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Improved Production and Process Optimization Through People Technology and Process

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Abstract

A joint venture Production & Process Optimization project between Statoil and Schlumberger is targeting two distinct areas:

- Improved reservoir management to optimize the reservoir performance over the life of the field.
- Production optimization of the intelligent wells, production network and process facilities on a day-to-day basis. This is achieved through development of tools, methodologies and workflows.

In order to support the change management process, a prototyping process has been developed for surveillance workflow development and deployment. The dynamic prototyping process allows a bottom-up development of workflows starting from data conditioning and reconciliation up to optimization and control. These different automation modes for provided workflows go along with deriving information and ultimately knowledge from production process data in order to improve decision making processes.

A demonstration project will concentrate primarily on the Water Alternate Gas (WAG) cycle optimization process, which has been specified together with the asset team, and will describe how the workflow supports production optimization.

The solutions are successively tested together with the Snorre B asset. Results from the demonstrator, change management issues and the concept of full integration of all decision making loops into a workflow framework will be presented in the paper. During the testing not only the application of the software solution was evaluated as well the impact on the organization and how changes in proposed work processes improved the inter domain collaboration within the team.

The project has demonstrated successfully that three key areas have to be addressed simultaneously:

- Change Management procedures in order to introduce the developed workflows and software tools as early as possible
- Necessary software tools for providing a workflow oriented framework for production optimization
- Prototyping workflows and implementation through demonstration and pilot projects as well as permanent facilitators working with asset teams

Introduction

STATOIL perceives that current optimization processes can be improved; time-consuming reporting can be simplified, computations and simulations can be made easier, workflows in general can be streamlined more than what is the case today. To improve the tools and practices, a project on production and process optimization (PPO) was initiated under the Statoil SIOR (Subsea Increased Oil Recovery) research program. Statoil selected Schlumberger Information Solutions (SIS) as a partner for a three year (2006-2008) collaboration and deployment project for production solutions. The companies work integrated, share the development costs, and test the new solutions at several Statoil assets. The project covers a wide range of disciplines from reservoir through production, process facilities as well as corporate infrastructure for Statoil.

Cyclic prototyping process

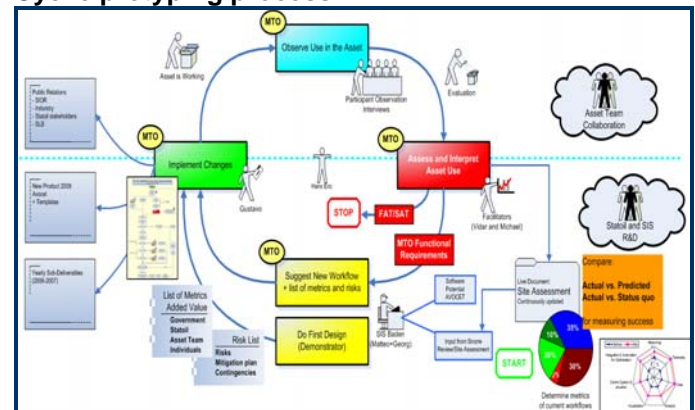


Figure 1: Demonstrator Prototyping cycle

As part of the project a prototyping cycle was introduced illustrated in Figure 1. As the first step of the cycle, the project