



Innovation in the Offshore Oil and Gas Industry

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Innovation in the Offshore Oil & Gas Industry

- Who am I?
- Where I've been?
- Personal Contributions towards Innovation
- Current Offshore Innovations
- What to watch in the future
- Summary – Q&A

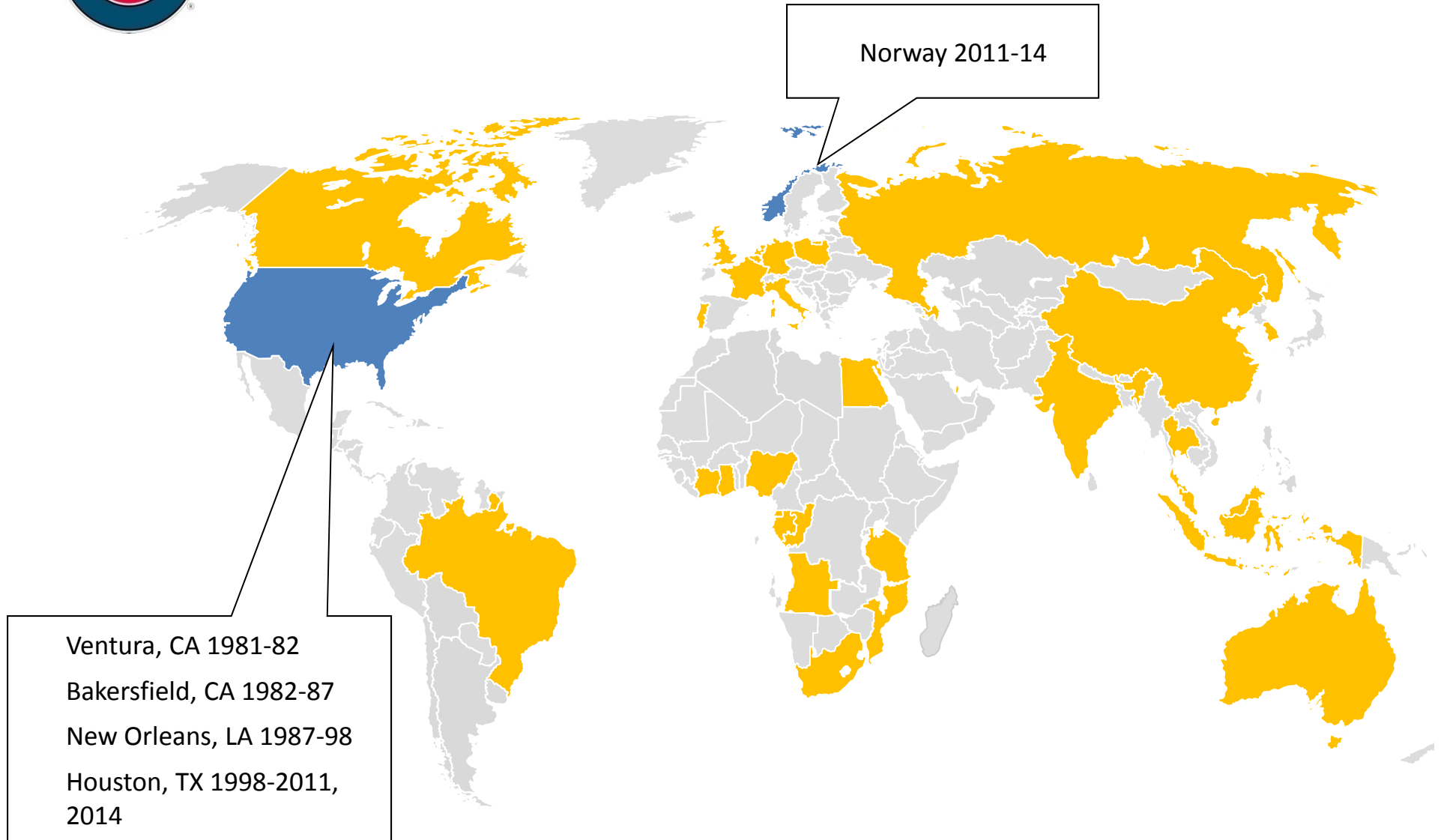


Who am I?

- Senior Project Director – McDermott Int'l
 - Project Director – BG Group
 - Deputy Project Director – Kosmos Energy
 - Project Manager – Murphy E &P International
 - Project Manager – Devon/Ocean Energy
 - Deepwater Development Manager – Unocal
 - Project Manager – Mariner Energy
 - Technical Manager – Shell
- BSME University of Illinois – Urbana/Champaign
- Active in ASME Volunteer Leadership



Where I've Lived & Worked





Innovation vs. Invention

- Innovation – “a process that brings together various novel ideas in a way that they have an impact on society”
- Invention – “a unique or novel device, method, composition or process, that achieves a completely unique function or result may be a radical breakthrough”

Innovation may happen during a project cycle, invention probably will not.

