

How to Capture System Integration Risk Knowledge?

HBV

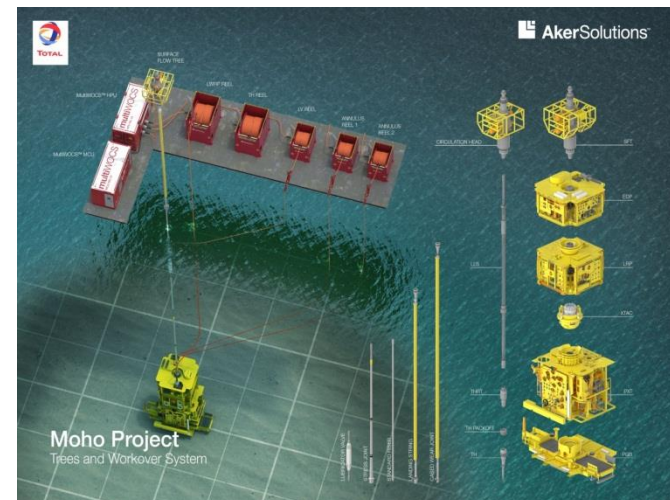
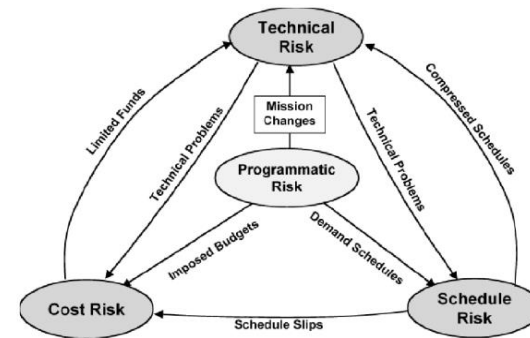
Fredy Refael Lumentut| Trainee/System Integration Engineer

Background

- Aker Solutions facing suppressed schedule for System Integration Testing
- Thesis will highlight the risks in term of the Aker Process vs SE process.
- Challenges in systems integration is that the knowledge to identify risks is lost or not directly accessible.

Why Is Risk Management Important?

- Focuses Limited Resources on Critical Elements of the Program.
- Provides a Management Vehicle to Balance/ Manage/ Control Performance, Schedule and Cost.
- Keeps Management Attention on Critical Issues
- Aids in Structuring an Executable Program
- Reduces the Uncertainty in the Program
- Critical Areas Are Not Overlooked
- Better Able to Deal With Unexpected Events
- Better Able to Deal With Unexpected Results



What is the goal of SIT in Aker Solutions?

- The goal for System Integration Testing is to verify the system behaviour is according to offshore OMM and operations and to reduce the project risk.

What is integration?

- Integration is the activity where we try to find the unknowns between the systems and where we resolve the uncertainties

