

## **Innovations in Integrated Control Systems**

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### **Abstract**

Today drilling and construction vessels are moving towards more complex units in order to handle the challenges in deep water operations. Operating in dynamic positioned mode in water depths down to 10.000 feet and more places severe requirements on the vessel and its equipment. Operational reliability and uptime of the vessel must be 100%, which again dimensions the requirements for the vessel equipment as well as the control system(s).

Similarly the construction of a complex deepwater vessel meets challenges by the fact that there is lots of equipment, which need to interface properly. Experience shows that interfacing dedicated control systems for every piece of equipment will raise a lot of unexpected issues under the building phase, and may also not end up with the best operational system.

The paper discusses the challenges in designing, building and operating a modern deepwater drilling or construction vessel with respect to control systems. Several topics related to integrated concept vs. standalone control systems are discussed, such as: integration of DP/PM with thruster controls and anchor winch controls, power management (engine controls, power generation and consumption controls) and benefits of common core technology. Finally the maintenance phase is discussed.

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