*Source: Wikipedia

A photograph of an offshore oil rig at sunset. The rig is silhouetted against a bright orange and yellow sky. The water in the foreground is dark blue with gentle ripples. The overall mood is serene and industrial.

Personal Contributions towards Innovation

Azurite FDPSO
Republic of Congo

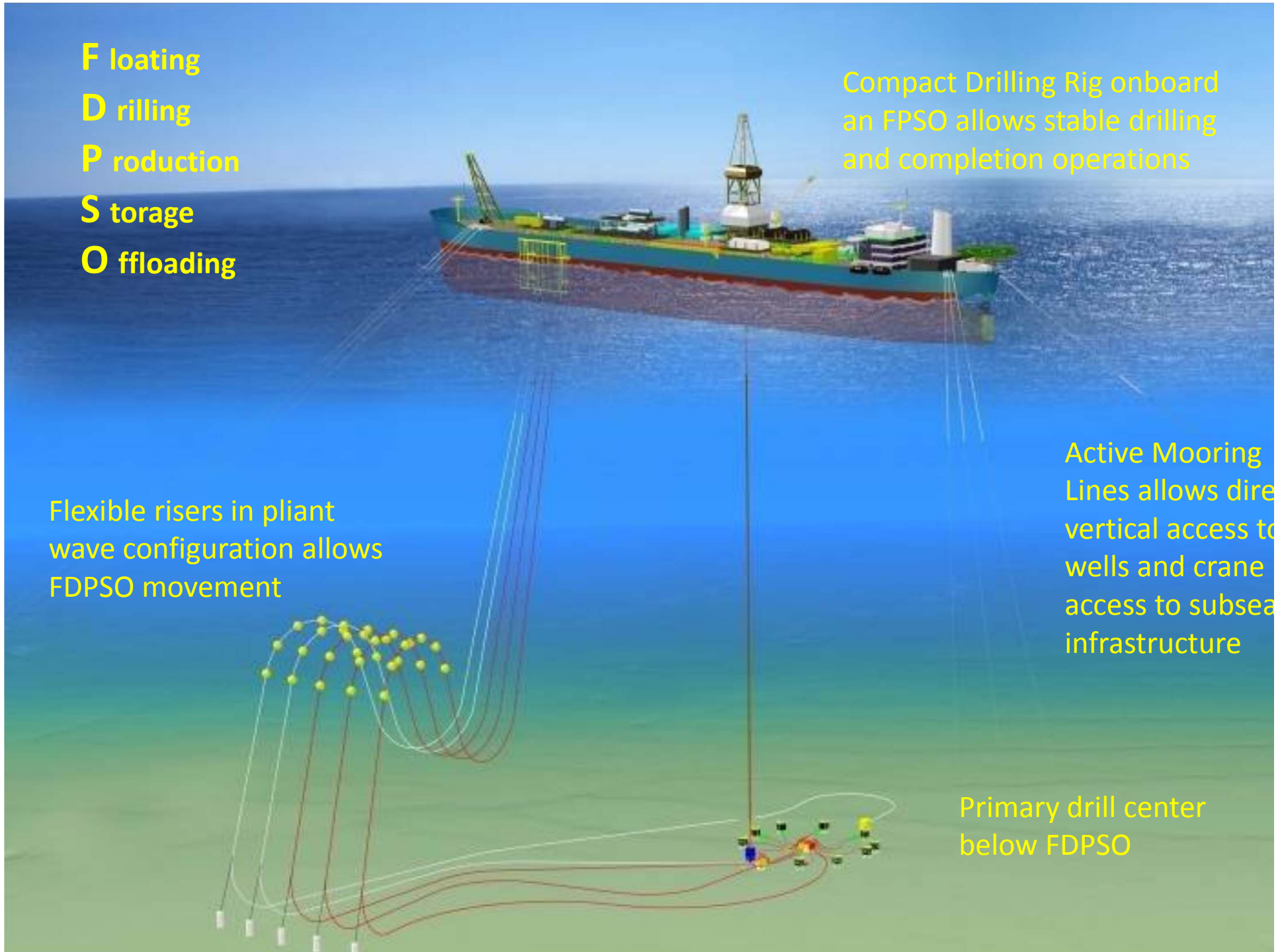
Floating
Drilling
Production
Storage
Offloading

Compact Drilling Rig onboard
an FPSO allows stable drilling
and completion operations

Flexible risers in plant
wave configuration allows
FDPSO movement

Active Mooring
Lines allows direct
vertical access to
wells and crane
access to subsea
infrastructure

