



BP's Approach to Smarter Underwater Inspection

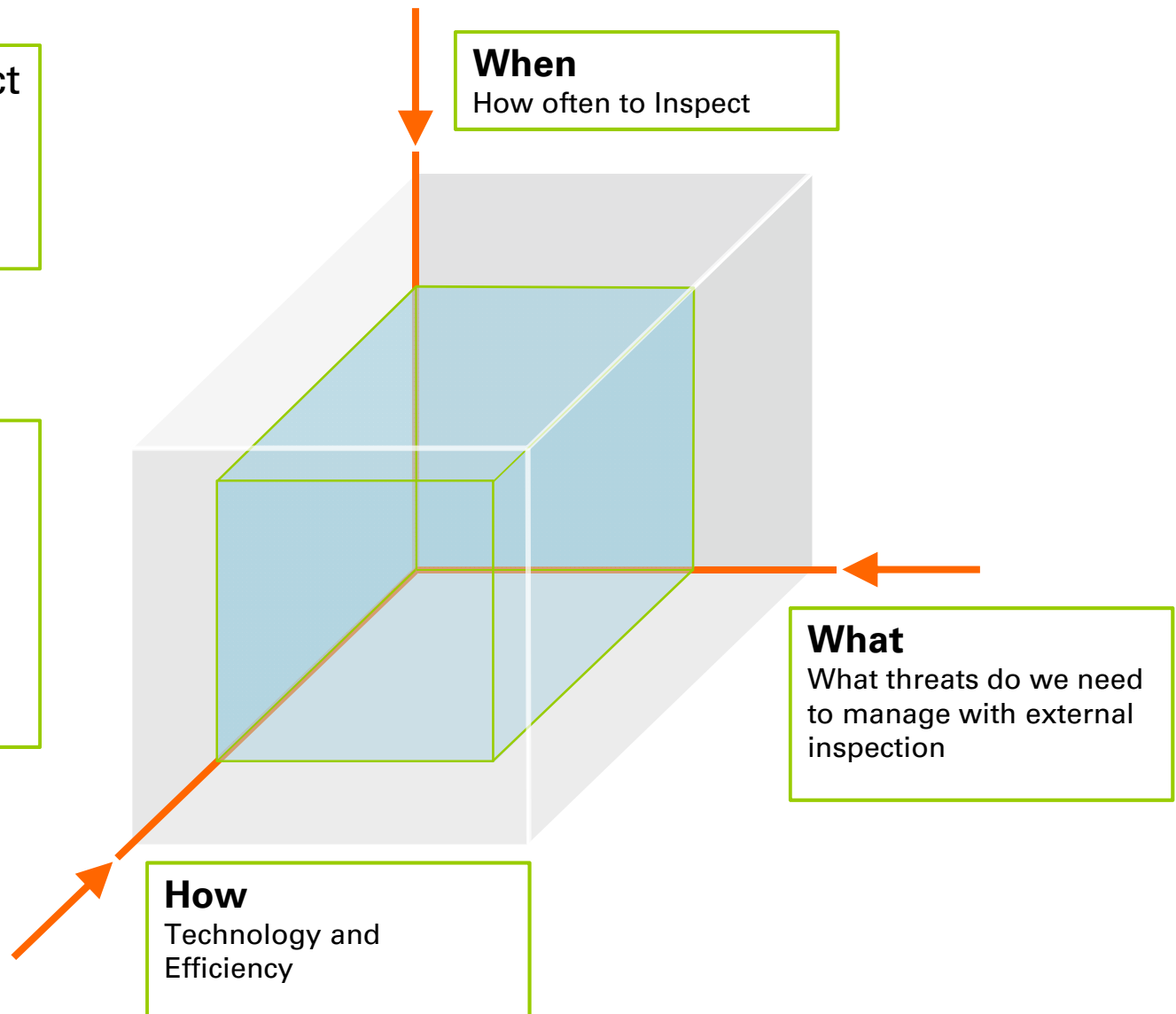
1st Nov 2017

Prize from When, What and How to reduce costs



No negative impact
on safety or
integrity
management

To get 50%
reduction, we can
achieve this by
reducing just 20%
on all 3 axis
 $0.8 \times 0.8 \times 0.8 = 0.5$

