



THE POWER OF PREPARATION



WHITEPAPER | JANUARY 2026

## PLATFORM LOAD INTRODUCTION

## INTRODUCTION

For more than 15 years, Conbit has supported the offshore heavy lift industry with modular lifting systems capable of transferring modules of up to 20mT directly from a vessel to an offshore platform or another vessel. These modular systems have proven to be a reliable, flexible, and cost-effective alternative to heavy-lift vessels.

Yet, these advantages come with one critical challenge: how to introduce the lift loads safely onto the platform structure. Starting as a dedicated engineering company, Conbit has been solving such challenges for over 30 years, consistently adopting the most reliable methods of structural design for load introductions.

As offshore operations evolve, modules and equipment are becoming heavier and larger. Heavy-lift vessels are increasingly difficult to mobilize and rely on. To address these changes, Conbit developed solutions such as the SL900 Modular Lifting System, which can lift up to 150 mT per boom with a reach of 40 meters. This capability significantly increases the loads on platform structures, making deck integration and load introduction engineering more critical than ever.

Setting up such a temporary lifting solution is not as simple as placing a crane on deck. It requires meticulous preparation, detailed engineering, and coordinated planning.

## ENGINEERING

### THE CHALLENGE IS HOW TO SAFELY TRANSFER THE SIGNIFICANT FORCES OF MODULAR LIFTING SYSTEMS INTO EXISTING OFFSHORE PLATFORM STRUCTURE.

The geometry of an offshore platform, combined with the specifications of the intended lift, often results in substantial forces being introduced into relatively light deck structures. Under such circumstances, rules of thumb are insufficient. A detailed structural analysis is essential to confirm the strength, stability, and deflection of the platform before a lift can proceed.

Conbit typically begins its process with the creation of a bespoke concept solution that is tailored to the specific situation of the client. Once the general approach is aligned, a feasibility study follows to confirm that the proposed method is both safe and practical. Establishing the basis of design early in the process is crucial. It ensures that all parties share the same assumptions and objectives, making the subsequent steps more effective.

In many cases, Conbit designs a custom interface frame to connect the modular lifting system to the platform. This frame often incorporates a combination of wing plates, shim plates, and shear plates, each carefully engineered to minimize peak stresses and optimize weld lengths. The process does not only involve assessing the stresses within the Conbit system itself but also understanding how these loads are distributed onto the platform structure. Local stress concentrations, potential plate instability, and weld stresses are all considered in detail. The result is a complete feasibility assessment that accounts for every relevant variable.

