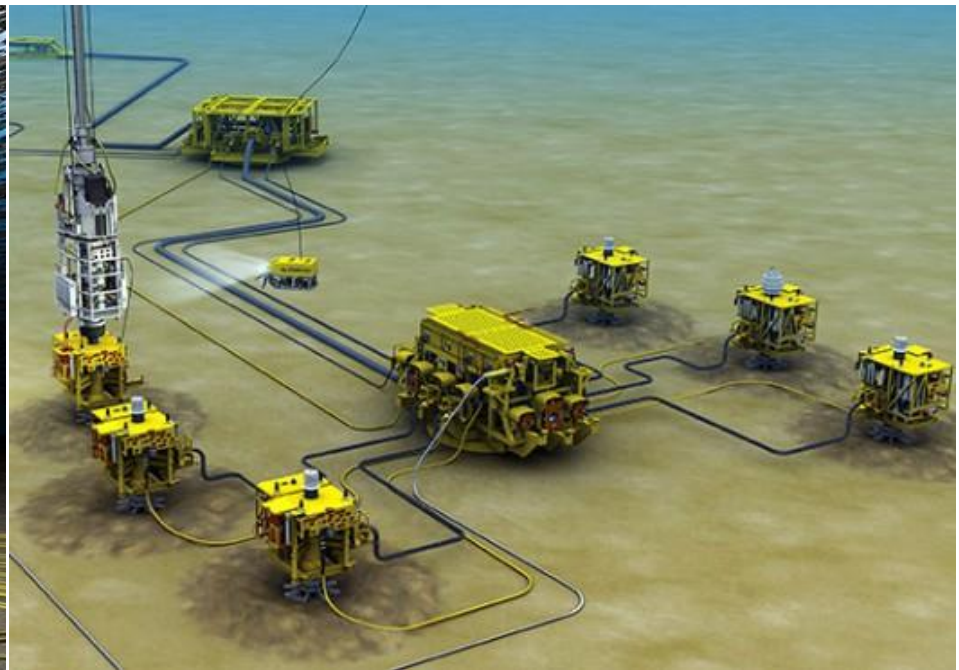
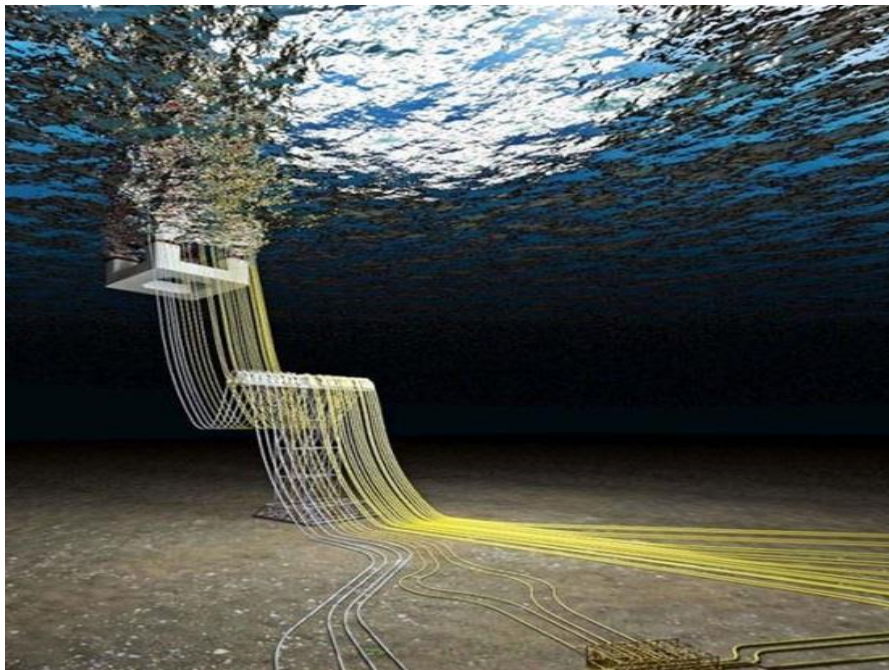




