

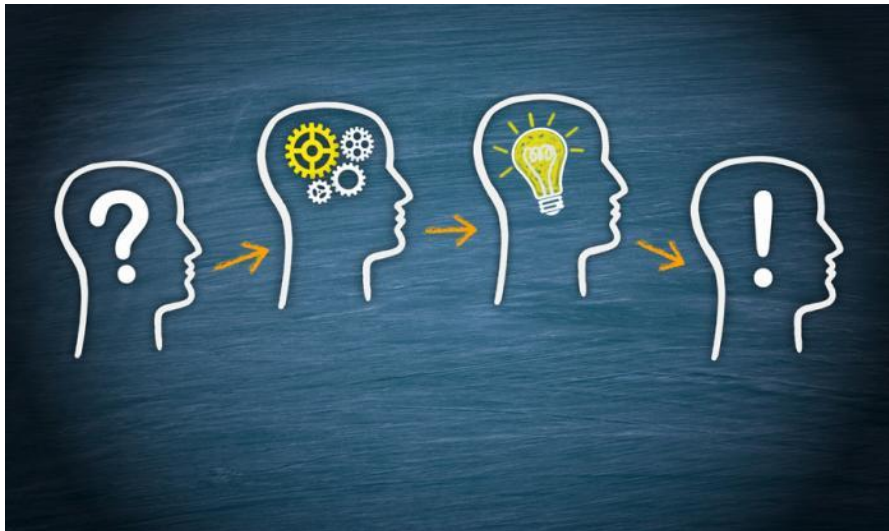


E & P innovation chain of the future

Rio de Janeiro – 27/10/2016

Wilson Arruda | Research and Innovation

Innovation is the process and outcome of creating something new and of value








- **system solutions**
- **products / services**
- **business models**
- **processes**

Important to leverage innovations of all different scales, from small / incremental to radical and disruptive.

What is the most likely future state?



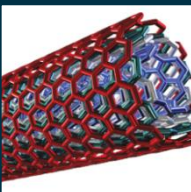

Yesterday

Longer, deeper,
colder, harsher

-  Longer step outs
-  Deep and ultra-deep water
-  Colder / Arctic
-  Harsh environment
-  Subsea factory
All electric
Complex