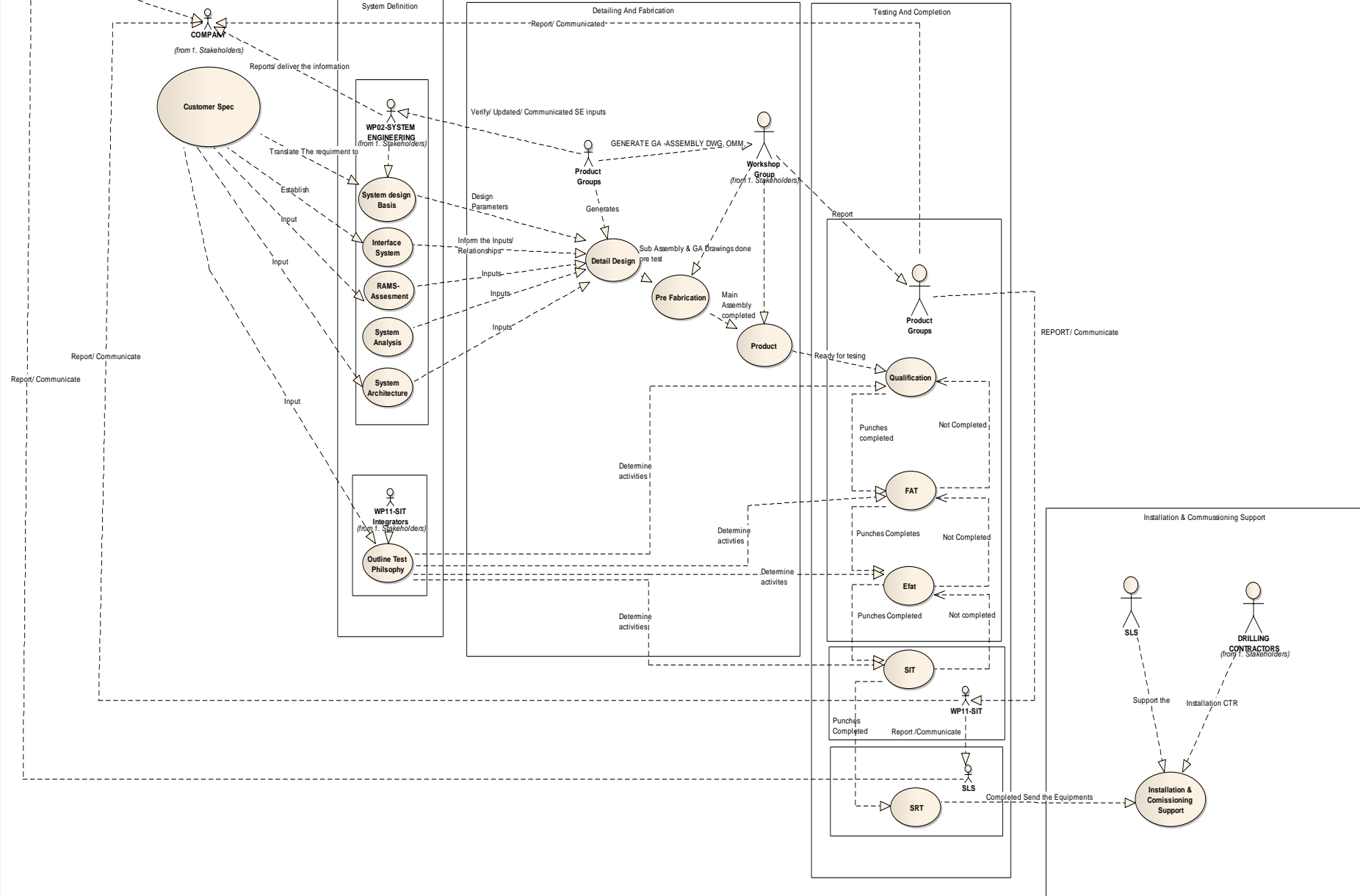
What is testing?

- Testing is an activity where we operate a (part of a) system in a predefined manner and verify the behavior of the system.

How do we model the complexity of the project risk?