Technology Opportunities in a Challenging Oil & Gas Industry



Kevin Whooley, Country Manager Ireland & France





**WOOD GROUP
PSN**

28,000 employees
35 countries



**WOOD GROUP
KENNY**

3,000 employees
17 countries

WOOD GROUP



Wood Group is an international energy service company with:

\$7 billion

Revenue

39,000+

Employees

50+

Countries

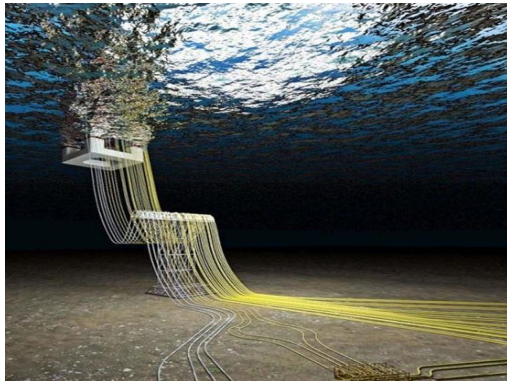


**WOOD GROUP
MUSTANG**

8,000 employees
14 countries



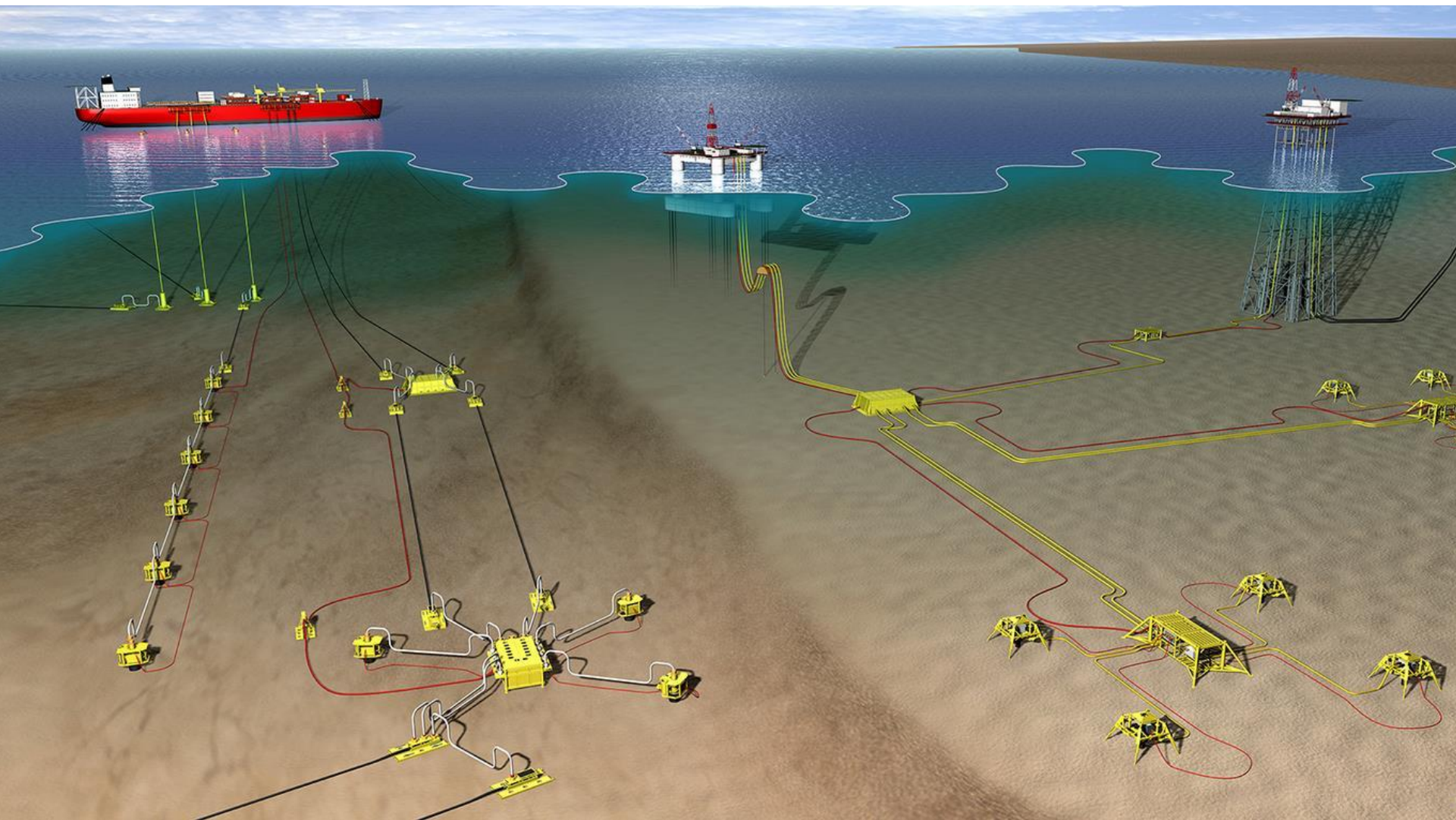
World-leading Oil & Gas Specialists



- Largest independent provider of **subsea** engineering and management solutions
- **35 years experience**
- World leader in compliant riser design
- Participated in over **50%** of the world's subsea developments
- Over **500,000km** of offshore pipelines experience
- Many achievements:
 - **Deepest risers** – Independence Hub
 - **Coldest subsea pipelines** – Gorgon LNG
 - **Long subsea tiebacks**
- Designed **topside**s for more floating production facilities worldwide than any other company
- Executed pre-FEED, FEED and detailed design for **18 FPSO/FSO** projects worldwide
- Over **500,000 te** of Topsides & **1.5 MMBOPD** in the last 10 years
- World's No.1 in:
 - **Deepest floating facilities**
 - **Largest producing platforms**
 - **Lightest weight (single lift) platforms**
- **Greenfield** and Brownfield Gas Plant engineering
- Experienced **gas processing** including turbo-expander technology
- Experts in **modularisation** for **harsh weather environments**
- Significant experience in **O & M**



