



THE POWER OF PREPARATION



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# LIFEBOAT DAVIT REPLACEMENT



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For crew safety, the offshore industry depends on many safety systems like lifeboats. The capacity of the lifeboats installed on the offshore platforms or FPSO's determines the number of Persons on Board (POB) that are allowed on the facility.

When a lifeboat system is not in operation, it directly impacts the number of POBs allowed on the facility and has an immediate impact on production.

The lifeboat system comprises the lifeboat itself and its retrieving system, which often is a davit / cradle type of system. Both the lifeboat and the retrieving system must be in good condition.

Over the years, Conbit has been asked to replace lifeboat davits for several reasons:

Davit system passed its design life.



Davit system did not pass inspection and (re)certification

The capacity of the lifeboat system will be upgraded



LIFEBOAT DAVITS  
ARE CRITICAL  
SAFEGUARDS—  
DIRECTLY  
DETERMINING  
THE SAFETY AND  
OPERATIONAL  
CAPACITY OF  
EVERY OFFSHORE  
FACILITY.





## COMPLEXITY OF THE REPLACEMENT

The lifeboats are often installed outside the reach the deck crane or underneath another deck. In these cases, external lifting capacity is required to replace the davits.

Traditionally, crane vessels are used to replace the davits. An optimal crane vessel is selected based on the weight of the davit system and the available height above the lifeboat system. This often results in the selection of a relatively small crane vessel.

Crane vessels face significant impact from motions, it is hard to keep them in position. The available space at the installation location makes the job, using a crane vessel, very challenging. The boom of the crane vessel can hit the offshore structure, it is difficult to control the load, or the position of the crane vessel is very close to the offshore facility.

Davit systems are welded to the offshore facility. Before lifting the old davit, the davit needs to be cut loose and temporarily secured, so the crane vessel can make its approach. When receiving the new davit, the module needs to be secured temporarily before the rigging of the crane vessel can be disconnected. These temporarily supports add project risks.

REPLACING LIFEBOAT DAVITS OFFSHORE IS A COMPLEX OPERATION— ESPECIALLY WHEN STANDARD LIFTING METHODS AREN'T FEASIBLE.



## CONBIT'S SOLUTION TO REPLACE LIFEBOAT DAVITS

Conbit uses a different approach to offshore lifting challenges. Instead of using crane vessels, Conbit installs lifting capacity on the offshore asset and lifts directly to and from a supply vessel. The main advantage is that it is easier to keep control of the project. But there are many more advantages.



Weather windows can be much shorter. After cutting, the old davit can be secured in rigging. When the supply vessel approaches the davit can be lowered to the supply vessel immediately. When installing the new davit, the supply vessel can be moved away from the offshore structure immediately after liftoff.



The dynamic factors impacting the lift are much lower, because you lift from the structure where the component is installed. Once the module is lifted from the deck of the supply vessel, it is much easier to control the load.