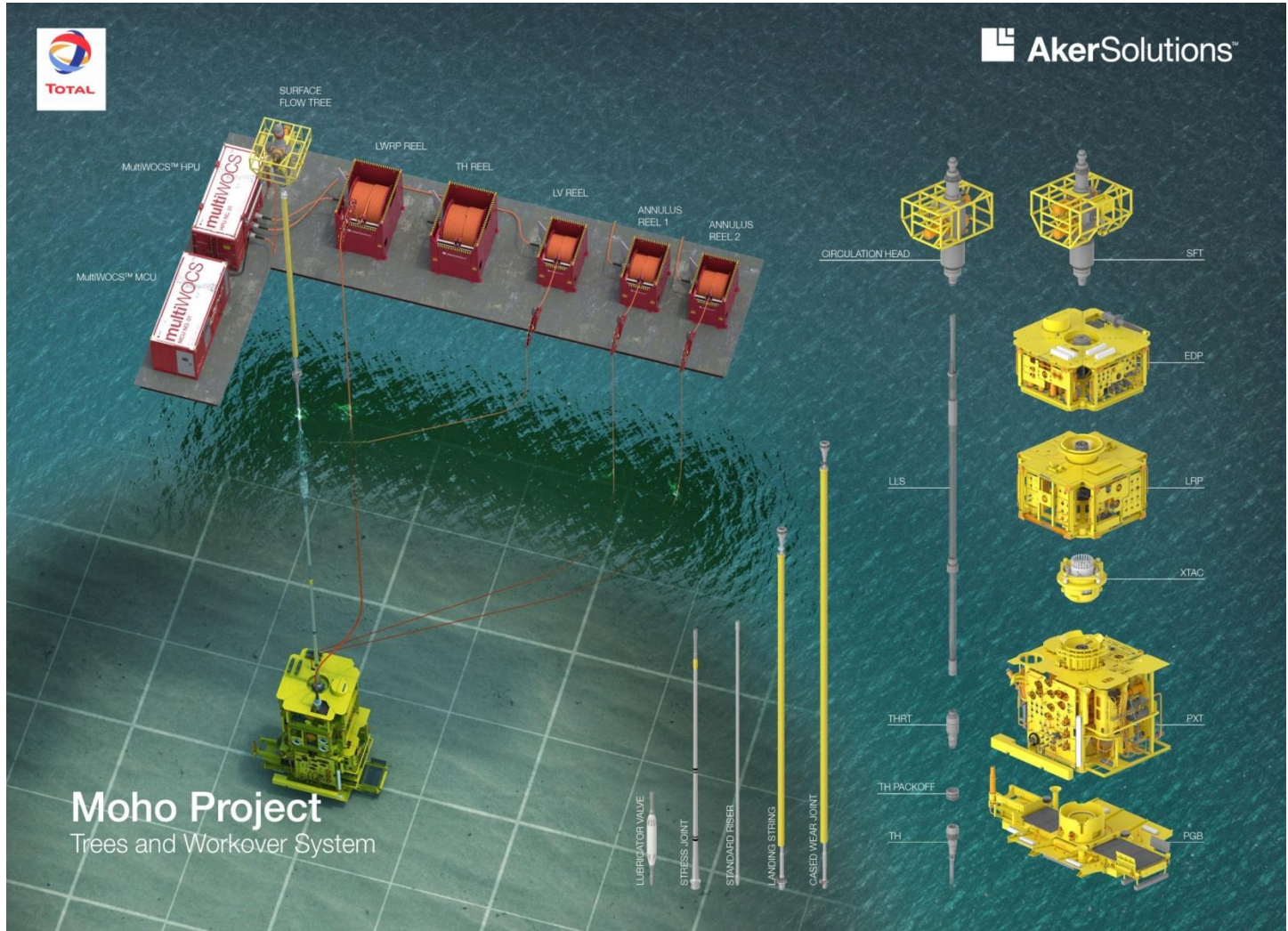
1. Create Systemogram overview of the process.
2. Determine most critical system performance parameters.
3. Identify subsystems and function involved in these parameters
4. Show system performance parameter as early as possible start with showing typical system performance
5. Show worst case and boundary system performance
6. Monitor result
7. Integrate the systems : showing the system performance of different parameters simultaneously on the system.

