

Research on Conditions and
Design Parameters for
Strengthening Offshore
Safety Expertise in EU
Member States – Stage 2

Final Report

22nd July 2015

Prepared for:



European Commission, Directorate-General for Energy (DG ENER)

Document information

CLIENT	European Commission, DG ENER
CONTRACT	Specific Contract under DG ENER's Framework Contract ENER/A2/360-2010 regarding Impact Assessment and Evaluations (ex-ante, intermediate and ex-post)
PROJECT NAME	Research on Conditions and Design Parameters for Strengthening Offshore Safety Expertise in EU Member States
REPORT TITLE	Stage 2 - Final Report
DATE	22 nd July 2015 (slightly revised on 18 th March 2016)
PROJECT TEAM	BIO by Deloitte Deloitte Norway
AUTHORS	Helen Ding, Dana Huranova, Mary Ann Kong, Paula Marghiloman, Andreas Mitsios, Sébastien Soleille (BIO by Deloitte), Kasia Gierolo (Deloitte Norway)
KEY CONTACT	Sébastien Soleille ssoleille@deloitte.fr
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1. Background, objectives and structure of the stage 2 report

1.1. Purpose of this document

The present document embodies the final report for the second stage of the study carried out under the framework contract ENER A2 360-2010, entitled 'Research on Conditions and Design Parameters for Strengthening Offshore Safety Expertise in EU Member States'. This study is realised by BIO by Deloitte with the support of Deloitte Norway.

The results of the first stage of this study are presented in a separate report.

1.2. Background

The current study aims at building knowledge and understanding on the current and future organisational needs of the competent authorities (CA) of Member States (MS) in order to meet the requirements of the Offshore Safety Directive (OSD).

Stage 1 of this study aimed at:

- identifying the resources needed so that each Member State's competent authority could perform the tasks required by the Offshore Safety Directive;
- conducting a gap analysis between these resource needs and the resources available in each CA (in 2014 and in those planned for 2016);
- developing potential options to overcome these gaps.

1.3. Objectives

The objective of Stage 2 is to develop a **blueprint or organisational structure to ensure that competent authorities in each Member State fulfil their obligations as listed in the Offshore Safety Directive.**

The **primary target audience for the report are Member States, especially to help them fulfil their obligations as listed in the Annex III of the OSD, and the competent authorities**, or, in the case of MS currently without a dedicated competent authority, the authorities responsible for overseeing the offshore activities of their country.

This report investigates whether a fully resourced competent authority (CA) through recruitment and training can be implemented at MS level by identifying the availability of skills in the CAs and on the labour market. As a second option, which may in practice complement the recruitment and training of own resources, a roadmap and operational details for pooling/sharing experts.

A summary of the options is presented in the table below:

Table 1: Brief description of the two options

Options			Brief description	
A	Each MS recruits specific and dedicated staff for its own CA	A1	Recruitment	Recruitment and development of offshore expertise, including both technical specialists and regulatory specialists.
		A2	Training	Training existing personnel (on-job training) and new recruits, such as training technical specialists to become regulators and providing regulatory specialists with required technical training.
B	Network and pooling of experts		Sharing and pooling CA Offshore expert resource through network.	

The above options are not mutually exclusive.

The report will explain all steps necessary to put in place the options proposed and will provide operational advice to MS involved in setting up or organising a CA.

1.4. Information sources

This report builds on the following information:

- the results of the Stage 1 report (i.e. key findings from the gap analysis on the current and needed resources for MS to fulfil the requirements of the OSD and analysis of the different solutions for MS to achieve this);
- dialogue with the European Commission (DG ENER);
- desk research;
- in-house Deloitte expertise;
- feedback on the options studied during Stage 1 gathered during the 8th European Union Offshore Oil and Gas Authorities Group (EUOAG) meeting, which took place on November 12, 2014, in Brussels;
- phone interviews with selected key stakeholders: Competent authorities in Group 1, 2 and Group 3 countries¹; JRC, HSE. A few competent authorities were contacted more than once.

1.5. Analytical framework

Various options were studied during Stage 1. The options developed in Stage 2 are based on a few assumptions and were assessed against a few criteria.

1.5.1. Basic assumptions

For practical and liability issues, among others, it is considered that MS CA pursue option A as much as possible and only resort to option B to address any identified shortfalls in the range of offshore expertise where direct recruitment may not be feasible/practicable.

For example, option B could be useful if the resource requirement is intermittent or needed for only very short periods.

¹ A grouping of countries was performed during Stage 1 of the present study according to the maturity level of the offshore industry in each country: Group 1 (Croatia, Denmark, Italy, Netherlands, Norway, United Kingdom), Group 2 (Bulgaria, Germany, Greece, Ireland, Poland, Romania, Ireland) and Group 3 (Cyprus, France, Iceland, Malta, Portugal)

The options presented below seek to contribute to the following outcomes:

- Group 1² MS CA to have a fully resourced CA including adequate numbers of regulatory and technical expertise and therefore the capability to carry out all their regulatory functions for all offshore activities in their MS.
- Group 2 and 3 countries to have an established CA with basic regulatory arrangements and expertise in place. They will interact with all owners and operators and other stakeholders to facilitate the CA regulatory functions for offshore activities in their MS. However, the provision of the full range of offshore technical expertise for the required regulatory function will be completed through a network of offshore technical expertise that can be called upon when necessary to supplement the MS CA.

1.5.2. Evaluation criteria for the assessment of the different options

In designing the CA organisational solution in each MS, it is recommended to ensure that the following criteria, outlined among others by the Offshore Safety Directive (mainly in articles 8 and 9), are in place:

- **Sufficient separation** from regulatory activities and any activities related to licensing of offshore oil and gas operations within the MS, economic development of offshore operations and the collection and management of revenues from those operations.³ This independence of regulatory activities from economic development is an issue of organisational independence and relates to the segregation of regulatory activities from the economic activities of licensing so that there is no pressure on the safety and environmental regulator to balance standards of major hazard control for economic benefits to the MS.
- **Sufficient capacity** (resources, competence and time) in the CA to ensure that key regulatory activities are undertaken reliably and effectively with the required technical expertise to address all offshore operations, including well operations and projects. The organisation requires **relevant and sustainable human and intellectual resources** to meet the demands of the MS CA.⁴
- Ensuring the **availability/existence of any local knowledge that might be required** (e.g. geomorphological characteristics of fields, MS specific legal systems and legislation).
- **Transparent relationship between the regulator** (CA authorities) **and the duty holder** (offshore industry), e.g. makes clear the extent of its responsibilities and the responsibilities of the operator and the owner for the control of major accident risks under this Directive.
- Relevant **independent and objective offshore expertise** for the MS and compliance with criteria on **prevention of conflicts of interests** when working with third party experts.

² The list of Group 1, Group 2 and Group 3 countries is given in annex (Annex 3: Grouping of EU Member States).

³MS with 6 or more normally attended offshore installations shall require that the functions of the CA are carried out within an authority that is completely independent of any of the functions of the MS relating to economic development. MS with a low level of offshore oil and gas operations (less than 6 attended installations) would be expected to make best alternative arrangements to secure the independence and objectivity of the CA. The directive leaves little opportunity to reduce the stringency of the requirements as all MS are to publish how their arrangements prevent conflicts of interest.

⁴ It should be kept in mind that the principle of the directive is that the owners and operators are responsible for the control of risk and the management of risk and the regulator is responsible for ensuring compliance and that standards are adequate through their regulatory tasks in assessment, inspection and investigation.

- Design of the support organisation **flexible enough to take into account any potential changes of the offshore** market while ensuring that any shortfalls in CA resources are addressed e.g. increase or decrease in offshore activities.
- **Clarity as regards the operational and financial liability between CAs.**
- **Medium and long-term sustainability** of the option.
- **Cost-efficiency** (the solution under consideration should compare favourably with any low cost feasible alternative).

In section 7.1, “Conclusions”, the different options will be assessed according to these criteria.

1.6. Structure of this report

Regardless of the solution that MS CA will identify for addressing their respective resource gaps, CA are recommended to follow the steps outlined in the figure below. Each of the steps corresponds to a specific question. By answering step-by-step questions, CAs will be guided to find organisational solutions that help them comply with the OSD requirements. The model below identifies also other relevant issues such as effective cost recovery schemes to cover the sourcing activities as well as identifying liability issues that may arise with the sourcing solutions.

This report is structured to walk readers through these questions and discuss the available solutions (see Figure 1 below).

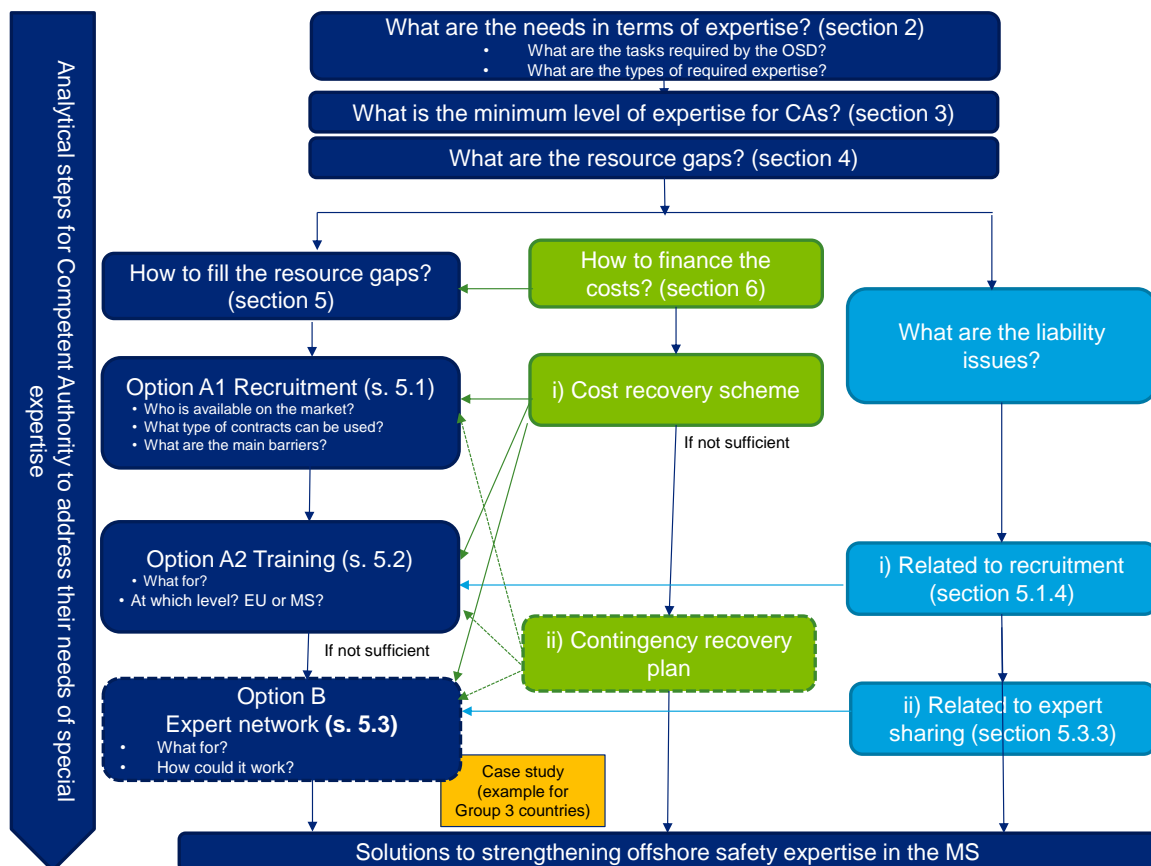


Figure 1: Structure of the blueprint presentation

2. What are the needs in terms of expertise and of experts? Responsibility and expertise requirements for different CAs' tasks

This section addresses the first questions to be asked when setting up or organising a competent authority:

- What are the main tasks that the Offshore Safety Directive requires each CA to fulfil?
- Who can perform them? Who can be the relevant experts and what would they have to do?

2.1. Technical expertise and decision-making

Two types of experts as well as their respective responsibilities shall be distinguished while the CA performs regulatory tasks:

- **Regulatory offshore specialists** consist of the **core CA team**, who shall make the final regulatory decisions on behalf of the CA, based on the technical reports and memos prepared by technical specialists.

The CA can recruit national regulatory experts (for instance regulatory experts working in another field than offshore safety) and train them to provide them with technical background in offshore safety or recruit young people and train them to provide them with both technical and regulatory expertise.

- **Technical experts** are experts with background from relevant offshore technical fields of expertise, e.g. well specialist. They will have to draft technically sound and understandable technical reports as input to the decision making process. They need to have sufficient regulatory expertise to prepare their technical reports in a way that can be easily adapted to each national regulatory context. Their main responsibility will include drafting objective and technically robust reports and memos, subject to their knowledge and information that was made available to them, and performing inspections and site investigations.

In this case, the CA can recruit externally people with core offshore competences and develop their regulatory expertise.

It must be noted that this distinction is, at least partly, theoretical, for the sake of the present analysis. In some cases, technical experts and the core team can be the same people, or not.

2.2. Tasks required from the CAs by the OSD

Each competent authority has to ensure the correct application of the Offshore Safety Directive by operators and owners, assess reports on major hazards, assess well notifications, facilitate communication with the public and advise other authorities, including the licensing authority.

The main functional tasks that the competent authorities has to perform according to the Offshore Directive are listed in annex (Annex 2: Main functional tasks required by the OSD). In this section, we will describe briefly the major processes for performing each of the CA tasks and identify the necessary experts required for each step of CA tasks.

The following figures describe these processes in a generic way. Depending on each MS and situation, the practical implementation of these processes is subject to adaptation, up to a certain extent. From a general perspective, these tasks are teamwork between regulatory and relevant technical experts. The technical experts' work is to consider risks and technical controls against standards and principles of good engineering. Their assessments on the adequacy of safety, relating to their discipline, is accumulated by the regulatory experts against the legal framework, task procedures and guidance, to produce a regulatory decision. There is scope for the technical experts to make the decision if appropriate in the organisation.

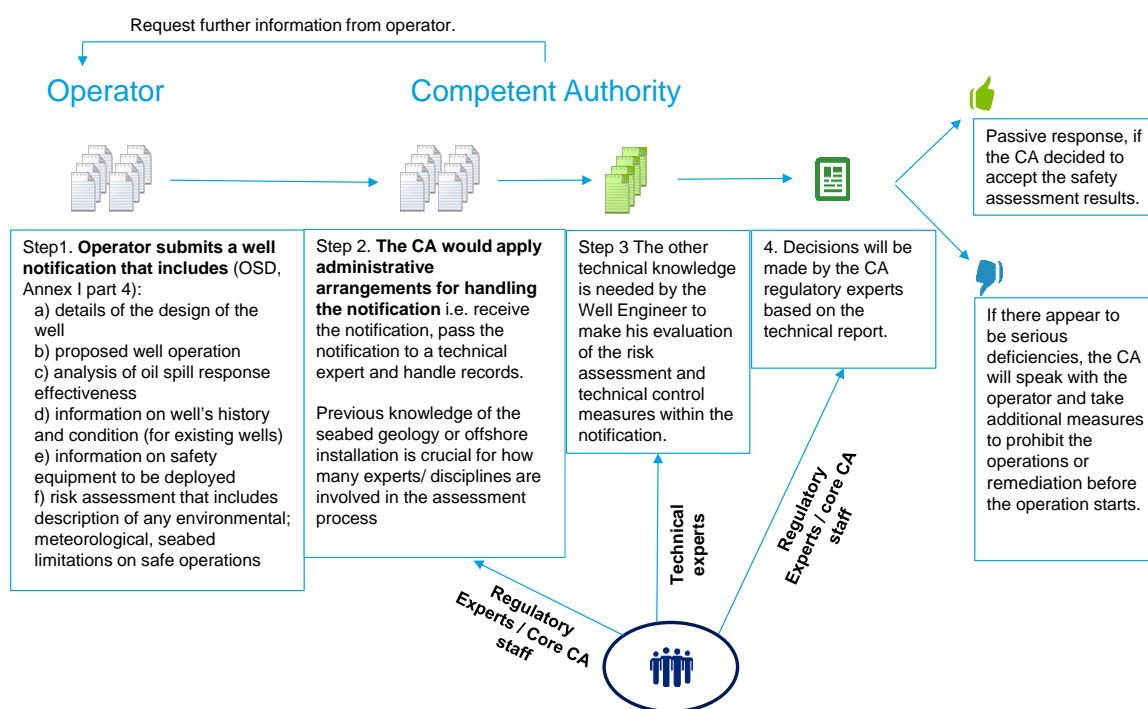


Figure 2: Process flow for assessment of well notification

The technical experts involved in the assessment of well notifications are mainly well engineers. They will prepare a technical report that will enable a regulatory decision to be made on whether to intervene in well operation with operator (passive acceptance).

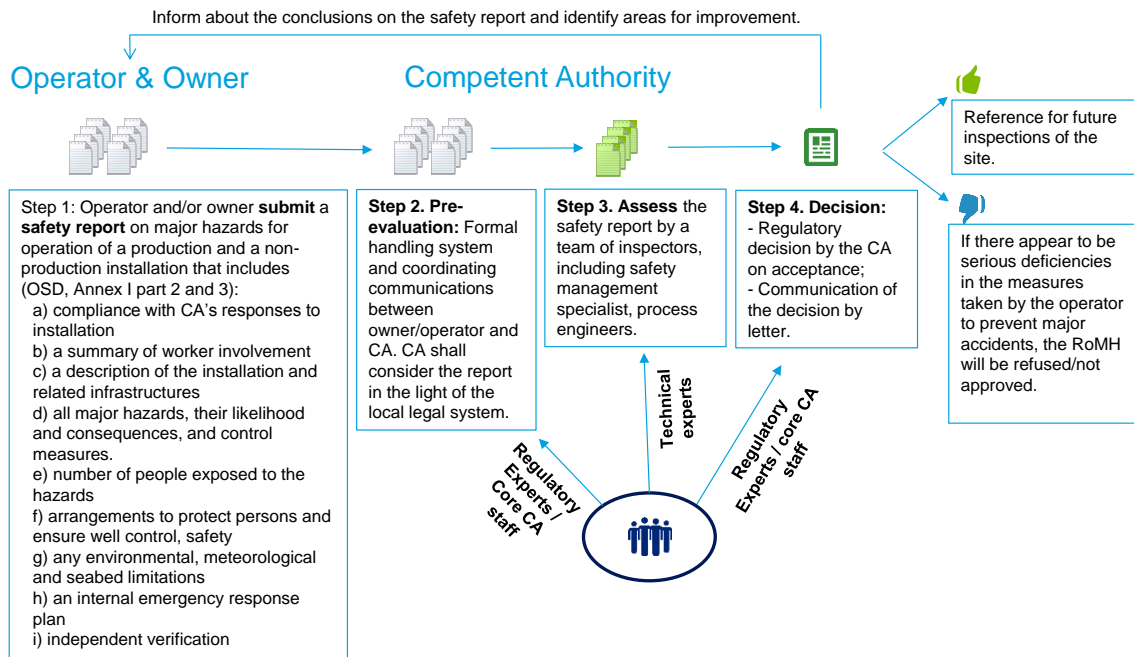


Figure 3: Process flow for assessment of Reports on Major Hazards (RoMH)

Depending on the complexity of the offshore installation considered, assessment of reports on major hazards can be a long and complex task.

