

HICOL



VTT

Evaluation of monetary impacts of cyber-attacks on global supply chains in port

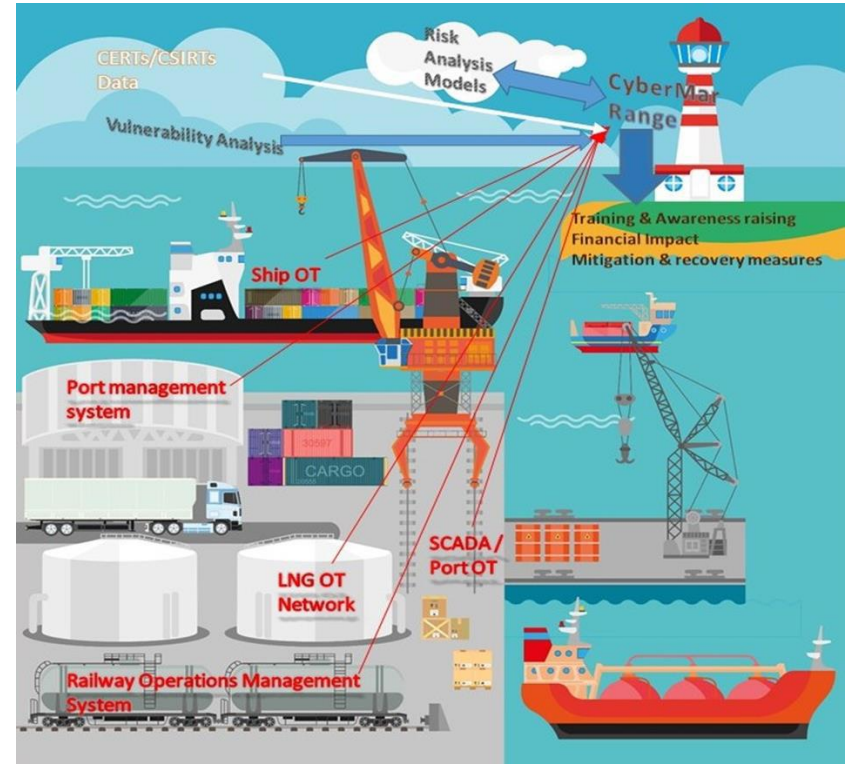
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18/11/2022 VTT – beyond the obvious

Cyber-MAR Project at a glance

Cyber-MAR takes advantage of cyber range environment and adopts a three-tiered approach targeting at:

