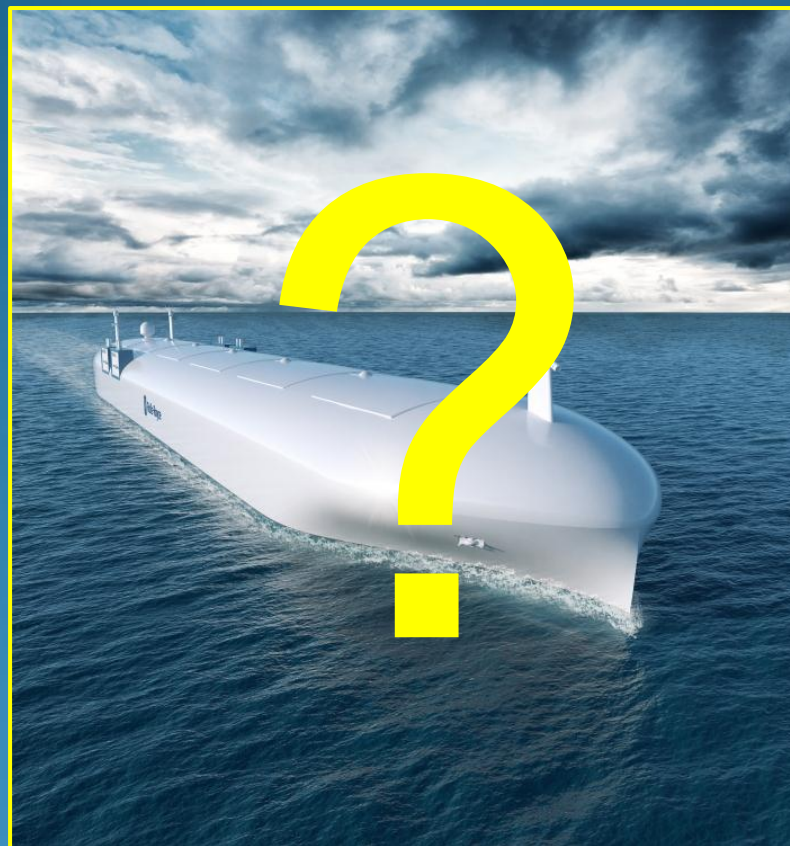


Autonomous Ships: What does the future hold for Shipowners and Operators?



Matthew Williams

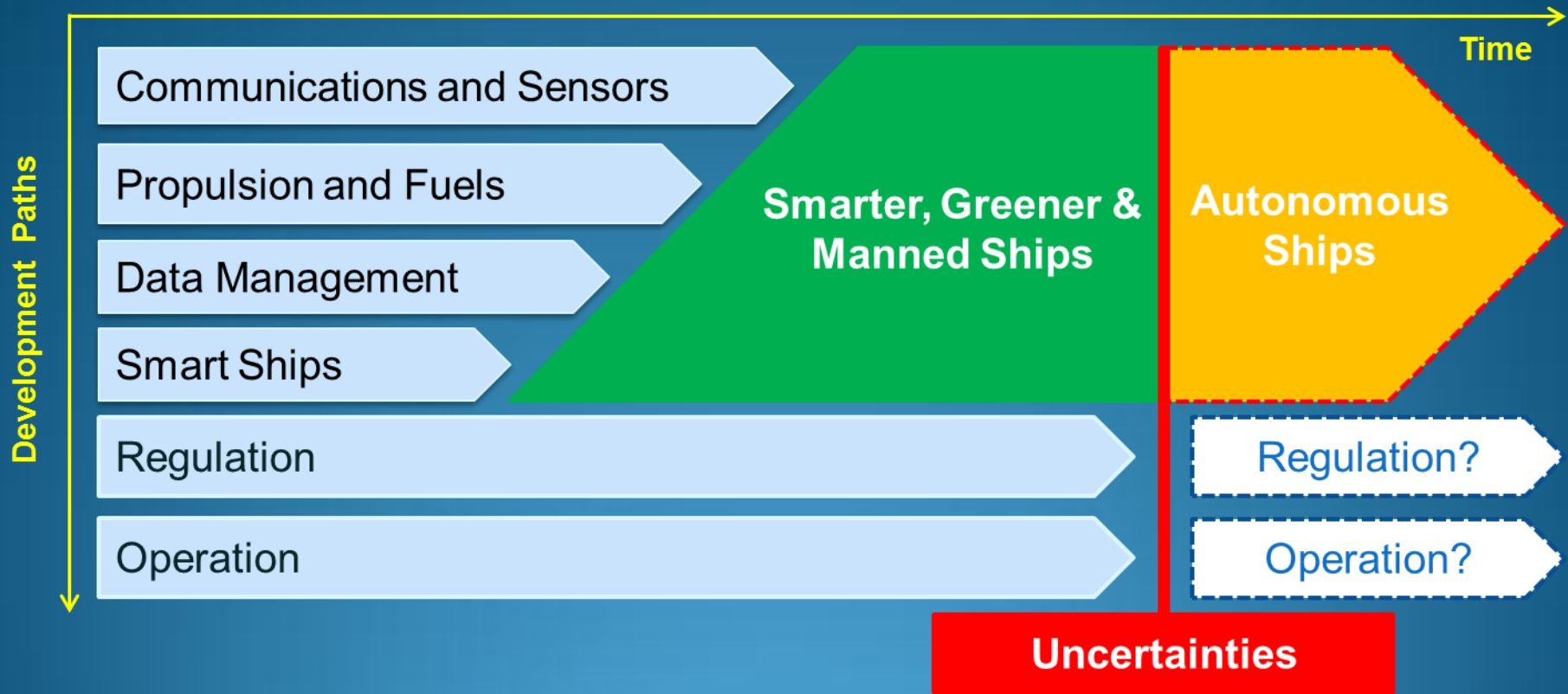
Senior Marine Adviser, International Chamber of Shipping (ICS)

