RESILIENCE AND DEPENDENCY CONCEPTS FOR SUPPLY CHAINS
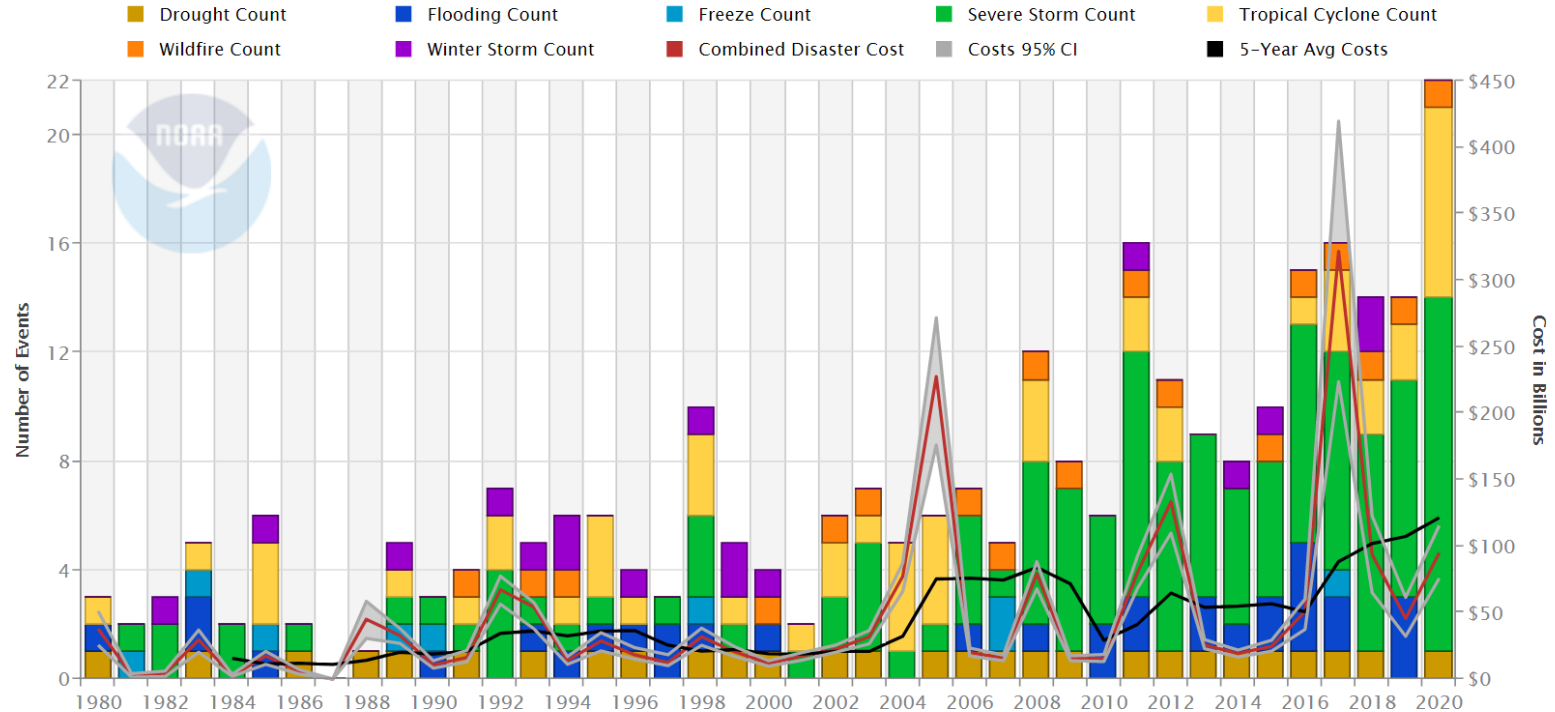
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RILA Energy Resiliency in the Supply Chain Webinar: Transportation + Sustainability Series