The technical experts involved in the assessment of RoMH have to cover most technical specialties, safety management, environmental protection, oil spill response, wells, organisation, etc. Regulatory experts have to check that the RoMH provided by the operator is compliant with the local legal system. Then, based on the technical and regulatory experts' assessment of the RoMH, a decision whether it is accepted or not is taken. If accepted, the RoMH will serve as a reference for future inspection of the site.

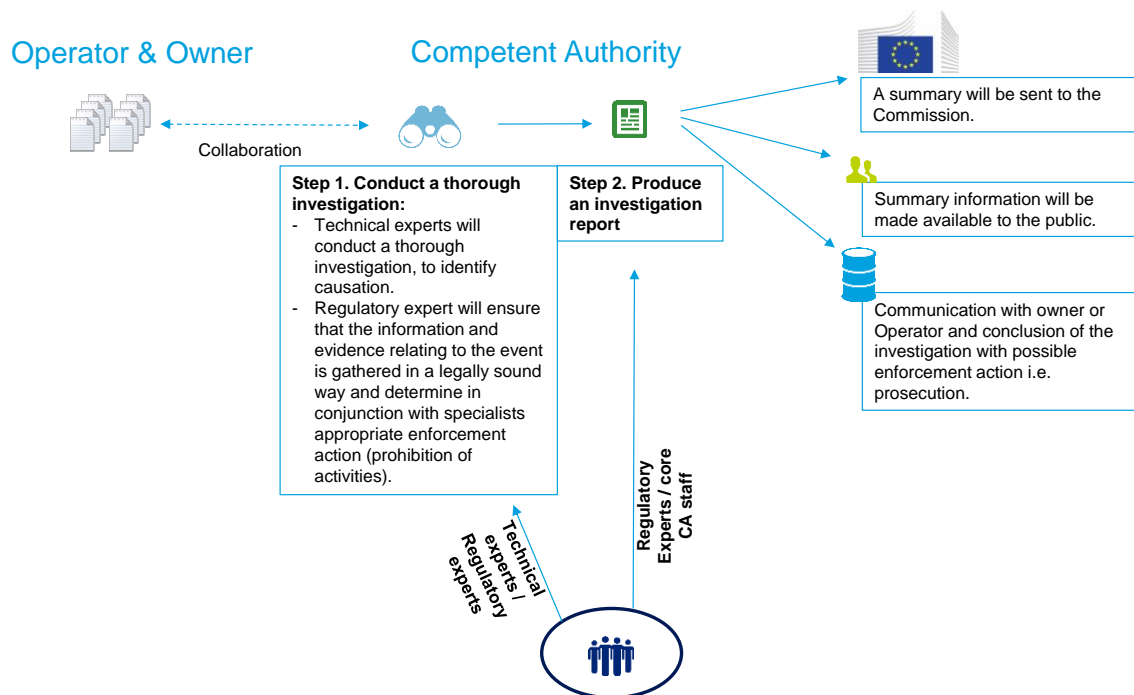


Figure 4: Process flow for investigation of major accidents

The technical and regulatory experts involved in investigation of a major accident will greatly depend on the nature of the event.

Regulatory experts will check that the information sent to the Commission and that made available to the public are compliant with legal requirements.

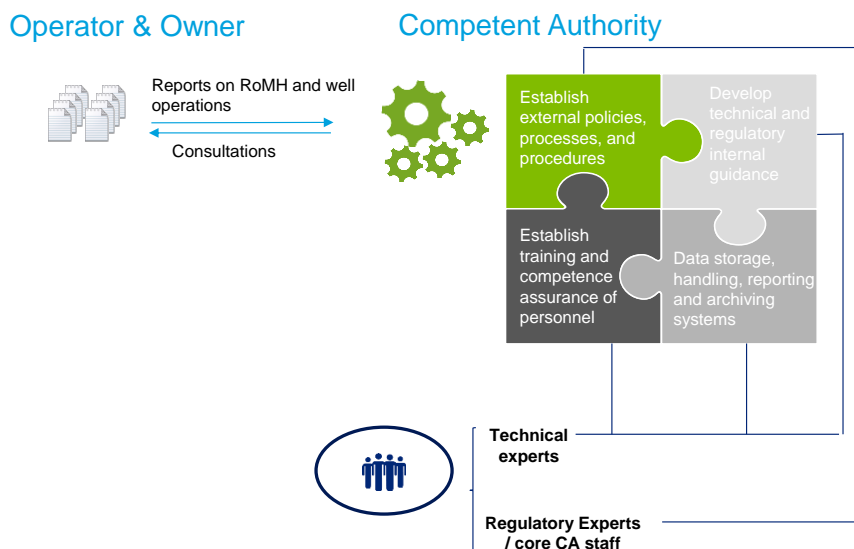


Figure 5: Process flow for development of regulatory policies

Developing technical and regulatory policies requires the work of technical experts and regulatory experts. The development of standards will rely, as relevant, on exchanges with operators and owners and by technical experts.

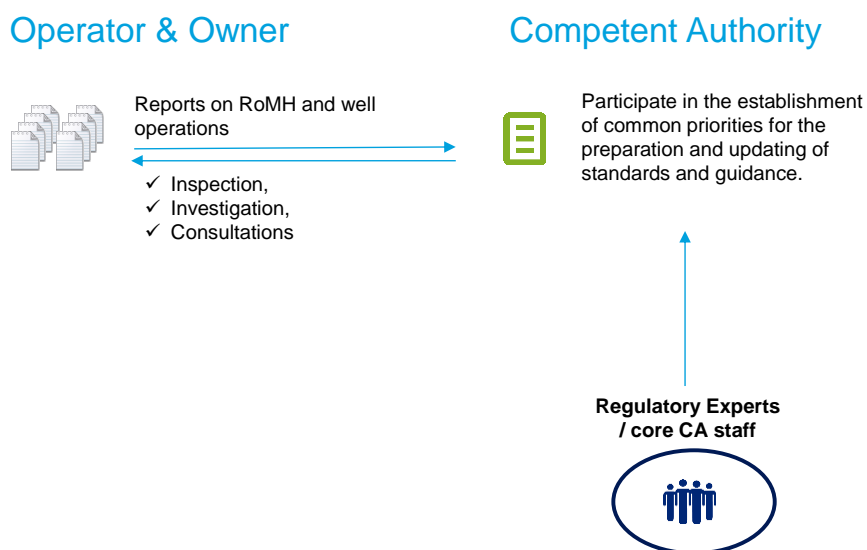


Figure 6: Process flow for updating of offshore knowledge and improvement in standards

Updating offshore knowledge and improvement in standards will be coordinated by regulatory experts. They will rely, as much as relevant, on exchanges with operators and owners; data gathered through inspections, investigations and consultations; and on technical advice provided by technical experts.

3. What is the minimum level of in-house expertise required for different CAs? Organisational blueprints for the Member State CAs - Identification of the competencies necessary for the CA by country group

The previous chapter addressed the resource needs in a very generic way. MS have different levels of maturity regarding regulating offshore activity and the level of activity is very variable among MS as well (the definition of the three groups of country is given in Annex 3: Grouping of EU Member States).

As it was shown in this previous chapter, many different expertise skills may be required at one point or another when performing the various regulatory tasks required by the OSD. But they are not required with the same frequency and do not have the same strategic importance.

The next questions to be addressed is thus: which disciplines are the most strategic ones? In other words, what is the minimum level of in-house expertise for each CA, depending on the maturity level regarding offshore operations of its MS (as given by its country Group)?

3.1. CA organisational blueprint designs

Based on this question, this section provides a recommendation for CA organisational blueprint designs.

The purpose of the blueprints is to illustrate the necessary disciplines (minimum level) to be staffed by the CAs in order to comply with the requirements of the Offshore Safety Directive (OSD).

The blueprints shall serve as a guideline for EU Member States in their process of establishing competent authorities or ensuring that the established CAs are able to resource the regulatory tasks stipulated by the Offshore Safety Directive. Each design presented below is only a recommendation.

Before implementing such design:

- a MS would need to endorse it in the “policy statement” and “organisational arrangements” that it should deliver when appointing a competent authority (according to Annex III of the OSD);
- and each CA would need to describe it further in the “written strategy that describes its duties, priorities for action (...) and how it is organised” (according to Annex III of the OSD also).

The necessary (minimum) resources needed by competent authorities to meet the requirements of the OSD differ depending on the level of offshore activities. Therefore, there are distinct differences in the amount and type of resources needed across the country groups. The proposed blueprints assume that there is a minimum level of competence at the CA level, in particular as far as regulatory competence is concerned. This regulatory competence includes knowledge of MS legislation and related legal system. The MS CA will also coordinate regulatory tasks and therefore requires regulatory skills in inspection, investigation and assessment including enforcement as necessary.

For MS with a low level of offshore activities (e.g. Group 2 and Group 3 countries), certain disciplines may not be relevant due to the limited range of offshore activities (Group 3 countries have no production, or group 2 countries may have no drilling/exploration or no marine installations e.g. an FPSO).

However, a minimum level of administrative/organisational resources would need to be established, for instance:

- to oversee necessary strategic interactions with key stakeholders, inter alia:
 - industry duty holders,
 - social partners,
 - other government departments,
 - EU Offshore authorities Group and the Commission,
 - public,
 - academia,
 - standards-making organisations, or
- to perform administrative duties related to well notifications, assessment of reports on major hazards and notifications submitted pursuant to Article 11, etc.)
- to coordinate and take regulatory decisions in regulatory tasks e.g. well notification or RoMH assessments, inspection and or investigation findings etc.

These blueprints should be kept in mind when the different options on recruitment (option A1, described in section 5.1), training (option A2, described in section 5.2) and expertise sharing and pooling (option B, described in section 5.3) will be discussed.

3.2. Blueprint for Group 1 countries

Blueprint for Group 1 countries is the starting point for blueprint development for Group 2 and Group 3 countries.

High level of offshore activities among the Group 1 countries justifies the need for local recruitment of all the disciplines shown in the Figure 1 below. These countries are also characterised by a high level of specialization within different disciplines. This will not be the case for the Group 2 or Group 3 countries.

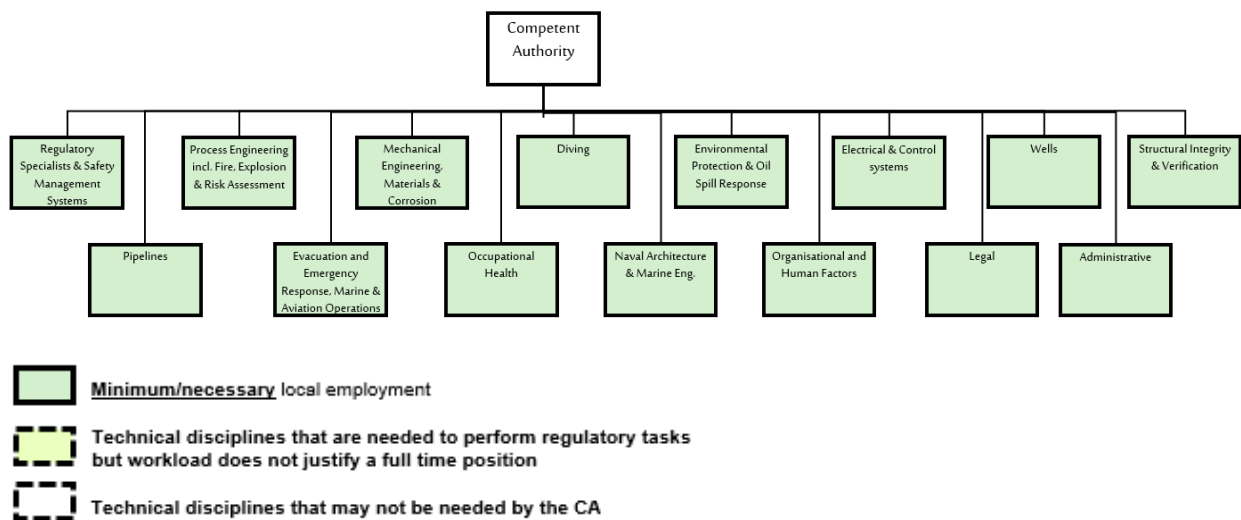


Figure 7: Blueprint for Group 1 countries (UK, Norway, The Netherlands, Denmark, Italy, Croatia)

3.3. Blueprint for Group 2 countries

The competent authorities in Group 2 will most likely require majority of regulatory functions (as in Group 1). However, due to the smaller size and lower complexity of the industry, the required regulatory and technical functions are expected to be in low numbers. In some cases, disciplines such as Pipelines, Diving or Naval architecture might not be needed at all. Typical CA functions such as licensing of exploration and production, assessment of design notifications and RoMHS will be performed infrequently.

Given this, it is recommended that Group 2 countries have at the minimum level 5 key disciplines in the permanent staff, as further discussed in the Table below.

Table 2: Key disciplines for Group 2 countries

Key disciplines	Comments
<i>Regulatory Specialists and Safety Management</i>	Regulatory and Safety Management specialists would be responsible for both regulatory area as well as Working environment disciplines (Organisational and Human factors and Occupational Health). This will thus include a coordinating role of the Organisational and Human factors and Occupational Health disciplines resources provided through the network (when needed).
<i>Environmental Protection & Oil Spill Response</i>	This discipline will cover both areas critical for emergency preparedness: Environmental Protection & Oil Spill Response as well as Evacuation and Emergency Response, Marine & Aviation Operations.
<i>Wells specialists</i>	Although well engineers possess basic engineering knowledge of for example control systems or processes, well discipline is very specific and shows little overlap with other ones. Opportunities for merging several competencies and coordinating activities of these are thus limited.
<i>Structural integrity & Verification</i>	There is a certain level of overlap between Process Engineering, Mechanical Engineering, Material corrosion and Electrical & Control systems as well as Structural Integrity. It is recommended that CAs in Group 2 assign a local Lead Engineer for these disciplines. The Lead Engineer could use network of experts when more specialised technical expertise is needed to exercise CA function.
<i>Legal experts</i>	Due to the local legal requirements, each CA should have legal experts in their basic staff.

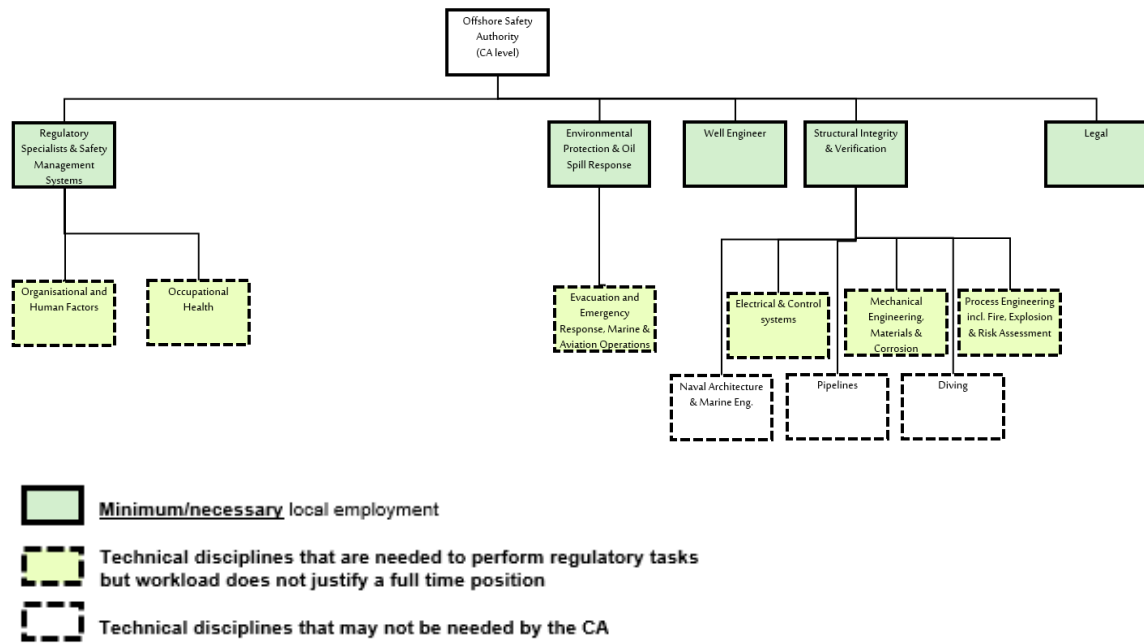


Figure 8: Blueprint for Group 2 countries (Bulgaria, Germany, Greece, Ireland, Poland, Romania, Spain)⁵

3.4. Blueprint for Group 3 countries

Currently, the countries in this group do not perform any production activities but they do have drilling activities, which require regulatory functions such as exploration licensing, well notifications and assessment of individual drilling installations for well campaigns. In some cases, the exploration activities and the respective regulatory requirements may be very infrequent. In this context, the recruitment of permanent technical experts might not be required. Given this context, it is suggested that these countries staff CAs primarily with regulatory competence (incl. Legal specialists), wells specialists and experts on environmental protection. Some of the countries might also need Naval Architecture & Marine experts for drilling rigs. Other disciplines might be outsourced when required.