Existing Automation and Remote Monitoring in Ships

- **The Bridge**
 - ECDIS
- **The Engine Room**
 - Machinery management
- **The Board Room**
 - KPI monitoring
- **Why?**
 - Safety
 - Efficiency and competitiveness
 - Environmental sustainability



A Perspective on the Development of Autonomous Ships



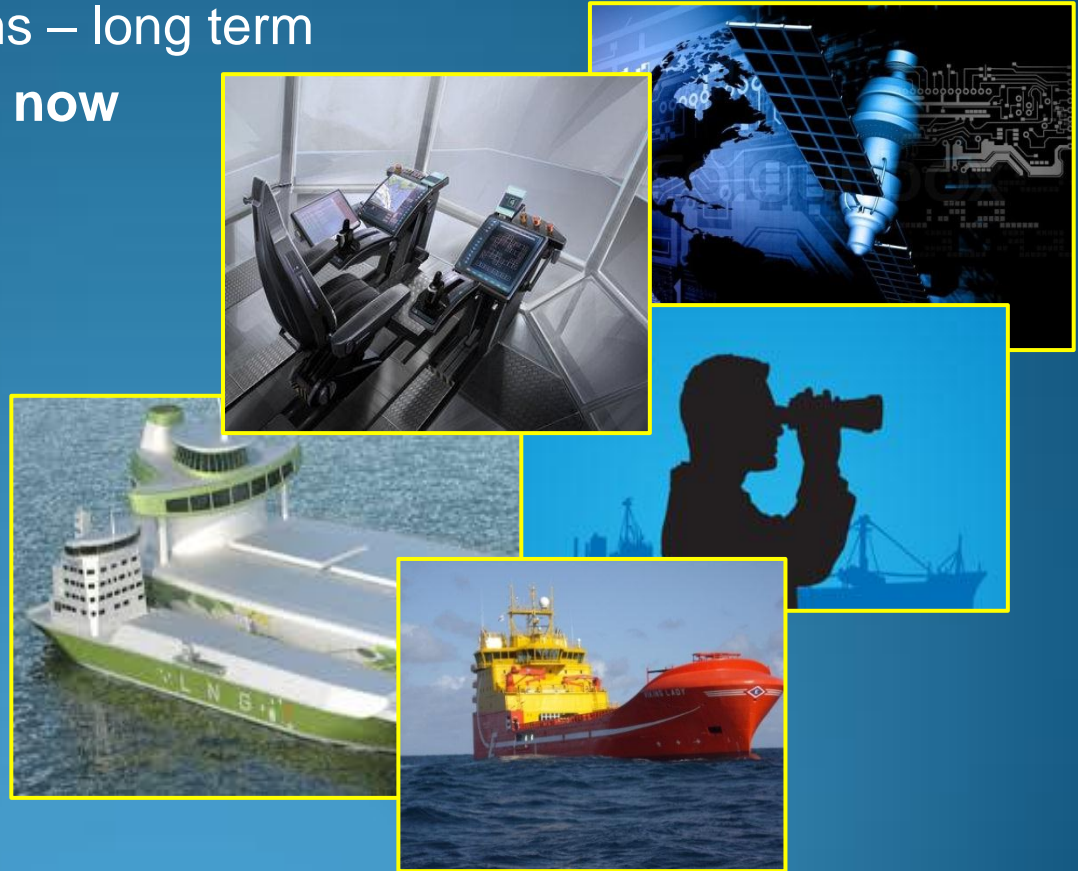
Uncertainties

- Chartering
- Flexibility in Operation
- Port Operations
- Safety and Security
- Regulation
- Niche or Global Workhorse



Planning for the Future

- **Marine Technology Trends**
 - Autonomous systems – long term
- **Exploit opportunities now**
 - Propulsion and Fuel
 - Sensors
 - Communications
 - Smart ships
 - Advanced materials
 - Data Management
- **Manned Ships**
 - Smarter
 - Greener
 - More efficient



*Thank you.
Any Questions?*

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