

Making the Digital Oilfield work – Collaborative Work Environments

by Frans Vandenberg, CWE Advisor, Smart Collaboration

SPE Distinguished Lecturer 2016-17 Lecture Season



Frans Vandenberg
Consultant in the design of Digital Oilfields and Collaborative Work Environments

Do your operations and maintenance teams in the field and the asset teams in the office work together as well as they could to deliver the maximum field performance?

Collaborative Work Environments (CWEs) do precisely this. They help asset staff in field and office to operate more efficiently as one team. This results in higher production, less cost, improved staff efficiency, lower HSE exposure and higher staff morale.

Shell has pursued the Digital Oilfield or Smart Fields for the last fifteen years. This included real time surveillance and optimisation of wells and production as well as introduction of smart wells, time lapse seismic and fibre optics in wells.

Collaborative Work Environments (CWEs) were implemented in most assets. Operational CWEs are now used to manage more than 60% of Shell's production. The CWEs provide high quality video communication and data sharing between the operational teams in the field and the asset teams in the office. Structured processes for surveillance, maintenance and optimisation guide the teams to operate efficiently and manage their field to high performance.

Examples of the business benefits achieved are:

- Lower production loss, from faster response to events in wells and equipment;
- Lower maintenance cost, from responding before failure;
- Higher staff efficiency, from instant decision making instead of waiting for email responses;
- Lower HSE exposure, from less travelling to field sites.

A structured deployment programme was used, taking assets and projects through a standard design, implementation and embedding approach. The embedding of the new ways of working required a broad focus on the people aspects and change management. Each project included mapping workflows; awareness and training sessions; and establishing coaches and support.

With new technologies, the capabilities are being expanded. Operators with mobile devices in the field have access to real time data, communicate with experts in the CWE, show streaming video and obtain work permits and tasks whilst on site.



Figure 1. Example of Collaborative Environment, with always-on video communication to offshore (Nelson Field, UK)



Figure 2. Large Surveillance room for monitoring of tight gas field, pipeline system and LNG plant



Figure 3. Mobile access to field data, office experts, work permits and work plans

Biography

Frans van den Berg is currently an independent consultant in the design of Digital Oilfields and Collaborative Work Environments.

He has worked 32 years in Shell, lastly in its global Smart Fields or Digital Oilfield program in the technology organisation in the Netherlands. There he led the global implementation of Collaborative Work Environments in Shell.

He has held various positions as a petroleum engineer, head of petrophysics and asset development leader in operational roles and in global technology deployment. He worked ten years in Malaysia and Thailand.

Frans has a PhD and a Master in Physics from Leiden University in the Netherlands. He has been involved in the organisation of the SPE Intelligent Energy and Digital Energy Conferences since 2008.