

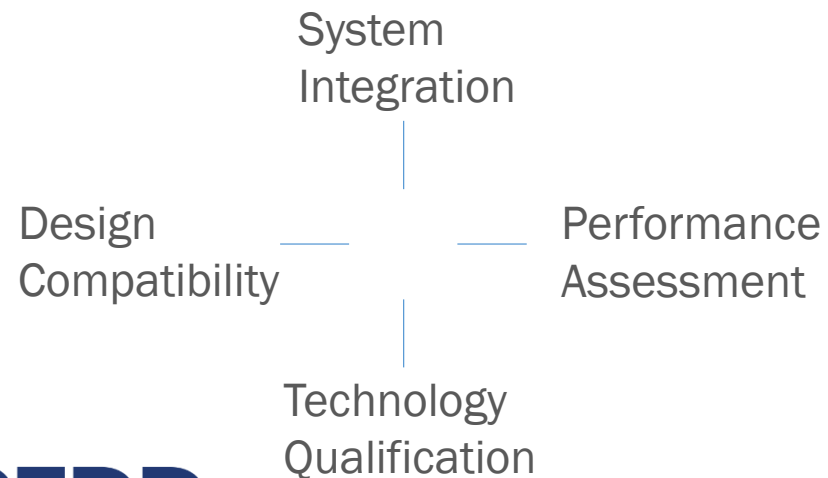
# New Technology Designs – Deepwater Collaborative Development

