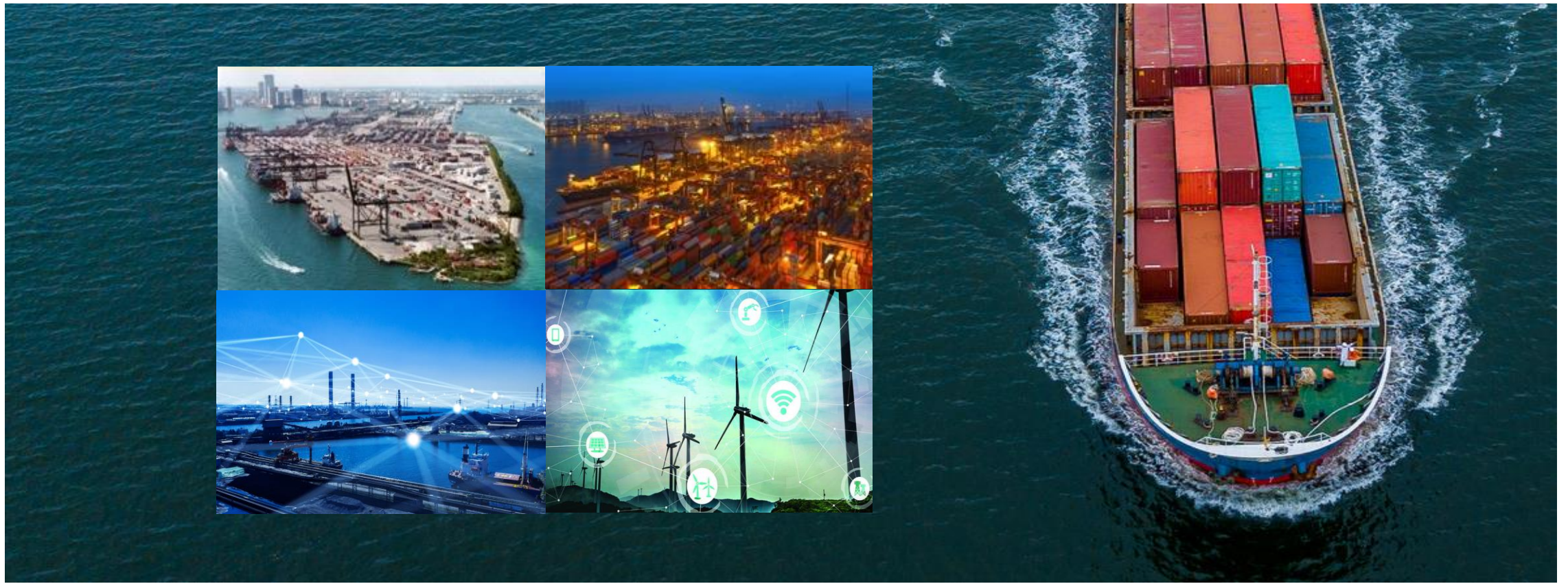




Ships and Fuels of the Future

Digitalization Risks and Rewards

NAMEPA

Maritime's Pathway to 2050

November 2, 2023



HudsonAnalytix, Inc. offers integrated risk management and technical advisory services to the global maritime industry. Clients include:

- Global maritime transportation companies
- Port Authorities & Terminal Operators
- National and regional port systems
- Integrated oil/gas companies
- National oil companies
- Insurance Companies
- Governments



Key Facts:

- Established in 1986
- Worldwide Presence:
 - Philadelphia (Global HQ)
 - Washington, DC
 - London, UK
 - Naples, Italy
 - Piraeus, Greece



Global



Innovative



Experienced



Integrated



SAFETY/ ENVIRONMENTAL

- ✓ Safety
- ✓ Marine Emergency Planning
- ✓ Oil Spill Response Planning
- ✓ Regulatory Compliance and Planning
- ✓ Exercises, training, assessments



SECURITY

- ✓ Terminals, Ports, Ships, Wind
- ✓ Command Control C2
- ✓ Regulatory Compliance and Planning, ISPS, MTSA
- ✓ Exercises, training, assessments
- ✓ Maritime Domain Awareness



CYBER

- ✓ Enterprise-level strategy, investment and planning
- ✓ Capability assessments
- ✓ Regulatory Compliance
- ✓ Threat intelligence



PORT & TERMINAL

- ✓ Port strategic investment and planning
- ✓ Port operations and process assessments
- ✓ Port governance advisory



Consequence Management



Global



Innovative



Experienced



Integrated

Is Digitization driving the Shipping's future?