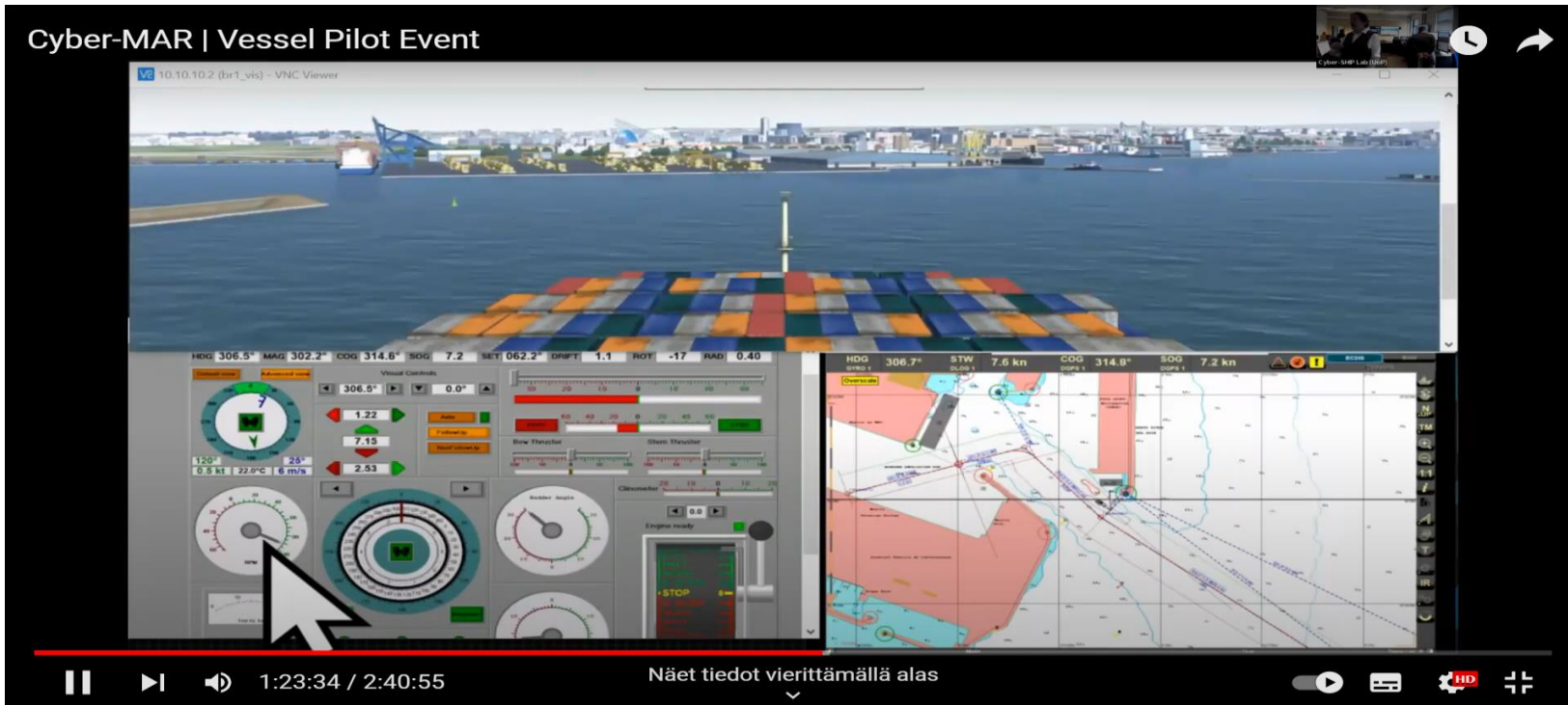
- **People:** Continuous training through involvement in pilots, training sessions and familiarised with Cyber-MAR platform
- **Technologies:** Test technologies and identify complex vulnerabilities
- **Procedures:** Uncover areas for improvement and deficiencies in current procedures followed



Vessel pilot 5th of May 2022

Scenario: A large cargo ship blocks the main entrance to the port of Valencia due to cyber attack to ship's control system causing severe disruptions to the port operations and connected supply chains

Location: University of Plymouth, Cyber-SHIP Lab



Modelling the impact – key factors

1. Effects to port throughput
 - Disruptions within port area, regional effects

2. Wider effects to global supply chains
 - Operational, monetary, cascading effects

3. Time element is crucial
 - Time of disruption time vs. recovery time

Abstract

Purpose: This paper presents, what kind of impacts different types of cyber-attacks have in port environment and aims to evaluate economic losses of various types of disruptions in port environment. Based on the information about monetary losses of possible cyber attacks, the organization have better possibilities to estimate the value of investments for preventing those attacks.

Methodology: This paper applies development econometric model, which has the capability of quantifying the indirect economic impact of port disruptions caused by cyber-attacks on global supply chain. The used quantitative risk model emulates major component of global supply chains and their uncertainties to estimate the economic losses resulting from contingent business interruption caused by disruptions to a given supply chain node – in this case, disruption to port

Abstract



Findings: The demand for high-level resilience in global maritime supply chains, in addition to better business continuity management, is becoming increasingly important as global markets seek rapid responses to change. Based on used econometric model, even small disruptions in a port can cause significant monetary losses and problems in supply chains.



Originality: This paper contributes on supply chain resilience literature by evaluating indirect impacts on cyber-attacks on global supply chain by focusing on port environment. Connecting cybernetic and physical environments

Thank you for your attention !

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