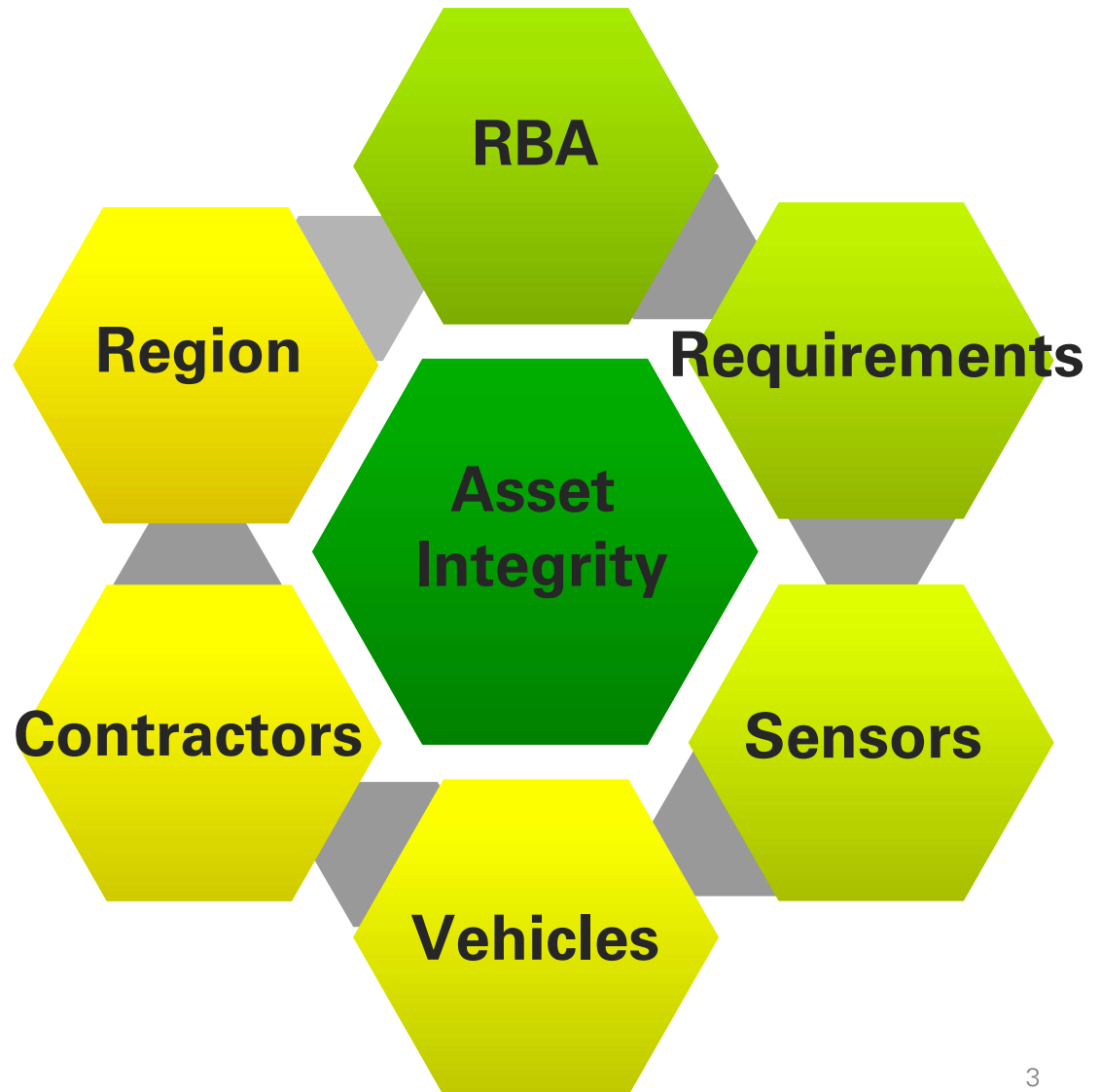


Alternative Inspection – using what is available



Requirements:

- Existing technology
- Increased quality
- Faster execution
- Decreased frequency



Alternative Inspection – using what is available



- Define 'Minimum Requirements'
- Identify technology to meet requirements.
- Focus on sensors, not platform
- Alternative sensors
 - No video / Contact CP
 - Use of Integrated Laser / Imaging
 - Field Gradient CP systems
- Review of Fast ROV and AUV systems
- Optimised configurations of sensor and vehicle to deliver 'Sweet Spot'

Maritime technology



- Autonomous technology will **reshape** the marine sector
- **2018-2020** will be the turning point for marine autonomy.
- Loss of skilled staff and labour cost factors are **accelerating the transition** to autonomy
- **Near real time situational awareness** to address safety and operational needs
- Emerging **regulations** focussed on safety of operation



Where we are heading - operations by 2020?



- Reduction on manned vessel days
- More focus on required data (minimum data)
- Faster interpretation of data (machine learning)
- Deployed Autonomous systems
- Resident systems – beach control
- More blending across disciplines and multiple use of same data