July 28, 2021

2020 BILLION-DOLLAR CLIMATE DISASTERS

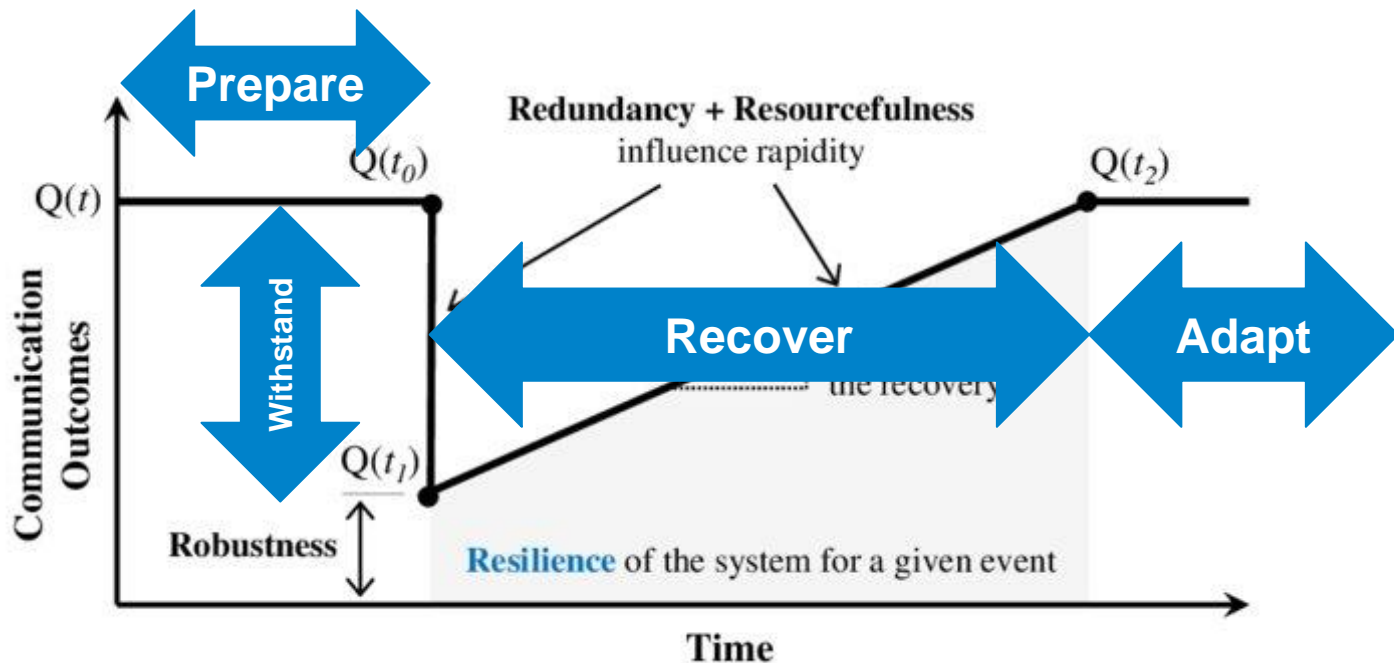United States Billion-Dollar Disaster Events 1980–2020 (CPI-Adjusted)

RESILIENCE

The ability to **prepare** for and **adapt** to changing conditions and **withstand** and **recover** rapidly from disruptions.

CONCEPTUALIZING DISASTER RESILIENCE
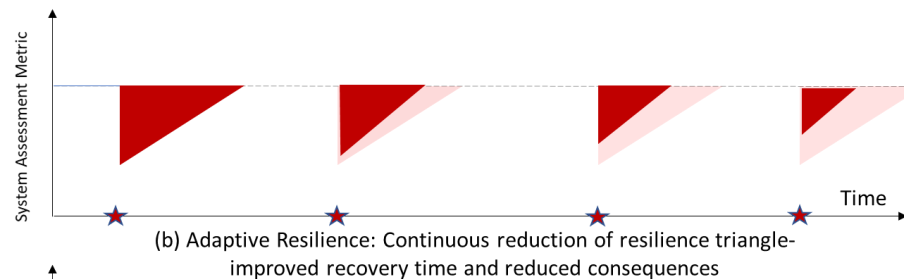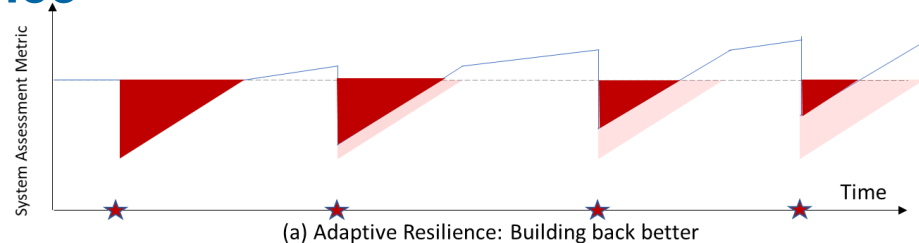## Resilience Triangles / Curves