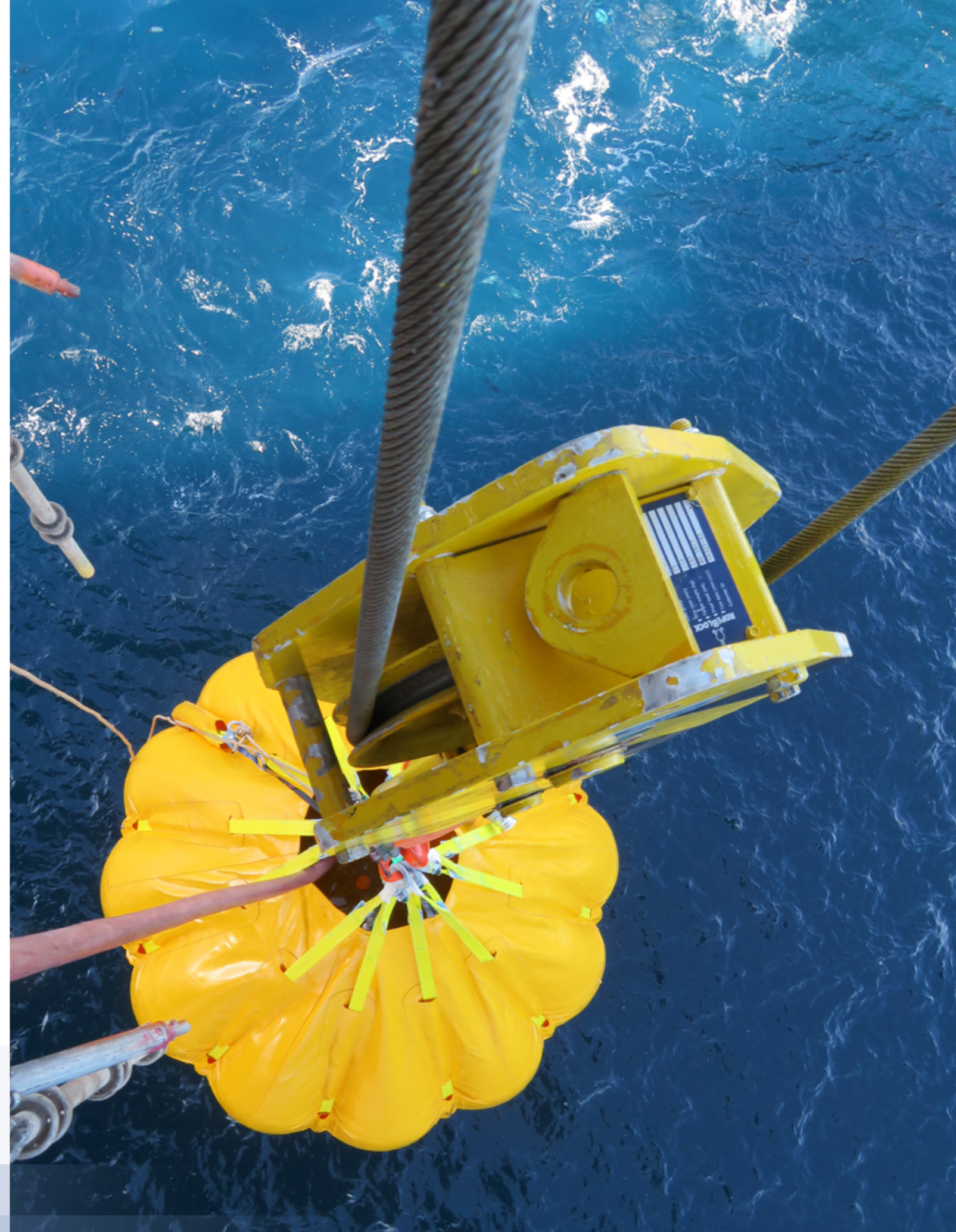


There are significant cost savings. You do not need an expensive crane vessel. Instead, you will be using a standard DP2 supply vessel.



The offshore execution is much easier to plan, since you are not depending on scarce marine spread.

Conbit has been providing alternatives to crane vessels for lifting smaller modules for many years. Especially when the operation is time-critical, Conbit's lifting solutions are favored. A crane vessel lifting operation might seem more time-effective, but in practice you will notice that the planning risk outweighs the factor of time.



## THE CONBIT LIFEBOAT REPLACEMENT LIFTING SYSTEM

Clients have asked Conbit to replace lifeboat davits outside the reach of deck cranes or with a deck above the lifeboat davit. Both situations resulted in different kinds of lifting solutions.

### LIFEBOATS OUTSIDE THE REACH OF DECK CRANES

When the lifeboat system is outside the reach of deck cranes and there is no structure above the lifeboat system, Conbit uses a temporary lift system which extends above the lifeboat davits.

A gantry structure or single boom lift configuration allows for picking up the davit and luffing it further over the site of the offshore facility. The luffing is done with rigging equipment. The actual lifting is performed by high-speed winches.

### LIFEBOATS UNDERNEATH A STRUCTURE

When a lifeboat is installed underneath another structure, such as the weather deck or helideck, the lifting operation becomes different. Often there is not enough space above the lifeboat davits to assemble a gantry or single boom lifting configuration. So, why not include the structure above in the lifting configuration?

