Supply Chain, Transportation and Distribution Systems Resilience

Global Resilience Institute
at Northeastern University

Criminals and other nefarious actors target the global supply system to steal goods and to smuggle contraband. Narcotics, weapons, cash, hazardous waste, and counterfeit goods routinely move through the global supply system; cargo theft and trade fraud remain ongoing challenges. This is true despite the myriad post-September 11, 2001 initiatives that have aimed to bolster port and cargo security.

The problem is not just that contraband finds its way into containerized cargo carried by trucks, trains, and ships. It is also that the intermodal transportation system is the conveyer belt for the international trade system. Should the flow of containerized cargo be disrupted for more than a few days, it would sever the worldwide supply chains that connect suppliers to consumers. The result would be immediate shortages of pharmaceuticals, auto and machine parts, health-care supplies, and virtually everything that can be found in Walmart and Target. Assembly lines would grind to a halt, and stores would run out of stock to put on their shelves.

What would lead to the disruption of this system? Natural disasters and transportation labor issues have wreaked havoc locally and regionally in the past, but the system has been able to devise workarounds. The biggest risk would be a major security incident that leads public officials to order stepped-up inspections for all inbound containers, causing almost immediate system-wide congestion as ships were delayed from offloading their cargo. Port terminals would run out to space to hold the outbound boxes arriving by trucks and trains, and the intermodal transportation system would end up in gridlock. It would take weeks to clear the backlogs.

Such a scenario remains all too real because existing arrangements all fall considerably short of meeting three imperatives required to safeguard the global supply system. First, security measures should deter criminals and terrorists from trying to exploit or target the system. Second, should deterrence fail, security measures should boost the odds that contraband (including a smuggled weapon of mass destruction, or WMD) could be successfully detected and intercepted. Third, even in the worst-case such as a terrorist organization that successfully pulls off an attack by using a container as a "poor man's missile," there should be the means in place to quickly conduct the forensics to isolate where and how the security breach occurred. In short, there must be sufficient confidence in the safeguards in place that an incident does not trigger the kind of response witnessed on September 11, 2001.

The Global Resilience Institute (GRI) has the expertise to guide efforts in safeguarding the global flows of containerized cargo. GRI can provide solutions that move beyond a primary reliance on government efforts to detect and intercept dangerous contraband within supply chains to one that fully engages with industry. The maritime and surface transportation industry, particularly major port operators, can become an active partner in investing in new cargo security technologies, gathering and sharing data, facilitating inspections, and working collaboratively with the public sector on response and recovery from incidents when they occur. Forging a close partnership between the public and private sectors is essential to ensuring that the global supply chain is secure and resilient in the face of ongoing criminal and security threats.

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About GRI

Launched in 2017 with the approval of Northeastern University's Board of Trustees, the Global Resilience Institute (GRI) is the world's first university-wide institute to respond to the resilience imperative. Today, GRI undertakes multi-disciplinary resilience research and education efforts that draws on the latest findings from network science, health sciences, coastal and urban sustainability, engineering, cybersecurity and privacy, social and behavioral sciences, public policy, urban affairs, business, law, game design, architecture, and geospatial analysis.