Resilience Elements
1. Prepare
2. Adapt
3. Withstand
4. Recover

CONCEPTUALIZING DISASTER RESILIENCE

Adaptive Resilience

- **Build Back Better**

- **Improve Response & Recovery**

- **Improve Robustness to Disruption**

(a) Adaptive Resilience: Building back better

(b) Adaptive Resilience: Continuous reduction of resilience triangle-improved recovery time and reduced consequences

(c) Adaptive Resilience: Improving disruption threshold
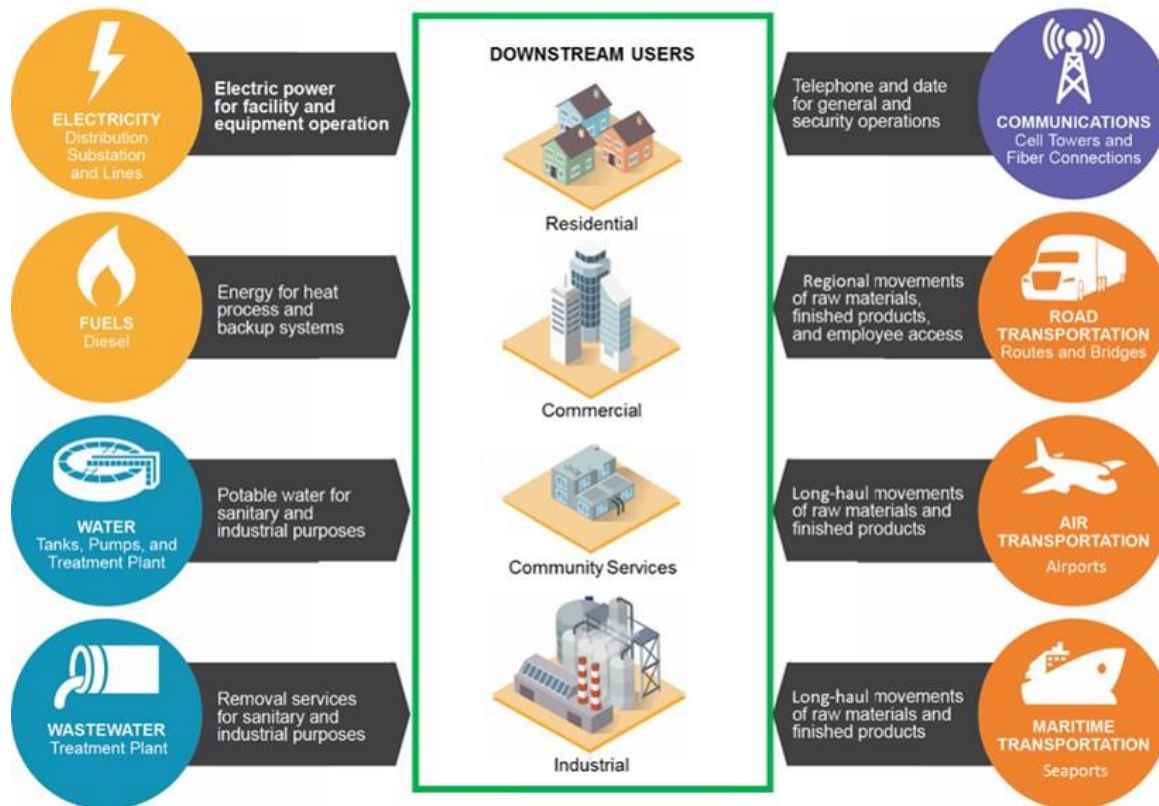
Legend