Conbit has been lifting underneath and between decks for many years and has optimized their solutions. Typically, a lift point is created to the structure above, with a beam clamp. To this beam clamp, a rigging configuration is attached. The lifted object would then be transferred to the next lift point, which performs the offshore lift. The offshore lift is done with high-speed winches, which are either incorporated in the below deck lifting configuration or standing on the offshore facility and reeved through the lift point.

### IN AIR TAKEOVER OF LIFEBOAT DAVITS

Conbit is also involved in hybrid lifting solutions, involving a crane vessel. In those projects, Conbit is requested to take over the lifeboat davit system from a crane vessel into a rigging configuration or lifting system installed on the platform.

These hybrid solutions allow the crane vessel to operate at a greater distance from the platform, help mitigate the effects of vessel motion more effectively, and make it possible to install large davit systems beneath structural decks.



# THE CONBIT PROJECT APPROACH FOR LIFEBOAT DAVIT REPLACEMENTS

Careful planning is vital to smooth project execution. Conbit believes in the “power of preparation” to overcome project risks during offshore execution. Conbit divides its projects into the following phases:

- Engineering
- Project preparation
- Offshore execution

## ENGINEERING FOR LIFEBOAT DAVIT REPLACEMENTS

During the engineering phase, Conbit proposes a replacement method. Initially, a concept method is presented and discussed with the client. Once all parties agree, the chosen method will be worked out in more detail.



The final engineering package will include at least the following deliverables

	Lifeboat davit lift plan
	Lifting equipment installation procedure
	Offshore load test procedure
	Structural analysis report of the lifting system
	Structural analysis of structural interfaces with offshore facility (local) Load plans will be reported for client verification
	Lifting equipment assembly drawings
	Rope access rescue plan
	Inspection and test plan
	Warehouse load test procedure

During the engineering phase, a site visit is conducted to verify the feasibility of the concept replacement method. During the site visit missing information will be gathered and the available information will be verified.

## PROJECT PREPARATION FOR LIFEBOAT DAVIT REPLACEMENT

The engineering documents will be used to fill the material take off list. All items on this list will be gathered prior to the load test, which will take place in Conbit's warehouse. Conbit's inventory system will gather all material and equipment certificates as well as reporting any required actions, e.g. re-certification.

After all components of the lifting system have been gathered, Conbit technicians will perform a load test at Conbit's warehouse. This load test has several objectives: check completeness of the package, verify constructability, check if the system is working, and verify the safe working load.

After the load test is completed successfully, all equipment and material are packed in offshore containers and shipped out to the client.

In the meantime, the crew is selected, visas are arranged, and travel plans are finalized. Just before departure, there is a briefing of the crew. The crew will arrive one or two days before traveling offshore.



## OFFSHORE EXECUTION OF LIFEBOAT DAVIT REPLACEMENT

Once the crew arrives offshore and completes the site induction, they will start unpacking the containers. The lifting crew will start to assemble the lifting configuration. The mechanical crew will make the preparation for the cutting.

Once the lifting crew secures the lifeboat davits in the rigging arrangement the davit will be cut loose. After the cut is complete, the lifting crew will progress the lifting sequence until the supply boat is moved into position.

The lifeboat davit is lowered to the deck of the supply vessel and disconnected from its lifting configuration. The lifting of the new lifeboat davit is done in reverse order.

Special note to the offshore lift. Conbit uses high speed winches as the main mitigation to the motions of the vessel. Conbit winch operators are trained to perform the offshore lift with these kinds of winches. For the new lifeboat davits, they will start lifting on top of the wave. The speed of the lift winch will make sure the lifted object is high enough before the next wave lifts the supply vessel out of the water again. This proven technology allows the use of relatively straightforward winches that are very unlikely to fail.