⁵ Although the requirement for specific disciplines varies with installation types in general when reducing the range of offshore technical specialisms, it is difficult to avoid a loss in depth of expertise as individuals roles will have a wider range of technical specialisms to cover

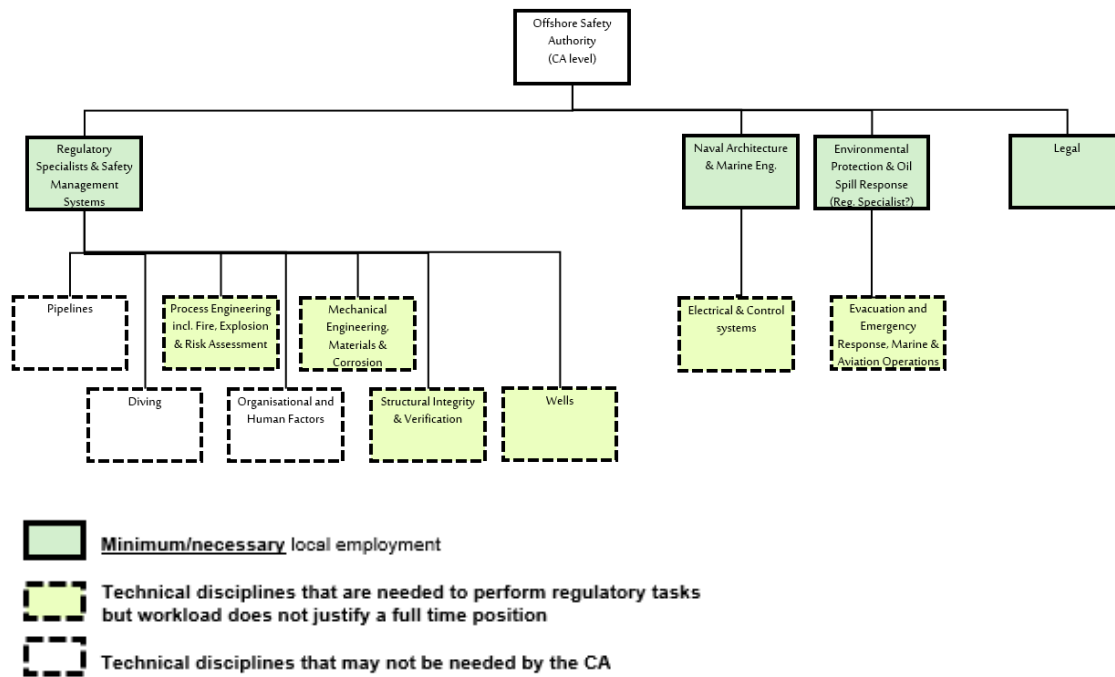


Figure 9: Blueprint for Group 3 countries (Cyprus, France, Iceland, Malta, Portugal)

CA with small offshore industries, such as in Group 3 countries, will need to maintain communications with organisations that are considering drilling campaigns e.g. licensees, drilling contractors and well operators on their plans, in order to estimate in advance the requirement for regulatory tasks.

4. What are the resource gaps?

Qualitative assessment of the resource gaps by country group

The sections 2 and 3 addressed the resource needs and the minimum level of expertise for each CA, regardless of the current staff resources of the CAs. To develop our analysis further, we have to address now the following question: what are the actual resource gaps? Are there resources needs that are not covered by the current resources of the CAs?

The quantification of needs of expertise is based on the gap analysis realised in Stage 1 of this study. In this section, **we consider the gap between the resources required by CAs in 2016 (in the baseline scenario) and the current resources as reported by Member States (based on 2014 data).**

In the Stage 1 gap analysis, two scenarios were assessed for 2016: a baseline scenario and a high-production scenario. In the present section, we consider the 2016 baseline scenario of the gap analysis for the following reasons:

- The options developed in the present study consider a full transposition of the Directive which will be implemented after 2014 (specifically on July 2015).
- The recent drop of oil prices is expected to affect the investments in oil exploration and drilling activities, at least in the short-term. As a consequence, the high-production scenario is considered as less realistic than the baseline one.

In the gap analysis, the estimation of the gaps in the 2016 scenario is largely based on planned recruitments for 2016; according to the figures reported by Member States these recruitments reach 75 full time equivalent people (FTE). Since, in Stage 2, we consider the overall recruitment difficulties, we have to consider both the needs to recruit already planned resources (i.e. people whom CAs have planned to recruit between 2014 and 2016 but who are not recruited yet) and the needs to recruit additional resources to close the gaps completely.

So the table below shows the gaps as estimated based on the resources required by CAs in 2016 and the current resources as reported by CAs (for year 2014). For comparison purposes, the table also shows the gaps estimated based on the planned and required resources in 2016 (given in brackets). The results are aggregated for each of the three country Groups, for EU countries only (i.e. excluding Norway I Group 1 and Iceland in Group 3).

Table 3: Estimated gaps between resources reported in 2014 and required resources in the 2016 baseline scenario, in full time equivalents, FTEs (and, in brackets, estimated gaps between the planned and required resources in 2016)

Discipline	Group 1 (for EU only, i.e. excluding Norway)	Group 2	Group 3
Regulatory Specialists & Safety Management Systems	-7.4 (1.9)	-6.3 (0.7)	9.2 (7.2)
Process Engineering incl. Fire, Explosion & Risk Assessment	-1.9 (-0.1)	-2.3 (0.7)	-0.5 (-0.5)
Mechanical Engineering, Materials & Corrosion	-1.7 (-1.7)	-2.8 (0.3)	-0.3 (-0.3)
Diving	-2.3 (-2.3)	-2.5 (-0.5)	-0.4 (-0.4)
Environmental Protection & Oil Spill Response	-0.4 (0.7)	2.8 (5.8)	-0.4 (-0.4)
Electrical & Control Systems	-2.3 (-1.0)	-1.2 (1.9)	-0.2 (-0.2)
Wells	2.1 (4.3)	-1.6 (0.4)	1.3 (1.3)
Structural Integrity & Verification	-4.6 (-3.4)	-2.0 (0.0)	2.5 (2.5)
Pipelines	-2.1 (-1.3)	-1.4 (0.7)	-0.3 (-0.3)
Evacuation and Emergency Response, Marine & Aviation Operations	-3.1 (-2.2)	-1.5 (1.0)	-0.3 (-0.3)
Occupational Health	3.5 (3.5)	-1.2 (0.8)	-0.1 (0.9)
Naval Architecture & Marine Engineering	-5.2 (-3.6)	-1.5 (1.5)	-0.3 (0.7)
Organisational & Human Factors	-1.8 (-0.4)	-1.5 (0.5)	-0.3 (0.7)
Legal	2.3 (2.5)	-0.7 (1.5)	0.8 (0.8)
Administrative	-5.2 (-4.2)	-4.8 (0.8)	0.2 (1.3)
Other	6 (6.0)	0 (4.0)	3 (3.0)

A positive figure means that there is a theoretical excess of resource. The figures in bold correspond to disciplines identified as being included in the minimum level of required expertise in the previous section.

It should be kept in mind that the gaps in resourcing were identified using the best available information at the time of the study and represent a broad overview of the resourcing in the EU MS. The resource requirements were based on projected resourcing of regulatory tasks required by Offshore Directive and established through a regulatory model. They do not represent a detailed planning approach likely to be required by each of the MS CA.

As illustrated in the table, gaps appear in various categories. At the group level, the following observations can be made:

- **Group 1:** Gaps are present in several technical disciplines, particularly for Regulatory Specialists, Naval Architecture & Marine Engineering, Structural Integrity & Verification, Diving, Evacuation and Emergency Response, Marine & Aviation Operations.

There seems to be enough staff in a few disciplines (for Group 1 as a whole; things may differ for specific countries): wells, occupational health, legal.

The magnitude of these gaps is higher compared to other groups, since countries of group 1 are expected to carry out all functional tasks as stipulated by the Directive on a relatively frequent basis.

- **Group 2:** The gap analysis reveals several gaps particularly for Regulatory experts, Mechanical Engineering and Diving.

There seems to be enough staff in one discipline (for Group 2 as a whole; things may differ for specific countries): Environmental Protection & Oil Spill Response.

The CAs in countries of this group will most likely require most regulatory functions but low in numbers due the smaller size and complexity of the industry. Consequently, functions such as licensing of exploration and production, assessment of design notifications and RoMHs will be performed infrequently. For this reason, the scale of the gaps are significantly lower than those estimated in Group 1 countries.

The number of additional FTEs required for each discipline is often quite low. In most cases less than two FTEs are required per discipline for all Group 2 countries considered together. Specific recruitments may be difficult to justify, especially when the considered discipline is not included in the minimum level of required expertise (as described in the previous section).

- **Group 3:** Gaps are identified in several disciplines, particularly for Process Engineering incl. Fire, Explosion & Risk Assessment, Diving, Environmental Protection & Oil Spill Response.

There seems to be enough staff in a few disciplines (for Group 3 as a whole; things may differ for specific countries): Regulatory Specialists & Safety Management Systems, Wells, Structural Integrity & Verification, Legal, Administrative.

In general, gaps are of a much smaller order of magnitude than those identified in Group 1 and Group 2 countries. As currently the countries of this group do not perform any production activities, the regulatory requirements will be limited to exploration licensing, well notifications and assessment of individual drilling installations for well campaigns. In some cases, the exploration activities and the respective regulatory requirements may be very infrequent and uncertain (e.g. in Malta).

The number of additional FTEs required for each discipline is often quite low, lower than 1 for the 4 countries of Group 3 as a whole. Specific recruitments may be difficult to justify, especially when the considered discipline is not included in the minimum level of required expertise (as described in the previous section).

5. How to fill the resource gaps?

Presentation of main options

Now that we have identified the generic needs (section 2) and the minimum level of required expertise for each country group (section 3) and given a brief overview of the main resource gaps for each country group, based on the detailed gap analysis conducted in Stage 1 of this study (section 4), we have now to address the key question: **how to fill the resource gaps that we have identified in the previous section?**

As already mentioned (see Table 1), two options could help CA sourcing the required expertise:

- Option A: Each MS recruits specific and dedicated staff for its own CA.

This option covers two main tasks: recruitment and training:

- A1: Recruitment and development of offshore expertise (section 5.1);
- A2: Training existing personnel and new recruits (section 5.2);

As we will see, recruitment may not be always realistic or the most efficient option, especially in Group 2 and Group 3 countries where some discipline may have low levels of utilisation. In such cases, another option may be investigated:

- Option B: Network and pooling/sharing of experts (section 5.3).

This section will focus on analysing the conditions in which these options can work effectively to address the resource gaps for different country groups and identifying the associated liability issues.

Different liability issues may arise within different options and therefore shall be addressed within the Option. It is important to note that the aim of discussing liability issues in this report is not to analyse the legal issues and regimes in detail but to underline that these issues should be taken into account while investigating different sourcing options. Moreover, legal regimes of Member States may provide different solutions to legal issues arising from OSD implementation.

The questions regarding the costs of the different options and the potential cost recovering schemes are addressed in the following section (section 6).

5.1. A1: Recruitment and development of offshore expertise

If a CA wants to recruit the experts to fill its resource gaps, it has to address a few questions:

- What is the availability of experts in this discipline on the labour market? In other words, is it possible to hire such experts? (See section 5.1.1.)
- Under which conditions can such experts be hired? (See section 5.1.2.)
- Are there any specificities because the CA is a public entity? (See section 5.1.3.)
- To what extent can the employment conditions affect liability issues? (See section 5.1.4.)

5.1.1. Who can be available? Availability of core disciplines in the labour market

This section aims to provide an overview of the **supply** of resources and competences that are available in the labour market. The assessment of the availability of competences in the market are based on data collection from publicly available sources and interviews with recruitment agencies and CAs. It must be noted that due to the complexity of the labour market and the numerous recruitment agencies operating internationally, it was not possible to provide quantitative estimates.

Regarding **difficulties in safeguarding the supply of specific disciplines**, some expertise areas suffer more from the lack of specialists than others. Most significantly, the supply of well engineers seems to face the most significant shortages in the labour market. This was the common observation of recruitment experts as well as of national recruitment agencies. In particular, the Irish national competent authority indicated that due to difficulties in recruiting well engineers it had to renounce on its recruitment prospects and rely on three external well engineers outsourced to a consultancy firm.

There are also important difficulties regarding the recruitment of process engineers, mechanical engineers, divers (even though atomisation of diving tasks tend to render this competence more easily available on the market), experts on environmental protection and oil spill response and on structural integrity and verification. Difficulties are also encountered regarding recruitment of evacuation and emergency response experts specialised in the oil and gas sector.

Lower difficulties are encountered with regard to the recruitment of regulatory and safety management systems specialists, specialists on electrical and control systems, pipelines, occupational health, naval architecture and marine engineering, organisational and human factors and legal and administrative staff.

The table below shows qualitative assessments of the recruitment difficulties and of the transferability of disciplines from the industry. This assessment is based on interviews with recruitment agencies and CAs.

Table 4: Summary of the supply of disciplines in the labour market

Discipline	Recruitment difficulty	Comments	Transferability from other industries
Regulatory specialists and safety management systems	Low	No particular difficulties are identified.	High
Process Engineering, incl. Fire, explosion and risk assessment	Medium/High	Norwegian recruiters consider this discipline as extremely difficult to recruit. French recruitment expert did not consider particular difficulties in this expertise area. It was indicated that the French market might have more qualified engineers than other countries, due to the existence of its system of engineering schools.	High

Discipline	Recruitment difficulty	Comments	Transferability from other industries
Mechanical Engineering, Materials & Corrosion	Medium/High	The Norwegian recruiters reported that the need for expert engineers is reduced by using more advanced anti-corrosive materials. Thus, there has been both a decreasing demand for this competence and a decreasing pool of available resources. Mechanical rotating competence (in contrary to mechanical static) has also been traditionally difficult to recruit. In contrast, a French recruitment expert reported that there is no shortage of mechanical engineers.	Low
Diving	Low/Medium	Norwegian recruiters indicated that due to atomisation of many diving tasks, this competence should be easily available on the market. A French recruitment expert indicates that there are few available divers in the offshore industry.	High
Environmental protection & oil spill response	Medium	A French recruitment expert indicated that there are few specialists in this area.	Low
Electrical & Control Systems	Low	Both Norwegian and French recruiters agreed that this discipline does not face significant difficulties in terms of supply in the labour market.	Low
Well specialists	High	There is a general agreement that there is a significant lack of available well specialists (in addition to those already hired by the CAs).	Low
Structural Integrity & Verification	Medium/High	The Norwegian recruiters underlined the difficulty in recruiting experts in this area.	Low
Pipelines	Low	In Norway, this expertise has been frequently recruited from third-countries such as India.	High
Evacuation and Emergency response experts	Medium	The Norwegian recruiters indicated that currently there are not sufficient resources in the offshore industry in this area. This area has been relatively less crucial in the context of the offshore industry compared to other disciplines. It was stated that resources would need to be recruited from the army which is more advanced in terms of expertise. The French recruitment expert indicated that companies proceed by subcontracting these tasks and that resources are available in the sector of civil protection.	High
Occupational health	Low	No particular difficulties were identified.	High
Naval Architecture & Marine Engineering	Low	Easy access to and availability of these resources in Europe due to resources available from the shipping industry. Although much of the infrastructure development takes place in Asian countries (including shipbuilding), there is still high activity in Europe particularly in the area of ship conversion.	High
Organisational & Human Factors	Low	No particular difficulties were identified.	High

Overall, there are significant difficulties in recruiting offshore experts, due to the mismatch between the high demand and low supply of qualified workforce. Due to the reasons explained above, a quantification of this mismatch is not possible due to data availability limitations, particularly as regards the supply of the expertise.

A qualitative comparison of the demand and supply (Table 5) of disciplines is summarised in the table below.

Table 5: Comparison of supply and demand per discipline

Discipline	Assessment of supply and demand
Regulatory Specialists & Safety Management Systems	Large demand in CAs with no particular issues in the labour market.
Process Engineering incl. Fire, Explosion & Risk Assessment	Significant gaps in CAs and significant limitations in supply. A transfer from the offshore industry is possible but subject to future industrial investments.
Mechanical Engineering, Materials & Corrosion	Significant gaps in CAs, low supply and limited transferability from the industry.
Diving	Significant gaps in CAs, low supply from the labour market. However there is a high transferability from the offshore industry and other CAs operating in relevant fields (e.g. the Italian CA uses divers from the Italian Coast Guard)
Environmental Protection & Oil Spill Response	High demand in CAs but with a possible surplus in Group 2 countries. The supply and transferability of this discipline is limited.
Electrical & Control Systems	Significant gaps in CAs but a direct recruitment from the labour market is possible.
Wells	Particularly high shortages both on the demand and supply sides.
Structural Integrity & Verification	The shortages in Group 1 and Group 2 countries could be partially covered by Group 3 countries. However, the supply and transferability of this discipline are limited.
Pipelines	The gaps identified in the CAs of all groups could be filled by the supply of the labour market.
Evacuation and Emergency Response, Marine & Aviation Operations	The gaps in CAs could be filled at least partially directly from the labour market or industries. Nevertheless, some difficulties still exist on the supply side.
Occupational Health	This discipline does not seem to face any significant difficulties.
Naval Architecture & Marine Engineering	Very high gaps in CAs but not any significant issues recruiting experts directly from the labour market.
Organisational & Human Factors	Relatively small gaps which can be filled directly from the labour market.

	Critical shortage
	Medium shortage
	No shortage

The **recruitment of retired people** is another option of recruitment which has proven to be an effective solution for some CAs (e.g. in Norway). In some countries, people cannot be hired for most offshore activities (at least all operational activities) after a given age. They can however realise deskwork and provide all their expertise to a CA.

Nevertheless, it must be noted that the latest drop of oil prices has resulted in a considerably increase of supply of offshore experts. However, it is uncertain whether the low levels of oil prices and the resulting levels of low levels of offshore activity will continue.

The overall supply of disciplines has been recently affected by the reduction of oil prices which forced operators to put on hold investments in offshore exploration and drilling activities. As a consequence, the recruitment of experts has dropped significantly and there have been cases of cuts in their existing workforce. In this context, the supply might be currently higher than in

normal circumstances. **Due to the current uncertainty, the present study assumes that oil prices and the labour market will not change significantly by 2016.**

Box 1: Trends of oil and gas prices and impacts on jobs

The **trends** on oil prices and consequently the supply and demand of offshore experts are currently unclear. BP's director Bob Dudley expected in mid-January 2015, when he was attending the Davos meeting of the World Economic Forum, that the oil price could stay low for two to three years⁶. Other experts see it as a temporary and exceptional situation and consider that it should not affect the general structure of the labour market that is characterised by the demand exceeding the supply of specialists. For instance, according to the Norwegian Employment and Welfare Administration business survey, Norwegian companies have a deficit of 11,300 people in oil-related professions⁷. Quite recently, it was estimated that the numbers of rigs in Norway should increase from 36 in the early 2010s to 51 by 2015. That means that 4,000 new rig workers in addition to 7,500 that were already in place are needed⁸.