Collin Gaskill  
Trelleborg Offshore

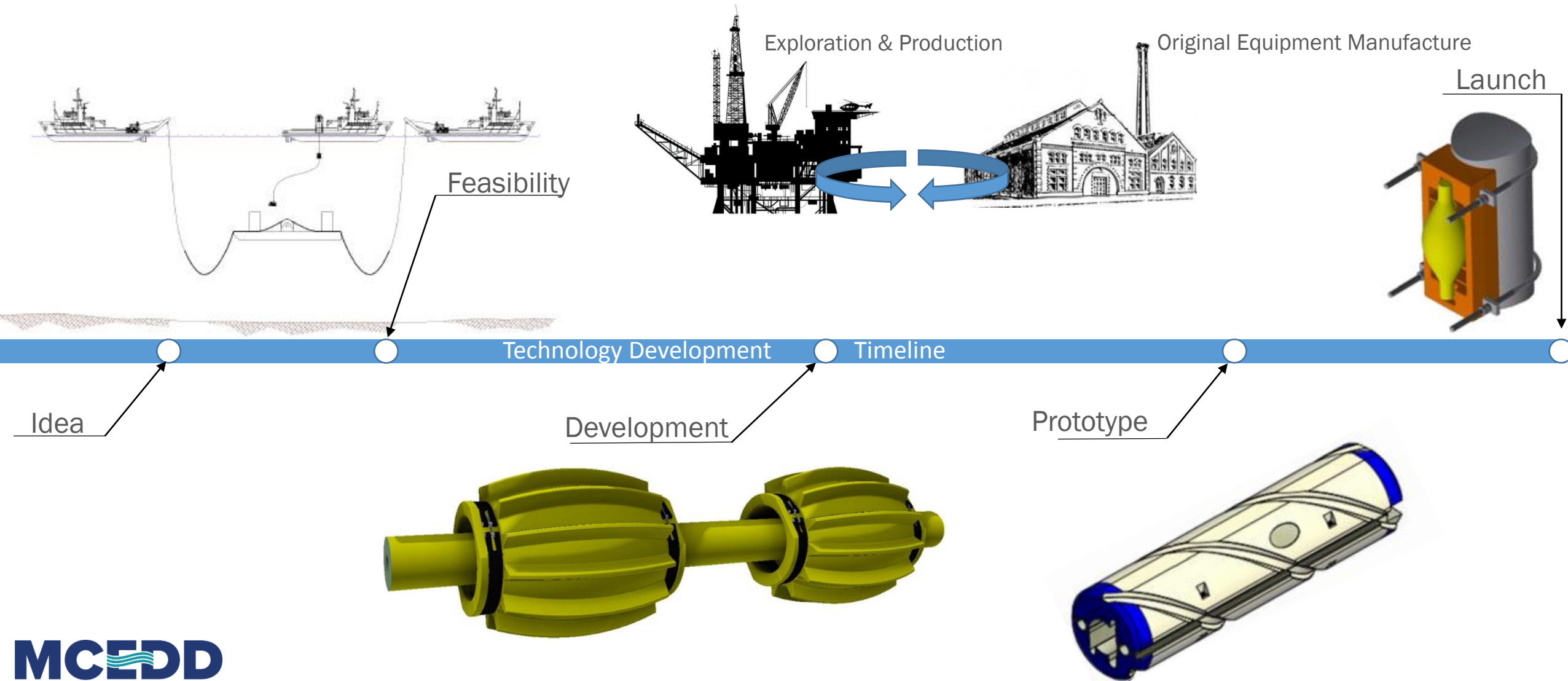


# Deepwater Technology Challenges

- Subsea Environments
- Large Pressure / Temperature Swings
- Complex Loading
- Corrosive Environments
- Extensive Performance Lives
- High Cost Maintenance



# Integrating Development Resources

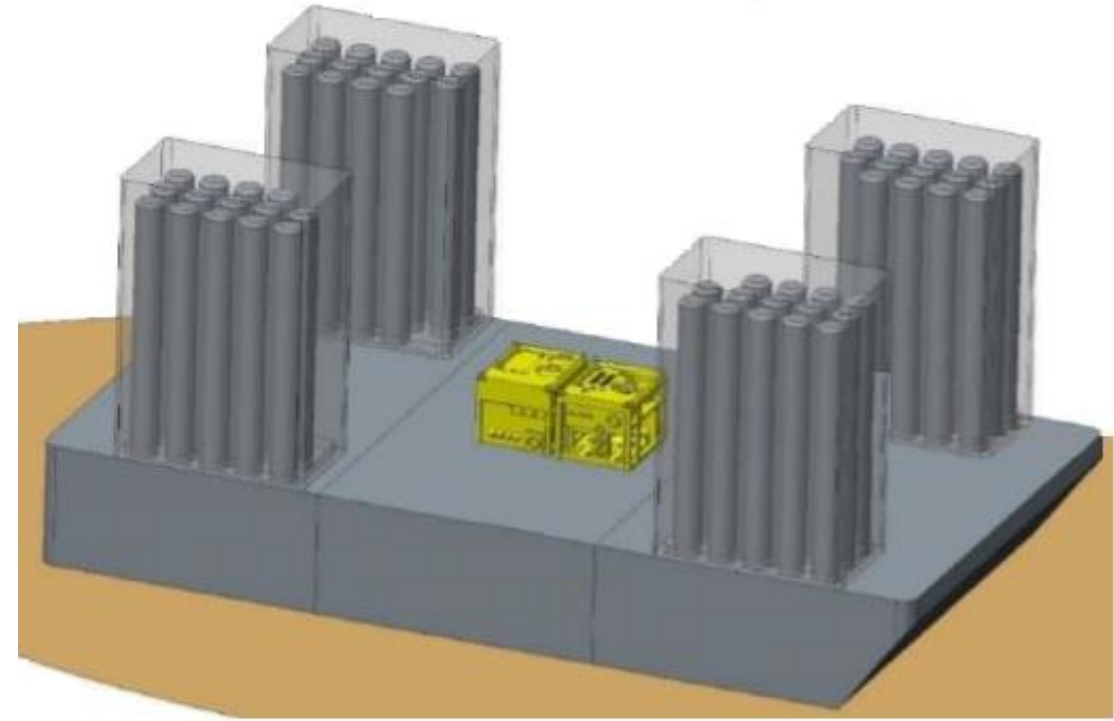
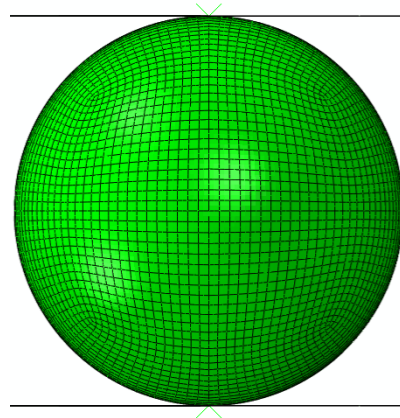


# Facilitating Step-Change Innovations

## Idea



- Joint Development Team:
  - Service Company – Installation & tie back operations
  - OEM – Buoyancy design & development
  - Operator – Operations & risk management