Typical Deepwater Offshore Developments



Volatile Market Conditions

Oil Slide

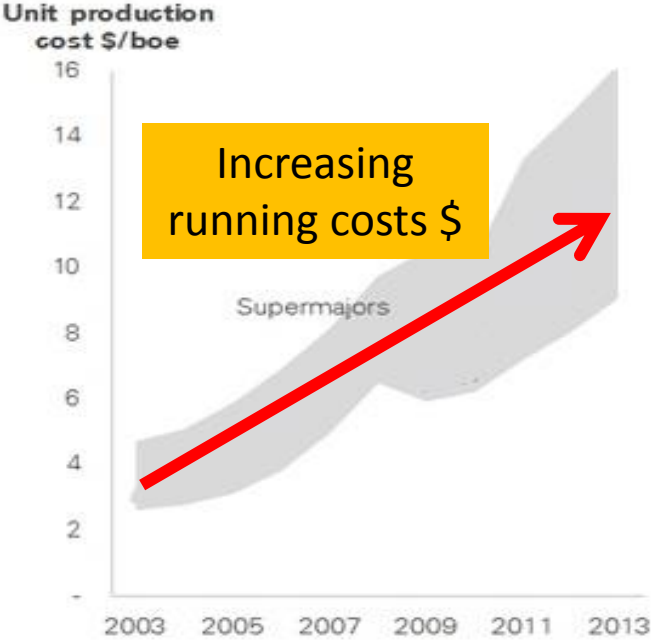
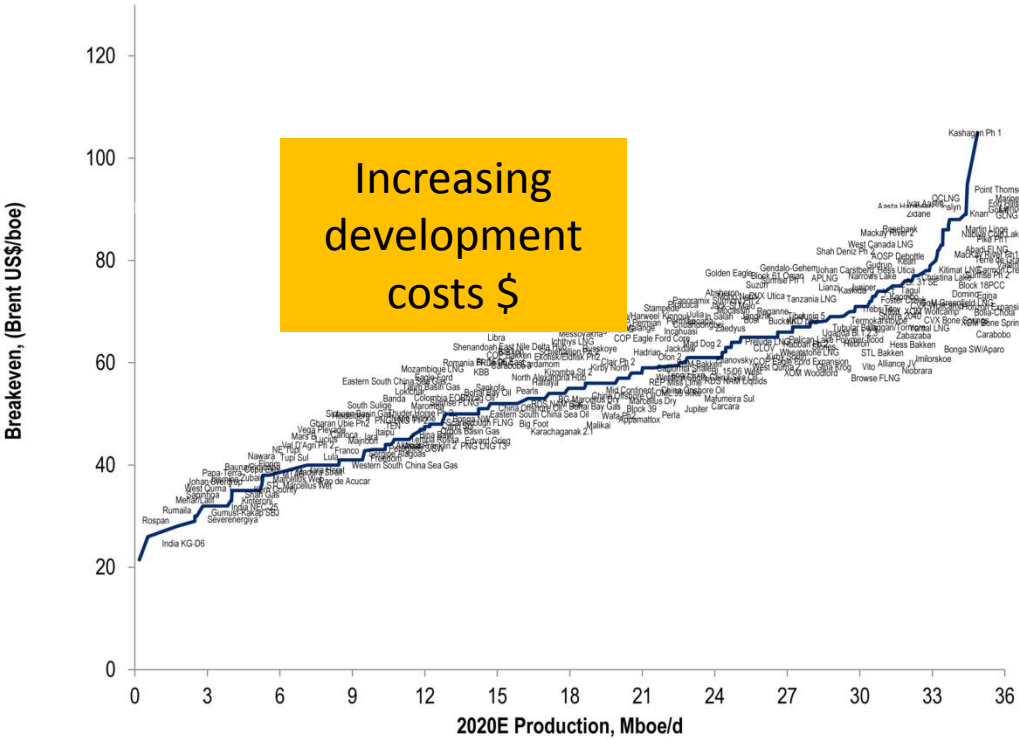
West Texas Intermediate crude oil, dollars per barrel adjusted for U.S. consumer price inflation.