5.1.2. What options are possible for self-recruitment?

The self-recruitment from CAs can be direct or indirect. In direct self-recruitment CAs hire the required experts under employment contracts (fixed term contracts, permanent contracts or day rate contracts).

Indirect self-recruitment is achieved when CAs of a given country draw their required disciplines from other national authorities. Most commonly, CAs use secondment of discipline specialists or share resources between different CAs within one MS.

The paragraphs below describe the characteristics of these direct and indirect self-recruitment options.

5.1.2.1. Direct self-recruitment

Direct self-recruitment is carried out upon the signature of a written statement of employment or a contract that can be either full-time or part-time.

The direct self-recruitment is possible through different channels:

- Direct recruitment from the CA: the CA hires directly through an open competition or other processes allowed in a given country.
- Recruitment through a recruitment agency: experts working on OSD-related activities are normally offered by niche recruitment agencies and not conventional ones.
- Recruitment involving discussion with operators or other sectorial experts: disciplines with limited availability (e.g. well experts) can be identified through a collaboration with the industry of other relevant fields (e.g. onshore oil and gas).

The main categories of contracts are the following:

- Evidence collected in the context of the present study suggests that the oil and gas labour market is particularly characterised by **short-term contracts**. For instance, in the UK, 70% of all oil and gas contracts are short-term, with an average duration of 12 months. There are some operators who hire specialists on even shorter terms, for

⁶ <http://www.theguardian.com/business/2015/jan/26/bp-freezes-pay-staff-globally-oil-price-drop>

⁷ Fircroft Norway

⁸ Fircroft Norway

instance 6 months. This is driven by operator's need for flexibility and the labour demand depending on the number and intensity of production and exploration activities in a given period.

- In Norway, there is a tendency to use more **permanent contracts**, although there is a large number of oil and gas experts on short-term contracts renewed every 2-3 years. Frequently these experts do not wish to enter a permanent contract due to lower salaries offered. Specifically, under a short-term contract, for the same position, the salary is approximately 40% and sometimes 100% higher than under a permanent contract. It is not uncommon that experts working for 10-15 years on the operator's side choose a short-term contract that is renewed every 2-3 years.
- Another option are the **day-rate contract** or zero hour contracts. These contracts are used for 'on call' activities (e.g. interpreters) and do not stipulate a specific duration (e.g. hours per week). The worker is paid for the days that he works, receiving a fixed amount for the days that he worked and other possible expenses. The advantage of this type of contract is that experts can be used only when required and for the shortest periods possible. This can be particularly convenient for Group 2 and Group 3 countries, where several OSD-related tasks are carried out at an irregular basis. On the other hand, normally employees under this contract are not obliged to work when asked. In this context, day-rate contracts do not ensure the availability of expertise when recruited.

The contractual options in the case of **recruitment of retired people** do not differ with the ones applicable to active experts.

The evidence collected in the context of the present study **does not indicate any significant limitations on the type of contracts that could be used** to fulfil the requirements of the CA's. CAs select the type of contract that is offered, based on their specific needs, the supply of each discipline and its characteristics. As mentioned above, short-term contracts tend to be more costly when compared to long-term contracts or permanent positions. Any additional costs do not necessarily affect the budget of the CAs as long as adequate cost recovery schemes have been established (see section 6). However, workers employed under short-term contracts might be in general less motivated to enhance their expertise during their employment or between two short-term contracts as this is neither encouraged nor valued by the industry. Even within the duration of a short contract, the CA does not have the time to train the experts. Nevertheless, depending on the level of experience of a short-term employee, a smooth integration into a CA can be safeguarded through a simplified training session (i.e. an induction training).

5.1.2.2. Indirect self-recruitment

Different options exist for indirect self-recruitment:

- CAs have also the possibility to **outsource** their required resources to private businesses (e.g. consultancies, specialised agencies, etc.). This option allows a significant amount of flexibility as the required competences (or services) can be requested at an ad-hoc basis (e.g. day rate contracts). Nevertheless, private companies offer such services to both the public authorities and offshore operators, thus imposing a potential conflict of interests. In this context, CAs that choose this option need to establish appropriate measures to prevent such cases. The Irish CA that outsources a significant amount of its required expertise to consultancy firm applies special provisions to tackle any potential conflicts of interest. Specifically, the CA reviews the CVs of the experts to assess any issues that may exist. The consultancy firms also establish a system to prevent such issues.

- The **secondment of discipline specialists**⁹ is also possible but is not used widely by CAs. In case of secondment, an original employer (or “seconded”) provides services of an employee (or “seconded”) to a “host” organisation (here, the CA). In case of experts seconded from private oil and gas companies, it is necessary that the secondment documents define who the employer of the expert is during the secondment. In general, the employee remains employed by the “seconded” but the situation may sometimes be requalified and the employee is considered as being employed by the “host”. In order to avoid such situation, the “seconded” should carry on with practical management of the individual. However, in the OSD case, it may seem difficult for the CA not to manage the expert. The lines between secondment and employment may thus be difficult to define. In addition, given the need for training, it is unlikely that the secondment of a limited amount of time would be effective.
- Another practice commonly used by public authorities is the **sharing of resources between different CAs within one MS**. An example of sharing resources is a case where a need for marine expertise is fulfilled by experts of the ministry responsible for marine-related issues. The Polish CA plans to recruit specialists from the mining industry. More commonly, experts can be shared between the offshore and mining industries.

The advantages of resource sharing include the following:

- experts can be shared at an ad-hoc basis for different similar activities, not necessarily relating to offshore oil and gas activities (e.g. in Italy, divers are shared between the coastguards and the offshore CA);
- experts can be recruited at a full-time basis even when this is not required by one single authority, thus lowering the costs and ensuring the availability of that expertise.

The disadvantages include the following:

- resource sharing is not relevant for competences which are specific to offshore oil and gas activities (e.g. well experts);
- conflicts on the planned use of the experts might occur, especially in cases of emergencies;
- there might be difficulties in defining the liability in cases of wrongful conducts.

5.1.2.3. Synthesis on self-recruitment options

The paragraphs above show that CAs have normally several options to consider recruiting their own resources. The selection of the approach depends amongst others, on the following:

- The specific type of the required experts: depending on the specificities of each expertise, a permanent contract might be more effective for experts with horizontal duties (e.g. regulatory experts) whereas shorter contracts may be more appropriate for technical disciplines that are required infrequently (e.g. well experts).
- The timeframe of the requirement: If an expertise is required at a frequent basis (i.e. in Group 1 countries), the CAs may select more permanent solutions, such as a self-recruitment under a permanent contract or a long-term secondment. If the requirements are infrequent and uncertain, CAs may fulfil their requirements through short-term contracts or sharing of experts with other authorities at an ad hoc basis.

⁹ Secondment is when an employee is transferred to another job for a defined period of time and purpose. The transfer is to the mutual benefit of the parties involved.

- The need to capitalise expertise and to train people: depending on the current and prospective size of the offshore industry, a CA might choose to invest on a long-term basis to establish a robust and permanent pool of experts.

It must be noted the selection of the self-recruitment option might be subject to national specificities and limitations. The most significant limitations are described in the following section.

5.1.3. What are the specificities of public sector employment and outsourcing?

5.1.3.1. Generic principles

In the EU, there are two principal public sector systems¹⁰: One focusing on **equal access** of qualified citizens to the public service and the other leaning more towards the recruitment of the **best available candidates**. Each country focuses more on one of the principles than on the other. On the one hand the so-called “classical French concept” (e.g. followed by France, Portugal, Italy) stresses the importance of equal rights, whereas on the other hand the “best-suited for the position concept” (e.g. followed by the Netherlands and Nordic countries) focuses on the required skills of the posts.

Overall, the EU Member States are heading towards a merit-based system under which recruitment is implemented through **open competition**. However, some exceptions exist: in several cases and under specific circumstances, Member State CAs can fill posts without following the open competition system. For example, in the Netherlands, a decision for a recruitment can be taken directly by the head of a department, even though there is an obligation to select the best-suited candidate for the position. Exceptions to open competitions can also apply in Germany, France and Spain, but not for permanent positions.

Regarding the **recruitment of senior managers**, the recruitment system varies significantly between different Member States. For example, senior managers in France are selected from ENA (*École Nationale d'Administration*), which involves a highly competitive competition to enter the school. On the other hand, the Netherlands recruits its senior managers in a manner similar to the one followed in the private sector (e.g. without examinations but through interviews through a selecting committee panel).

Overall, the recruitment system in EU public authorities follow common principles (i.e. equal access and best suited for the post) but by leaning more towards the one or the other. As a result, the recruitment systems vary significantly between Member States.

5.1.3.2. Specific rules for recruitment

In the case of experts recruited **internally** by the CA, each country has its own legal settings for employment of its agents, often including several categories of contracts. There are two main types of contract, either a person is recruited with a status of a public official (“fonctionnaire” in French) or he/she is recruited as a contractual agent (the same distinction exists in EU institutions). The status of public official confers in general much more important rights, notably a security of employment until retirement.

Contracts of contractual agents are generally short-term contracts, concluded for a limited period, which may be renewable. Legal regimes define specific criteria when a public entity can hire a contractual agent, in order to avoid abusive use of short-term contracts.

¹⁰ Sigma & OECD (2006), Recruitment in civil service systems of EU Members and in some candidate states

In the context of the OSD, contractual agents hired for short-term periods may be more suited to carry out tasks of the CAs. It would thus be of importance that the legal regimes in the different Target States allow for use of short-term contracts for execution of the tasks of the CA. CAs could thus more easily adapt their recruitment to their short-term or ad-hoc needs and lower recruitment costs.

When not hired by the CA, it is assumed that experts could also come from other relevant public authority bodies. For example, in the case of Ireland, experts could also come from the Department of Communications, Energy and Natural Resources (DCENR) to their CA, the Commission for Energy Regulation (CER).

5.1.3.3. Specific rules for outsourcing

Specific rules may apply to outsourcing by a public entity. Similar to private entities, public entities can use external experts for carrying out some of their tasks. However, because they are public entities, they are subject to public procurement rules and have to apply public procurement procedures when the type of contract is concerned by such rules and when the amount of the contract exceeds a given threshold. In the case of consultancy or expert secondment contracts, the applicable rules are generally those on public procurement of services.

National laws may also include restrictions on what services can be delegated to a private entity. In general, national legal regimes tend not to allow delegation to private entities of activities that are linked to freedoms and police (such as inspections, criminal procedures). Such missions would have to be executed by the CA under any circumstances.

Regarding these issues, the OSD Annex III of the OSD (paragraph) 1 (2) (b)) provides an interesting precision, stating that the national competent authority retains full responsibility under the Directive:

*"Member States shall make the necessary provisions to bring the arrangements in point 1 into effect, including, [...] **where there is reliance on external sources** of expertise, funding the preparation of sufficient written guidance and oversight to maintain consistency of approach and to ensure the legally appointed competent authority **retains full responsibility under this Directive**".*

These provisions imply that the competent authority remains responsible for carrying out the regulatory duties set out by the Directive.

This wording seems also to mean that while national CAs may outsource certain missions to external experts or consultancy firms, they cannot delegate the regulatory duties on them. In other terms, any administrative action taken in application of the OSD will be issued in the name of the CA and under its responsibility, i.e. it's the CA which will sign all the documents and acts, such as major hazard reviews.

5.1.3.4. Specific barriers for recruitment by public authorities

A paper published by OECD¹¹ identified amongst others the following barriers that might hinder the recruitment of specialists in public authorities:

- Lower levels of wages: wages are a crucial decisive factor of candidates, especially of specialised ones, as regards not only their recruitment but also their retention. In some MS (i.e. Ireland), there are legal caps on the wages that can be paid by public authorities; sometimes, these maximum wages are below the standard wages for some disciplines in private sector.

¹¹ OECD (2001), Public Sector – An Employer Of Choice? Report On The Competitive Public Employer Project, available at: <http://www.oecd.org/austria/1937556.pdf>

- Staff development: staff development in public sector might not be as competitive as in the private sector.
- Slow advancement: there is a common belief that the advancement in public sector follows a fixed order by overlooking actual performance.

Issues related to the salaries and development of knowledge systems are addressed in section 6. It is not in the scope of the present study to address general aspects of public sector such as its general image and issues relating to the advancement of personnel.

5.1.4. What are the consequences of these employment conditions on liability?

Legal regimes of Member States may provide different solutions to legal issues arising from the OSD implementation. The aim of this study is not to analyse the legal issues and regimes in detail but to underline that these issues should be taken into account at national levels.

Under option A, regulatory functions are carried out by “internal” experts recruited by national authorities (see section 5.1.2.1 on “Direct self-recruitment”), or by external experts provided by consultancy firms or seconded from industry or third party organisations that are not part of the public administration (for instance through public procurement) (see section 265.1.2.2 on “Indirect self-recruitment”).

5.1.4.1. Internal recruitment: employment contract with the public entity (CA)

In principle, legal regimes of the Member States provide for “*tortious liability*” of public bodies under which the CA can be held liable for its wrongful conduct or the wrongful conduct of its agents. The tortious liability can also be referred to as “administrative liability”. The conditions for the liability differ across the Member States, depending for instance on the standard of the wrongful conduct.

Member States may provide for both strict (not fault-based) and fault-based liability of public bodies. Strict liability may apply to public bodies in case of harm caused by dangerous public works (as it is the case of France).

However, the standard of liability will generally tend to be fault-based in case of regulatory and administrative action, which means that the claimant must provide evidence that the public body has committed a fault in execution of its functions. The fault may consist of an illegal action or omission of action (negligence). In the French administrative law, all illegal decisions constitute a fault and trigger liability of the author of the decision.

When acting illegally (contrary to OSD and national laws), the CA may be held liable pursuant to liability regimes applicable in the different Member States. The CA would generally be held liable if it does not fulfil its regulatory obligations as defined by national safety laws and the OSD.

5.1.4.2. Outsourcing: external experts provided by private companies (consultancies or industry)

If the CA relies on external sources of expertise, such as provided by a consultancy firm, the presence of the contractor may complicate the liability issues. Concerns may arise on whether external experts can be held liable for the eventual wrongs caused to a third party on the execution of the contract.

Often the Target States would provide for specific liability regimes in case of harm caused at the occasion of execution of a services contract concluded on behalf of a public entity. For instance, because of the public nature of the contract, the French law allows the public entity to put an end

immediately to a public contract in case of serious fault. The rationale behind the rule is to protect the public order. In the context of the OSD, such provision would allow for a high reactivity in case of a fault committed by an external consultant.

There may be different approaches to liability to third parties on the execution of a contract in different countries. In general, consultancy firms will tend to limit their liability to each other and exclude from those limitations only damages caused by gross negligence or wilful misconduct. Parties tend to exclude their liability to third parties as well as any consequential, punitive or other indirect damages. In addition, contracts may introduce a financial cap on liability, which can be a fixed amount, or based on a percentage of the contract value or other type of cap.

Quite often, national legal regimes would have model contracts that public entities shall use when they outsource services or public works. Such model contracts may include provisions on liability, in which case the parties, including the procuring public entity, have a quite narrow margin for negotiation of such aspects.

In addition, public entities may require from the services supplier an insurance that covers an appropriate level of the liability risks.

Given the limitations of liability, it is likely that in most cases, the contractor of the CA would not be held liable for harm caused to the operator or third parties resulting from its intervention along the regulatory procedures.

In such cases, the external expert's liability would be in practice limited to direct damages to the CA.

The main inconvenience of these arrangements is that the CA does not always have the means and competences to check the correctness of the work carried out by the experts.

However, if external experts were to be held liable for harm caused to CAs or third parties, they would probably be discouraged from engaging in such risky contracts, which would jeopardise the effective fulfilment of the regulatory tasks by the CA. In case of external expertise, it seems therefore to be of uttermost importance to define:

- The minimum means in terms of recruitment for the CA;
- The minimum requirements that the CA shall impose on the external expert to ensure that the outsourced missions are carried out to highest quality standard without jeopardising safety;
- In public procurement, it is necessary to pay particular attention to the definition of obligations of external experts, distinguishing regulatory powers remaining with the CA and material execution of the tasks for which the external expert shall be liable under national rules.

5.2. A2: Training existing personnel and new recruits

Having the right number of experts does not necessarily mean that they have all the required expertise to fulfil their tasks. Training may be necessary, both for existing personnel and for new recruits.

5.2.1. What should training be used for?

Training is required for different staff categories:

- All existing management staff have to be trained to get a solid understanding of additional task or amendments on the existing regulatory functions;

- Existing and new offshore regulatory workforce who have not all the required competences have to be trained as well.

In the context of the implementation of the OSD, training entails two components:

- **Knowledge management:** it involves the generation, collection, management and distribution of a large amount of information concerning the implementation of the OSD. The sources and the recipients of this information will vary greatly as it will cover different disciplines. Knowledge management ensures a continuous use and capitalisation of knowledge and not only its generation.
- **Capacity building:** includes the building of activities with the aim to strengthen the CAs, the transpositions of the OSD and the development of implementing legislation in various areas of the Directive.

Knowledge management and capacity building are crosscutting areas that require the development of coordination activities. The sections below describe general training requirements of offshore technical and regulatory experts as well as specific examples of training organisation in CAs. In addition, it identifies which of the required skills is specific to individual Member States and can be developed through training at the Member State level and what skills are more general to the OSD and could be trained through a centralised training system at the EU level.

5.2.2. How can training be organised?

5.2.2.1. Training at the Member State level (one or multiple countries involved)

Member States specific training could be relevant for the specific topics:

- MS specific legislation and legal system;
- Specific MS regulatory policies, processes and procedures;
- Training on technical issues related to offshore safety.

The daily-tasks that are required for the implementation of the OSD can be widely categorised in **administrative, regulatory and technical**. Each of these tasks are entailed to a wider or lesser extent in all specific competences.

The **administrative tasks** are large in number and, up to a certain extent, they follow the standard procedures developed in the public authorities in a given country. Nevertheless, it is envisaged that some tailored-made training will be required to carry out the various administrative tasks, which are specific to the implementation of the OSD. Although the transfer of knowledge from countries that are more advanced on the development of procedures relating to the implementation of the OSD is useful (e.g. types and content of various forms), these will need to be adapted to the standards and procedures of a given public authority. In this context, the training of the various experts to fulfil their administrative tasks will need to be country-specific. Nevertheless, the provision of a practical training from a mature CA (i.e. CAs from Group 1 countries) towards a public servant from a less advanced CA (i.e. CAs from Group 2 or Group 3 countries) would ensure the transfer of best practices. This 'training the trainer' approach could be either provided at a bilateral or a group level. The first approach would allow a training that is more adapted to the institutional requirements of the trained CA. Ideally, such trainings could be also developed between countries with similar structures and procedures. A centralised training for more than two Member States would probably reduce the required resources at the aggregated level but it cannot provide a deeper understanding of the administrative requirements of the OSD with specific implications at the Member state level.