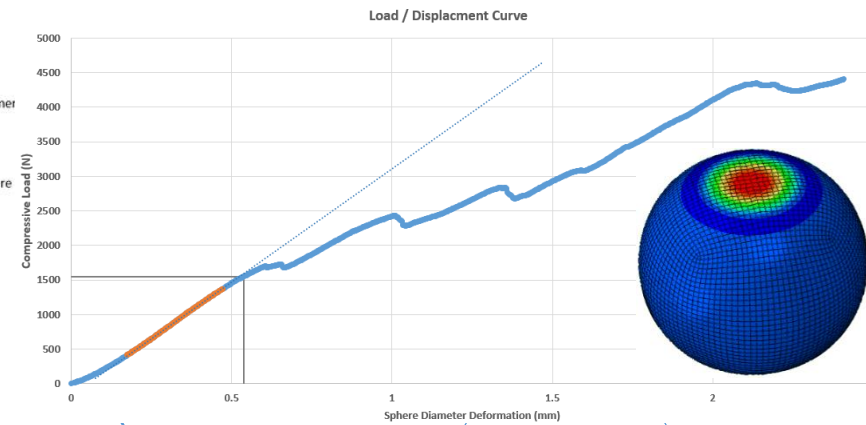
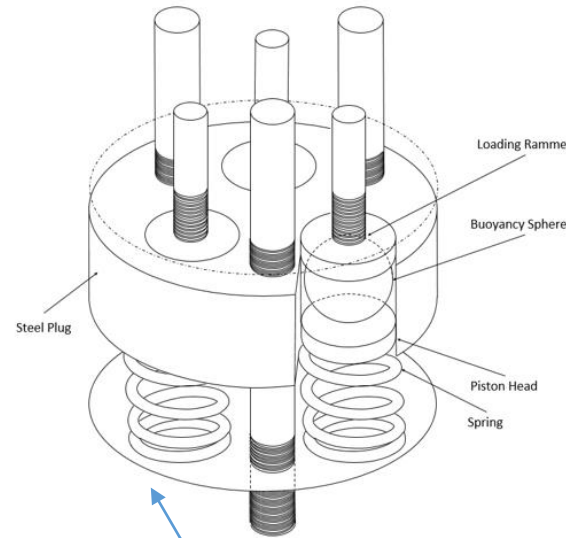
# Effective Design Progression