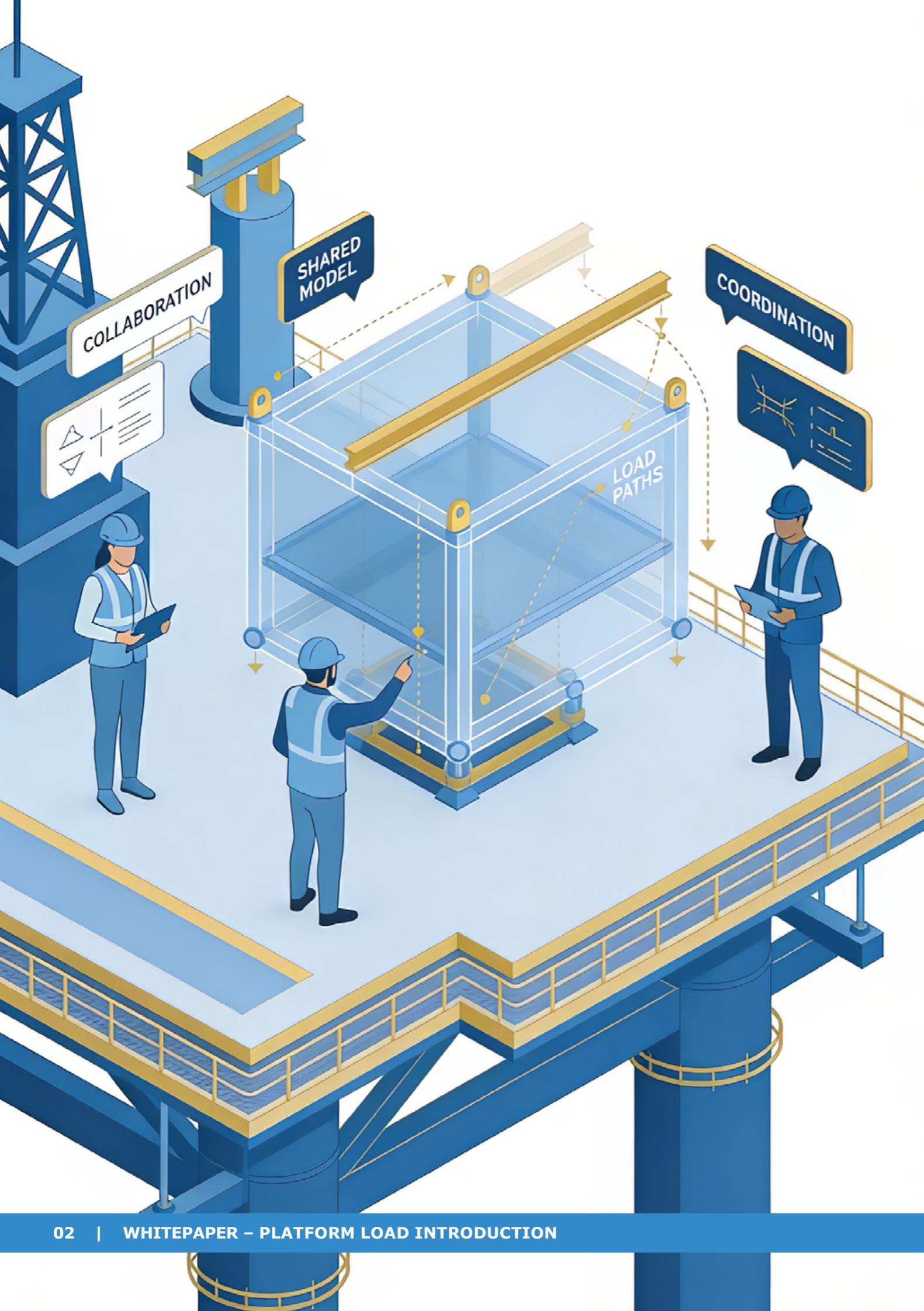
ENGINEERING  
CONFIRMS  
PLATFORM  
STRENGTH  
THROUGH DETAILED  
ANALYSIS  
AND CUSTOM  
INTERFACE  
DESIGN,  
ENSURING SAFE  
LOAD TRANSFER  
DURING MODULAR  
LIFTING.

## WORKING TOGETHER WITH THE CLIENT

Our specialist structural engineers generally work together with the client engineers to support with the analysis of the load introduction. Working in a team ensures that the most accurate loads are taken into account. Realistic loads from the lift structure, combined with the existing loads in the platform structure.

Conbit works side by side with client engineers, aligning loads, assumptions, and constraints early to deliver safe, feasible offshore lifting solutions.

The location of the lift structure has a significant impact on feasibility. Depending on the surroundings we search, together with the client, for most effective solution. Taking into account the all-structural steel, clashes with process equipment, and power supply. Not only are technical variables taken into account, but also specific factors such as live equipment, escape routes, helicopter landing times, ATEX zones, and more.

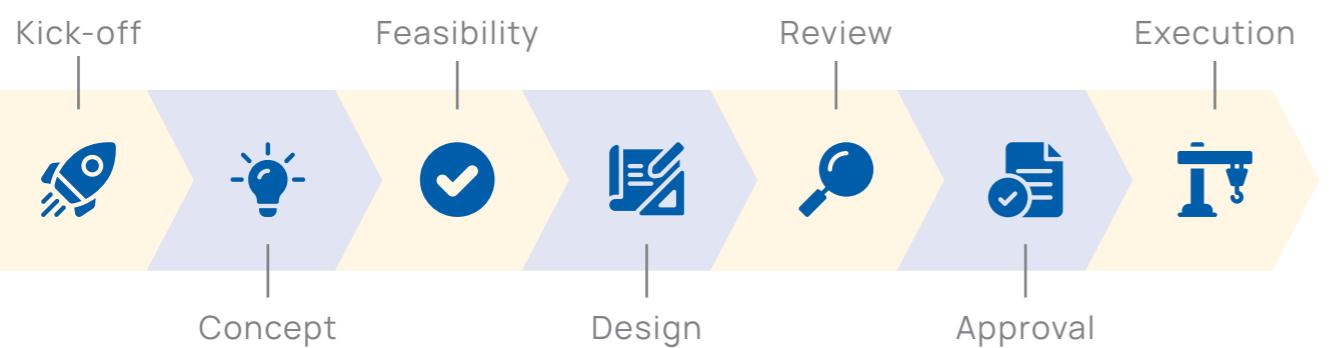


## REDUCING PROJECT RISKS

A modular lifting project is never a leap into the unknown. Conbit follows a stepwise engineering process with defined checkpoints, ensuring that risks are identified, validated, and mitigated at every stage. This process provides both structure and transparency, so clients can follow and approve each step.

