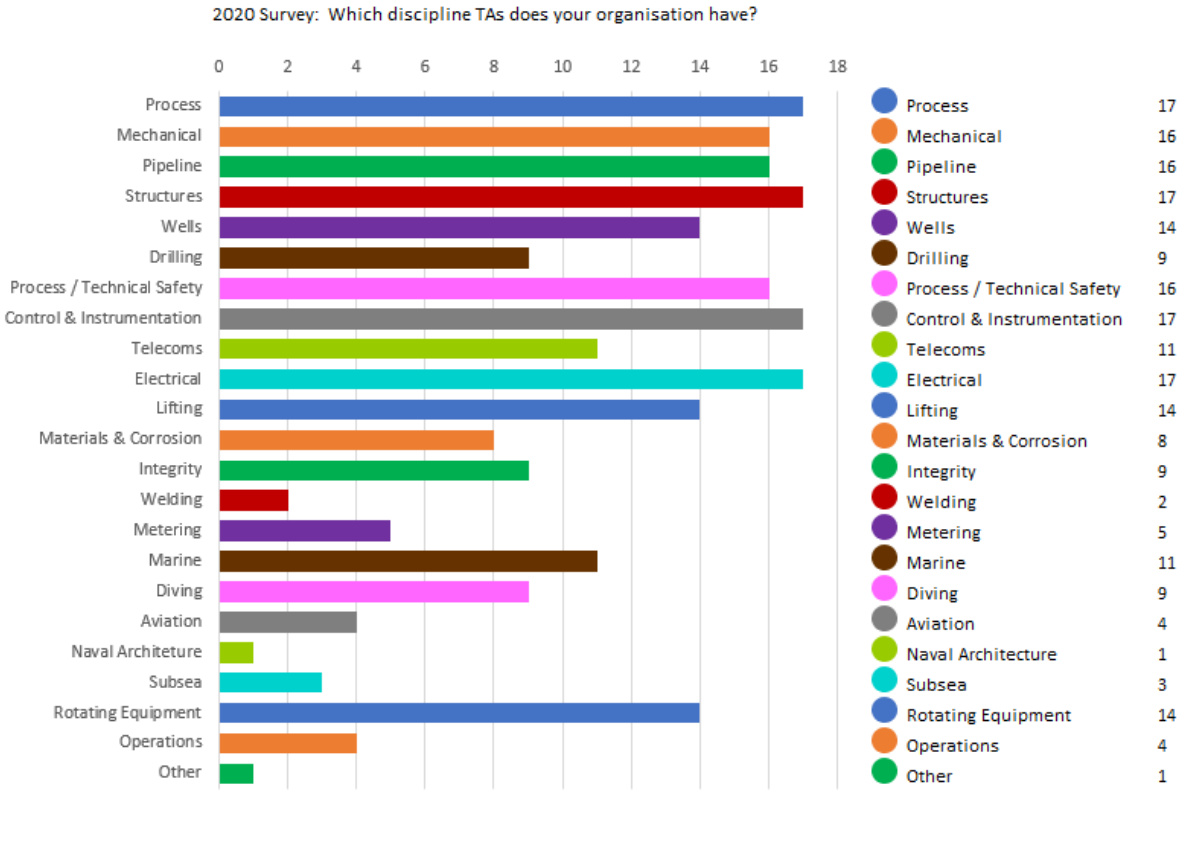
Specialist technical support may be provided from within the duty holder's organisation or may be sourced from specialist third party organisations. Larger duty holder organisations may have technical specialists at a corporate centre providing support to multiple assets in the UK or internationally. Given the wide variance in potential concerns over the life of an operating oil and gas plant, it is rare that any organisation will have a 'full' subject matter competency in-house or locally and all but the largest companies are likely to need to source specialist support externally.