Today

Easy oil, standard, cost, new
business models

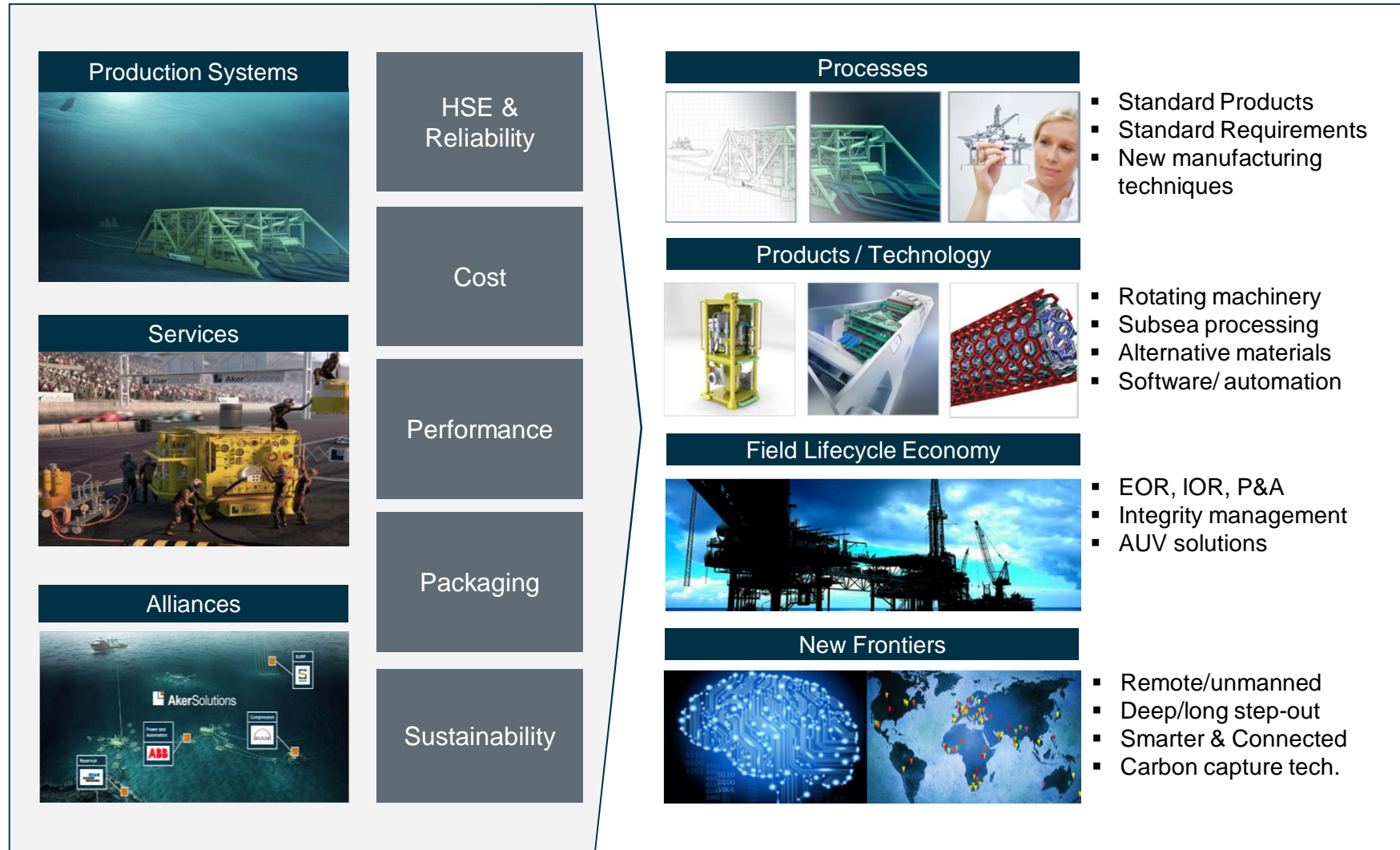
-  Easy oil,
Brownfield,
gas
-  Standard,
Schedule &
Cost
-  Materials,
Digital &
Data
-  New business
models

Tomorrow??

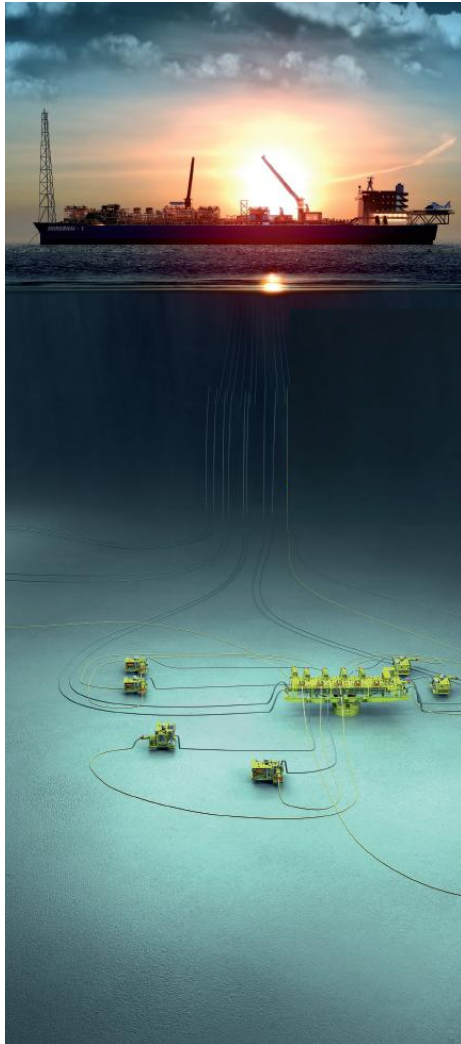
Smart & connected, unmanned,
new frontiers?

