



Norwich University Applied Research Institutes (NUARI) studies and identifies solutions to critical national security issues driven by our mission to enable a resilient society through rapid research, development, and education in cybersecurity, defense technologies, and information warfare. NUARI is a 501(c)(3) non-profit corporation and has been a global leader for more than a decade in developing cyber war gaming, distributed learning technology, distributed simulation technology, critical infrastructure exercises, and cybersecurity curriculum.

NUARI is comprised of three research institutes with the primary focus of this paper emphasizing the **Cyber Conflict Research Institute**. A brief description of all three institutes follows below.

- **Cyber Conflict Research Institute (CCRI)**
Conducts applied research and actionable exercises with the end goal of assuring US critical infrastructure and resilience in the event of cyber-attacks.
- **Learning Technologies Research Institute (LTRI)**
Aggressively explores new approaches to delivering cyber education and content using simulations, interactive games, and case studies.
- **Defense Technologies Research Institute (DTRI)**
Executes research and development activities resulting in rapid prototyping and fielding of man-portable technologies that expand warfighter capabilities.

The **Cyber Conflict Research Institute** was founded on the underlying assumption that cyberspace is an arena for international and sub-national conflict. No single organization in government, industry, or academia can, by itself, adequately contemplate or address all of the complex issues of cyber conflict. The CCRI contributes to national cyber preparedness by planning and conducting cyber exercises for critical infrastructure organizations in government, public, and private sectors. Through the development of new technologies, there is the possibility of a greater understanding of cyber conflict. An essential component of the CCRI is the DECIDE[®] exercise platform.

The DECIDE[®] Cyber Exercise Platform

Distributed Environment for Critical Infrastructure Decision-making Exercises

DECIDE[®] exercises simulate cyber-attacks for organizations and their partners to stress and test incident response plans and decision-making capabilities, resulting in after-action reports to improve strategic communication, compliance, risk, public relations, and overall resilience.

Most importantly, DECIDE® exercises measure human decision-making response reflexes and capability gaps to improve preparedness and strategic communications for organizational and community survival.

NUARI executes these distributed command and control decision-making exercises with organizations of all sizes, in one geographic location or spread across the country from hundreds of participants in a full-scale multi-agency exercise to 20 in a facilitated municipal tabletop exercise.

The Evolution of DECIDE®

Initially developed with the financial services sector in mind, DECIDE-FS® enabled customized simulations of cyberattack scenarios with high degrees of complexity and precision. Options included DNS and DDS attacks, personal data leaks, order-processing disruptions, and clearing systems infected by malware. Simulations depicted days of escalating malicious attacks, systems failures, and market turmoil that were compressed into the span of hours.

DECIDE-FS® forced corporate leaders, industry regulators, and IT and cyber staff to address key questions. Whom do they ask for help? When do they close the markets? When do companies share information with their customers and law enforcement? How do firms maintain their reputations and credibility in the face of cyberattacks?

NUARI recognized the value of extending the training platform to address the exercise needs existing in other national critical infrastructure industries. In 2013, The Department of Homeland Security (DHS) awarded a 9.9M contract to NUARI to continue work on DECIDE® simulation software.

In 2019, DHS Science and Technology Directorate (S&T) awarded NUARI a total of \$5.9M to expand DECIDE® capabilities and outreach to additional organizations. This new effort allowed NUARI to build similar simulation-based scenarios and exercises specific to the energy sector.

In March of 2021, NUARI was awarded a three-year \$2.9M contract from the DHS S&T to design and execute DECIDE® exercises for transportation sector agencies and organizations.

DECIDE® Cyber Exercise Objectives

The objectives of both large and small multi-agency, multi-industry DECIDE® exercises is to reinforce and highlight a “whole of community” approach recognizing the physical and cyber interdependencies among all levels of government, private industry, and critical infrastructure sectors.

Examples of specific aspects of operations tested or measured during exercises with end goals follow:

- **Governance, People, and Capacity Building**
Improve community partners ability to identify and bring the right people to control/remediate a cyber incident (e.g., representatives for privacy, security, PR, legal, HR, etc.) across state, county, and local emergency management personnel.

- **Incident Response Policy and/or Guidelines**

Test internal organizational and community partner incident response triage, command and control, breach response, reporting, incident notification, authorities, and long-term remediation/resolution to ensure community resilience.

- **Communications and Escalation**

Ensure proper communication and incident response within the organization or agency, and across state, county, and local emergency management personnel is clearly understood and escalation protocols involving legal, privacy, and compliance is understood.

- **Information Sharing**

Better understand community lifelines and cascading effects as related to specific threats. Leverage industry-specific threat information to better understand the risks in order to take appropriate actions. Develop relationships with community partners and establish communication channels.

“When COVID-19 effectively prevented all in-person events, the DECIDE® platform became the sole platform for conducting the virtual TTX. JV 3.0 would not have happened without DECIDE®.”

(Jack Voltaic 3.0 Cyber Research Report, Army Cyber Institute, 2020)

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