Primary drill center
below FPSO





FDPSO Rig Installation



FDPSO Sail from
Singapore to Republic
of Congo

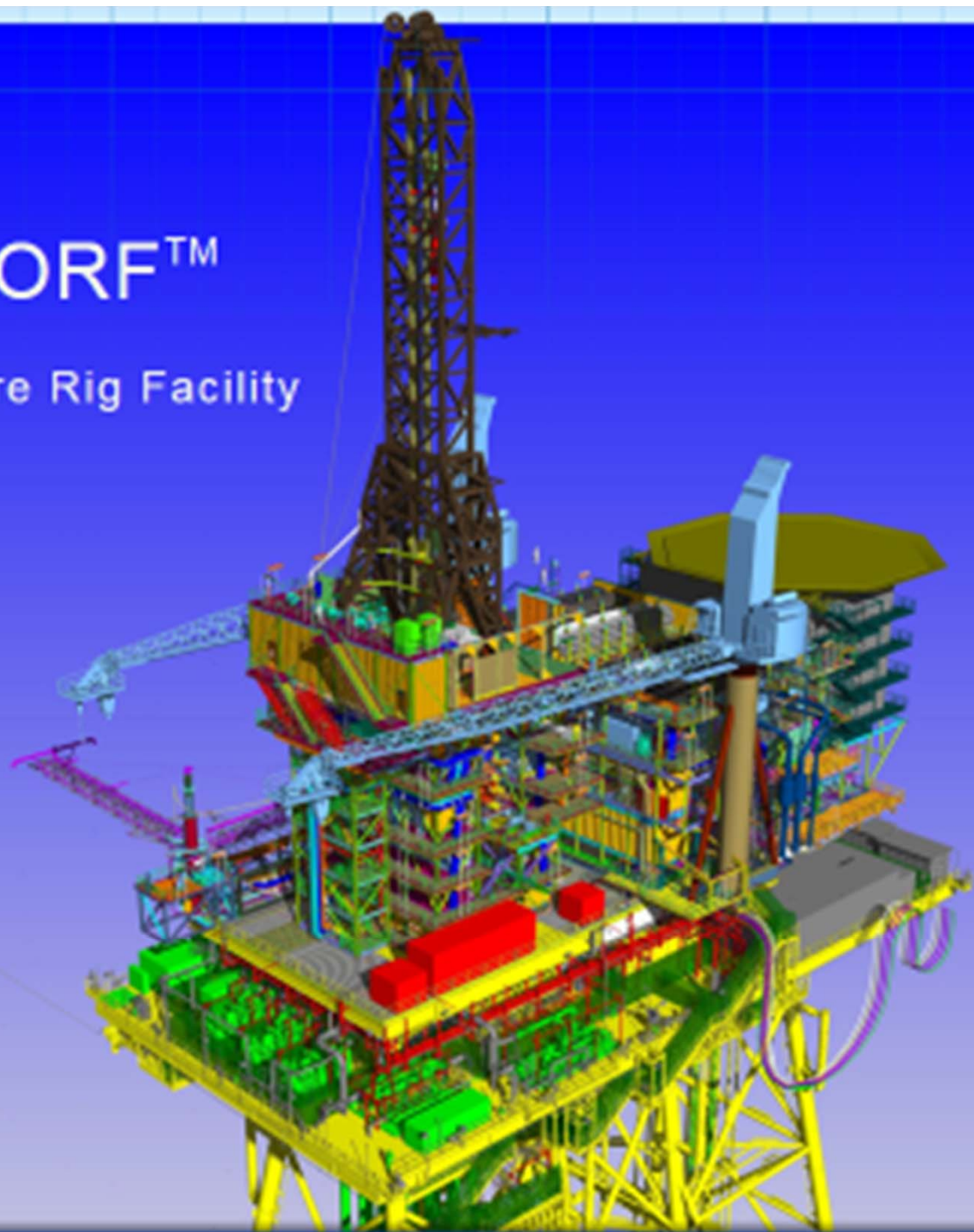
Current Offshore Innovations

- Modular Offshore Drilling Facility (MORF)



WJM MORF™

Modular Offshore Rig Facility



WJM MORF™

Breakthrough Modular Design Erases High Installation Costs

- 3,000hp modular offshore rig facility.
- Used for drilling and production.
- Two main modules: The Drilling Equipment Structure (DES) and the Drilling Support Module (DSM), which is equipped with Two (2) Offshore Pedestal Cranes rated for 75 Tons SWL c/w 120 foot Lattice Booms. The DES has the capacity to move approximately 15 wells arranged in a 3 x 5 matrix and is capable of drilling wells up to 25,000 feet.
- Accommodates 100 rig personnel.
- Helipad sits on top of the housing unit.
- FIRST OF ITS KIND in size and a first for the Gulf of Mexico.



Potential Future Industry Innovation

- Use of 3D printing in offshore structural fabrication
- Expanded use of 3D printing in subsea component manufacturing
- Use of non-metallic materials in hydrocarbon processing
- Expansion of high temperature, high pressure components

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Summary





Innovation - Summary

- Innovation is acceptable in a project phase – may cause re-work due to new application
- Innovation is necessary as commodity price is under pressure and capital and operating costs must be reduced
- The Oil & Gas Industry is slow to accept invention and innovation compared other industries
- Great ideas are always welcome, investment may be difficult



Questions?