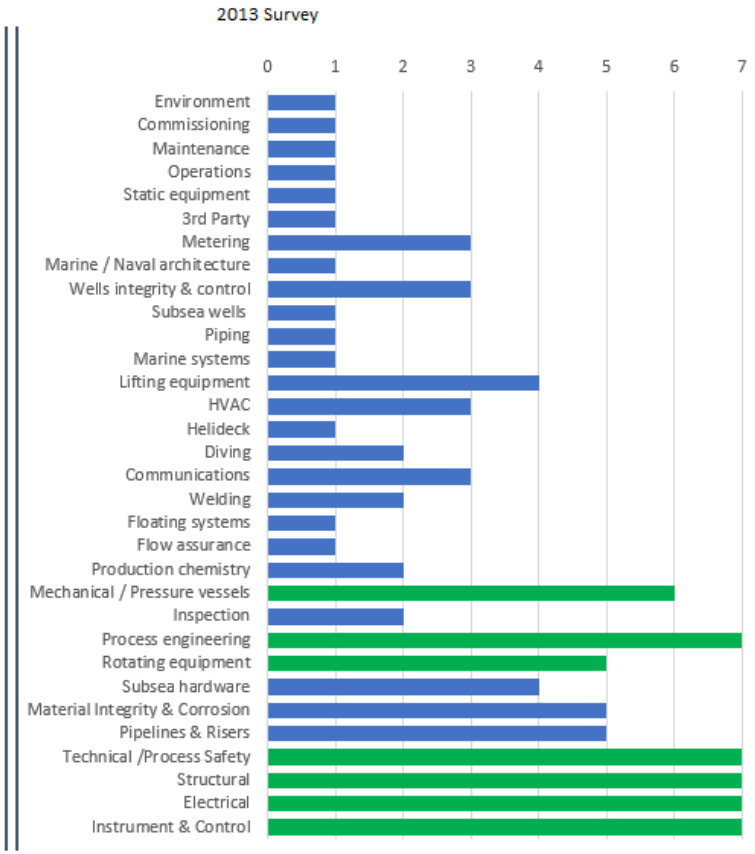
5 Desired attributes of those providing competent technical advice

Formal qualifications	This may include educational qualifications, specific training, formal recognition such as Chartered status and continuing professional development.
Relevant experience	The individual should have discipline as well as sector-specific experience which is relevant to the area for which they are asked to provide technical advice. For example, someone whose experience is all in projects may not have relevant experience to support operations.
Regulatory and technical knowledge	There should be the ability to demonstrate a clear understanding of the regulatory framework in which they are operating along with relevant technical codes, standards, and good practice and maintain that knowledge up to date
Professional Integrity	The individual should have the strength and self-belief to stick to a well-argued case, to resist pressure to change views because the outcome may be inconvenient or may not be what the business desires, with the open-ness to listen to balanced arguments and respect the professional integrity of others.
Wider MAH awareness	While individuals have responsibilities within specific technical areas, it is important that they have a clear understanding of how these fit into the wider management of MAH. This is likely to require them to have a high-level understanding of other disciplines and how they all work together in the management of MAH.
Communications	The primary role is to provide competent technical advice. It is important that they can communicate technical aspects to a wide range of people, including other disciplines, management, and site and operational personnel, including Safety Representatives.
Collaboration	There will be a frequent requirement to provide support on matters which do not fall completely in their area of technical expertise. There is the requirement to work as part of the wider team. It is important that individuals recognise the boundaries of their expertise and will seek out the support and guidance of others.
Supporting risk assessment and dealing with uncertainty	Where there is a requirement to provide advice on a more complex or uncertain situation, this is likely to be addressed through risk assessment processes. Where there is no clear simple solution, applicable code or standard, there will be a requirement to help the team understand the risks and the effects of the uncertainties.