- Digitalization
- Optimization
- Resilience
- Global focus on “Food Security” & “Energy Security”
- Shipping & Risk Management



Digitalization – Risks and Rewards

Digital systems help make the marine transportation system the most economical, efficient, environmentally friendly way to transport products worldwide.

These same digital systems also create complicated interdependencies, vulnerabilities and risk, and their prevalence in the industry is only growing.”

RADM Wayne Arguin, USCG

Assistant Commandant for Prevention Policy

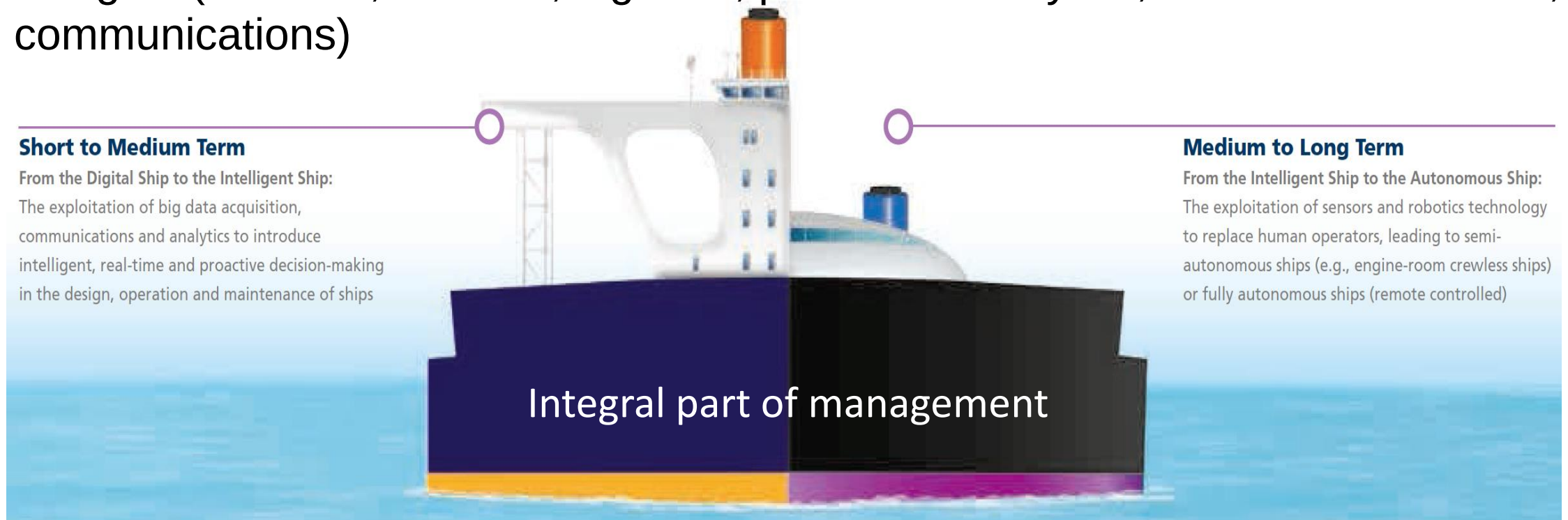
Digitalization: a tool of empowerment for vessel management

- Monitoring
- Data
- Analytics
- AI
- Decision-Making
- Optimization
- Management of Change during Transitions

Performance Monitoring, voyage optimization, machinery maintenance, autonomy

Increased reliance on digitalization

“Smart” ships are a manifestation and exploitation of integrated, networked technologies (Sensors, robotics, big data, predictive analytics, advanced materials, and communications)



Fuels of the Future and Digitization – what is important to know?

Whichever the fuel(s) you determine are right for your vessels, the risks will be essentially the same!



Digitalization intensifies cyber risk

- Vulnerability to Attack – vast attack surface
- Vulnerability to Disruption or Interruption of Service
- Market Intelligence – (your proprietary market data)
- Value of Data

Digitalization intensifies cyber risk

As digitalization grows exponentially, Digital systems need:

- Resilience – equipment health check
- Hardware / Software updates
- Trained workforce
- Remote maintenance
- Cyber Security

WE ARE TOGETHER!

- Strength lies in the weakest link
- Geographic support for digital systems
- Standardized digital protocols
- Mutual Cyber action plans
- Collaboration & Partnerships
- Proactive & Prosilience

Readiness & Resilience

- Unity of effort
- Role of government in defense of private sector
 - CISA Cross Sector Council*
- Assistance to private sector to defend critical infrastructure –
 - USCG Cyber Protection Teams*
- Collaboration in threat intelligence – *MTS - ISAC*
- Importance of international relationships
- Integrated collaborative approach

Prosilience

Thank you!



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