Systemigram AKSO process



Questions marks for the research

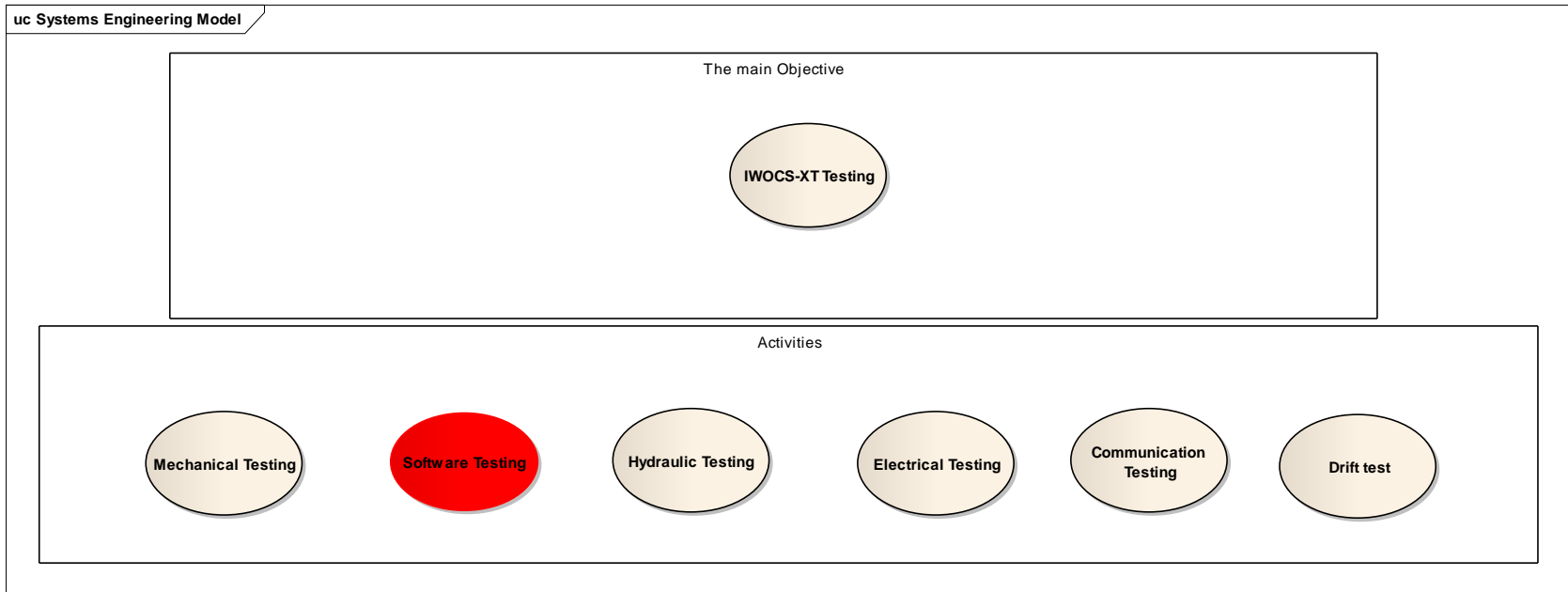
1. How is the process managed from client to product realization?
2. Where is the critical path in the process?
3. How do you breakdown from top level to detail requirement?
4. How do the product groups work together?
5. What's the gap between the Aker process and V modell?
6. What's the root cause of not capturing the requirement?(e.g poor communication, wrong interpretation, lack of experience)
7. What should have been done in the process?
8. Who is verifying the different interfaces?
9. What is the relationships between the interfaces?
10. Is it properly done according to Project Execution Modell ?