Similarly to the administrative tasks, the **regulatory tasks** also need to follow the institutional norms, standards, procedures and other specificities of individual Member States. In this context, each Member State is responsible for proceeding to the development of new (or amendment of existing) regulatory procedures. Nevertheless, the share of best practices between new and existing jurisdictions would be still beneficial, as it would ensure that the required regulatory tasks are implemented in full and achieved cost-effectively. Existing mechanisms, and particularly the European Union Offshore Oil and Gas Authorities Group (EUOAG), already act as platforms for the provision and sharing of such knowledge. Overall, the acquisition of knowledge to perform the regulatory tasks is seen as a priority for new jurisdictions (i.e. group 2 and 3 countries), as it constitutes the basis to define the administrative and technical needs.

Overall, the **technical tasks** do not require a country-specific knowledge. Nevertheless, some exceptions apply, particularly the following:

- **Well specialist:** the exploration and drilling activities require a strong knowledge of the geomorphological characteristics of the seabed where the operations are taking place. To this end, before assessing a well notification, well experts need to acquire a solid knowledge base of the seabed topography and sediment characteristics of their country.
- **Environmental protection specialists:** The threats and risks imposed to the environment by offshore activities differ significantly from one region to another. Specialists shall be well informed of specificities relating to the biodiversity and other ecosystem characteristics of the fields where the campaigns take place.
- **Expertise on specific types of installations:** while some types of infrastructure are more developed in one region or group than in others, the assessment of design notification by a CA of a certain type for the first time requires the experience of mature jurisdictions.

It must be noted that the acquisition of such expertise for the execution of technical tasks does not necessarily require a training of experts as the knowledge might have been already established or could be established through the examination of existing data and information. Nevertheless, at least the sharing of best practices and other experience would lead to more comprehensive and harmonised implementation of OSD across the different countries.

In addition, the education systems, and specifically the specialised programmes offered by universities in a given country, may also have an impact on the level of competence of specialists.

Box 2 and Box 3 describe the country-specific training models developed respectively in Norway and the UK.

Box 2: Example of a country-specific training model – PSA (NO)

Under the Petroleum Safety Authority model, each staff member has to develop expertise within all the three areas shown in the figure below.

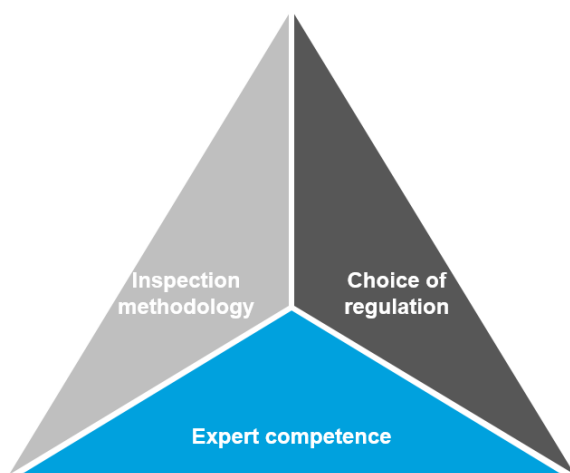


Figure 10: Three areas covered by PSA's training model

Training on the inspection methodology: module-based trainings provided internally by PSA or by institutions (e.g. University in Stavanger). There are also numerous international training courses (audit training course) that PSA uses.

Training on regulatory aspects: Training focuses on the Norwegian legal framework.

Expert competence: Training courses in different technical disciplines provided internally or by institutions (e.g. University of Stavanger).

Here, the focus is on building a knowledge system within which regulation can apply. Despite many country-specific regulations, more and more regulations are referring to industry standards.

Box 3: Example of a country-specific training model – HSE (UK)

HSE Regulators Training Program (RTP)

The RTP is a three-year programme that ensures recruits gain the knowledge and experience necessary to develop the competence to carry out their role in HSE. That role requires them to use their knowledge and experience to exercise judgment on what actions are proportionate to risk and legally sound. All HSE regulator recruits undertake the RTP to give them a firm, consistent foundation to their role as regulatory decision-makers.

Structure of the RTP

The RTP is a work-based learning programme and comprises two main elements:

- All new inspectors will undertake the 'core programme' over the first two years in HSE. The 'core programme' of training is accredited by the National Examinations Board for Occupational Safety and Health (NEBOSH), a nationally recognised Scottish Qualifications Authority (SQA) regulated awarding body with an international reputation in the field of health and safety. Successful completion of all the courses and the assessed elements will lead to a diploma (at postgraduate level) in '*Regulatory Occupational Health and Safety*'.
- The remaining content of the RTP (the third year) is a non-assessed Continuous Professional Development (CPD) programme, of more advanced, technical training. This CPD element is compulsory for all B4 inspectors. For specialist inspectors these

courses can be made available where there is an essential business need for attendance and where places are available. Hazardous Installations Directorate (HID) also run their own programme of HID specific technical training.

The RTP is delivered through a mixture of on-the-job experiential learning and taught courses and tutorials.

Trainers

Training courses in the RTP are delivered by HSE Operational Development Managers. All Offshore Development Managers (ODMs) are experienced front-line regulators, typically with 15 or more years on the job. Some technical input to courses is given by experts external to HSE on a contracted basis (e.g. legal).

Content and delivery

Trainees gain knowledge about technical subjects during courses; there is also a constant emphasis on the practical application of that knowledge in a regulatory context.

Occupational Health: this module covers a range of significant health effects arising from work activity.

Safety Technology: this module deals with a range of significant safety matters that can cause injury.

Law: this module deals with the general UK legal framework e.g. rules for handling evidence, interviewing witnesses, litigation process in the courts; and specific legal issues for an HSE inspector (e.g. powers of an inspector, making enforcement decisions, serving prohibition and improvement notices).

A detailed breakdown of the competencies required for the exercise of judgment and practical application of regulators skills is set out. The progress of the trainee is led by their line manager and an appointed coach who will be a colleague with front line experience.

5.2.2.2. Training at the European level

Centralised training for all MS (training courses, workshops and secondments) could be relevant for most OSD-related regulatory functions: assessment, inspection and investigation.

Currently there are no centralised training schemes in Europe to allow the transfer of knowledge from the mature jurisdictions towards the new ones. Some existing initiatives (e.g. the EUOAG) provide, to a certain extent, the basis for the transfer of knowledge and best practices but this is not done systematically enough to ensure that all CAs are equipped with comprehensive competence.

A centralised training would benefit countries that carry out offshore activities, particularly those in new jurisdictions (Group 2 and Group 3 countries) to develop or enhance the necessary knowledge to fulfil the requirements of OSD. A training could be centralised by:

- An EU institution or initiative – for example JRC could organise thematic workshops, focusing either on specific tasks (i.e. regulatory, administrative and technical) or regions;
- A CA from a mature jurisdiction – mature CAs such as PSA or HSE (see also Box 2 and Box 3) could accommodate experts from another CAs;
- Third-party independent organisations – such organisations could be consultancies, universities or other institutions that would be selected by means of public procurement following the rules applicable to the procurement of services by the concerned contracting authority.

In all of these three cases, the following challenges need to be tackled:

- Cost coverage: what would be the share of each CA on the cost allocation? When the training is accommodated by an existing scheme (e.g. HSE or PSA), which currently does not charge fees for the training provided internally, what fees would be charged to foreign CAs?
- Organisational set up and management: who, i.e. which legal entity, would be responsible for the running of the scheme, including its management, the day-to-day operations and the overall effectiveness?

The resolution of these challenges do not fall under the scope of this study and thus call further and more detailed research on legal and operational aspects.

5.2.2.3. Who could train the experts?

All MS, including Group 3 countries, which do not have any offshore production activities, must comply with the minimum requirements of the OSD. In this context, in-house expertise needs to be available rather than relying too much on a network or pool of external experts. As group 1 countries have relatively more experience in their offshore activities and established knowledge systems, it is very likely that these CAs will become the key sources of trainers to support other CAs in their capacity building, either through a **collective training or decentralised individual MS training model**.

To develop the necessary in-house expertise, training workshops, organised by the JRC for example could be provided so that CAs are given training on the basic minimum expertise, requirements and knowledge necessary to carry out the regulatory functions specified by the Directive (e.g. training on exploration licensing, well notifications, reporting on hazards, etc.). This is the basic knowledge needed for all MS for offshore activities. Small training groups could be organised with for example someone from the UK CA that could provide information and training on specific areas of expertise such as well notifications to ensure that a sufficient level of knowledge is transferred to the CAs. Furthermore, it would be very important and helpful for the CAs to have guidance documents on these minimum requirements. Such documents could be developed and provided by the Commission or the JRC.

Another option from CAs is to use external technical experts from operators, consultancies, universities or other third party organisations.

5.3. Option B: Sharing and pooling CA Offshore expert resource

Option B is a potential solution primarily for Group 2 and Group 3 countries in order to fulfil the resource requirements of the OSD – without necessarily recruiting permanent staff. As indicated previously (see section 4), MS in these two groups expect to require significantly less than 0.7 FTE for a range of offshore technical experts. Pooling of expert resources therefore could be a sensible solution.

The rationale behind this option is that competent authorities in these Member States would pursue own recruitment as far as possible (Option A) and then look at option B to make up for any shortage in the range of offshore technical expertise, which is not already covered by their permanent staff. In other words, Group 2 and 3 MS would staff their CAs with a minimum level of resources (as discussed in section 3) and for the disciplines with an intermittent requirement for technical expertise, the resource pool/resource sharing option will be pursued. In this section, we will discuss how such a solution could work in practice.

Sharing and pooling resource would be especially relevant when:

- The considered discipline is not included in the minimum level of expertise (see section 3);

- The resource gap is low, making it difficult to justify recruiting full time experts (see section 4);
- The availability of experts on the labour market is low (see section 5.1.1).

5.3.1. What resource pooling could be used for? Key activities

A centrally managed pool of resources shall focus on three key areas, as illustrated in Figure 11 below.



Figure 11: Key activities of the network

The primary activity would be to **facilitate access to specific offshore technical expertise** that will help CAs in performing regulatory tasks.

The network would match local CA expert resource needs with offshore experts in other countries or institutions that are members of the resource pool. Expert (or a team of experts) sourced via the network would become a fully integrated part of the local CA team with access to all relevant information (example: geological reports, well history, etc.). Expert(s) could work remotely from their home countries or be seconded to the host country if required. Communication between network experts and the operators would need to be clarified before the work takes place.

The expert services provided would primarily involve inspection and delivering technical reports (example: Technical Safety Report, report assessing well notification) with recommendations to serve as input to the CA's decision-making process. The technical reports would highlight major gaps in terms of the extent that the operator meets the regulator's requirements.

Network experts, who are working with the CA team, shall not coordinate or facilitate the CA regulatory task in question or make the final regulatory decision. These are statutory tasks of the competent authorities and thus should not be performed by the external network experts. Thus, when using the network, each CA should ensure they have a local person who could coordinate work and input from network's expert or team of experts.

The use of external network experts to assist CAs in accidents and investigations could be another key role of the experts. This is a service that cannot be anticipated or planned in advance, therefore the existence of a pool of experts that could be called upon on an ad-hoc basis could be quite beneficial from Group 2 and Group 3 countries who may not have the required in-house resources and expertise to immediately address accidents and investigations.

Another key activity provided by the resource pool would be **knowledge and experience sharing**. In addition to providing access to experts, the network would follow up on the processes with expert's involvement and disseminate relevant learnings across the CAs. Sharing common templates and best practice processes across the CAs could also be defined as network's task. Similarly, the network experts could be utilized for formal advice or expert consultation. For

example, it is possible that a CA has a question about a specific technical aspect that could be answered by a specialised expert. This type of service would not necessarily require a large time commitment from the expert. This could be an additional source of expertise for some Group 2 countries, which are already fairly well resourced.

Finally, **organising and coordinating essential trainings** could also be an area of responsibility for network experts. With access to experts and insight into CA expertise needs, the network owner could design and provide central training courses that address the needs of certain groups of countries or specific disciplines.

5.3.2. How could it work? Possible network organisation

5.3.2.1. Centre of offshore expertise

A centrally managed pool of resources could be organized as a network organisation, with a network coordinator and a range of external member institutions sharing their experts with MS CAs (Figure 12, below). This organisation would act effectively as a **centre of offshore expertise** for MS CA who require additional offshore experts for regulatory tasks in their MS.

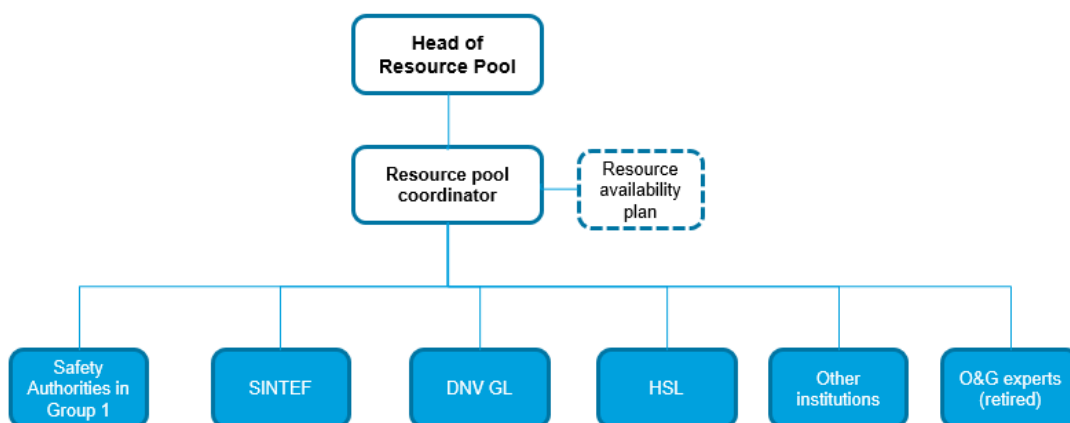


Figure 12: Organisation of a centrally managed pool of resources (with examples of organisations involved in the resource pool)

The three main aspects of such a network are the following:

- Resource pool coordinator: Who coordinates such resource pool?
- Resources: which resources are shared through this resource pool?
- Processes: how the CA can take benefit of the resources shared in this resource pool?

The Head of Resource would have to be in contact with the European Commission and/or Member States' representatives, a.o. to monitor that this network fulfils its objectives and help CAs meet their requirements under the OSD. Two options for this contact between this resource pool and the CAs are the following:

- There is a direct and simple contact between the Head of Resource Pool and the European Commission and it is up to the European Commission to assess the fulfilment of the objectives.
- There is a contact between the Head of Resource Pool and all the Member States' representatives, which would ensure a more direct relationship (at the management level) between the resource pool and the Member States. This relationship could be established through an organisation already in place, such as the EUOAG (European

Union Offshore Oil and Gas Authorities Group), or a dedicated sub-group of the EUOAG. The needs of the MS and the achievements of the resource pool could for instance be discussed during the regular EUOAG meetings.

5.3.2.2. Resource Pool Coordinator

In line with the key tasks of the resource pooling solution, the network's coordinator shall develop, maintain and coordinate a pool of expert resources across the EU countries. The coordinator shall also develop and coordinate training programs for the MS CAs and implement necessary mechanisms and processes for sharing knowledge and experience across the CAs. This would include standardization of the key processes across the CA member states (RoMH, well notification, etc.).

In addition to delivering on the predefined network tasks, the network coordinator shall also develop and maintain collaboration with member institutions, which are part of the resource sharing solution.

Potential resource pool coordinators could be:

- an EU organisation, such as JRC,
- a national specialised organisation, such as HSL;
- a third party provider.

The table below compares the three potential actors (DNV-GL is taken as an example of potential 3rd party provider) based on selected criteria such as independence from the O&G industry, available facilities to coordinate the network as well as availability and sharing of own technical experts.

With previous experience from resource and knowledge sharing as well as necessary facilities in place, both JRC and HSL could organise, coordinate and facilitate the network. The key difference between these two organisations is in provision of own expert resources to help CAs in their regulatory tasks. While HSL would be able to share their own technical experts (see "Table 15: HSL resource sharing" in "Annex 1: HSL – resource sharing"), JRC would provide solely network facilitation. JRC's assistance in regulatory tasks could be interpreted as exercising European Commission influence on individual MS CAs.

Table 6: Possible network coordinators – comparison

	Description	Can coordinate the network?	Can provide own technical experts?	Industry independence	
				Low	High
JRC	<p>The European Commission's in-house science service which which employs scientists to carry out research in order to provide independent scientific advice and technical support to EU policy.</p> <p>JRC has over 50 years of scientific work experience and collaborates today with over a thousand organisations worldwide whose scientists have access to many of JRC facilities through various collaboration agreements.</p>	YES	NO		
HSL	<p>HSL is an agency of HSE (Health and Safety Execution), the UK government organization. It has over 100 years of experience in developing health and safety solutions and currently employs over 350 scientists. In addition to research, HSL provides expert advice, consultancy and specialist trainings.</p> <p>HSL has own expert resources and, as part of the HSE, also access to HSE's offshore technical resources.</p>	YES	YES		
DNV -GL	<p>International, non-governmental organization owned by a Norwegian foundation Det Norske Veritas and a German private company Mayfair Vermögensverwaltung SE.</p> <p>DNV-GL is an advisor for both oil companies and authorities and operates in over 100 countries.</p> <p>Provides technical expertise to some of the Competent Authorities today.</p>	?	YES		

5.3.2.3. Expert Resources

In order to ensure good coverage of the necessary expertise within the pool of experts, the network coordinator shall use their current network of cooperating institutions as well as work on expanding the network of institutions collaborating with the network. Here, institutions such as SINTEF or HSL could be considered as potential participating partners. SINTEF, for example, cooperates today with the Norwegian Petroleum Safety Authority providing expert advice when needed. Each MS CA from the Group 1 countries could also suggest a local institution that could be potentially used to provide available resources to the network.

Although competent authorities in the Group 1 countries seem to have no surplus of their own experts to participate in resource sharing, it is still recommended that these countries are part of the network as sharing resources might turn out to be feasible in the future despite earlier concerns.

As the centrally managed network will rely on different external organisations and resources, cooperation agreements as well as common processes that are efficiently designed and managed as well as transparent for all parties involved need to be in place.

