How to Capture System Integration Risk Knowledge?

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**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 modell 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.
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?
Type of test activities

uc Systems Engineering Model

The main Objective

IWOCS-XT Testing

Activities

Mechanical Testing  Software Testing  Hydraulic Testing  Electrical Testing  Communication Testing  Drift test
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.
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