Feasibility



OEM Investment

Integrated Development Tracks



E&P SME Engagement

Shuttle Hull Physical Hydrodynamic Testing

Time: 300.0 s

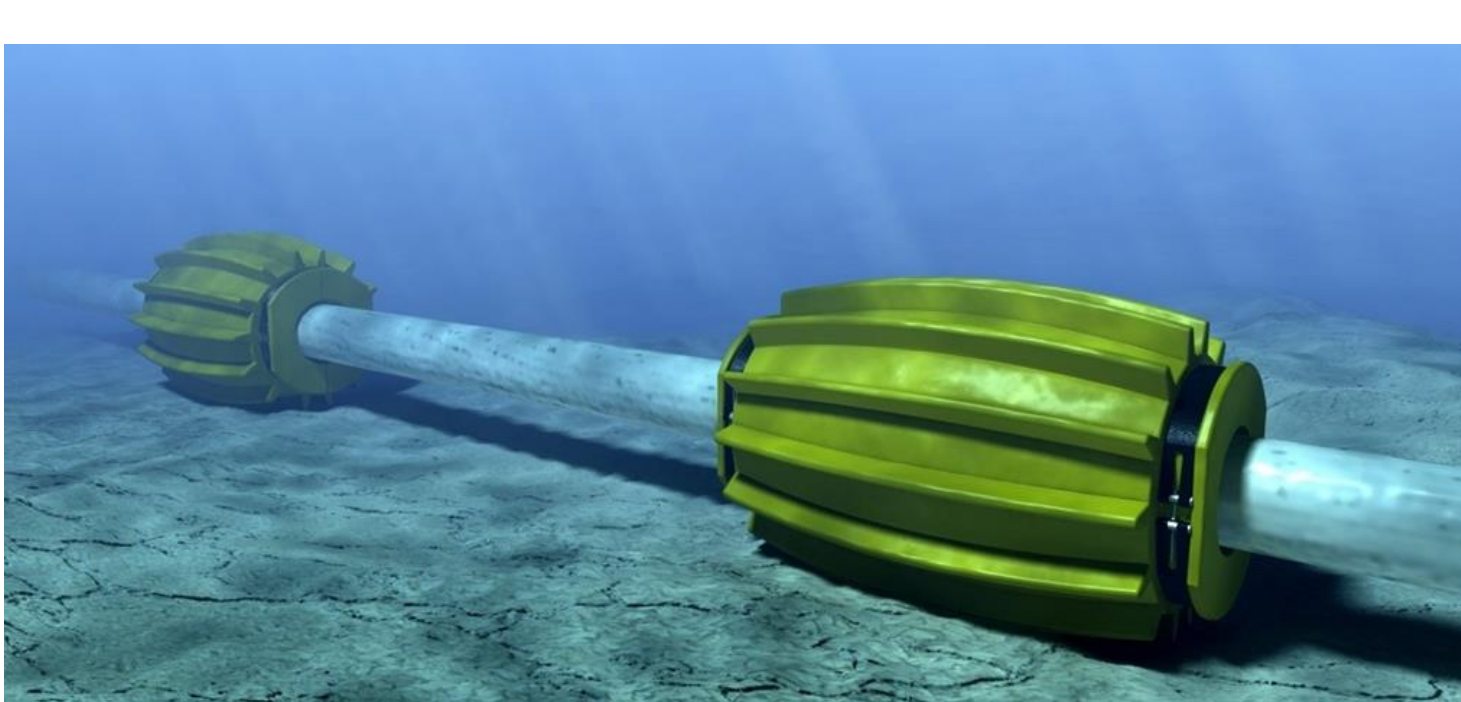
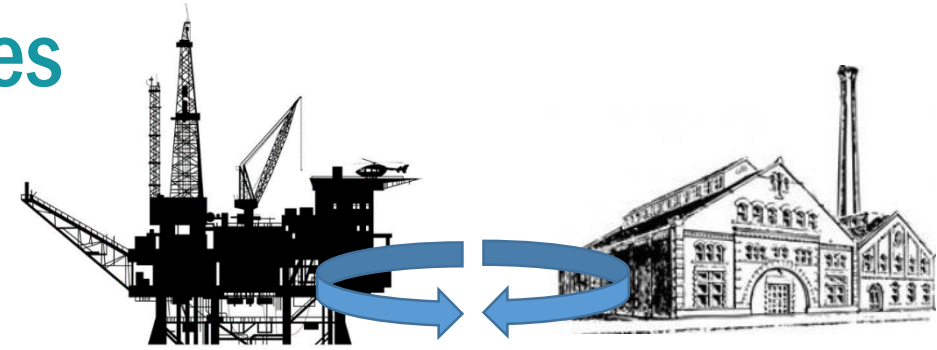