A verification of the absence of any conflicts of interests is essential to ensuring professional and legal integrity especially since potential network members will represent different levels of industry independence. An evaluation of industry independence for a few potential member organisations is provided in Table 7 below.

Table 7: Network member organisations – industry independence evaluations

Network member organisation	Industry independence	
	Low	High
Safety Authorities, Group 1		
HSL		
SINTEF (or similar organisations)		
DNV – GL		
O&G retired experts		

The conflict of interest process could be performed in two phases: when an organisation joins the network and during expert selection process. A Conflict of Interests verification form should cover the exemplary criteria shown in Table 8 below.

Table 8: Conflict of interest form - example

Questions	Answer	Potential conflict of interest?
1. Is the requested expert currently working (freelance, part-time or full-time) for the industry ? If not, has the requested expert worked for the industry in the past 10 years?	Yes	Yes
	No	No
2. Has the requested expert been involved in any offshore sites that will be reviewed or audited during the expert's time of employment at the CA ?	Yes	Yes
	No	No
3. Has the requested expert ever been involved (paid for) functions relating to the economic development of the offshore natural resources, licensing and/or management of revenues of offshore oil and gas operations?	Yes	Yes
	No	No
4. Is the requested expert currently active or part of any industry or trade federations or networks affiliated with the offshore oil and gas sector?	Yes	Yes
	No	No
5. Is the requested expert currently active or part of any political group or political representation e.g. lobbyist or interest groups that represent interests of the offshore oil and gas industry?	Yes	Yes
	No	No

5.3.2.4. Key process – request for experts

In order to ensure the highest likelihood of availability of technical offshore resources, the network shall be well coordinated with the internal resource planning processes of the Group 1 countries.

At the end of each calendar year, Group 1 countries plan their activities (number of inspections, assessments of RoMH, etc.) and resources for the following year. The network coordinator should, in advance, develop an overview of all expert resource needs from the CAs in Group 2 and Group 3 countries and share it with the Group 1 CAs. All Group 1 CAs would then consider this overview in the further planning. Thus, information on any available resources for assistance for Group 2 and Group 3 countries could be planned to some extent. However, the resource overview will have to account for some level of flexibility due to, for example, some delays or changes on operators' side. Close dialogue between the network coordinator and CAs in Group 1 countries would be therefore required. A similar approach could also be adopted towards other institutions, both in terms of focusing on ensuring resource predictability and flexibility.

For less predictable resource requirements, like in the case of incident investigations, the following process described below could be followed (Figure 13 below).

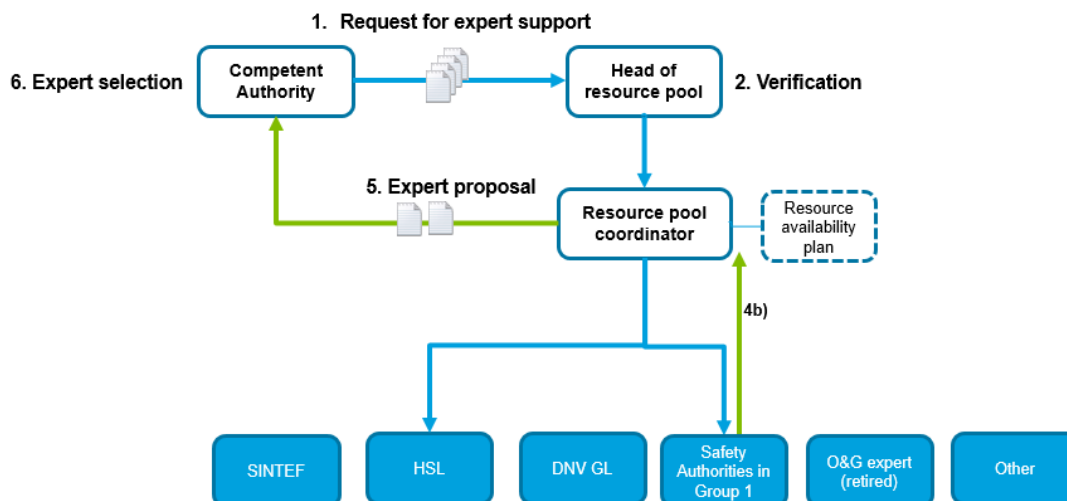


Figure 13: Expert request process for unplanned activities (accident investigation, etc.)

Table 9: Expert request processes

Process steps	Description
Request for expert support	1 Competent authority submits a request for an expert(s) to the head of the network (using a standard application) with a detailed description of the regulatory task. Conflict of Interest (COI) form is attached. Special considerations are commented upon (a.o. timeline (hours) and budget specifications).
Verification	2 Verification of the request to understand if: a) the resource pool is the appropriate place to provide the resource, and b) whether the problem/request is properly formulated. Approval/Disapproval.
Call for experts	3 The pool coordinator checks expert availability in the Resource Availability Plan. Email request with the task description, COI as well as contract clarifying responsibilities is sent out to the selected institutions.
Expert proposal	4 The institutions that were approached by the coordinator verify: a) expert availability and, if positive, provide b) availability confirmation (within x days). Contract approval and formal information on the suggested resource(s) in form of CV.
Expert screening	5 Network coordinator selects expert(s) from the submitted CVs and sends this information to the CA for final expert selection.
Expert selection	6 CA selects expert(s) from the suggested number of experts.

5.3.3. What would be the liability issues with option B?

Two major liability issues will need to be addressed if option B is put in place:

- liability of the coordinating organisation, and
- allocation of liability between the organisation providing experts – (“sending organisation”) and the authority receiving the expert (“receiving organisation”).

The coordinating organisation as well as the sending authority will wish to make sure that they will not bear liability for any harm caused by the intervention of the expert.

5.3.3.1. Liability of the coordinating organisation

In principle, international organisations can be held liable to persons other than the organisation itself, including private parties, states and state public bodies, if conditions of liability are met. These conditions include existence of breach of an obligation that results in a harm.

For instance, bodies of the European Commission are subject to liability regime applicable to European Commission. Under EU law, both Member States and individuals can seek liability of an EU institution that caused them harm. They can seek either contractual or non-contractual liability. Non-contractual liability tends to repair harm caused by organs or agents of the EU institution or resulting from the normative activity of the institution. Only non-contractual liability is examined here.

Jurisprudence of the European Court of Justice clarified conditions under which non-contractual liability of the European Commission is established:

- Illegality of the EC conduct;
- Reality of harm;
- Existence of direct causation between the wrongful conduct and the harm;
- These conditions are cumulative and absence of one of them results in rejection of the claimant's action.¹²

The ECJ stated that the wrongful conduct consists of a sufficiently characterised violation of a rule of law which is designed to confer rights upon individuals. If the institution has a limited margin of appreciation, the sole infringement to EU law may suffice to establish the sufficiently characterised violation.¹³ *A contrario*, when the EU institution has a large margin of appreciation, it will be more difficult to establish wrongful conduct.

To engage the liability of the network coordinator that would be a European Commission body, the claimant would have to provide evidence that all the above-mentioned conditions of liability are met. However, at least the conditions of wrongful conduct and direct link of causation seem difficult to prove:

- Regarding the wrongful conduct condition, under option B, EC body and its agents only act as a coordinator and do not carry out any normative work. This limited scope of action reduces the chances for a wrongful conduct.
- Regarding the causation condition, it would be difficult to prove that there is direct link between an EC body action or inaction and the harm.

5.3.3.2. Allocation of liability between the sending organisation and receiving organisation – example of a national CA

As explained in section on legal implications under option A (see section 5.1.4, What are the consequences of these employment conditions on liability?), public bodies and their agents can be held liable for action or omission when carrying out their functions. In case of provision of an expert, the questions may arise:

¹² See for instance Judgment of the General Court, 11 May 2010, PC-Ware Information Technologies / Commission (T-121/08, Rec._p._II-1541) (cf. points 105-106).

¹³ See for instance Judgment of the General Court, 16 December 2010, Systran et Systran Luxembourg / Commission (T-19/07, Rec._p._II-6083) (cf. points 126-127, 268).

- Whether a given decision shall be regarded as issued by the receiving (i.e. for instance any Group 2 or Group 3 CA) or the sending CA.

Regarding this point, and as it was stated above, the sending CA should in no case take the lead of the administrative decision-making process in the country of the receiving CA, directly or indirectly. Any participation of the sending CA will have to be integrated into the constitutional and administrative framework of the receiving authority. In principle, the receiving authority is the only CA which has jurisdiction to issue valid decisions enforceable upon operators in the territory of its state.

- Whether the expert shall be regarded as agent acting under control of the receiving CA or as an agent of the sending CA.

Given that the expert is required to bring the expertise of the sending CA to the receiving CA, the expert would most probably follow technical rules defined by the sending CA. Regarding the technical matters, it is difficult to admit that the receiving CA be held liable for the technical misconduct of the expert. Such solution would result in allocating liability on the CA that does not have the full means/competences to check the correctness of the work carried out by the expert.

However, the expert would also be required to take into consideration national rules and procedures. Thus, it could be argued that the expert acts under the control of the ultimate regulatory decision maker, which is the receiving CA.

The frontiers between the technical and regulatory scope of intervention will be most probably difficult, if not impossible, to define with precision in the agreements.

The most clear-cut solution seems to be, as it was stated earlier in this report, to always make sure that core competences remain within each CA so that it can take responsibility for verifying the core technical issues and assume its lead role and control over the different procedures. This approach is in line with the OSD provision that “responsibility shall remain with the CA” (Annex III). The network arrangements could provide for responsibility of the sending CA and/or its agent in cases of only gross negligence within the scope of technical intervention. Particular terms and conditions could be negotiated on a case-by-case basis to fit various needs of the different CAs.

In summary, the network agreements will have to address the following challenges:

- Minimum requirements of competence and liability for CAs;
- Definition, in the bilateral/multilateral agreements, of the roles between the receiving CA and the sending CA, providing for the possibility to fine-tune them according to each mission;
- Definition, in the bilateral/multilateral agreements, of procedural aspects of the expert’s mission, as illustrated by the case study below.

5.3.4. Case Study on Resource pooling in practice: assessment of Well Notification for a country in Group 3

In order to illustrate how the pool of resources could work in practice, this paragraph examines the case of a country in Group 3 (Figure 14 below). For this case study, Cyprus was taken as an example.

In Cyprus, an Italian firm is currently carrying out drilling activities and there is currently no national legislation on drilling (i.e. the OSD has not yet been transposed into national legislation). As such, certain obligations in terms of compliance of well notifications and reports are not yet

required from the drilling operators. Only the most important requirements are requested from the operators to ensure a minimum level of safety and prevention of major accidents and risks.

Figure 14 below illustrates the process for the assessment of well notifications in Cyprus.

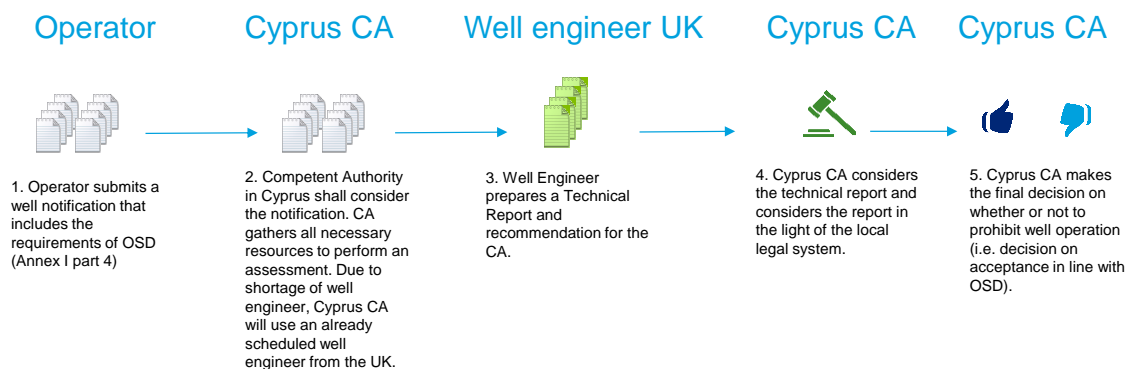


Figure 14: Assessment of well notification process – with a network resource

In order to comply with the Offshore Safety Directive, the operator in question would have to submit a notification of well operations. Well notification shall include the minimum level of information on design of the well as well as risk assessment including any seabed, environmental or meteorological limitations that may have impact on well operations (Annex I, Part 4 of the OSD).

If in this process, Cyprus needed well engineering competence, which is not available locally, the CA in Cyprus could consult the pool of experts, informing the network coordinator in advance of its resource needs in order to plan for the availability of the well engineer.

When using the pool of resources, the Cyprus CA will have to formulate clearly the scope of the task that needs to be addressed and state the specific expertise requirement (an individual expert or a team of experts). Normally, an assessment of well notification is a straightforward process on an installation or offshore area for which the regulator has previous experience. If the installation or geological conditions are unknown for the regulator, the assessment will be more resource demanding and require cross discipline collaboration to evaluate all relevant aspects (geological conditions, installation, organisation, etc.). Thus, the Cyprus CA needs to be clear on which expert or what team of experts it needs to assess the well notification.

Having received access to the well engineer (e.g. from the UK) via the pool of resources, the Cyprus CA shall introduce expert(s) to the team working on the regulatory process in question and provide them with access to a server/website with all information gathered so far. CA shall also clarify how the communication with the operator shall take place in case of any questions. Roles and responsibilities in the team would need to be clarified, with the CA holding a coordinating role for the whole process.

Based on the available information and the dialogue with the operator, the well engineer would then inspect all relevant information and draft a technical report, where any potential gaps are identified and recommendations provided on the approval or rejection of the well notification. Expert recommendations would be the basis for the final CA decision. Having applied the local regulatory system, the Cyprus CA makes a final decision on the well operation notified.

During the process, the expert may need more information from the CA or from the operator. In such cases, all official exchanges would most likely go through the national competent authority, which is the only competent organisation to issue relevant and valid administrative acts within the jurisdiction of the state, such as requirements of additional information, in conformity with national procedures and the OSD. However, it can be assumed that some exchange between the external expert and the operator may be possible on issues of lesser importance, even in the language

which is not the official language of the Member State (given that the most oil and gas companies are international and may speak foreign languages)

5.3.5. Advantages and challenges associated with Option B

The main advantages and challenges of option B are presented in the table below.

Table 10: Advantages and challenges of resource pooling

Advantages	Potential challenges
Potential source of offshore technical expertise for all countries in Group 2 and 3.	Liability. There is a risk that Group 1 countries or the other institutions providing experts will perceive liability safeguards as insufficient and thus be discouraged from sharing own resources. In parallel, Group 2 and 3 countries may be discouraged of resorting to the network because they would bear liability for decisions they issue without having entire control of the technical assessment grounding those decisions.
Access to offshore technical expertise for Group 3 (and some Group 2) countries, which are not members of international cooperative organisations (NSOEF, for example).	Availability of resources: there is a risk that required expertise for the network is not available from Group 1 countries or other institutions. In other words, the network cannot necessarily <i>guarantee</i> the availability of a specific type of expertise.
Institutionalised and formalized access to experts, contrary to less formalised access to experts in the international organisations.	CA in Group 2 and Group 3 countries may not have sufficient “procurement competence” to know exactly what competence they need from the network.
Centrally managed organisation that promotes knowledge exchange, experience and best practices sharing across the EU MS as well as a platform for centralised training activities.	CA in Group 2 and Group 3 countries may not have sufficient “competence” in terms of making final decisions based on the technical reports written by network experts.
It could be a less costly solution for Group 2 and Group 3. Instead of recruiting permanent staff, use of the network experts/team of experts could be an alternative – and less costly – option.	It might be seen as a suitable solution for Group 3 CAs; less so for Group 2 CAs.
If the organisation in charge of pooling and sharing of resources reports to the EUOAG or has representation of the EUOAG, MS representatives could regularly and easily establish the pooling and sharing needs in close cooperation with said organisation.	Currently, it might be considered as a second priority for some of the MS CAs when compared to the lack of necessary processes in place.

In order to mitigate the potential risks described in the table above, the following mitigating actions could be undertaken:

- Ensuring necessary regulatory training and experience transfer from Group 1 countries to Group 2 and Group 3 CAs.
- Ensuring that at least Group 3 countries build common ways of working and regulatory processes based on the best practice from the Group 1 countries.

5.3.6. How could such a network could set up in practice? Process to develop the pool of resources

Should EC decide to provide a resource pooling solution, the following action plan may be considered (see the figure below). It is recommended that the priority should be placed on

ensuring experience transfer and a good understanding of CA role among Group 2 and Group 3 countries before establishing a Pilot project for resource sharing. Understanding CA role better as well as major regulatory processes will address CAs most urgent priority and give them better insight into actual resource needs required.

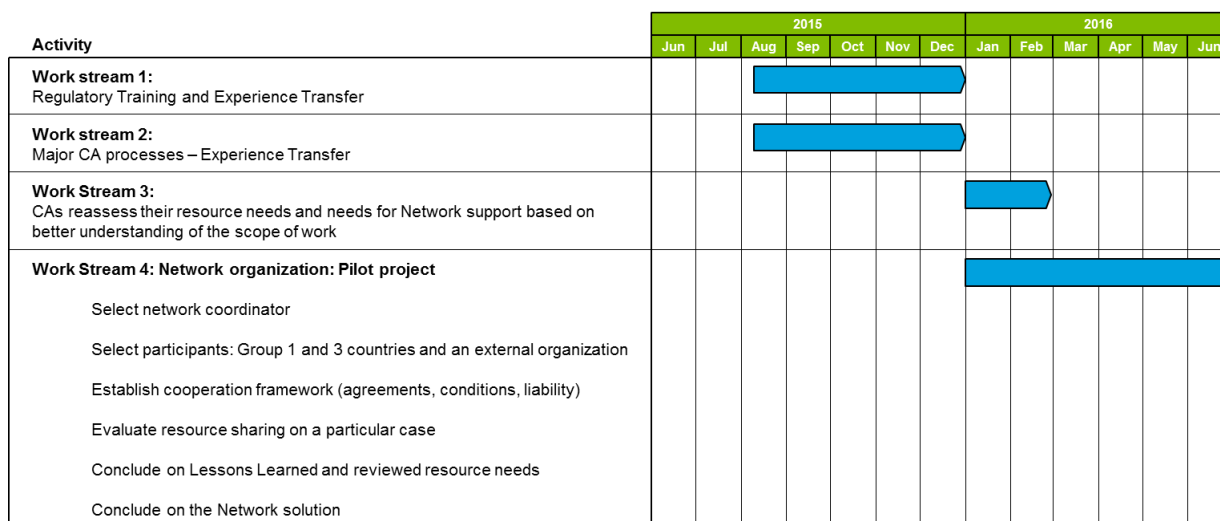


Figure 15: Potential action plan for implementing a resource sharing solution

6. How to finance the costs? Design and implementation of a cost recovery scheme for EU offshore safety inspections

Three main questions arise regarding costs:

- Who is responsible for funding the competent authority? (section 6.1)
- What would be the costs of the different options studied in the previous sections? (section 6.2)
- How can MS recover these costs? (section 6.3)

6.1. Who is responsible for funding the competent authority?

It is not up to the competent authorities to organise themselves their funding and the related cost-recovery schemes.