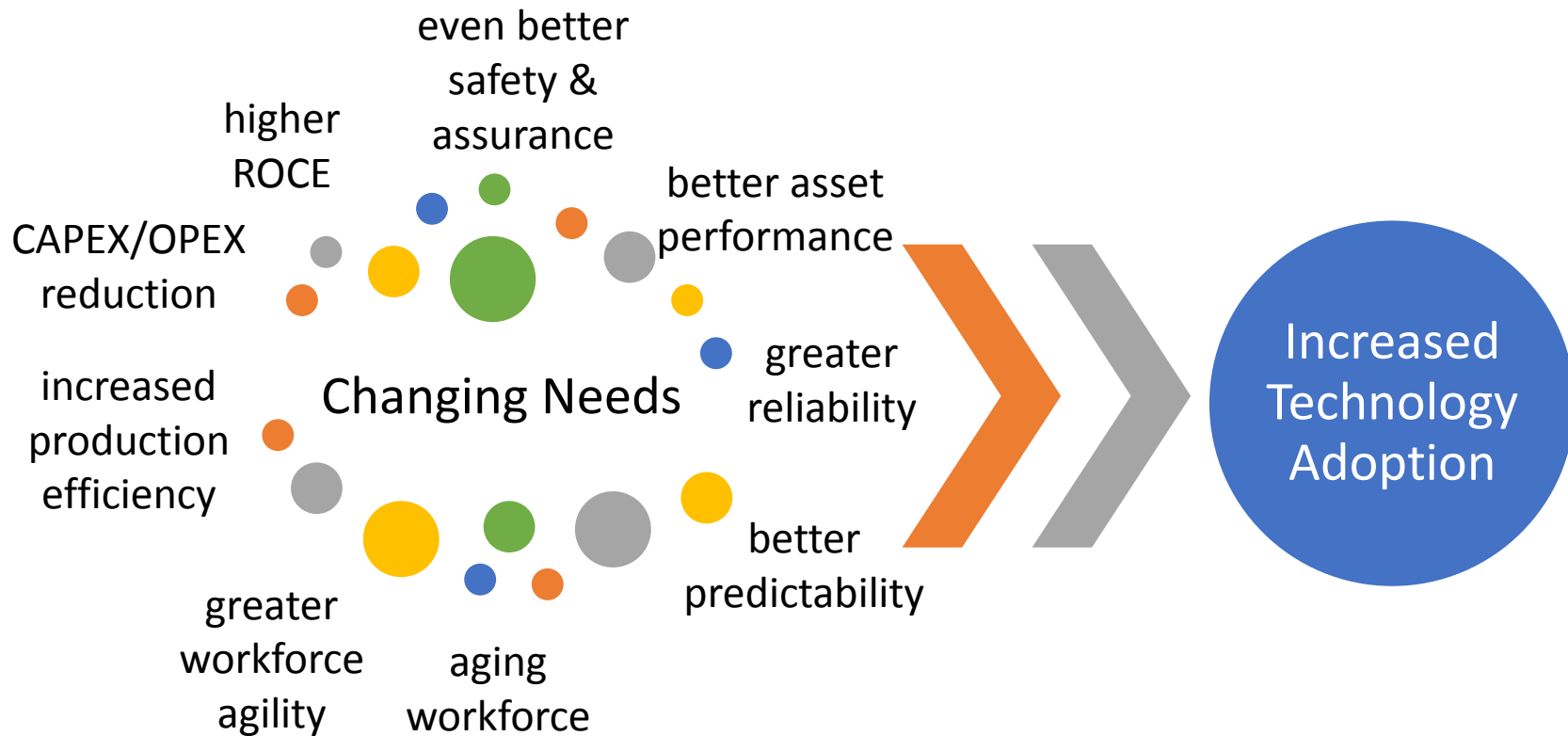
**Today:
50%
drop**



Rapid Cost Inflation



Changing Focus is Creating Opportunities

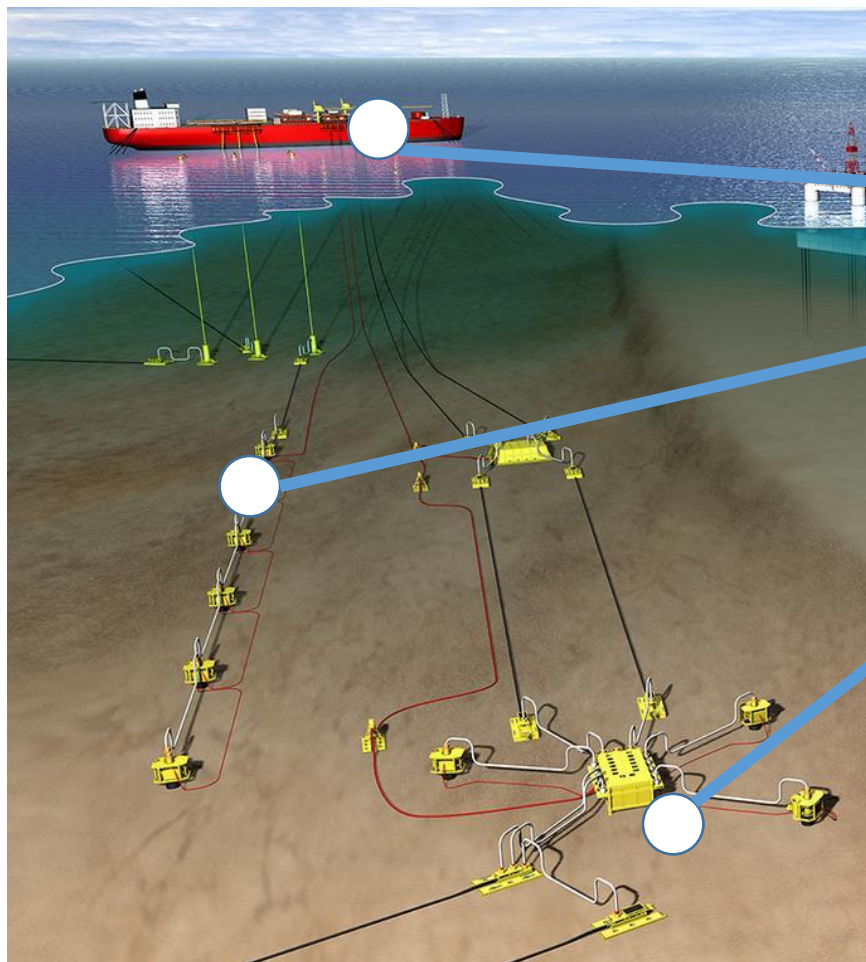





Industrie 4.0



Digital Field Technology



“The Internet
of Things”
Concept

Concept



Too much data?



Digital Field Technology



Applying IOT Offshore

Sensor Technology & Comms & Integration

Data Storage & Management

Data Analytics & Business Operations

Data Visualisation



Reducing our Dependence on Labour

Increase safety offshore

Reduces costs of operation

Increases reliability & performance

Improves workforce flexibility

Reduces skills shortage & age risks



