EXPONENTIAL GROWTH

50 YEARS OF CONTAINER SHIP GROWTH

1968  Encounter Bay 1,530 tau
1972  Hamburg Express 2,950 tau
1980  Neptune Garnet 4,100 tau
1984  American New York 4,600 tau
1996  Regina Maersk 6,400 tau
1997  Susan Maersk 8,000+ tau
2002  Charlotte Maersk 8,890 tau
2003  Anna Maersk 9,000+ tau
2005  Gjertrud Maersk 10,000+ tau
2006  Emma Maersk 11,000+ tau

Approximate ship capacity data: Container-transportation.com; AGCS

Safety and Shipping Review 2019

Container-carrying capacity has increased by around 1,500% since 1968 and has almost doubled over the past decade

2012  Marco Polo (CMA CGM) 16,000+ tau
2013  Maersk Mc-Kinney Moller 18,270 tau
2015  MSC Oscar 19,000+ tau
2017  OOCL Hong Kong 21,413 tau
2019  ? 24,000 tau

Source: Allianz Global Corporate & Specialty (AGCS)
Benefits include:
- Economy of scale for shipping companies
- Maximizing moves per vessel movement for terminals

Challenges include:
- Deeper & wider channels
  - Continued dredging / maintenance of channels and berths.
- Raising Bridges
- New Cranes & productivity pressures (more moves in same time)
- Terminal storage capacity
- Upgraded bollard SWL and docking impacts – quay utilization rate / layout
- More powerful tugs
- Pilot training
- VTS Impacts – traffic control issues
- Cargo accumulation – including Hazmat & Reefers
• There are both primary and secondary exposures.
  − Secondary exposures are introduced as the 11,000 to 14,000 TEU vessels are pushed into smaller feeder service roles calling at ports that cannot support them, and do not have the capital to invest in upgrades. South American & African ports are prime examples.

• The overall supply chain productivity should be studied and not just the ocean transport leg of the journey.

• In many cases the supply chain stakeholders have not been involved in the conversation.

• Loss exposures as a result of having these vessels in supply chain.
  − Potential GA Exposures
  − Complicated Salvage scenarios

• Does a complex automated port infrastructure have a higher risk profile?
  − Cyber exposures
  − NatCat exposures
  − Single channel navigation limitations vs. secondary channels
ANSWERS TO THE CHALLENGES

• Automation of existing to address both costs & speed – fully or semi automated

• Densifying operations on the same existing footprint
  • There is too much focus on vessel productivity and not enough focus on overall supply chain efficiency

• Engage supply chain stakeholders

• Challenges include:
  – Up front cost
  – Difficulty in upgrading an existing facility
  – Availability of land & permitting
  – Labor issues