The process begins with a kick-off meeting once the project order is received, followed by a brainstorm and concept phase where ideas are tested against platform constraints. A concept presentation with the client ensures alignment before moving into the functional and physical design phases. At each of these gates, design reviews are held to confirm assumptions and address potential risks early. When the physical design is matured, documents are created and ready for the first submission, which should have no surprises. The client reviews and provides feedback on. This leads to the last submission and a final client approval.

At every gate in this process risks are systematically identified, validated with the client, and mitigated through detailed analysis.



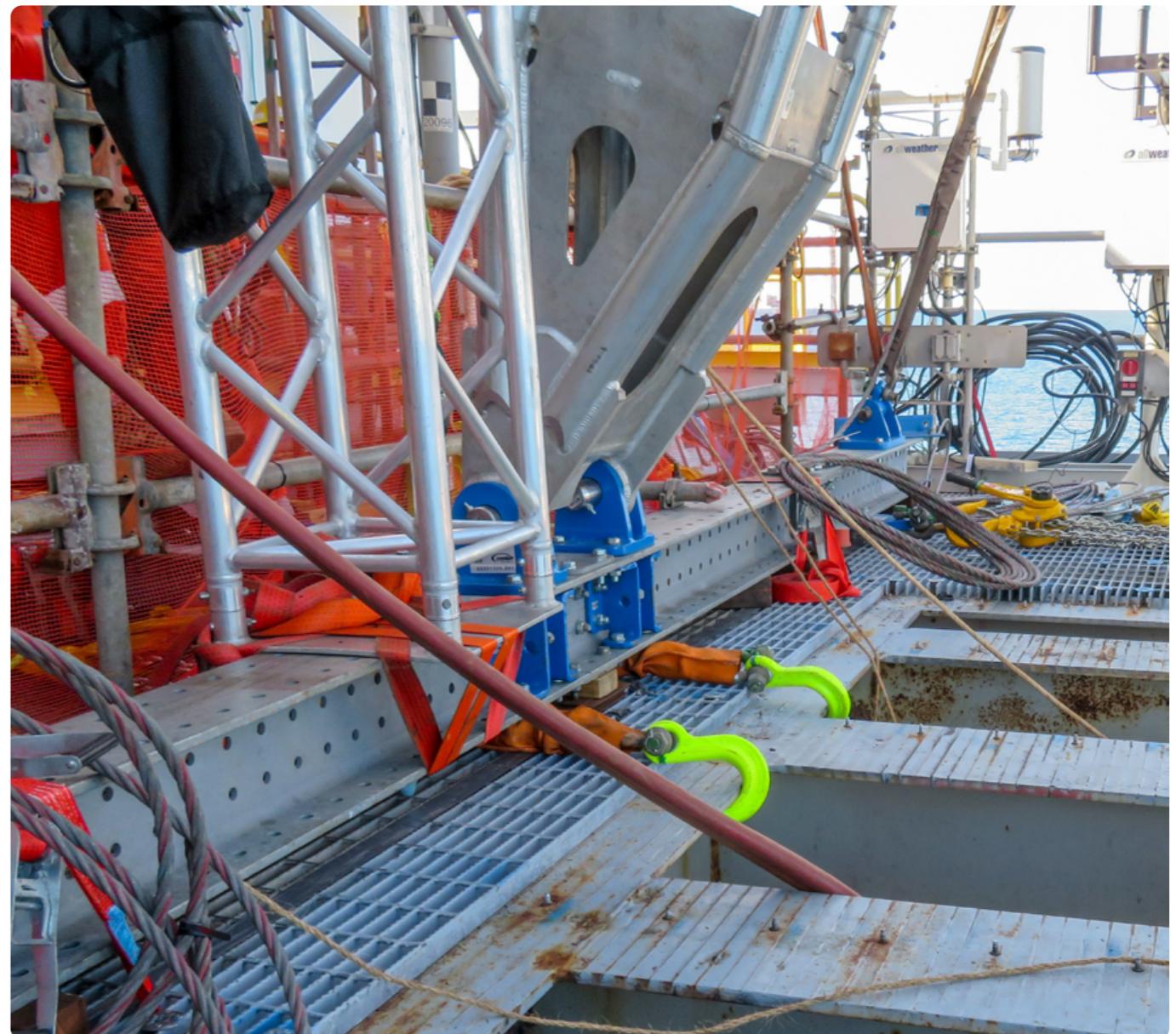
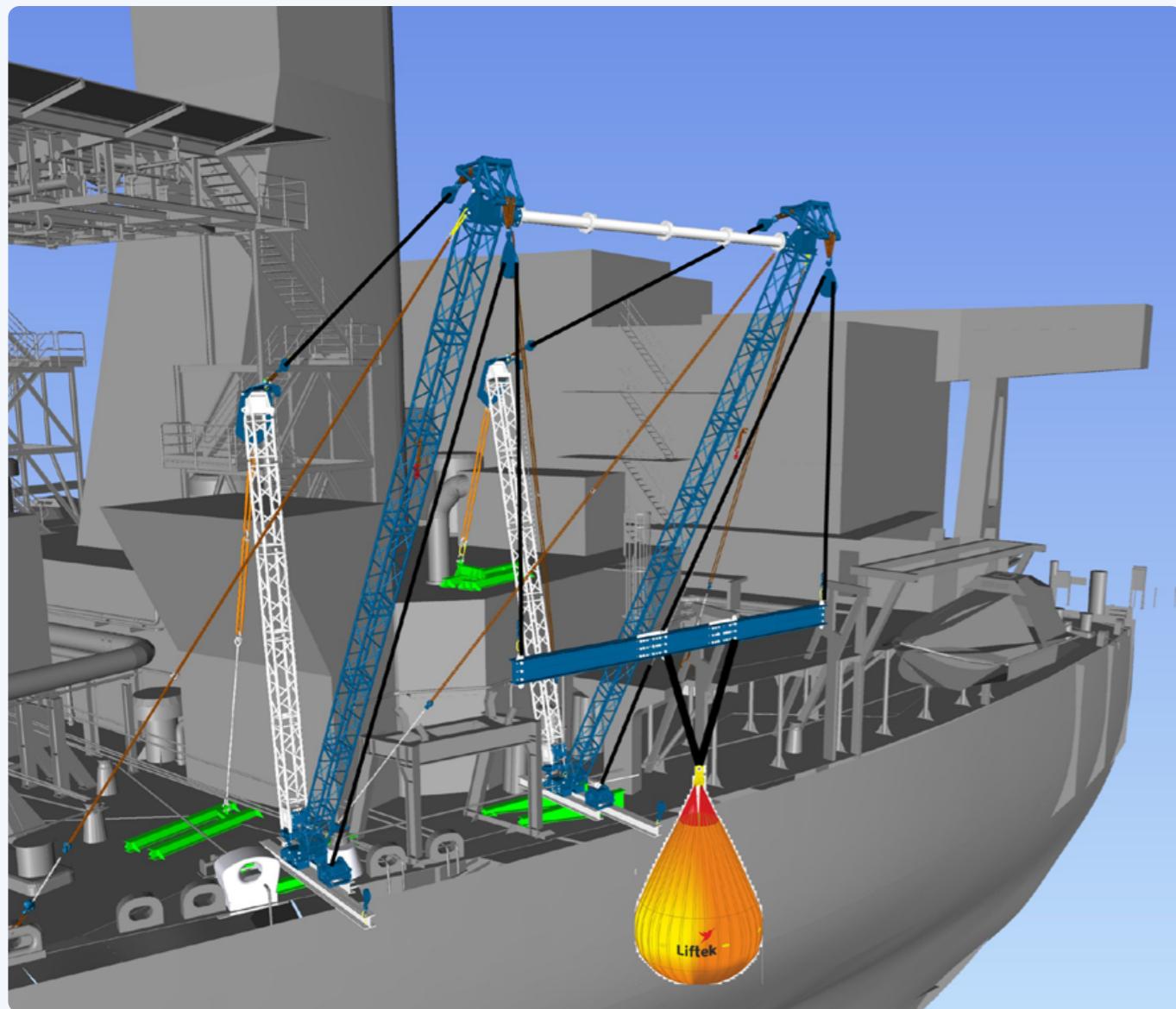
## PLANNING

Proper preparation and detailed engineering allow Conbit to minimize the time required on the platform and reduce the number of personnel on board. Conbit offers in-house expertise that spans lifting solutions, structural analysis, and execution support, ensuring that projects are completed efficiently and safely. With decades of experience making structural analyses and calculations for offshore platforms, FPSO's and other maritime vessels. Conbit can align its detailed engineering processes seamlessly with client schedules, delivering predictable and reliable project outcomes.