...creates Technology Opportunities



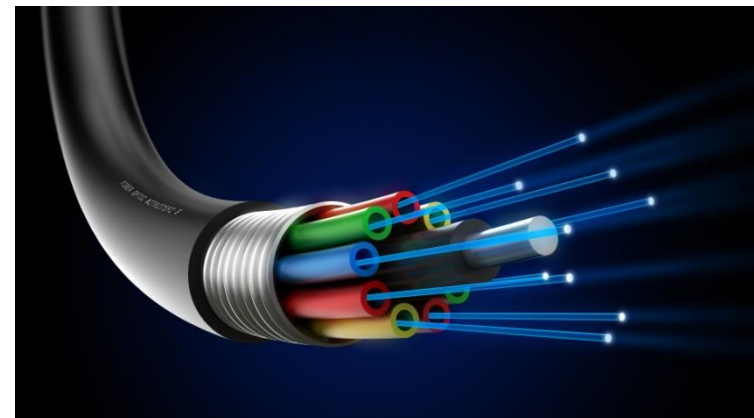
Automated Production Facilities



Centralised Operational Support



Automated Inspection



Enhanced Communications



Oil & Gas - where does Ireland Position itself?

- **Ireland Oil & Gas Industry**
 - Development will come ...
 - Continue our focus on attracting investment –
 - need to prove viability
 - streamlining consent process
 - plug & play infrastructure etc.
 - Initially expertise will come from North Sea and Mainland Europe companies
 - ... but local companies are required to support logistics, construction & operations