- 
- 
- 

Business drivers and solutions



Collaboration, Alliances and Partnerships



Customer Projects and JIPs



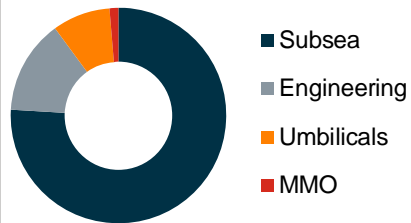
Internal Development



Engineers Worldwide

PhD	38
Master	1006
Bachelor	1271

More than 1500 Live Patents



Industry - Industry



MAN Diesel & Turbo



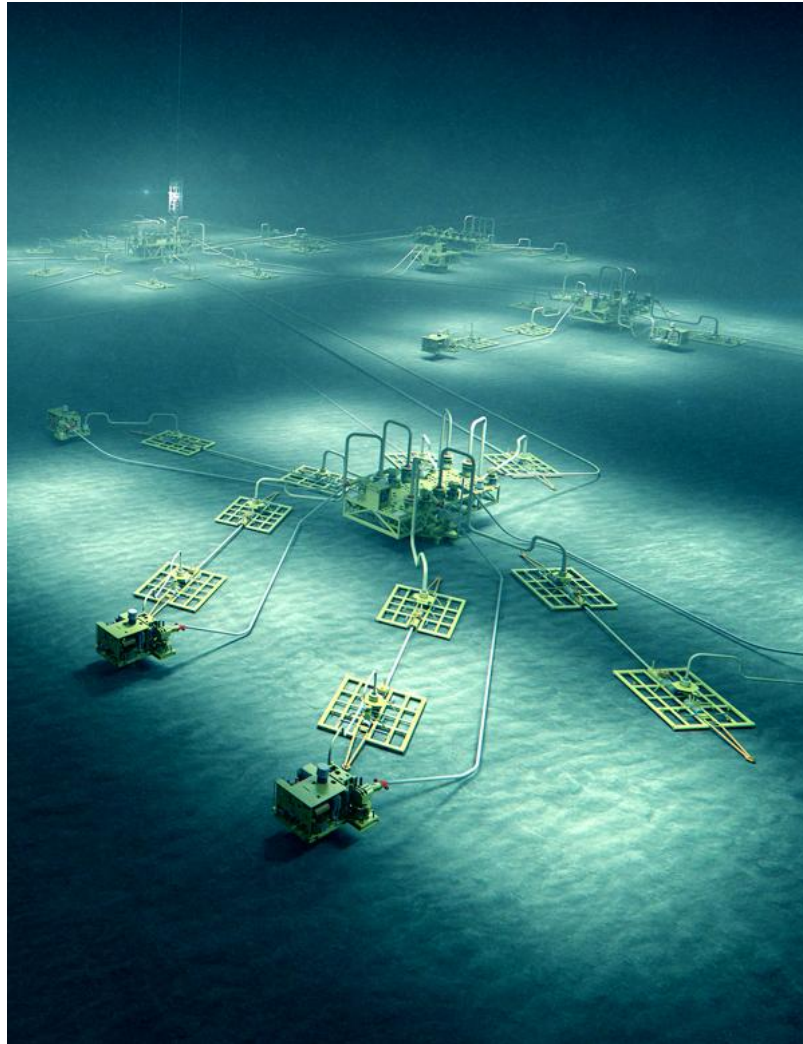
Industry – Research Institutes



Imperial College London



Conclusions



- Market changes impacts:
 - What we do
 - How we do it
 - How we fund it
- Development of fit-for purpose solutions is necessary
- Clear direction towards collaboration, alliances and integrated solutions
- Required improved processes, lean design and lean execution for RD&I



Thank you

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