1/50th Scale model of transport shuttle

# In-Field Identified Optimization Opportunities

## Development

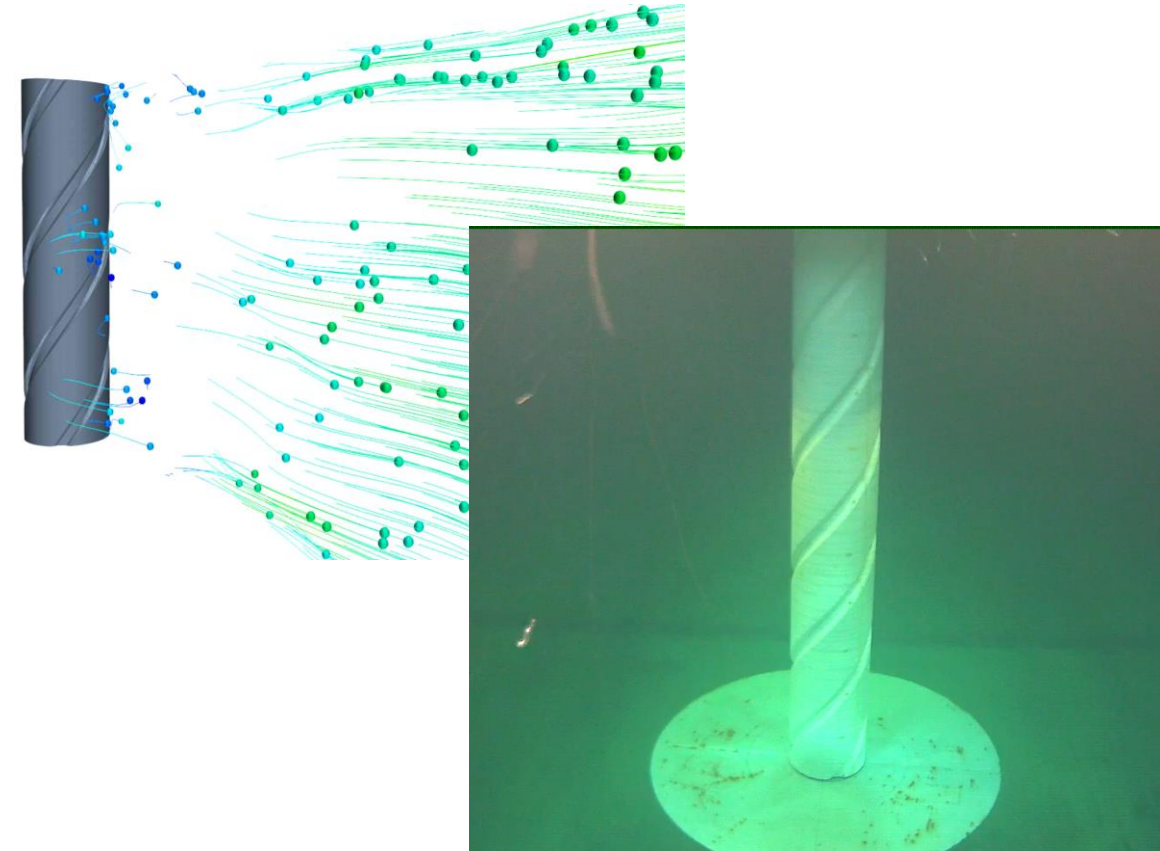
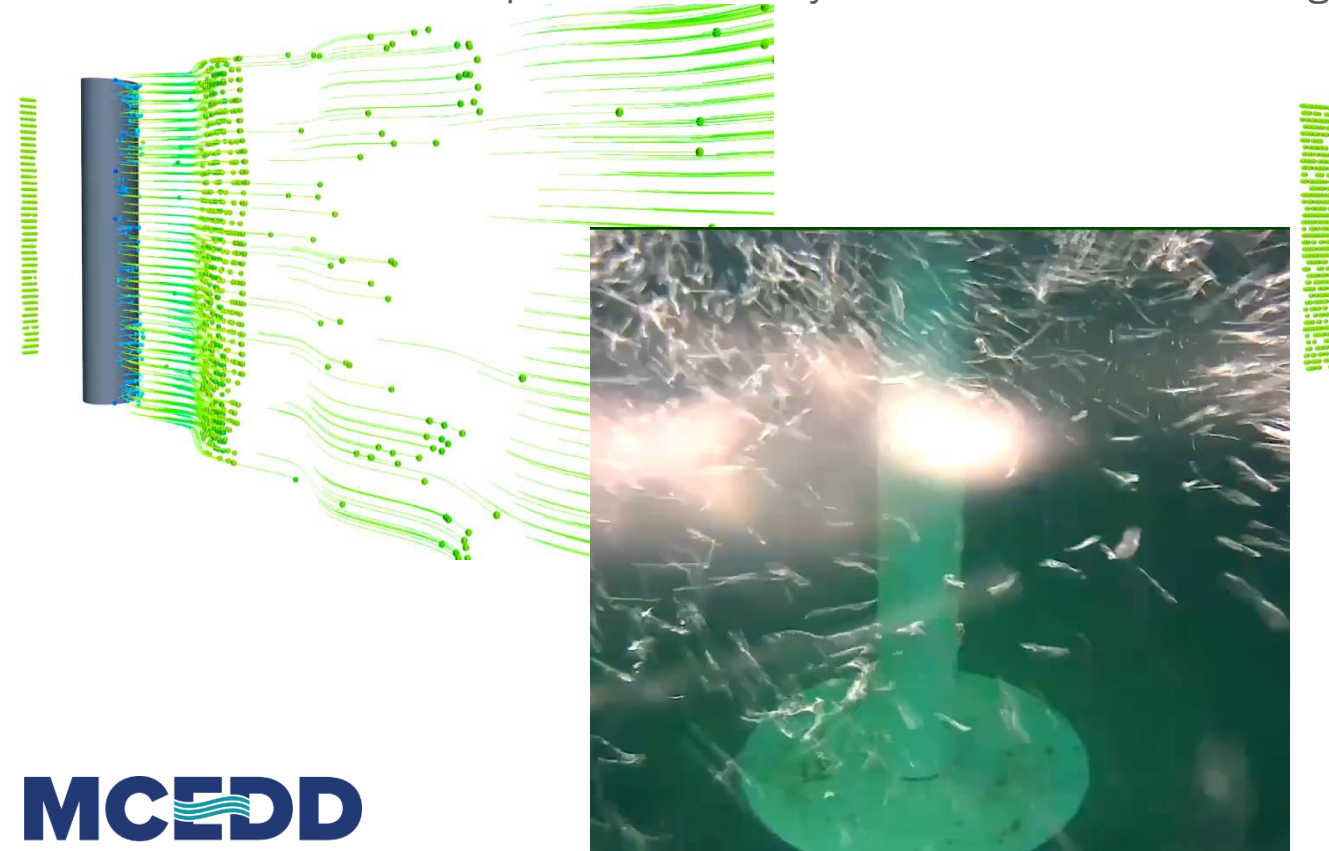