Actually, according to the Annex III of the OSD, Member States shall make the necessary provisions:

- a) “funding sufficient specialist expertise (...) in order that the competent authority may inspect and investigate operations, take enforcement action, and to handle reports on major hazards and notifications;
- b) (...)
- c) funding essential training, communication, access to technology, travel and subsistence of competent authority personnel for the carrying out of their duties (...);
- d) where appropriate, requiring operators or owners to reimburse the competent authority for the cost of carrying out its duties pursuant to this Directive;
- e) funding and encouraging research pursuant to the competent authority’s duties under this Directive;
- f) providing funding for reports by the competent authority.”

In other words, each Member State is responsible for:

- providing enough funding to its CA so that it can perform its duties according to the requirements of the OSD;
- implementing cost recovery schemes with operators and owners whenever relevant.

6.2. What shall be recovered by the scheme?

In general, the cost recovery scheme is expected to cover all types of costs related to the CA activities, ranging from the cost of human resources (including salaries, trainings, etc.), operational activities, cost of establishing expert network, to daily administrative cost.

Although it would be difficult to present a range of costs that would be required for national CAs to implement the OSD and perform all the required safety tasks, it would be useful for CAs to have a comprehensive understanding of the salary levels in the oil and gas industries across Europe.

Despite the fact that for some disciplines (i.e. well experts) the level of salaries does not differ significantly between Member States, as indicated in Table 11, the average salaries of different disciplines differ considerably. The table below shows both the local average annual salary and the imported average annual salary in oil and gas industries.

Table 11: Annual salaries in selected European countries (€/year)¹⁴

Countries	Local average annual salary	Imported average annual salary
Denmark	87,493	102,013
France	89,616	91,470
Italy	58,530	76,235
Netherlands	98,282	89,859
Norway	158,648	97,736
Poland	32,224	51,519
Portugal	66,714	93,810
Romania	29,911	91,965
Spain	59,217	83,294
UK	83,389	81,265

Table 11 may serve as a reference point for MS CA to provide a competitive salary basis to attract technical experts from elsewhere to work with the CA. Moreover, the level of salaries is a particularly important aspect as it relates directly to the costs borne by CAs, or the industry in cases when a cost recovery scheme is in place. Therefore, it could be also useful for CAs to estimate their annual budget requirement for retaining or recruiting necessary human resources for fulfilling the CA's tasks.

Apart from the annual salaries presented in Table 11, the project team collected information on average daily-rates. The latter information is particularly important when comparing the costs associated with the implementation of options A and B which relies on the sharing of expertise on a daily basis (either for a direct execution of the functional tasks or to provide training to CAs).

According to recruitment experts, the day rates are as follows:

- The cost of a young professional in training for an offshore operator is estimated at 350 €/day;
- An assistant site-manager would cost 450 €/day;

¹⁴ Hays 2013 update 2014:

http://www.hays.com/cs/groups/hays_common/@og/@content/documents/promotionalcontent/hays_1204734.pdf

- The average daily rate for technical experts, ranges between 650 and 900 €/day (excluding travel expenses);
- The cost of certain disciplines with high shortages can reach 2,000 €/day.

The average of these daily rates are estimated at 10 k€/month. In general, the wages increase according to the level of experience of experts, but this does not always occur beyond a certain level of experience, at least in some companies. For instance, in one large French operator the salary category for specialists does not increase above 10 years of experience. This policy aims at encouraging recruitment of young people.

The Table 12 below shows average of salaries per different disciplines.

Table 12: Average salaries per discipline (k€/year)

Discipline	Average Salaries (k€)
Regulatory specialists and safety management systems	85
Process Engineering, incl. Fire, explosion and risk assessment	100
Mechanical Engineering, Materials & Corrosion	75-80
Diving	80-90
Environmental protection & oil spill response	80-90
Electrical & Control Systems	80
Well specialists	120
Structural Integrity & Verification	80-85
Pipelines	120
Naval Architecture & Marine Engineering	85-90

Globally, the average annual salaries vary between 75,000 and 120,000 €. Well expertise is the discipline with the highest salaries whereas the lowest salaries are paid to mechanical engineers. However, it must be noted that the table is not exhaustive as data for some disciplines is not available (e.g. occupational health). In addition, at the global level, the levels of salaries are affected by the oil and gas prices and thus their actual levels in the forthcoming years is uncertain.

Box 4: Trends of the salaries in the oil and gas industry

Salaries in the oil and gas sector are relatively high; they have risen significantly between 2010 and 2013, possibly due to the high oil prices. For instance, in 2012, the oil and gas salaries worldwide rose by 8.5% and reached an average of 77 k€¹⁵. This trend changed in 2013 when the average salaries decreased by 1% to 72.5 k€ and contractor day rates declined as well¹⁶. In the context of low oil price, BP announced the freezing of salaries of 84,000 staff globally¹⁷. Interestingly and despite the decrease of oil prices, the Fircroft recruitment agency expects the salaries to grow by 3.5 per cent in 2015¹⁸.

¹⁵ Hays 2013:
http://www.hays.com/cs/groups/hays_common/@og/@content/documents/promotionalcontent/hays_1269348.pdf

¹⁶ Hays 2013 update 2014:
http://www.hays.com/cs/groups/hays_common/@og/@content/documents/promotionalcontent/hays_1204734.pdf

¹⁷ <http://www.theguardian.com/business/2015/jan/26/bp-freezes-pay-staff-globally-oil-price-drop>

¹⁸ Fircroft Norway

Overall, the level of salaries is a particularly important aspect to recruit and retain the relevant experts. For example, half the well engineers in the Petroleum Safety Authority in Norway (PSA) decided to work for the industry, where they got up to 100% higher salary.

Furthermore, as part of the cost recovery scheme, it is important to provide clear guidance to duty holders (a petroleum operator or owner) on the exact nature of the work to be covered by a fee and how these fees are calculated. For instance, in the UK, the Health and Safety Executive (HSE) will recover the cost of work associated with assessment of safety cases under the Offshore Installations (Safety Case) Regulations 2005 (SCR05) and for enforcement of the relevant statutory provisions (RSPs), that is, those health and safety provisions which apply to offshore installations or to activities on, or in connection with, them. More specifically, the general scope for cost recovery has been broken down into descriptions of 'activities for which costs are recoverable' framed around the main functions which HSE undertakes in respect of SCR05 and RSPs, including:

- Assessment of safety cases and design notifications submitted under any of the provisions of SCR05;
- Inspection work associated with offshore installations and with activities on or in connection with such installations;
- Investigation of incidents;
- Enforcement;

Detailed information about the charging system in the UK can be found on the HSE website¹⁹. The UK experience could be particularly useful for those MS who need to establish own charging systems under the cost recovery scheme.

In conclusion, a clear guidance on the cost items to be recovered needs to be provided by the MS CA. Nevertheless, the CA may set up fixed percentages of its annual funds to cover different cost categories whenever it is considered as appropriate.

6.3. How a cost recovery scheme can work?

6.3.1. Existing funding options and cost recovery schemes for offshore activities

The Offshore Safety Directive includes provisions for Member States to recover costs associated with implementing the Directive. Under Article 8, the Directive states that “Member States may establish mechanisms according to which the financial costs to the competent authority in carrying out its duties under this Directive may be recovered from licensees, operators or owners.” Furthermore, under Annex III 1. (2) (d): Provisions relating to the appointment and functioning of the competent authority pursuant to Articles 8 and 9, the Directive stipulates that where appropriate, Member States should require operators or owners to reimburse the competent authority for the cost of carrying out its duties pursuant to this Directive. Therefore, **the Directive makes it possible for Member States to recover operational costs incurred through various mechanisms**. In terms of establishment costs, the same mechanisms could also be used to recover set up costs of the option by increasing the associated fees or re-distributing the funds collected to cover the set-up expenses.

¹⁹ Cost recovery for offshore activities - A guide, available at:
<http://www.hse.gov.uk/charging/offshore/chgoffsh.htm>

To cover the costs of different sourcing arrangements for national CAs, there are at least **three funding options** that can invoke MS's cost recovery powers:

- **Funding Option 1:** Charging fees directly to both well owners and operators for inspection activities.

In general, the CA can set up standard fees for assessing each well safety or production safety case and the collected money can be pooled in a special fund to cover the major costs of CA tasks as requested in the OSD.

For instance, this way of fund raising has enabled Ireland to recover all the CA costs incurred so far, even though the gathered funds may vary depending on the total number of safety cases to be assessed every year. The Irish CA sets up different fees for well operators and owners, respectively. It charges well operators specific fees to assess a production safety case and charges well owners for other specific fees to assess a well work safety case. In practice, the Irish experience is very effective and straightforward, and can be easily duplicated by other countries, even though the price per inspection case may be adjusted to each country's specific situation.

- **Funding Option 2:** Increasing (an effectiveness condition) or revising (a final tranche condition) EU-wide tariffs charged to oil and gas companies for the purpose of strengthening energy safety issues.

The calculation of tariffs should remain flexible, based on the annual energy production capacity of the country.

This approach has already been used by the International Association of Oil and Gas Producers (OGP) for collecting member fees. Similarly, in Ireland, the Irish Commission for Energy Regulation (CER) calculates the operational costs also based on infrastructure and production volumes of different duty holders (petroleum undertakings).

- **Funding Option 3:** Using a fraction of the countries' annual tax revenues or levy from duty holders that carry out or propose to carry out production activities and those petroleum undertakings that carry out Well Work Activities to create a budget for the CAs to cover the cost associated with offshore safety related activities, e.g. monitoring, assessment, inspection, etc.

Each of the Member States that are involved in offshore oil and gas activities have already established fiscal tax regimes that collect taxes and fees from oil and gas producers and operators:

- For example, in the **UK**, a producer of oil in the UK or from the UK Continental Shelf (UKCS) is subject to corporation tax (CT) and supplementary charge to corporation tax (SCT – sometimes referred to as the supplementary charge), which was at 30% and 32% respectively for the financial year to 31 March 2013. In addition, and depending on the date on which the government gave its consent to the development of the producing field, the oil producer may be subject to petroleum revenue tax (PRT), at 50%.
- In **Norway**, a company that is involved in extractive activities (i.e. upstream activities) within the geographic areas described in the Norwegian Petroleum Tax Act (PTA) Section 1 is subject to a marginal tax rate of 78% on its net operating profits (28% ordinary corporate tax and 50% special tax) derived from the extractive activities. The area covered, generally, is activities undertaken within Norwegian territorial borders or on the Norwegian continental shelf (NCS).
- In **the Netherlands**, the petroleum industry is subject to a combination of a corporate income tax (CIT), a surface rental tax, a state profit share (SPS) levy and royalty-based taxation:

- Royalties: 0% to 8%;
 - CIT: 25%; 20% applies to the first €200,000;
 - Surface rent tax: Production areas €703 per km²;
 - Reconnaissance areas: €235 to €703 per km²;
 - SPS levy: 50%;
 - Investment incentives Research and Development (R&D) credit, additional 25% deduction on capital invest on qualifying small fields (SPS) – in force since September 2010.
- In **Ireland**, a key principle of the Levy methodology²⁰ is to impose the Levy upon petroleum undertakings proportionate to the level of regulatory burden created for the CER as regulator in the performance of its functions under the Petroleum (Exploration and Extraction) Safety Act 2010 (the Act). These collected taxes can potentially be used to fund some of the options discussed.

Other cost recovery options such as the establishment of an extended producer responsibility (EPR) scheme in the sector is another alternative. Further discussion with Member States would therefore be helpful to shed further light on the feasibility of different sourcing options.

6.3.2. Design elements of cost recovery schemes

As was stated in introduction of this section on costs, when designing the cost recovery schemes for financing the costs associated with offshore CA activities in EU MS, there are two equally important questions to be answered, i.e. what to be recovered (or charging systems) and how to recover (or funding feasibilities)?

Figure 16 presents a fundamental structure of the cost recovery scheme, which can be adapted to individual MS according to their specific economic and political contexts.

²⁰ [http://www.cer.ie/docs/000697/CER%2014429%20-%20Decision%20Paper%20Petroleum%20Safety%20Levy%20\(Vers%203.0\).pdf](http://www.cer.ie/docs/000697/CER%2014429%20-%20Decision%20Paper%20Petroleum%20Safety%20Levy%20(Vers%203.0).pdf)

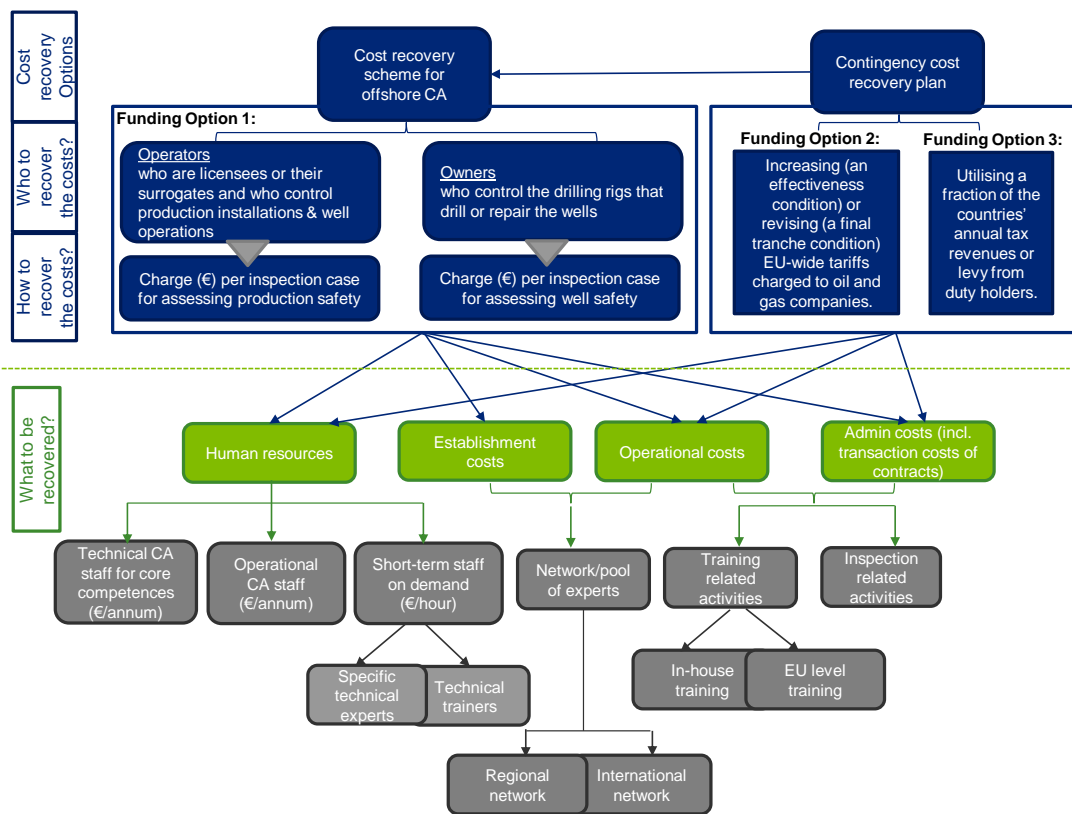


Figure 16: Cost recovery scheme for offshore CA

In order to design a cost recovery scheme that is functional in practice, MS CAs need to clearly identify which cost recovery options are available and feasible within the country, who should be charged for the costs and how CA activities can be effectively recovered.

Ideally, for each MS, it is important to establish a core **cost recovery scheme** that is capable of recovering most of the CA costs, including cost of human resources, establishment cost for creating training facilities and expert network, operational costs related to inspection activities and other administrative cost (including all kinds of transaction costs related to making contracts). The cost recovery scheme requires an effective fund-raising plan to gather sufficient funds annually to cover various costs associated with CA activities. As mentioned in section 6.3.1, the most effective funding option might be Funding Option 1, charging fees directly to well owners and operators for each case of well safety and production safety inspections.

In addition, MS may also consider establishing a **contingency cost recovery plan** that is stemmed from a percentage of the national taxes, such as increased EU-wide tariffs charged to O&G companies and/or a fraction of cooperate income tax (e.g. in the UK, the Netherlands and Norway), referring to Funding Option 2 & 3 in Section 6.3.1. The objective of the contingency funds is to provide a safety supplement to the existing cost recovery scheme and avoid the occasions when funds collected from safety inspections may not be sufficient to cover all the CA costs. In particular, this type of funds can provide additional funds for temporarily hiring human resources and increased operational costs in the case of emergencies or offshore hazards events.

7. Conclusions and recommendations

7.1. Conclusions

To meet the requirements of the OSD, CAs will need to overcome significant challenges:

- There is **low availability** of a few specific disciplines in the labour market and/or **high demand** by CAs and the industry.
- The demand and supply of disciplines is affected by **fluctuating oil and gas prices**. Even if assumed that the production activities will remain stable, regardless the level of oil and gas prices, the drilling and exploration activities will be certainly impacted by the price fluctuations. This creates an uncertainty both on the levels of supply and demand of disciplines.
- The relatively high salaries of offshore experts do not necessarily affect the budget of CAs, if appropriate cost recovery schemes have been established. Nevertheless, the **indirect dependency of the salaries to the oil and gas prices** might impose high requirements in developing transparent and flexible cost recovery schemes.

The magnitude of these challenges differ significantly between groups as well as individual countries. For this reason, there is no 'one solution-fits-all' to meet the requirements of OSD. In this context, **Member States will have to plan their own organisational arrangements according to the actual offshore activities of their own offshore industry**. The planning of the arrangements will need to be adapted to the recruitment system followed by the public authorities. However, a certain amount of flexibility needs to be safeguarded that would accommodate the changing environment in the oil and gas offshore industry.

