Naval Warfare Evolution

Ancient and
Medieval
Ages

Age of Sail

Industrial Age

Digital Age

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Advances in
Digital Technologies and
Business Models
that will
Transform the Naval Sector

Speaker:

Scott Clark
Vice President
Global Program Director - Defence

visionary
innovation
FROST & SULLIVAN

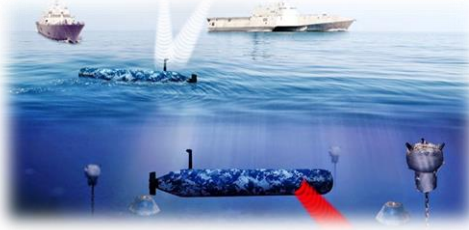*"We Accelerate Growth"*

How Digitalised is Defence?

Product Development
(RDT&E, manufacturing)

Stepping into Manufacturing 4.0
(Rapid prototyping, predictive modelling, 3D printing, automated manufacturing processes virtual reality, real time transport and supply management, etc.)

Image source: NLR, BAE Systems, USN, GE, Diginext Inscapec

Product Deployment
(delivery, applications and operations in battlefield)

Digital Battlespace
(Joint collaborative networks, unmanned systems,, manned-unmanned teaming, evolving architecture of systems, augmented reality, connected wearable devices, etc.)

Product Sustainment
(maintenance, upgrades, retirement)

Improving Product Life Cycle
(Health Usage Monitoring Systems, smart sensors to measure attrition rates, swarm of robots for inspection, Connected Distribution Center Voice Technology etc..)

Digital Technologies

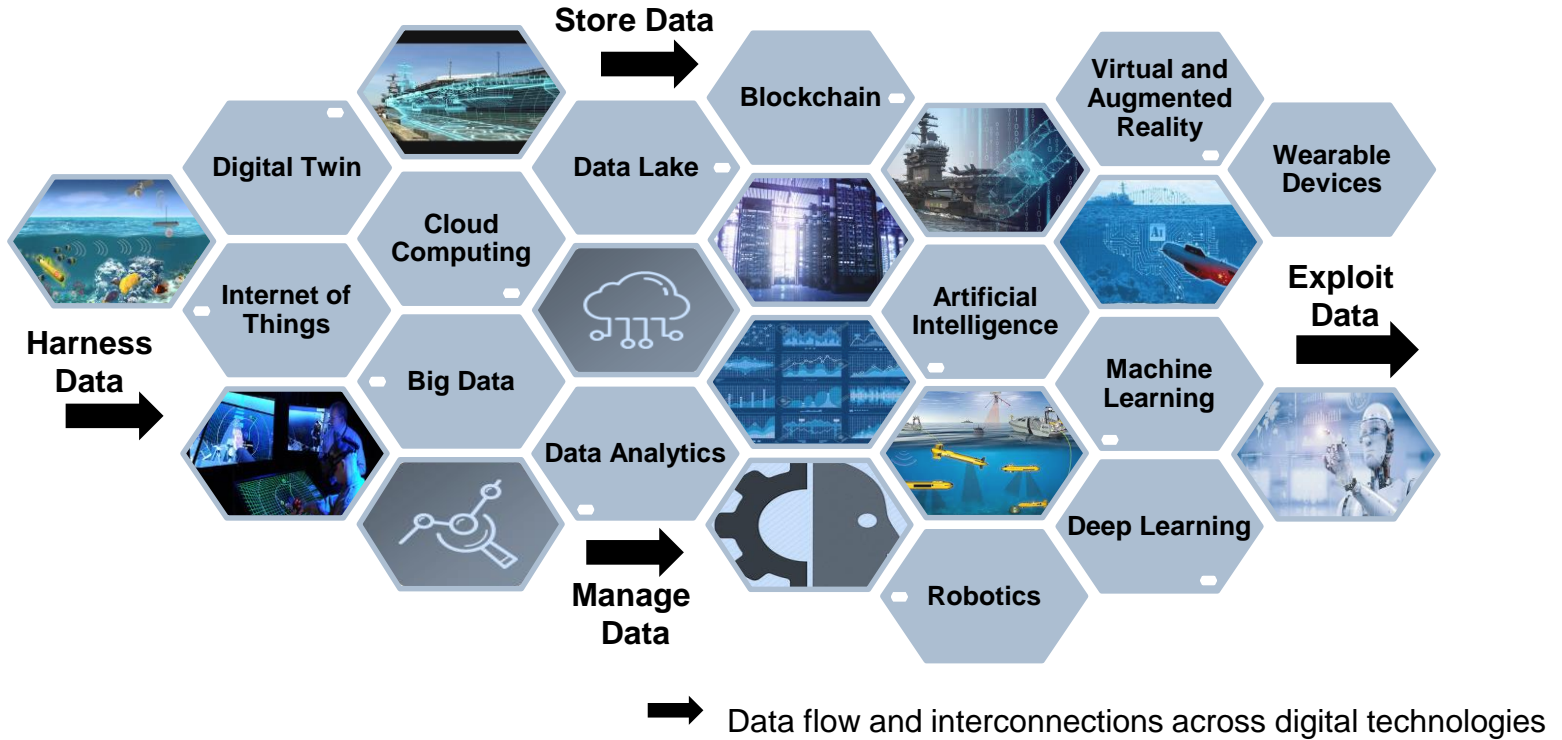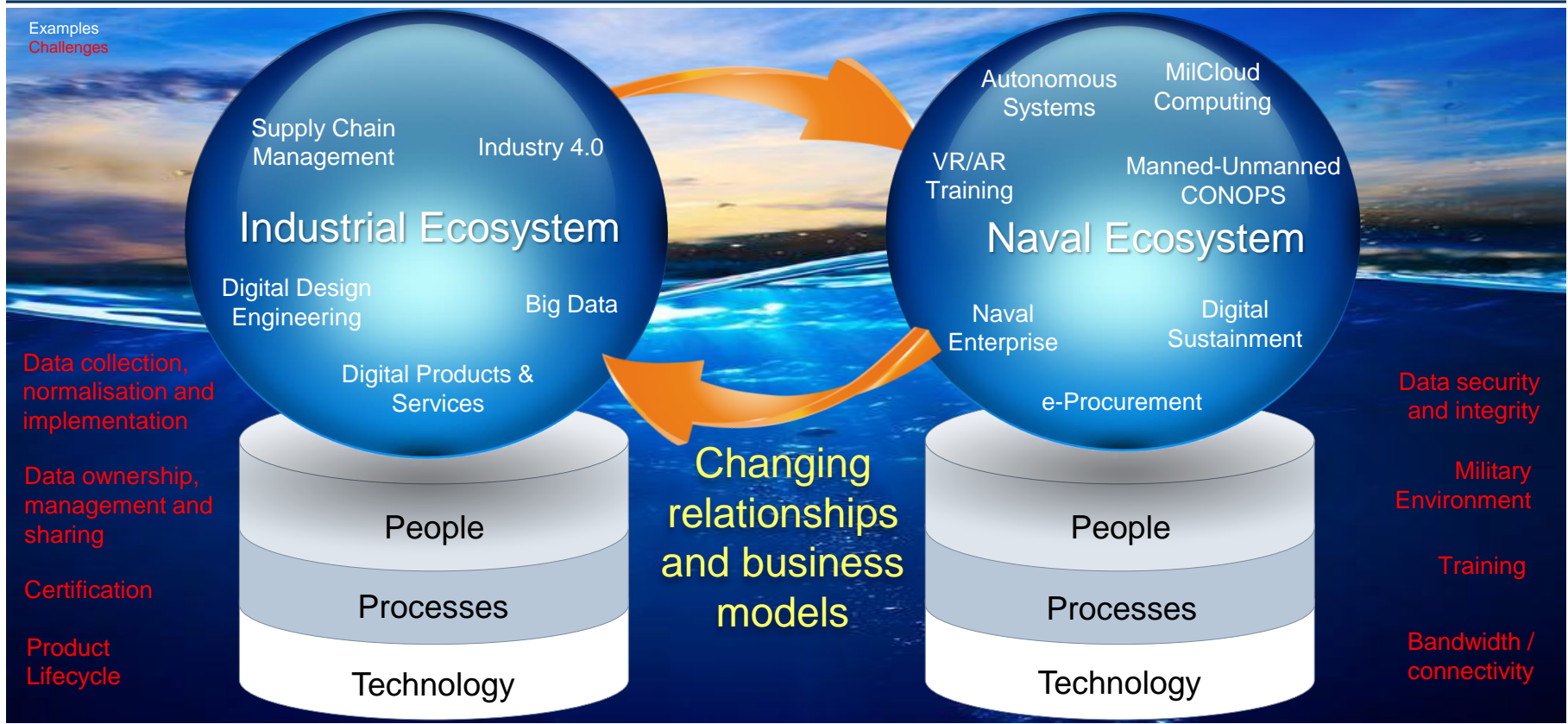Key Leading Digital Technologies Empowering the Digital Transformation