# LEAD TIME AND PLANNING

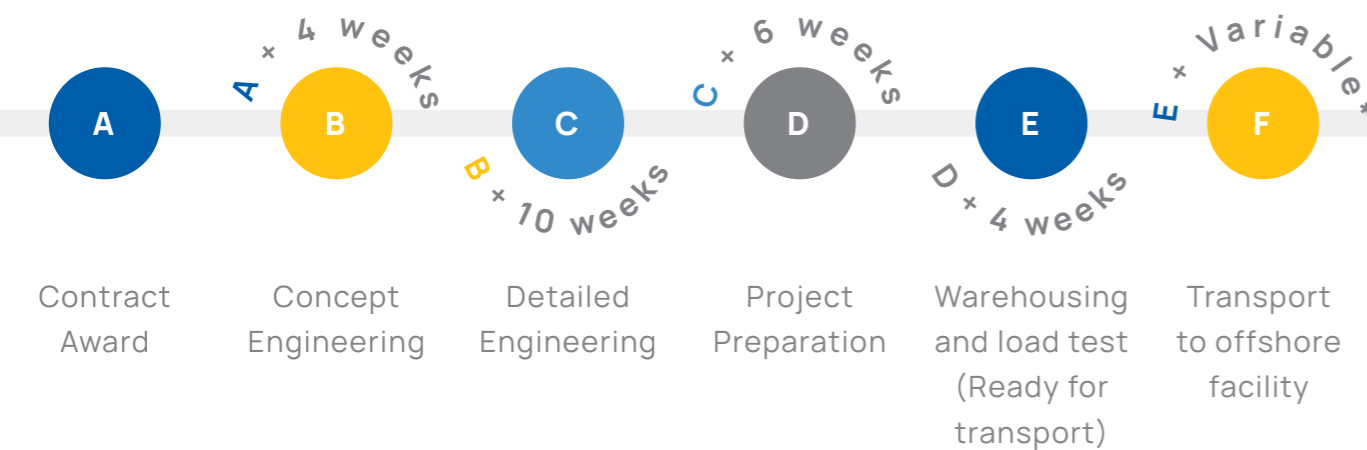
One of the major objectives during the operation is to keep the offshore time as short as possible, and to prevent unexpected events from impacting the offshore lead time. The impact on the offshore facility when lifeboat systems are out of operation is significant. The lifeboat system has an impact on the allowable number of people on board (POB). To put further pressure on the available POBs, the lifeboat davit replacement crew also needs to be accommodated. Therefore, it is of vital importance to minimize the offshore lead time.

Conbit uses two project lead times: the lead time to prepare and the offshore lead time.

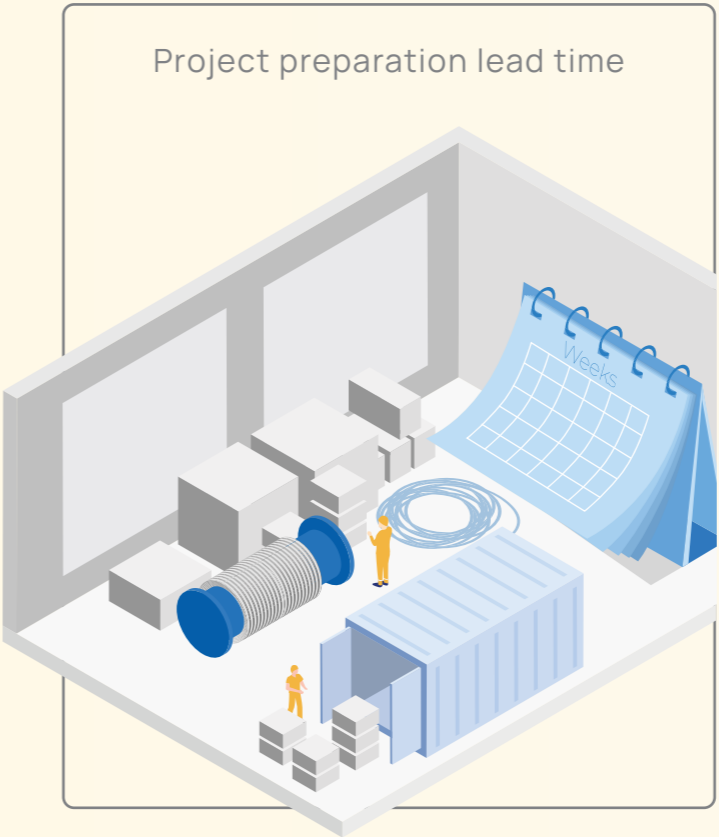
## PROJECT PREPARATION LEAD TIME

The lead time starts when the project is awarded to Conbit. In the table below, the standard lead times are displayed. However, more time is favorable, and lesser time might be possible on a project-by-project basis.