Appendices

A Technical authority disciplines





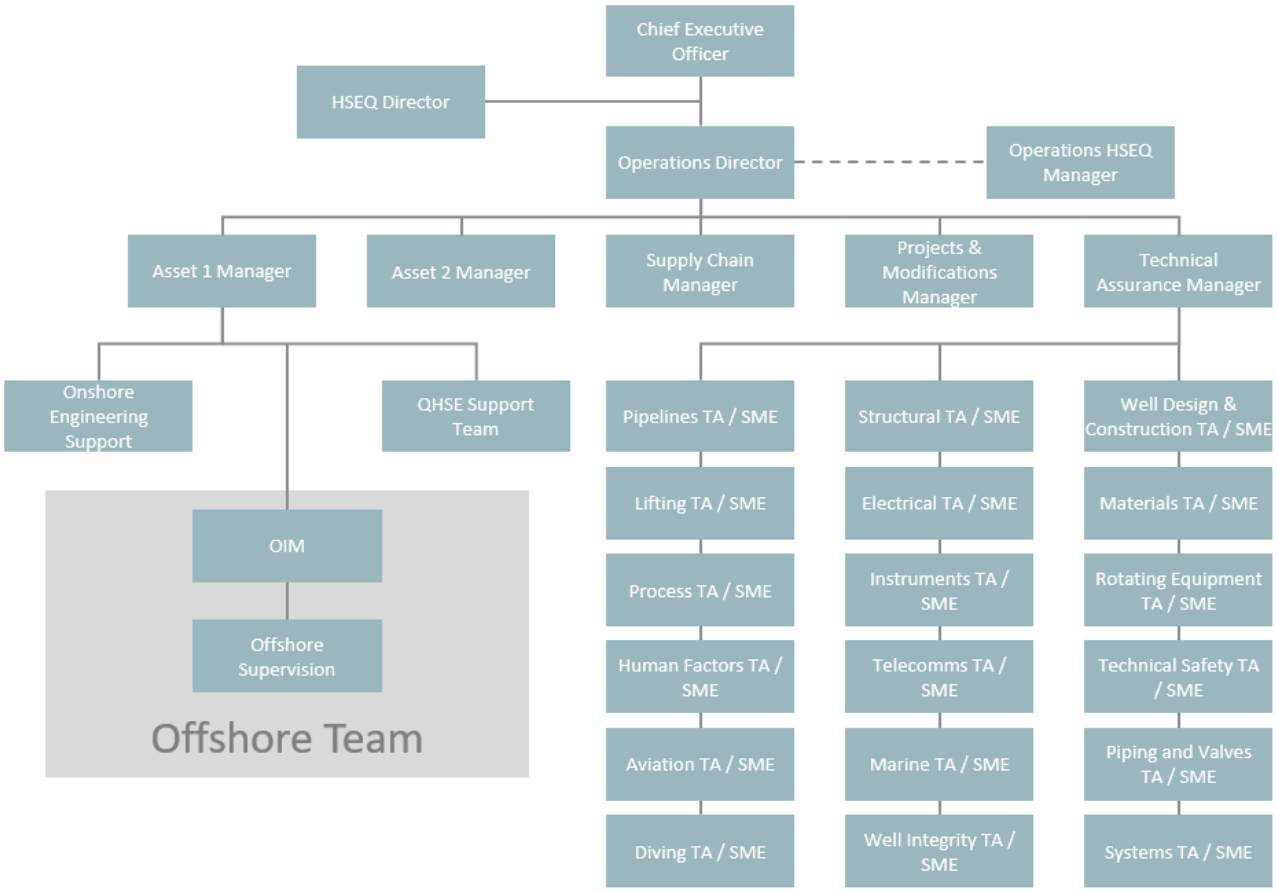
B Examples of organisational models which include the TA role

The organisational model selected by each duty holder to provide competent technical advice depends on the number and variety of installations operated by the duty holder, size and scale of the wider company as well as the subjective preference of the duty holder. Nevertheless, several characteristics are prevalent, and some of these are reflected in the examples in this appendix. Section 4.1 of this guidance discusses some of the trade-offs that each duty holder will consider in developing their own model.

As a minimum, the duty holder must consider how it is going to meet the regulatory requirements of MHSWR regulation 7, and the guidance in the HSE offshore inspection guide on "SECE Management and Verification (publication dated 01.03.2020)" which are mentioned in Section 1.3.

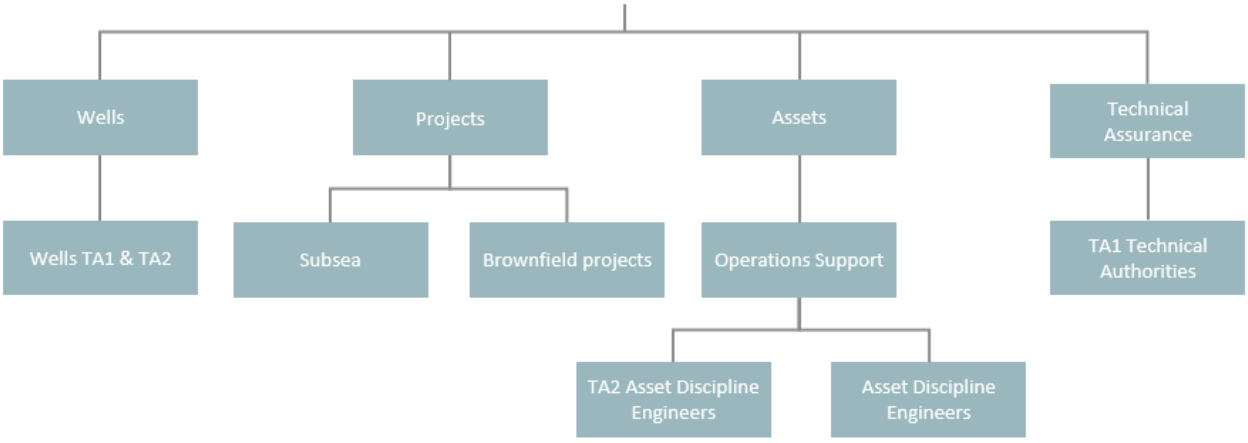
B.1 Example of internal TA model (1)

This organisation chart shows an organisation where the technical authority positions all report to a technical assurance manager who is functionally independent of the asset management and production line structure. There is a separate function reporting to the asset managers, which provides day to day engineering support.