The sharing of resources between different authorities in a given Member State could be a desirable solution in some cases, as it allows CAs to rely on their own competences even when these are not required at a full-time basis. However, this solution is **not relevant for all competences and might be subject to other limitations** imposed by the structure of the public sectors (e.g. the definition of liability in cases of wrongful conducts). Therefore, CA may need to seek technical support from private industries or existing expert networks through short-term contracts. The costs of such contract should be entirely covered by the cost recovery scheme (see more discussions in Section 6).

The table hereafter, summarises the position of the different options studied regarding the evaluation criteria that were listed at the beginning of our analysis (see section 1.5.2 on "Evaluation criteria").

Table 13: Summary of the application of the analytical framework to the different options

	Self-recruitment		Training		Expertise sharing		
	Direct	Indirect	At MS level	At EU level	Technical experts	Knowledge and experience	Trainings
Separation from regulatory activities and any activities related to licensing, economic promotion and collection of revenues of offshore operations	High	Medium	No significant impact		Medium (only experts from independent organisations to be used) See proposition of conflict check procedure in section 5.3.2	No significant impact	
Sufficient capacity in the CA and relevant and sustainable human and intellectual resources	It depends on the resource gaps already identified (see section 4) and on the tensions on the labour market for the different disciplines (see section 5.1.1)		High for Group 1 countries, medium for Group 2 countries and low for Group 3 countries	High	High		
Availability/existence of any required local knowledge	High	Medium	High	Medium: shared technical experts are not necessarily familiar with all local technical knowledge	Medium: shared technical experts are not necessarily familiar with all local technical knowledge		
Transparent relationship between the CA and the duty holder	High	Medium	No significant impact		Medium	No significant impact	
Independency, objectivity and compliance with criteria on prevention of conflicts of interests	High	Medium. See proposition of conflict check procedure in section 5.3.2	Not relevant		Medium. See proposition of conflict check procedure in section 5.3.2	No significant impact	Not relevant
Flexibility of the design of the CA	Low	Medium to high	Not relevant		High	Not relevant	
Clarity as regards the operational and financial liability between CAs	Not relevant	Not relevant	Not relevant	Medium	Medium		

	Self-recruitment		Training		Expertise sharing		
	Direct	Indirect	At MS level	At EU level	Technical experts	Knowledge and experience	Trainings
Medium and long-term sustainability	High (with permanent contracts) to medium (fixed term contracts)	Medium. It is more difficult to secure expertise in the long term.	Medium: It depends on the presence of senior experts in each country to train less experienced experts	High		High	
Cost-efficiency	High for Group 1 countries, medium to low for Group 2 and Group 3 countries	High for Group 1 countries, medium for Group 2 and Group 3 countries	Medium	High		High for Group 2 and 3 countries	

7.2. Recommendations

7.2.1. Recruitment

Self-recruitment is probably the most efficient option to:

- ensure a sufficient separation between CA's activities on the one hand and regulatory activities or any activities related to licensing and economic promotion of offshore operations on the other hand;
- make sure that the CAs have all the relevant resources to fulfil the tasks required by the OSD and to ensure that this expertise is adapted to the context of each specific MS;
- ensure a transparent relationship between the regulator (CA authorities) and the duty holder (offshore industry);
- ensure a high level of independence of CA's experts and to limit any risks of conflict of interest;
- ensure a medium and long-term sustainability of the organisational arrangements, since it will be easier for the CAs to ensure that they will keep their experts in the medium and long terms and make sure that they always have the most up-to-date expertise thanks to regular training.

So self-recruitment should be privileged, especially for all the regulatory experts who will constitute the core team of the CAs and take part in the decision-making process. More generally, it should be used for all the disciplines that are considered as part of the minimum level of expertise required for each CA (as described for each country group in section 3, "What is the minimum level of in-house expertise required for different CAs? Organisational blueprints for the Member State CAs - Identification of the competencies necessary for the CA by country group"), which means:

- For Group 1 countries: all disciplines;
- For Group 2 countries:
 - Regulatory Specialists & Safety Management Systems;
 - Environmental Protection & Oil Spill Response;
 - Wells;
 - Structural Integrity & Verification;
 - Legal.
- For Group 3 countries:
 - Regulatory Specialists & Safety Management Systems;
 - Environmental Protection & Oil Spill Response;
 - Naval Architecture & Marine Engineering;
 - Legal.

Direct self-recruitment through permanent contracts may lack flexibility; but flexibility can be enhanced through other types of contracts (short-term contracts or day-rate contracts) or even through indirect self-recruitment (via outsourcing, secondment of experts or sharing of resources between different CAs within one MS).

7.2.2. Training

Whatever the option considered, training has to play an important role for CAs. Training is required for different staff categories:

- All existing management staff have to be trained to get a solid understanding of additional task or amendments on the existing regulatory functions;
- Existing and new offshore regulatory workforce who have not all the required competences have to be trained as well.

Depending on the topic and on the availability of experienced experts to train less experienced staff, training can take place at Member State level or at European Union level:

- Member States specific training could be relevant for the specific topics:
 - MS specific legislation and legal system;
 - Specific MS regulatory policies, processes and procedures;
 - Training on technical issues related to offshore safety.
- Centralised training for all MS (training courses, workshops and secondments) could be relevant for most OSD-related regulatory functions: assessment, inspection and investigation.

7.2.3. Expertise sharing and pooling

As we have just seen, self-recruitment should be privileged for all experts in Group 1 countries, most of them in Group 2 countries and some of them in Group 3 countries. Such expert recruitment has to be complemented by relevant training to ensure that all the experts have all the most up-to-date knowledge and expertise, both a general, technical perspective and form a country-specific one (i.e. national regulation, technical specificities of the seabed in a specific country, etc.).

To ensure a comprehensive, coherent and cost-effective implementation of the OSD in all MSs, it would be relevant to complement country- specific recruitment and training with expertise sharing and pooling at the European level. This expertise sharing can be used in order to:

- Facilitate access to offshore technical experts (for Group 2 and Group 3 countries).

Self-recruitment may not always be the most efficient and the most cost-effective way to ensure a sufficient level of expertise for Group 2 and Group 3 countries. So expert pooling may be a relevant option for these countries especially for the disciplines for which:

- The CAs need a limited and/or irregular amount of time;
- These disciplines are not included in the minimum level of required expertise;
- There is tension on the labour market.

- Facilitate knowledge and experience sharing;

Facilitating knowledge and experience sharing can be very efficient to help less mature countries (especially Group 3 and, to a lesser extent, Group 2) to rise their level of expertise. It can also (for all three groups) develop common procedures that could facilitate common work and training among different MSs when it is relevant (e.g. when the same offshore operations concern different MSs).

- Organise and coordinate trainings.

As it was said in the section on training, sharing training at the European level can help less mature countries who have fewer experts available to train people in the relevant

discipline. More generally, high-level training on very specific topics can be fruitful for all the countries to ensure that trainings are the most up-to-date and relevant possible.

7.2.4. Summary of recommendations

The different options that have been studied are more or less relevant depending of the level of maturity of the MS regarding offshore activity. Table 14 below summarises to what extent and under which extent each option is relevant for each of the three country groups.

Table 14: Summary of recommendations, for each option, for the different country groups

		Group 1	Group 2	Group 3
Self-recruitment	Direct	Possible and relevant	Relevant for regulatory experts involved directly in decision-making processes. Not necessarily cost-efficient for disciplines requiring a limited number of FTEs and outside the minimum level of required expertise	
	Indirect	Potentially relevant for experts not involved directly in decision-making processes		
Training	At MS level	Possible and relevant	Possible on topics requiring not much technical expertise	
	At EU level	High-level training on very specific topics can be fruitful to ensure that trainings are the most up-to-date and relevant possible	Necessary for some technical expertise	Necessary for most technical expertise
Expertise sharing and pooling	Experts	Not relevant	Potentially relevant for the following disciplines: Regulatory Specialists & Safety Management Systems; Environmental Protection & Oil Spill Response; Wells; Structural Integrity & Verification; Legal	Potentially relevant for the following disciplines: Regulatory Specialists & Safety Management Systems; Environmental Protection & Oil Spill Response; Naval Architecture & Marine Engineering; Legal
	Procedure drafting	Potentially not really relevant	Potentially relevant for some procedures	Very relevant for most procedures (outside those very linked to specific national regulations)
	Training	See training at EU level		

7.2.5. Way forward

This report studies and recommends a few options. But before complete implementation, each option has to be further detailed to take into account:

- Country-specific issues and opportunities. The present study deals with the different options at the country group level (see synthesis of these options in section 7.2.4), since countries within a same group are likely to address globally the same challenges. Each national situation is very specific, depending on the types of offshore operations (depending on these, the required expertise may differ both in terms of discipline types and quantitatively), the national regulations, the overall national training facilities, etc.
- Practical points that can evolve very quickly. The present study gives general trends regarding the labour market (section 5.1.1). But the number of required full time

equivalents is sometimes rather low (section 4); when the gaps concern only a very limited of people, things may evolve quickly and often depend on personal matters that are out of the scope of this study. Moreover, the uncertainties regarding oil prices and investments in offshore operations (see Box 1 in section 5.1.1) could also have a significant impact on CA's activities that is very difficult to forecast.

- Open choices that need to be narrowed. In some cases, several options are left open (e.g. the choice of the organism that could be responsible for organising training at the European level, in section 5.3.2).

7.2.5.1. Development of specific solutions tailored to the needs of each Member State

The next steps to develop the most relevant solution for each Member State could be the following:

Step 1) Quantitative assessment: Estimation of the amount of resources that could be shared through a 'Centre of Offshore Expertise' facility.

Each Member State should carry out a detailed gap analysis regarding expert resources required by the OSD on related regulatory activities in the next 12 months (monthly/quarterly), and then annually until July 2018. This detailed gap analysis would give more accurate, more up-to-date and country-specific data to update the gap analysis presented in section 4.

Each MS should develop a regulatory plan for the next 12 months, identifying a.o. any shortfalls in regulatory and technical expertise. Where MS CA wish support, they should indicate requirements for offshore regulatory and technical experts and training to the project team for the Offshore Centre of Expertise.

Such analysis is necessary to have an accurate and up-to-date evaluation of the resources that could be shared or supplied through a 'Centre of Offshore Expertise' facility.

Step 2) Organisational assessment: Development of a pilot arrangement for the 'Centre of Offshore Expertise'.

A consultation with the Member States on the one hand, and with the organisations potentially involved in the development of the 'Centre of Offshore Expertise' (e.g. European Commission, EUOAG, JRC, potential 3rd party operators), on the other hand, should be undertaken in order to:

- assess more precisely which options are the most feasible, practical and efficient, in line with the criteria presented in section 1.5.2 and assessed in section 7.1;
- check with the organisations potentially involved that they can and would be willing to play the role that is considered for them.

This consultation would enable to develop a pilot arrangement for an offshore centre of expertise with capability in coordinating:

- a pool/network of offshore experts (as discussed in section 5.3);
- a centralised training facility and training delivery program for regulatory and technical experts (as discussed in section 5.2.2.2).

Based on the preliminary options presented in section 5.3, the pilot arrangement must include an outline of the Head of Resource Pool, Resource Pool Coordinator and sources of available offshore regulatory expertise (including use of contractors and MS CAs). The relationship between this 'Centre of Offshore Expertise' and the European Commission and the Member States (e.g. through a direct contact with the European Commission or through a sub-group of the EUOAG) will have to be detailed also.

Step 3) Development of a summary of specific solutions for each MS.

Based on the quantitative and organisational assessments elaborated in the two previous steps, a summary of the specific solutions for each Member State should be elaborated. It should be discussed to what extent the resource shortfalls for each specific CA have been addressed, and more specifically how the needs expressed in the quantitative assessment of Step 1 can be addressed through the organisational solution developed in Step 2.

7.2.5.2. Practical implementation plan

At a more practical level, an implementation divided in four work streams can be proposed. The first priority for these countries is to develop in each CA an adequately resourced core team of offshore regulatory specialists. This first priority is the main driver of the 1st work stream on regulatory trainings.

The other three work streams can be implemented more or less in parallel. The 2nd one deals with training of technical experts and experience transfer to Group 2 and Group 3 countries. The 3rd work stream is a consolidation of the quantitative assessment already performed by the CAs to estimate more precisely their resources needs and their needs for network support. The 4th work stream is the practical implementation of the network, based on the pilot arrangement for the Centre of offshore expertise, as defined above.

The table below (extended from Figure 15) details this potential action plan to move forward and prepare the implementation of such organisation.

Activity	2015							2016					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Work stream 1: Regulatory Trainings (1st priority) 1. Map specific training needs per country. Segment by Group needs. 2. Centralized trainings: Develop a course curriculum that would provide min. knowledge necessary to implement the OSD How to implement the OSD; Reporting practices; How to use 3 rd party resources, Trainings on safeguards, etc. 3. Select trainings provider(s); (JRC, HSL; EUOAG) 4. Country specific trainings: Addressing specific needs discovered during the Centralized Trainings. Case-based approach. 5. Document and assess trainings. Share materials.			█										
Work stream 2: Technical Training – Experience Transfer (Group 2, Group 3 countries) 1. Map specific training needs per country. Segment by Group needs. 2. Centralized trainings: Develop a course curriculum of relevant technical courses 3. Select trainings provider(s); (JRC, HSL; EUOAG, Group 1 experts, universities) 4. Country specific trainings: Case-based approach.						█		█		█			
Work Stream 3: CAs reassess their resource needs and needs for Network support based on better understanding of the scope of work								█					
Work Stream 4: Network organization: Pilot project 1. Select network coordinator 2. Select participants: Group 1 and 3 countries and an external organization 3. Establish cooperation framework (agreements, conditions, liability) 4. Evaluate resource sharing on a particular case 5. Conclude on Lessons Learned and reviewed resource needs 6. Conclude on the Network solution								█					

Figure 17: Potential action plan for implementing a resource sharing solution

Annex 1: HSL – resource sharing

Table 15: HSL resource sharing

Discipline	HSL resource sharing
Safety Management Specialist	yes
Process Engineering incl. Fire, Explosion & Risk Assessment	yes
Mechanical Engineering, Materials & Corrosion	yes
Diving	yes
Environmental Protection & Oil Spill Response	no
Electrical & Control Systems	yes
Wells	yes
Structural Integrity & Verification	yes
Pipelines	yes
Evacuation, Emergency Response, Marine & Aviation Ops	yes
Occupational Health	yes
Naval Arch. & Marine Engineering	no
Org & Human Factors	yes

Annex 2: Main functional tasks required by the OSD

The table below describes the main functional tasks that the competent authorities has to perform according to the Offshore Directive.

Table 16: Main functional tasks required by the OSD

#	Article in the Directive	Functional Tasks	Description
1	Article 8.1 (a)	Assessment of operators and owners formal risk assessments (Reports on Major Hazards (RoMH)). Assessment of well operations.	RoMHs are prepared by operators of production and non-production installations and include information on major hazards, their likelihood and consequences as well as on the prevention and emergency measures established by the operators. CA's must ensure that operators have identified and clearly described all potential major accident hazards. This task will ensure that operators have identified key risks associated with their installations and have identified suitable measures to control those risks.
2	Article 8.1 (b) 21 (1).	Inspections of Major Accident Hazard (MAH) controls; detailed verification of compliance; systems audits	The purpose of an inspection for offshore oil and gas installations is to oversee compliance with the requirement of the transposed legislation implementing the Directive. CA's target their inspection of installations and duty holders on the basis of verifying their report on major hazards, the inherent hazard of the installation, the operator's ability to manage risks and the impact of any combined operations. In addition, the authorities must verify that the operators have established a sufficient verification and audit scheme.
3	Article 8.1 b and 26	Investigations of major accidents; issuing reports into major accidents; enforcement activity and reporting	CA's of the Member States are required to thoroughly investigate all major accidents produce an investigation report and send a summary to the Commission and make available summary information to the public.
4	Article 8.1 (d and e), 9 (c and e) and 21 (3)	Development of regulatory policies , processes and procedures	Member States are required to ensure the CA established policies, processes and procedures for the thorough assessment of reports on major hazards and notifications and furthermore for inspection, investigation and enforcement. Other elements of this functional task include the development of systems of technical and regulatory internal guidance, the establishment of training and competence assurance of personnel and the development of data storage, handling, reporting and archiving systems.
5	Article 8.1 (f) and 27 (3)	Continuous updating of offshore knowledge and guidance; continuous improvement in standards	Competent authorities are required to participate in the establishment of common priorities for the preparation and updating of standards and guidance.

Annex 3: Grouping of EU Member States

**Table 17: Grouping of EU Member States by the level of their offshore activities
(adapted from the JRC method)**

Regional groups	Countries
Group 1: mature offshore development (with installations > 10, by 2014)	Croatia, Denmark, Italy, Netherlands, Norway, United Kingdom
Group 2: limited offshore activities (with $10 \geq$ installation \geq 0, by 2014)	Bulgaria, Germany, Greece, Ireland, Poland, Romania, Spain
Group 3: zero offshore activities (with 0 installations by 2014, but with installation planned from a future prospective)	Cyprus, France, Iceland, Malta, Portugal

Annex 4: List of acronyms

Aoc:	Acknowledgment of Compliance
CA:	Competent authority
CAPEX:	Capital expenditures
EDTC:	European Diving Technology Committee
EEA:	European Economic Area
EMSA:	European Maritime Safety Authority
EU:	European Union
EUOAG:	European Union Offshore Oil and Gas Authorities Group
FPSO:	Floating production storage and offloading
FTE:	Full Time Equivalent
HPHT:	High Pressure, High Temperature
HSE:	Health, Safety and Environment
HSL:	(UK) Health and Safety Laboratory
ICRARD:	International Committee on Regulatory Research and Development
IRF:	International Regulators' Forum
JRC:	Joint Research Center
kbbl:	Thousands of barrels (1 kbbl = 158,987.3 litres)
MAH:	Major Accident Hazard
MS:	Member State
NCA:	Norwegian Coastal Administration
NDA:	Non-Disclosure Agreement
NEA:	Norwegian Environmental Agency
NSOAF:	North Sea Offshore Authorities Forum
NUI:	Normally Unattended Installation
OMHEC:	Offshore Mechanical Handling Equipment Committee
OPEX:	Operational expenditures
OSD:	Offshore Safety Directive (Directive 30/2013/EU)
PSA:	(Norwegian) Petroleum Safety Authority
R&D:	Research and Development
RoMH:	Report on Major Hazards
RSO:	Recognised Safety Organisation
SCR05:	Safety Case Regulations 2005
UK:	United Kingdom



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