So, please regard the below lead times as guidelines and take some time to allow for structural commercial discussions.

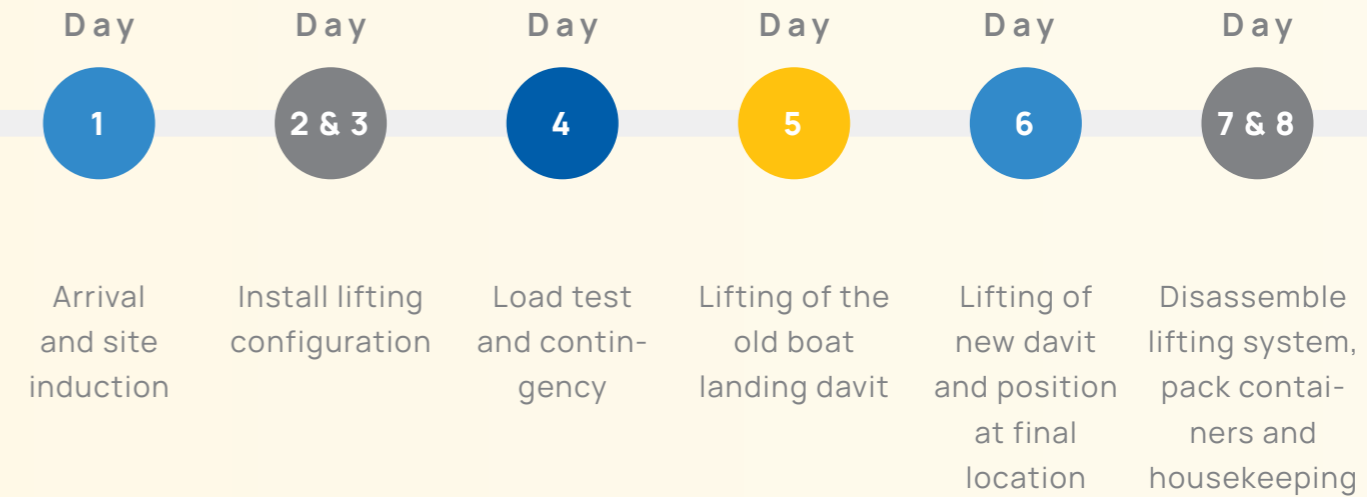


\* Depends on location  
(travel times, customs, offshore transit time)



## OFFSHORE EXECUTION LEAD TIME

To replace a lifeboat davit system, the following offshore lead times can be used for reference. Project specific planning adjustments are not included.



The lifting crew will consist of one team leader, and 4 or 5 technicians. All technicians are rope access qualified (IRATA). The mechanical work (cutting and welding) is not included in the schedule below. Those activities will not be on the critical path when using temporary lifting systems.

## WHAT DO YOU NEED TO KNOW

You can, of course, contract a crane vessel and try to perform the replacement of the lifeboat davit as safely as possible. You should especially keep an eye on the planning, but also the risk of motions impacting the lifting operation.

When you would like to approach the project differently, you will be surprised by all the gains that are offered by modular lifting systems, like those of Conbit. At first glance, you might think that these modular systems introduce additional project risks, but once you start realizing that lifting from the offshore structure itself is possible, you will understand the main advantages.

Reach out to the experts of Conbit and they will explain the impact of the modular lifting approach. Conbit's engineers are trained to help with decision making in the early phases of your project.