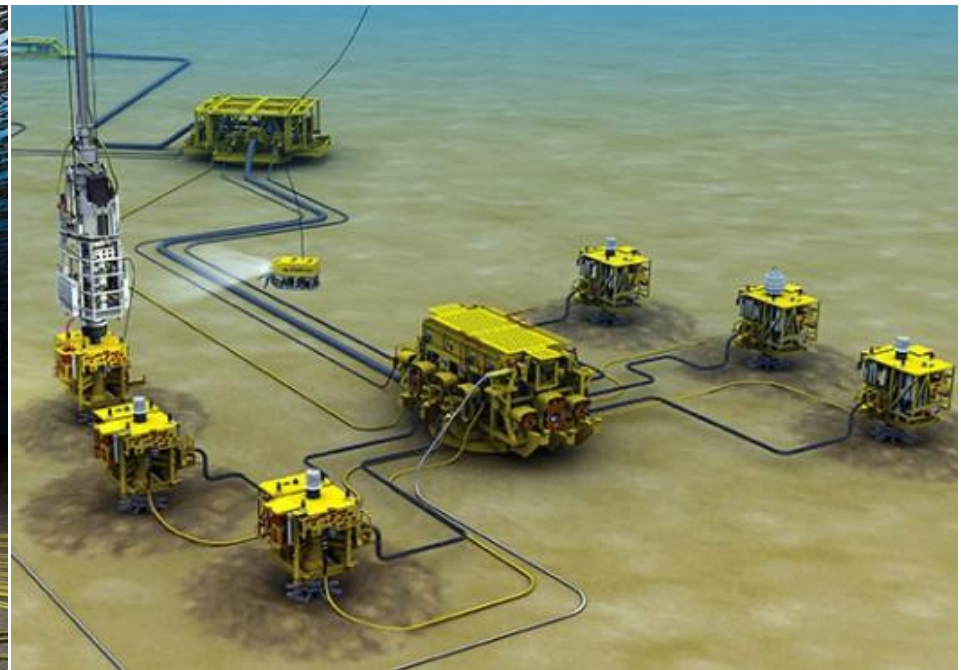
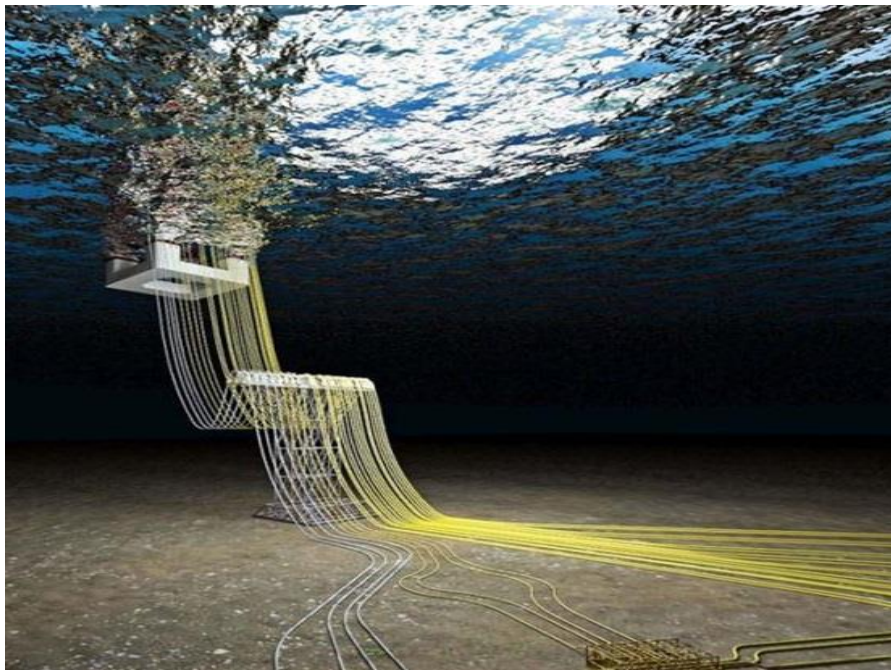
Oil & Gas - where does Ireland Position itself?

- **Potential Future Positioning**
 - Focus on **future challenges/trends** in O&G industry
 - **Leverage Technology & ICT capabilities** to build a strategic position
 - **Leverage marine** industry expertise capability and resources
 - Existing **European customer base** - Top 3/5 IOCs based in Europe





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