



## 2014 OFFSHORE TECHNOLOGY CONFERENCE ASIA

25–28 March 2014 • Kuala Lumpur, Malaysia

Kuala Lumpur Convention Centre

“Meeting the Challenges for Asia’s Growth”

# 2014 going forward; the age of rig design innovation (Or not...?)

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58° 53' N 5° 41' E

# “The Right Tool for the Right Job”

Cost Reduction and reaching “Challenging” fields by Innovative Rig Designs

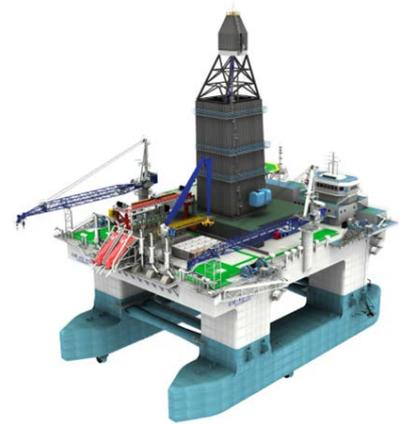
## 2014 - How is the Industry Positioned?

- Large majority of drilling rigs delivered were based on conventional drilling rig design.
- Drilling and Completion and Intervention (Workover) all done by same drilling rig.
- All activities relative little automation.
- Oil companies asking for more capabilities, so vessel sizes were simply increased.
- No focus on actual changing the concept.
- Drilling work requires a drilling rig however completion and intervention work can use a variety of tools to work from.
- Well Intervention to increase recovery rates. Intervention with drilling rigs is costly and typically not efficient for marginal wells.
- Large group of drilling rigs reach 30 year old coming years. (30 year old technology)
- No replacement of mid water floaters
- No replacement of Jack Ups (only additions)



## 2014 going forward...

- The cost of a mid-water to ultra-deepwater well splits roughly equally between Drilling and Completion work and similar cost over the lifetime for Intervention.
- For drilling you need a drilling rig however this should be suitable to water depth, environment and well type. (one size fits all does not exist...)
- For Completion, and Intervention (workover) it is not always so clear-cut what type of floating asset we need.
- Currently the industry utilising large deepwater drilling units to do any type of intervention work is rather the norm. Costly and inefficient operations.



I am a firm believer in the following;

**(A) Going forward I believe the industry will be able EXPLORE CHALLENGING FIELDS and to drive COST REDUCTION by utilising tailor made rigs for the specific activities that are required to bring oil to surface.**

**(B) Additionally I believe that to make that happen, the industry will hugely benefit in making a step change in how we execute the drilling operations.**

# “Reluctance to Change” in the Industry. Why?

- **Innovation is challenging for Oil Companies and Rig Owners, as innovation comes with a price.**

*Improved returns are only visible “down the road”, over multiple wells, multiple well types, multiple operations types. (Returns Commensurate)*

- **Utilising a variety of tailor made drilling and workover rigs on one well brings variety of logistical complexities.**

*It is easy (but not efficient) to stick to a “one size fits all” operations methodology.*

- **Poor track record in commissioning of conventional drilling rigs**

*How will we manage commissioning of new concept drilling rigs if we are unable to properly commissioning conventional assets.*

## **Short term targets of asset owners accountants and legal experts**

*Returns for asset owners can be initially higher and present lower legal risk following established conventional methods, which are accountant’s and legal targets. However it does not bring necessarily “**best in class**” status longer term, which typically are leadership targets!*



# What do we need as an industry? (Innovation!)



Eventually Innovative Rig and Drilling Equipment design compared to conventional rig design;

- Will lower operational cost
- Lower accumulative well development cost
- Increased efficiency (shorter time to “first oil”)
- Provide safer work platforms per operation type
- Expand operational envelopes for specific operations
- Decrease time to “first oil”
- Reduced Carbon Footprint

**All this by using the tailored designs for the specific operation (exploration, completion, intervention, installation etc)**

## Embrace Innovation



- End Users (Oil Companies) must embrace Innovation.
- Asset Owners must embrace Innovation and improve rig Commissioning Standards
- Construction yards must improve rig Commissioning Standards
- Design Houses collaborate with Equipment Manufacturers and take in the “needs” from end users (oil companies), rig owners and construction yards.
- Design Houses collaborating with Equipment Designers to work up “best in class” innovative designs.
- Mission Equipment must be integrated into design in order to increase efficiency and allow step change
- Innovative Designs for Drilling
- Innovative Designs for Completion
- Innovative Designs for Intervention



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### Two Questions, which answer you believe is true?

**(A) Are Oil Companies (in general) open to Innovation or do they rather follow trusted “proven over time” designs and accept less efficiency?**

1. Oil Companies typically rather use conventional proven rig designs rather than innovative concepts which may bring advantages but also bring higher risk due to not proven concept.
2. Oil companies will Embrace Innovative New Designs that will bring advantages, even if that would bring increased risk due to using not proven concepts.

**(B) Is the offshore oil industry ready to make a step change in how we execute our quest to bring oil to surface?**

1. Concept and technologies exist to allow a step change in how we do things, however the industry is not ready for a step change.
2. The industry is ready to accept a step change in how we bring offshore oil to surface, but concepts and technologies do not exist yet to support the step change.