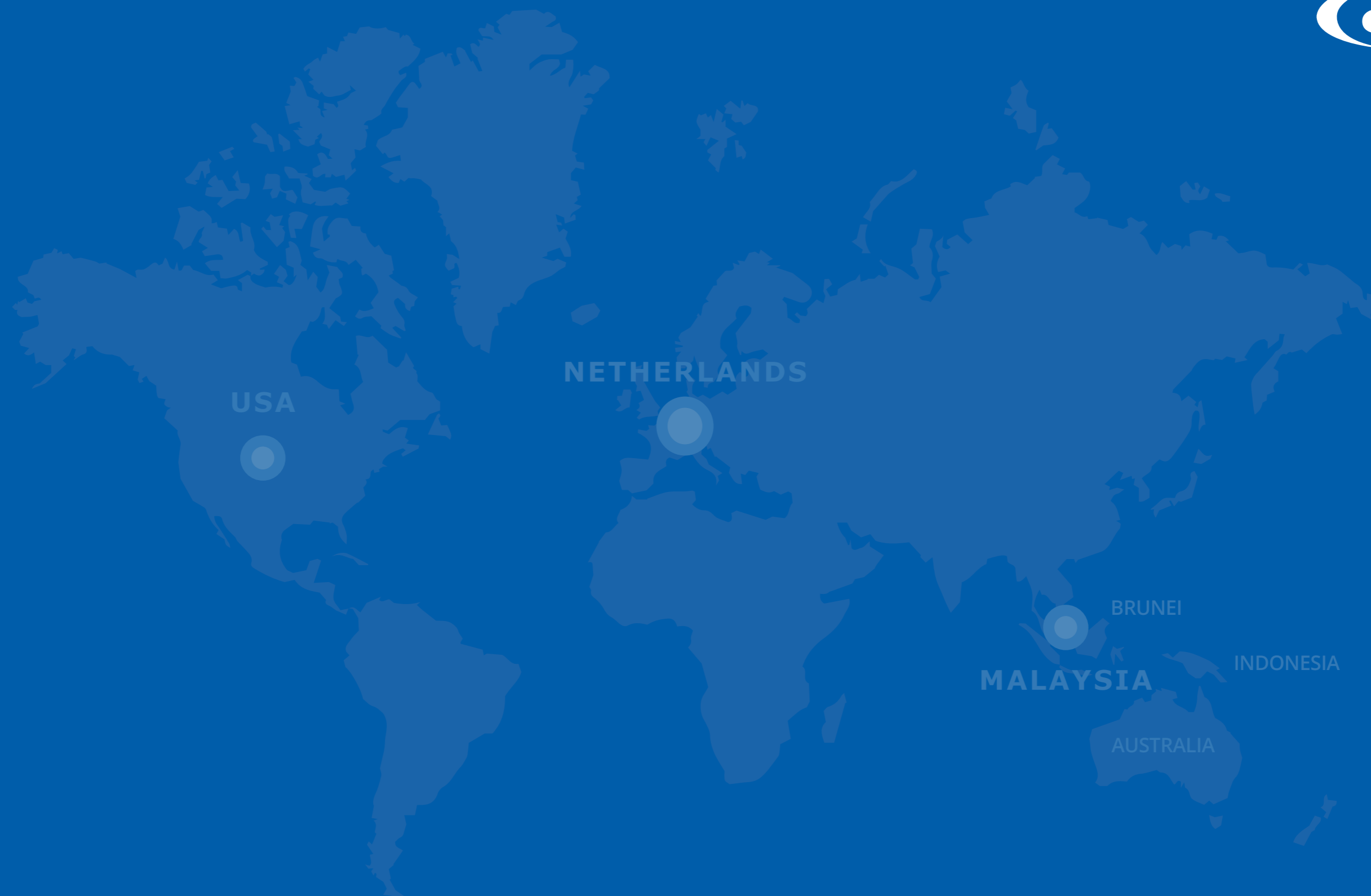
For a first conversation, send an overview drawing of your offshore facility, and pictures of the lifeboats (preferably from a distance). During the initial meeting, Conbit will explain the main considerations and the next steps in the project.

REQUEST YOUR EXPERT SESSION TODAY!

CRANE VESSELS  
POSE RISKS,  
WHILE CONBIT'S  
MODULAR  
LIFTING OFFERS  
SAFER, FLEXIBLE  
SOLUTIONS WITH  
EXPERT  
GUIDANCE.



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