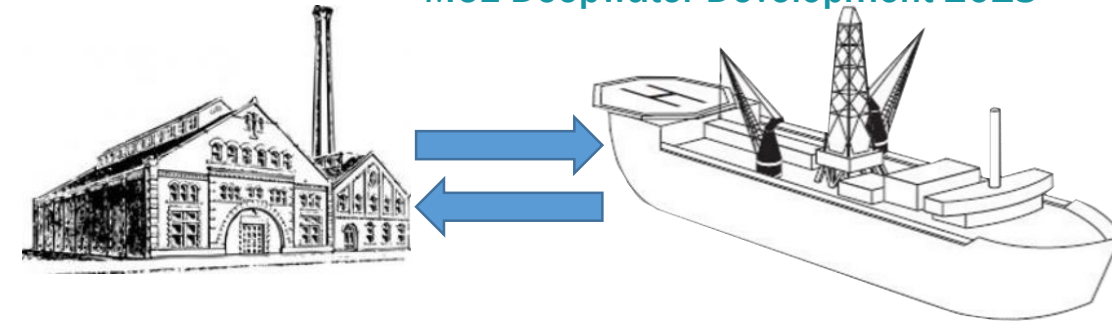
- Joint Development Team:
  - OEM – Design optimization & performance enhancements
  - Operator – Operations & system design/integration experience



