Investing in Big Data & Technology

*Optimizing Costs & Boosting Efficiency*

COMPUTING POWER & BIG DATA
Exponential Growth / Exponential Disruption
Technology and Organizations rate of change: “Exponential” vs. “Logarithmic” Organisations

*Exponential* vs. *Linear* Growth


Investing in Big Data and Technology
Investing in Big Data and Technology

AMAZON LOGISTICS Disruption: Leasing ships as “Active sortation centres”

The ships serve as "active sortation centers" potentially taking advantage of the "anticipatory package shipping" patent from 2013, but on boats (vs. trucks) whereby Amazon predicts demand in every coastal population center and has inventory-in-transit.
AUTONOMOUS NAVIGATION IS DEEP LEARNING AI HEAVY

COMPUTER VISION AND DEEP NEURAL NETWORK PIPELINE

DRIVE PX 2 platforms are built around deep learning and include a powerful framework (Caffe) to run DNN models designed and trained on NVIDIA DIGITS™. DRIVE PX 2 also includes an advanced computer vision (CV) library and primitives. Together, these technologies deliver an impressive combination of detection and tracking.

Nvidia’s bet on deep learning and autonomous cars drives stock to record highs

By Therese Poletti
Published: Aug 11, 2016 8:17 p.m. ET
Deep learning technology for cybersecurity

WHAT WE OFFER

INSTINCTIVE DEFENSE

REAL-TIME APT DETECTION AND PREVENTION
Against first-seen, malicious activities on the organization’s entire assets.

ACCURATE PREDICTION OF UNKNOWN CYBER THREATS
Unprecedented accuracy. Predictive capabilities through proprietary deep learning algorithms.

EASY DEPLOYMENT
Simple and fast, seamless. Light agents with no impact on the user experience.

CONNECTIONLESS COVERAGE
Direct, connectionless, immediate action on any device.

INFRASTRUCTURE AGNOSTIC
Any device, any OS, any mobile, any server.

Investing in Big Data and Technology
Too many sensors producing little insight and actions - the untapped data treasure trove in the offshore industry
Size of Price – Power Industry

- Customer Outcomes:
  - Fuel Efficiency: 3% Increase
  - Output: 2% Increase
  - Unplanned Downtime: 5% Decrease
  - O&M Costs: 25% Decrease
  - Less Fuel on Starts: 20% Decrease

- Business Optimization
  - Deeper Insights
  - Profitability

- Operations Optimization
  - Better, Faster Decisions
  - Productivity

- Asset Performance
  - Real-Time Actions
  - Reliability

- Predix

- Advanced Controls / Edge Computing

- Cyber
BIG DATA & TECHNOLOGY into SHIPPING: Cyber-enabled Ship

Or the implications of adoption of **DIGITALISATION and CONNECTIVITY** in Shipping
Autonomy levels (AL) for Cyber-enabled Ships

- **AL0**: Manual – no autonomous function
- **AL1**: On-ship decision support
- **AL2**: On and off-ship decision support
- **AL3**: ‘Active’ human in the loop
- **AL4**: Human on the loop – operator/supervisory
- **AL5**: Fully autonomous (& rarely supervised)
- **AL6**: Fully autonomous (& with no supervision)
Cyber CBM? – From “not working” to advanced data-driven algorithms

Periodic Inspection and Maintenance

Investing in Big Data and Technology
Cyber-enabled Ships – Four Streams Interacting

- **Cyber-SAFE**: Minimum Standards of SAFETY
- **Cyber-SECURE**: Additional investment commensurate with risk exposure
- **Cyber PERFORM**: OPTIMISE Performance / PREDICT for Competitive Advantage / Minimise Human-related impact
- **“Digital COMPLIANCE”**: Take Advantage of your investment in “Cyber”

Investing in Big Data and Technology
Luis Benito  
Innovation Strategy and Research Director  
Lloyd’s Register Marine & Offshore  

M +44 (0)330 414 0073  
E luis.benito@lr.org  

Lloyd’s Register and variants of it are trading names of Lloyd’s Register Group Limited, its subsidiaries and affiliates.  
Copyright © Lloyd’s Register Group Limited. 2016. A member of the Lloyd’s Register group.