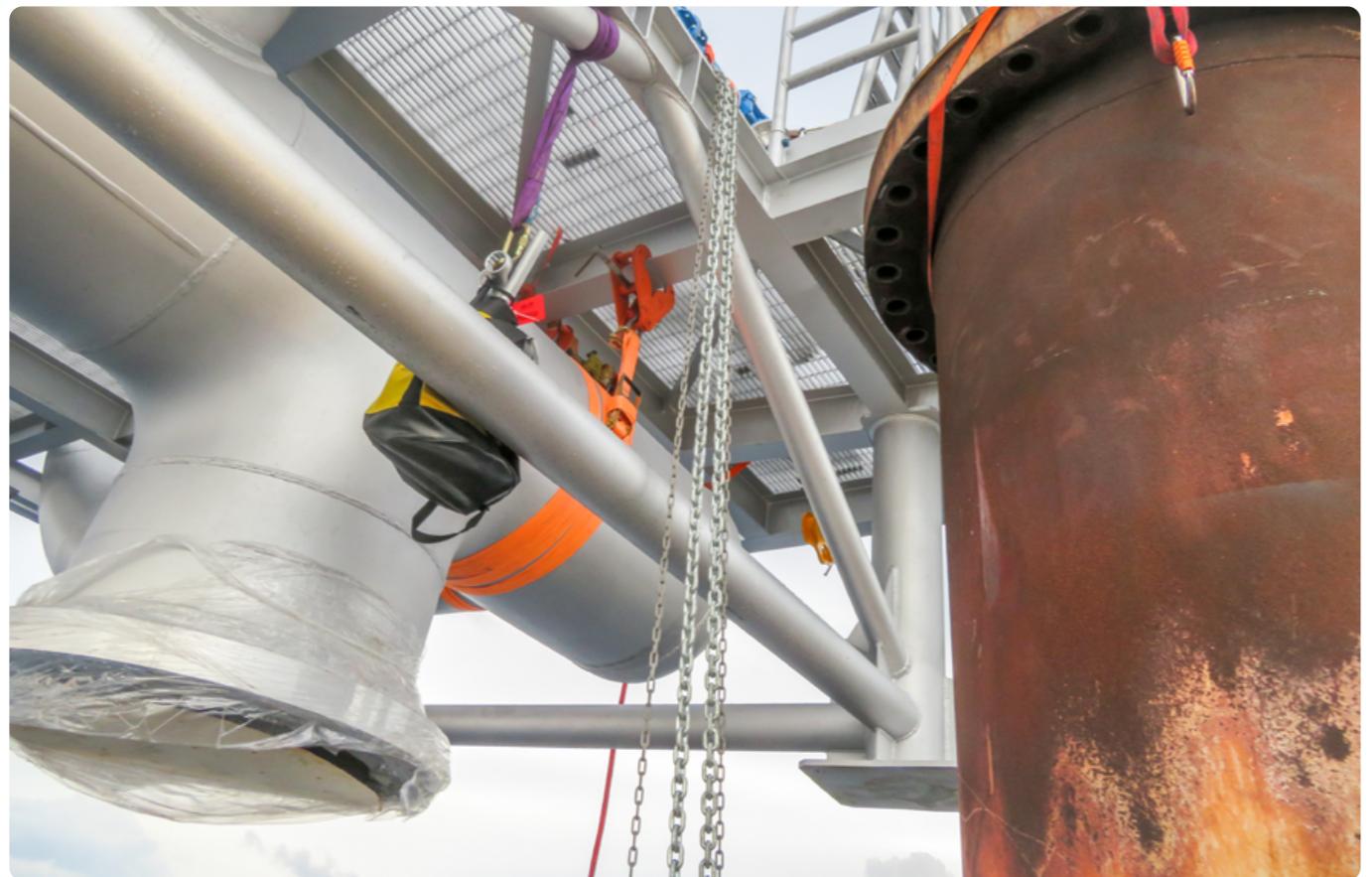


## CASE EXAMPLES

One recent project involved supporting a client with introducing the loads of a modular lifting system on an FPSO for a floating-to-floating installation of a lifeboat davit. The challenge lay in the extremely limited deck space and the restricted capacity of the deck and surrounding structures. By engaging with the client early to define the boundary conditions, Conbit was able to carry out a detailed analysis of the loads, the dynamic behavior of the structure, and the influence of weather and operational conditions. This early collaboration resulted in a workable base case that guided the project. Through close cooperation with the client team, the final solution was proven to be both safe and efficient, enabling the successful installation without unnecessary delays or risks.