★ Disruptive event occurrence

▰ Resilience loss for each future event

◤ Baseline resilience loss (without any AR strategy in place)
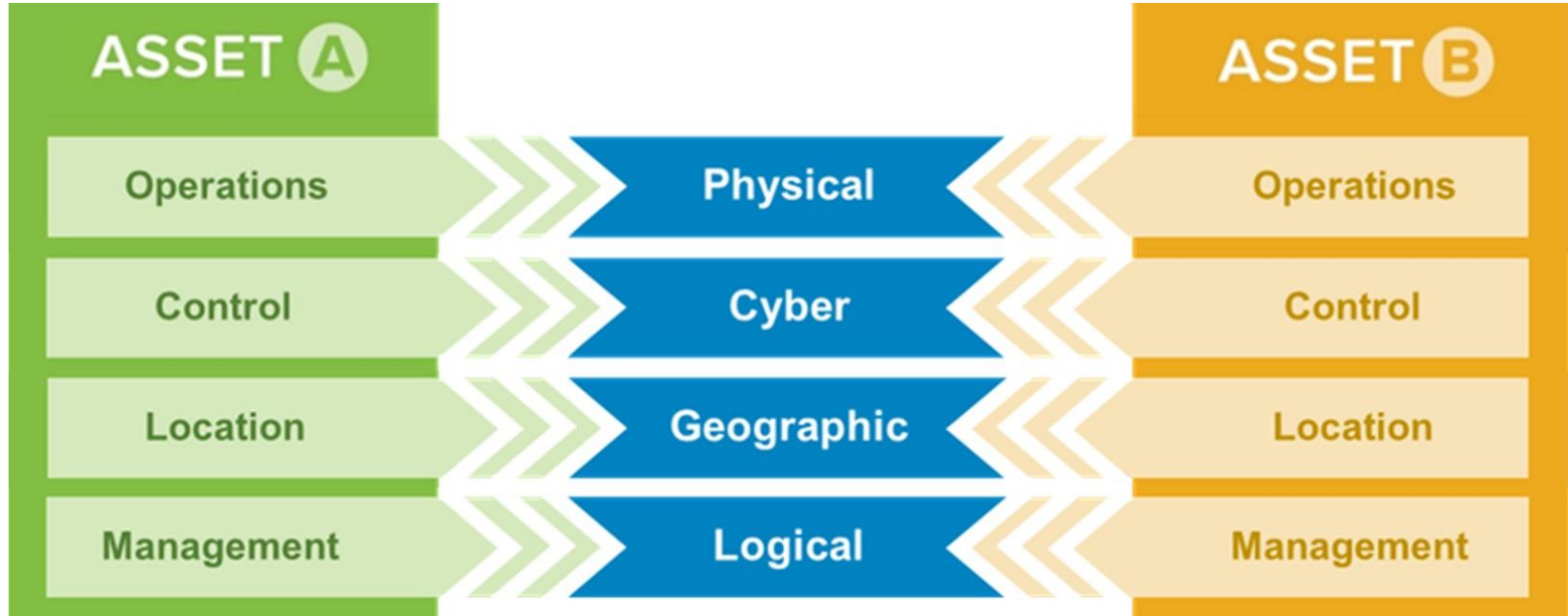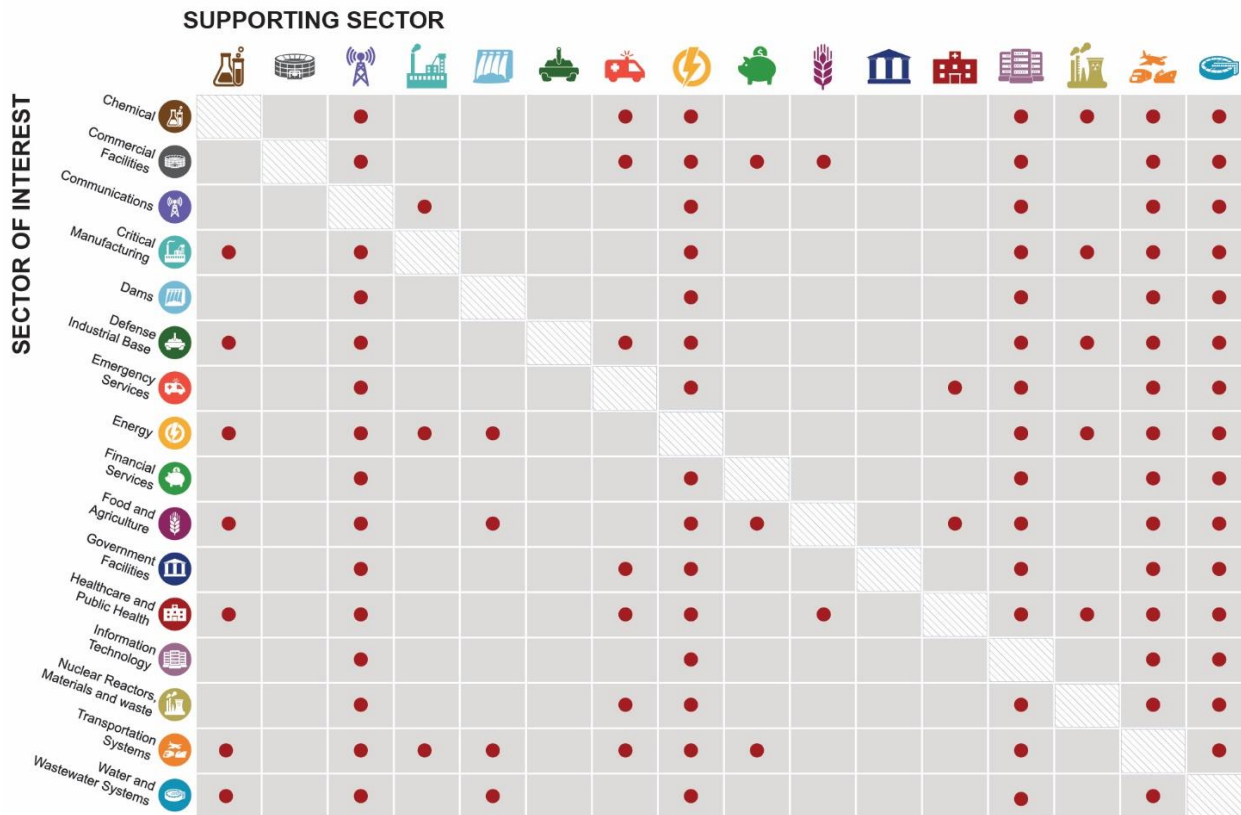
INFRASTRUCTURE DEPENDENCIES

INFRASTRUCTURE DEPENDENCIES

INFRASTRUCTURE DEPENDENCIES

THANK YOU

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INFRASTRUCTURE DEPENDENCIES

Dependency – *"linkage or connection between two infrastructures, by which the state of one infrastructure influences or is reliant upon the state of the other"* *(Rinaldi, Peerenboom, and Kelly, 2001)*
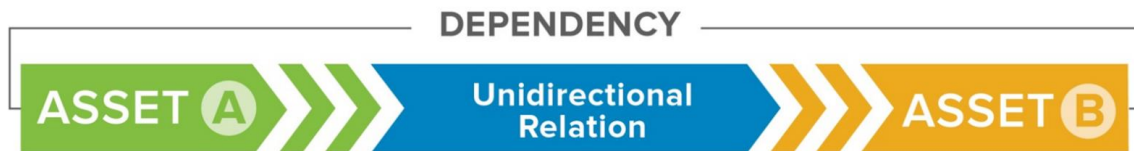
(Petit et al., 2015)

Interdependency – *combination of two or more dependencies between infrastructures in which the state of each infrastructure influences or is reliant upon the state of the other*

(Petit et al., 2015)