# Efficient FEED Qualification

## Prototype

- Joint Development Team:
  - OEM – Computational fluid dynamics (CFD) and system hydrodynamic response
  - Contractor – Computational fluid dynamics and offshore drilling operations

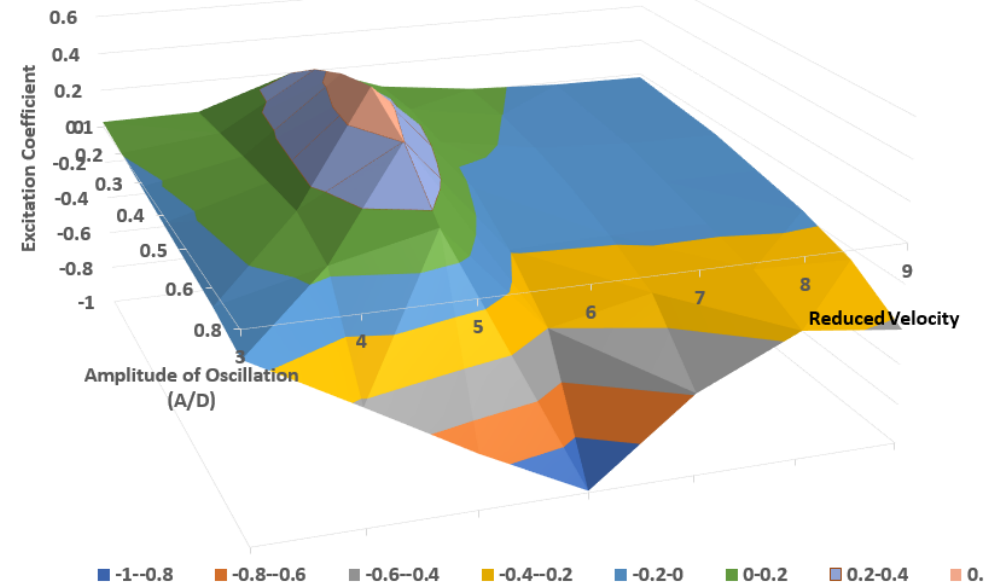
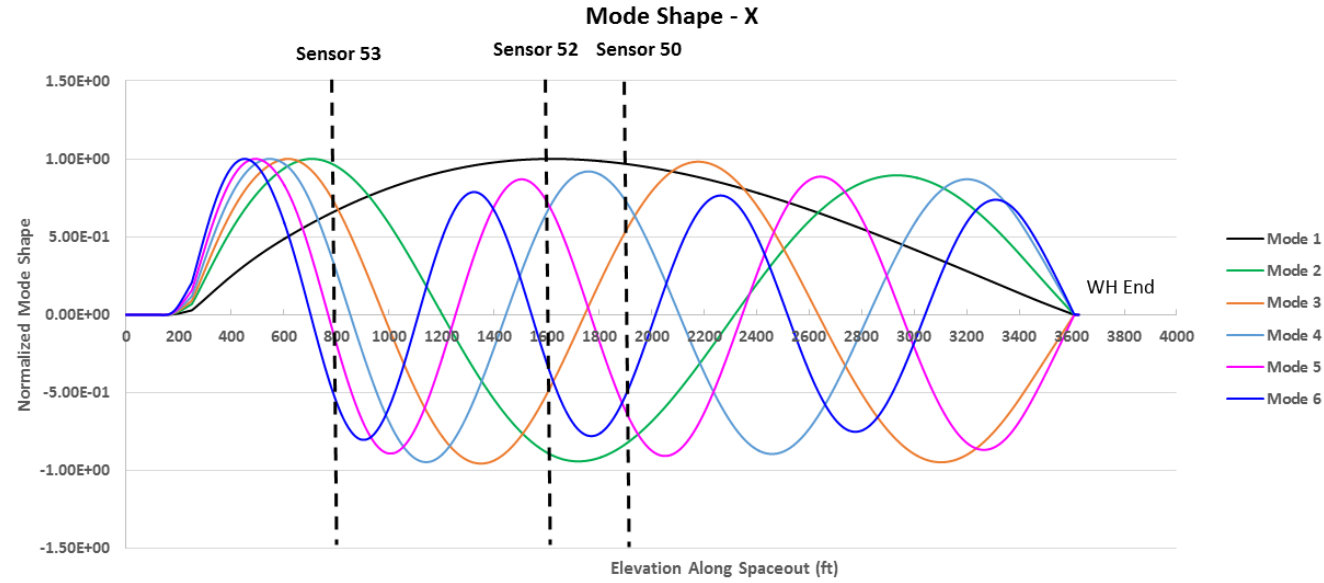
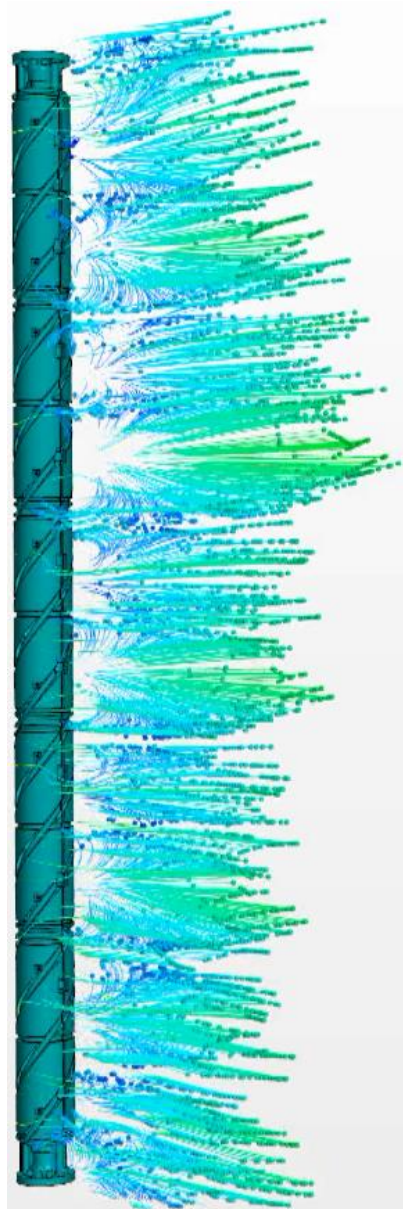
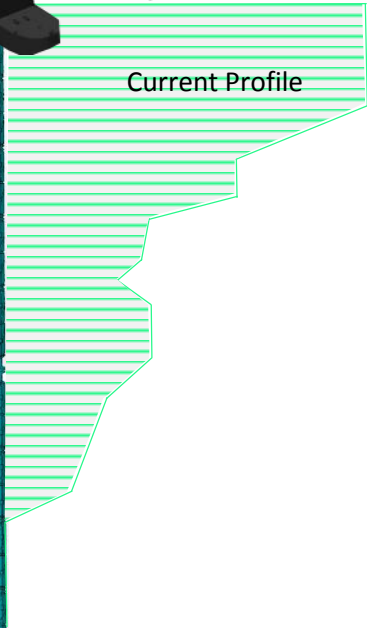