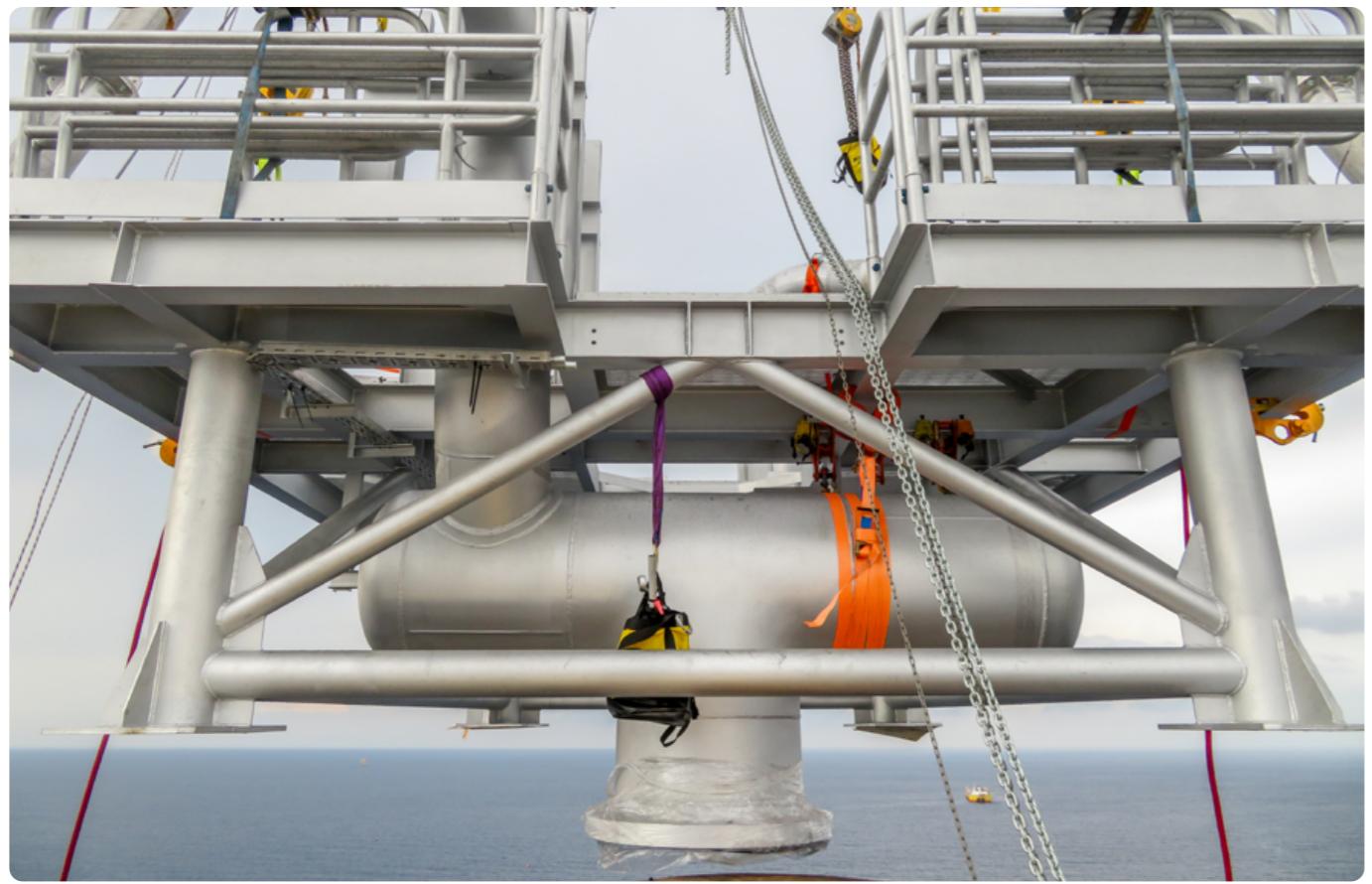
In another case, the platform structure itself was partially utilized as part of the lifting solution for 100mT+ boat landings. During the installation of a boat landing in the splash zone, Conbit engineered a method that used simple outriggers connected to the main structure as lifting points. By working closely with the platform engineers to carefully assess the reserve capacity of the existing structure, it was possible to carry out the installation using this straightforward approach. This eliminated the need to remove large sections of the platform for the installation with a crane vessel, saving both time and cost.