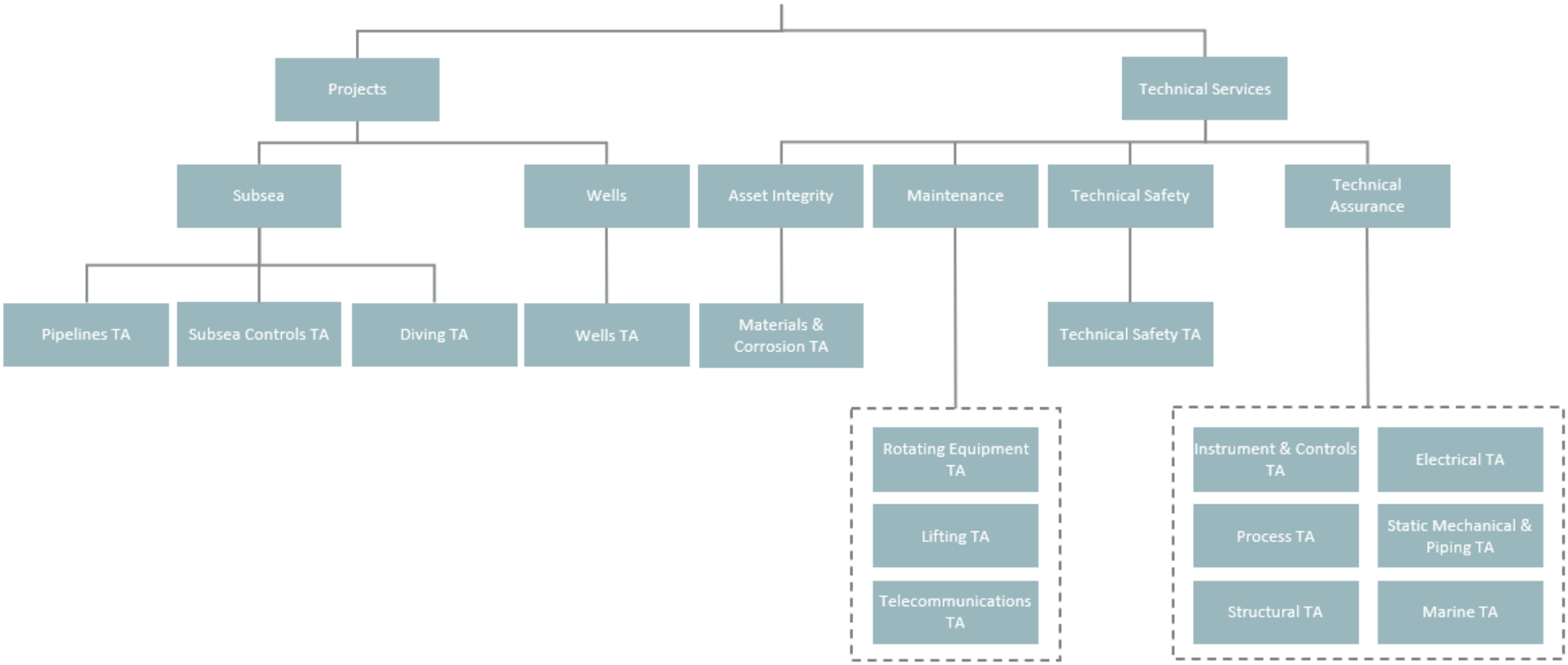
B.2 Example of internal TA model (2)

This model shows tiered TA provision with roles and responsibilities split based on risk. TA2 level support is provided by asset discipline engineers who report to the asset management. The more senior TA1 technical authorities are independent of the asset management to ensure the appropriate level of independence from the line for medium and high-risk decisions. This model may be appropriate for duty holders with several assets and where the volume of work is too great for TA1 technical authorities on their own.



B.3 Example of internal TA model (3)