# Combining Data – Advancing Technology

Launch

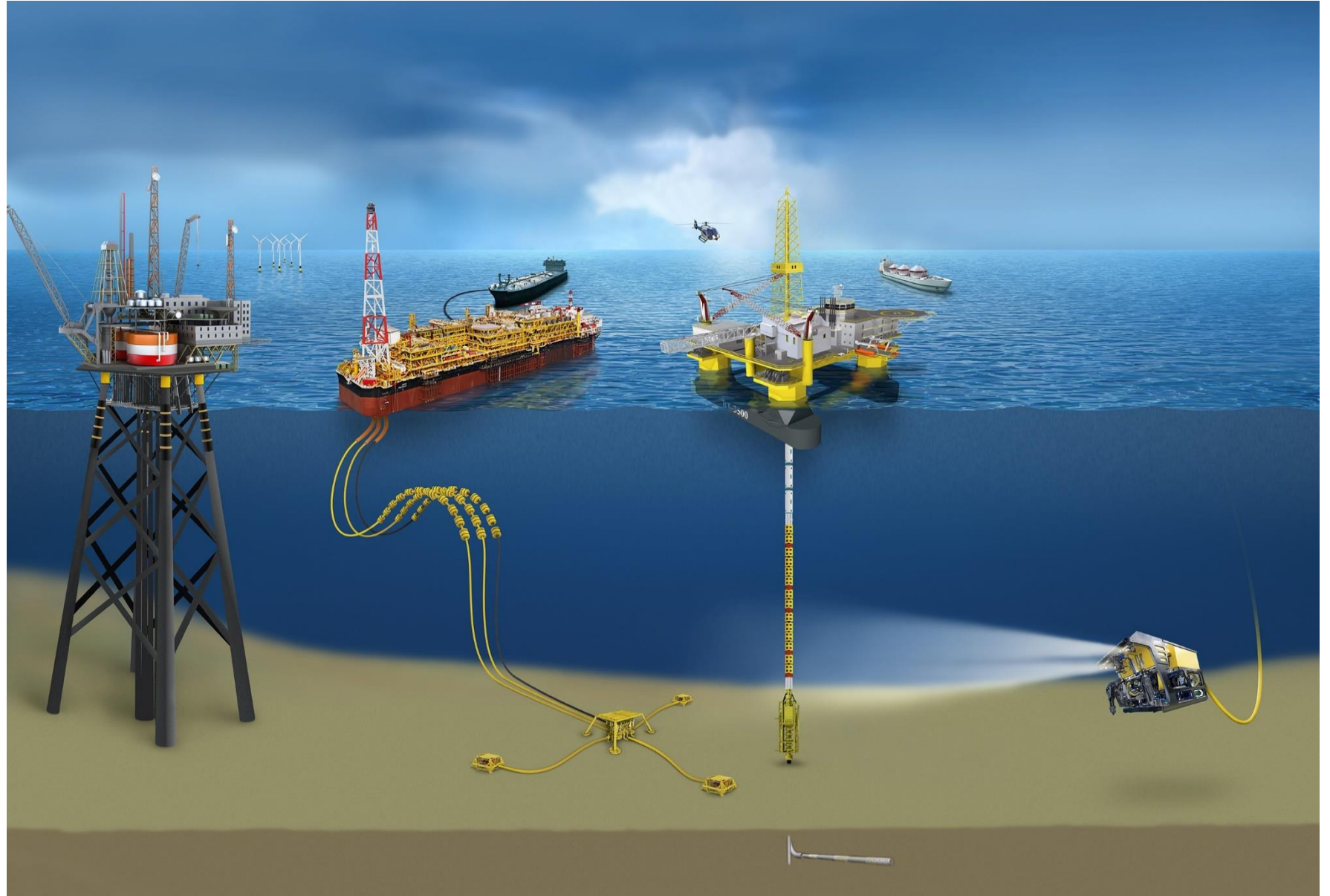


Current Profile



# Deepwater Collaborative Development

- Innovation
- Execution Excellence
- Collaboration



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