## FE-MODEL PHILOSOPHY

To achieve the most accurate and predictable outcomes, Conbit's finite element models are typically constructed as linear elastic, statically indeterminate, first-order models. Eccentricities are represented using stiff dummy members, ensuring realistic force distributions. Wing plates are modeled to absorb both vertical tension and horizontal forces, which are transferred into vertical forces depending on the geometry of the struts. Compression forces are shared between shim plates and wing plates, while shear plates are modeled to take horizontal loads in line with the beams they are attached to. These are assumed to connect to the deck via hinged connections, with moments resisted at the weld locations.

This modeling philosophy allows Conbit to capture both the local introduction of forces and their global effect on the platform. To support the client's engineering teams, Conbit also provides detailed load plans with specified forces for each load point and load case. These can be directly integrated into the client's structural models for independent verification. Where necessary, Conbit can also design temporary or permanent deck strengthening measures, always striving for solutions that minimize impact on operations while maintaining the highest safety standards.



## QUALITY AND STANDARDS

Instead of asking you to 'trust us,' Conbit mitigates the risk by guaranteeing that every analysis is reviewed by a peer engineer, approved by senior engineers, and validated against the most relevant international standards before execution. In addition, each solution is physically load tested in our yard and verified again on location before use. This ensures that you are never asked to take a leap of faith. We only use solutions that have been proven in calculation, in practice, and under real project conditions.



## CONCLUSION & LESSONS LEARNED

From these case examples, several lessons stand out. Early engagement between Conbit and client engineers is critical, as it allows boundary conditions and feasibility to be defined before solutions become too constrained. Transparency and knowledge sharing ensure that all assumptions are validated, leading to designs that are both safe and efficient. Finally, a willingness to think creatively about existing platform capacity can often lead to simpler and more cost-effective solutions than initially expected.

Successful offshore lifting is not defined by the lifting contractor alone, but also by the interfaces with the client structure. With collaboration, preparation, and innovative thinking, we can help you unlock safe and practical solutions even in the most challenging environments.

## HOW CONBIT SUPPORTS YOU?

While modular lifting systems are powerful tools, their success in your project depends entirely on how loads are introduced into the platform. Deck integration is therefore not a side consideration; it is the foundation of safe and effective offshore lifting.