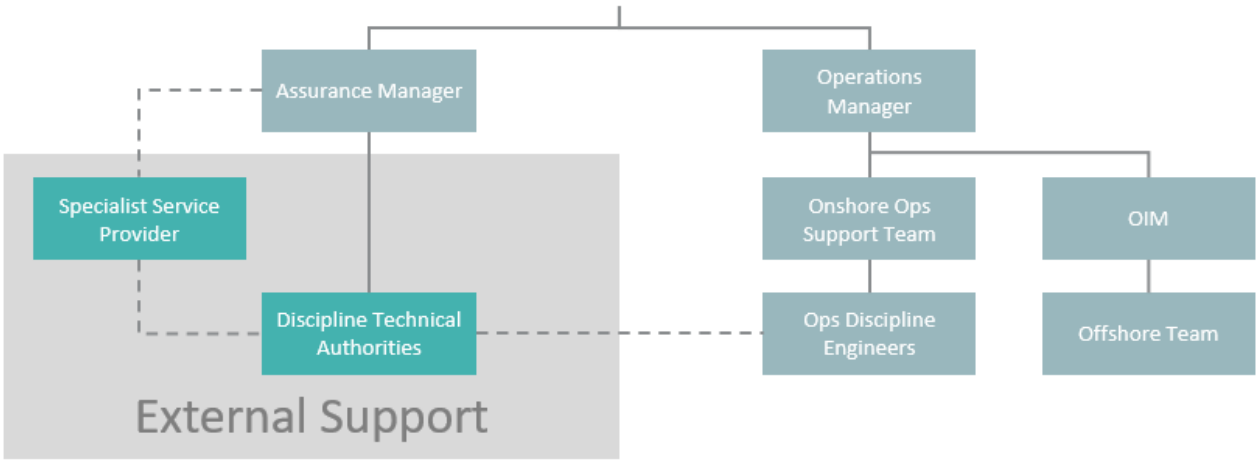
This operator splits the TA provision between functions and assurance. The TA functions with the heaviest demand report through the independent technical assurance function, and technical authorities in other disciplines have a dual role which includes discipline support through the maintenance of discipline functions or as part of the project organisation.



B.4 Example of external technical support (1)

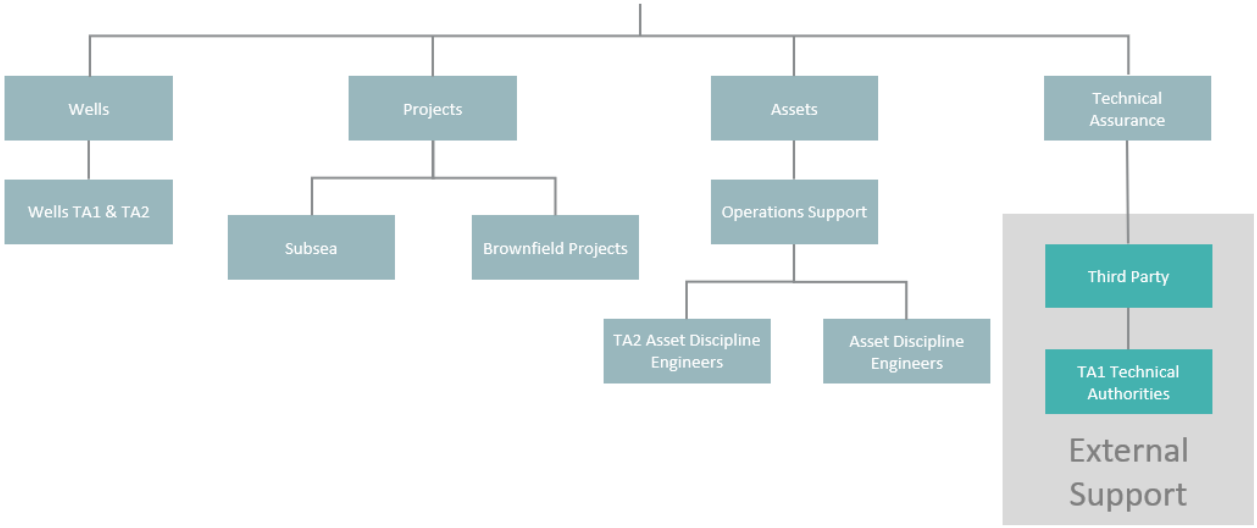
Suitable technical support can be provided by an organisation which includes external technical specialists providing support to the duty holder. In this model the duty holder has competent engineers managing the day-to-day support to the operation. Independent technical authorities provide expert technical advice and assurance to the operating organisation.

This model may be particularly appropriate for a smaller duty holder, which does not have the size or scale to support a full range of technical authorities. Similar arrangements can be adopted across all disciplines, or for a selection of specialist disciplines.



B.5 Example of external technical support (2)

This model shows a hybrid approach which includes outsourced TA1 provision combined with in-house TA2 support.



oguk.org.uk/guidelines

OGUK Guidelines
Member companies dedicate specialist resources and technical expertise in developing these guidelines with OGUK with a commitment to work together, continually reviewing and improving the performance of all offshore operations.

Guidelines are free for our members and can be purchased by non-members.

oguk.org.co.uk

info@oguk.org.uk

@OGUKenergy

OGUK

OGUK