Moho Project

Trees and Workover System

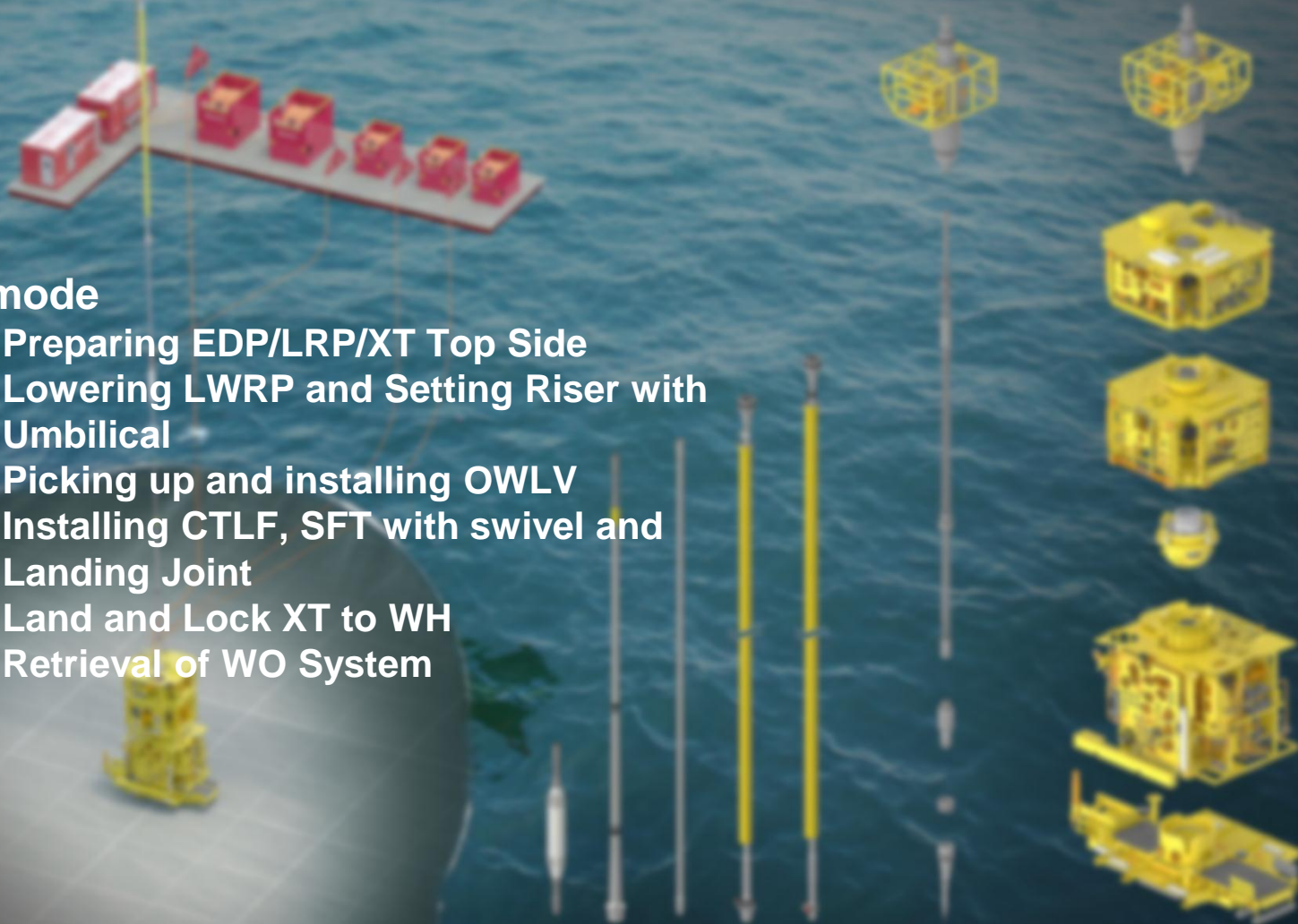
Type of test activities



Main installation steps

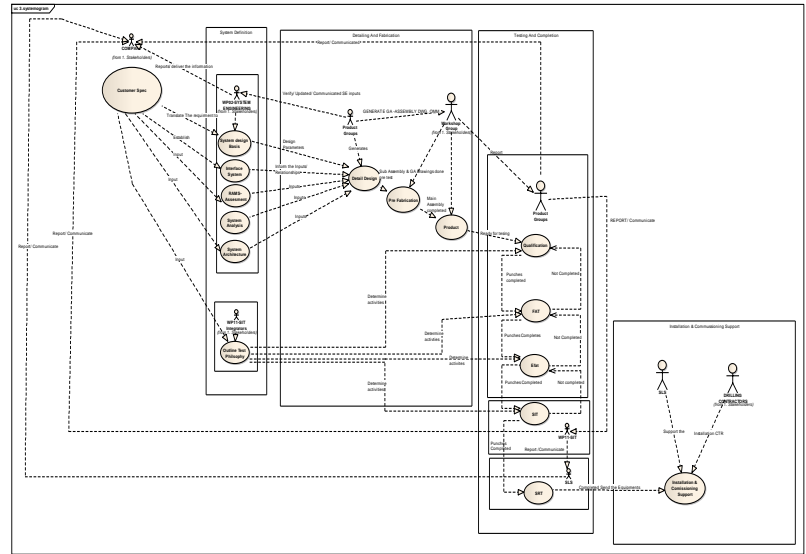
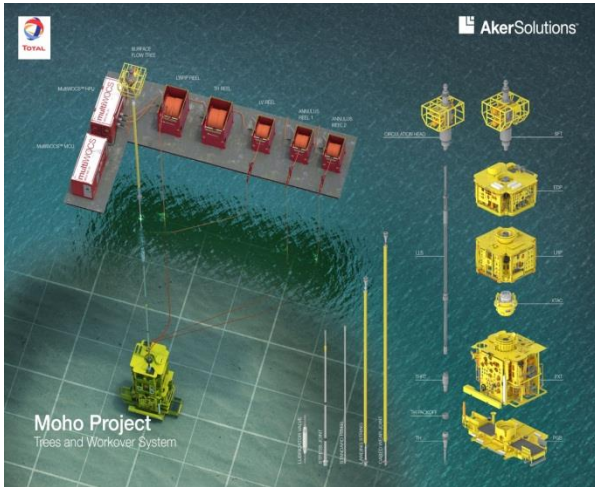
■ XT mode

1. Preparing EDP/LRP/XT Top Side
2. Lowering LWRP and Setting Riser with Umbilical
3. Picking up and installing OWLV
4. Installing CTLF, SFT with swivel and Landing Joint
5. Land and Lock XT to WH
6. Retrieval of WO System



Outcome of the Paper

- To get the process overview of how to capture SIT risk in A3 format, and how powerful systemogram diagram can help to highlight the problems for system integration.
- How Aker Solutions manage the relationships between the interfaces and the complexity of decomposing a project into different levels and the subcomponents.



Copyright and disclaimer

Copyright

Copyright of all published material including photographs, drawings and images in this document remains vested in Aker Solutions and third party contributors as appropriate. Accordingly, neither the whole nor any part of this document shall be reproduced in any form nor used in any manner without express prior permission and applicable acknowledgements. No trademark, copyright or other notice shall be altered or removed from any reproduction.

Disclaimer

This Presentation includes and is based, inter alia, on forward-looking information and statements that are subject to risks and uncertainties that could cause actual results to differ. These statements and this Presentation are based on current expectations, estimates and projections about global economic conditions, the economic conditions of the regions and industries that are major markets for Aker Solutions ASA and Aker Solutions ASA's (including subsidiaries and affiliates) lines of business. These expectations, estimates and projections are generally identifiable by statements containing words such as "expects", "believes", "estimates" or similar expressions. Important factors that could cause actual results to differ materially from those expectations include, among others, economic and market conditions in the geographic areas and industries that are or will be major markets for Aker Solutions' businesses, oil prices, market acceptance of new products and services, changes in governmental regulations, interest rates, fluctuations in currency exchange rates and such other factors as may be discussed from time to time in the Presentation. Although Aker Solutions ASA believes that its expectations and the Presentation are based upon reasonable assumptions, it can give no assurance that those expectations will be achieved or that the actual results will be as set out in the Presentation. Aker Solutions ASA is making no representation or warranty, expressed or implied, as to the accuracy, reliability or completeness of the Presentation, and neither Aker Solutions ASA nor any of its directors, officers or employees will have any liability to you or any other persons resulting from your use.

Aker Solutions consists of many legally independent entities, constituting their own separate identities. Aker Solutions is used as the common brand or trade mark for most of these entities. In this presentation we may sometimes use "Aker Solutions", "we" or "us" when we refer to Aker Solutions companies in general or where no useful purpose is served by identifying any particular Aker Solutions company.