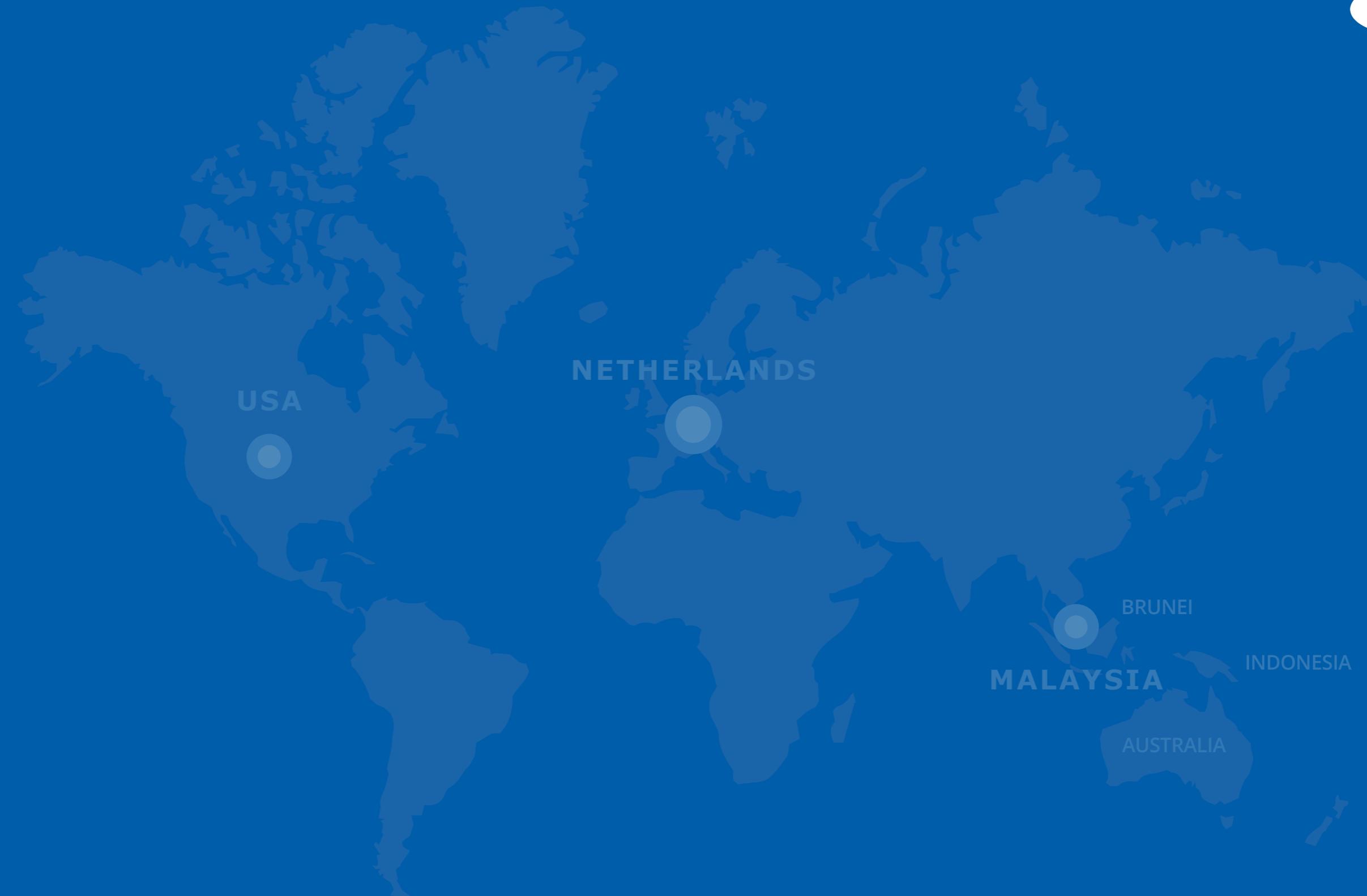
Conbit's strength lies in providing integrated solutions where deck integration is treated as the central design challenge. From the earliest concept through to final execution, the focus remains on how the forces from the lifting system interact with the platform.

Instead of working in isolation, we place great value on open communication and transparency throughout the process. By sharing expertise, and by encouraging close cooperation between Conbit's engineers and the client's own specialists, the project benefits from the best knowledge on both sides. This collaborative approach ensures that all assumptions are clear, the design process is traceable, and both teams develop confidence in the chosen solution.

When deck strengthening is required, Conbit develops innovative measures that are tailored to the platform, minimizing both disruption and cost. Whether temporary solutions for a single lift or permanent reinforcements for future operations, these measures are always designed to integrate smoothly with the platform structure.

By prioritizing deck integration, Conbit ensures that its modular lifting systems, from small 500kg units to the 150 mT SL900, can be applied effectively across a wide range of offshore platforms. You rely on Conbit not only for equipment and manpower, but for an engineering-first approach that protects platform integrity, reduces downtime, and delivers a predictable outcome of your project.

IF YOUR JOB IS TO DELIVER A SAFE, EFFICIENT, AND CREDIBLE OFFSHORE INSTALLATION PROJECT, CONBIT ENSURES THAT DECK INTEGRATION IS ENGINEERED WITH CERTAINTY, GIVING YOU FULL CONFIDENCE IN THE OUTCOME.



Follow us on  
LinkedIn



**Conbit (HQ) Steenoven 5**  
5626 DK Eindhoven  
The Netherlands  
E: [info@conbit.eu](mailto:info@conbit.eu)  
T: +31 40 711 45 05

**Conbit USA Inc.**  
Fryslân House, 228 E 45th St,  
New York, NY 10017, USA  
E: [info@conbit-usa.com](mailto:info@conbit-usa.com)  
T: +1 346 744 1516

**Conbit Malaysia Sdn Bhd.**  
CEO Suites, Level 26,  
Menara Maxis Off Jalan Ampang  
50088 Kuala Lumpur, Malaysia  
T: +60 18 2522 157