Store Data

Blockchain

Virtual and Augmented Reality

Wearable Devices

Digital Twin

Data Lake

Cloud Computing

Internet of Things

Artificial Intelligence

Exploit Data

Harness Data

Big Data

Machine Learning

Data Analytics

Deep Learning

Manage Data

Robotics

Data flow and interconnections across digital technologies

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Future Navies and Digital Transformation

Examples
Challenges

Industrial Ecosystem

Supply Chain Management

Industry 4.0

Digital Design Engineering

Big Data

Digital Products & Services

People

Processes

Technology

Data collection, normalisation and implementation

Data ownership, management and sharing

Certification

Product Lifecycle

Changing relationships and business models

Naval Ecosystem

Autonomous Systems

MilCloud Computing

VR/AR Training

Manned-Unmanned CONOPS

Naval Enterprise

Digital Sustainment

e-Procurement

People

Processes

Technology

Data security and integrity

Military Environment

Training

Bandwidth / connectivity

New Business Models

Will the military be ready to sacrificed its independence over lower ownership costs on equipment?

Digitalisation in Defence: Assessing Potential Advantages of Business Models

	Main Types of Business Models	Acquisition Costs	Independence/ Freedom of Action	Sustainment Costs	Equipment Availability & Performance	Total Cost of Ownership
Traditional	Government Owned Government Operated (GOGO)	Medium	High	Low	Medium	Financial burden
	Government Owned Contractor Operated (GOCO)	Medium	High	High	Medium	Medium
	Contractor Owned Government Operated (COGO)	High	Medium	High	High	Low
	Contractor Owned Contractor Operated (COCO)	High	Financial burden	High	High	Medium
Incoming	Software as a Service (SaaS)	High	Financial burden	High	Medium	High
	Platform as a Service (PaaS)	High	Low	High	Medium	High
	Information as a Service (IaaS)	High	Medium	High	Medium	High
Future	Access over Ownership	High	Financial burden	High	High	High
	On Demand	High	Financial burden	High	Low	High
	Subscription	High	Low	High	High	High
	Freemium	High	Low	High	Medium	Medium
	Family-Ecosystem	Medium	Medium	Medium	Medium	Medium

Legend: High advantages (green), Medium advantages (yellow), Low advantages (orange), Financial burden (red)