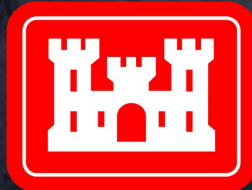


Transportation Infrastructure During War

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DAN HARDER, PE
DANIELLE WHITLOW, PHD, PE

Research Civil Engineers
US Army Engineer Research and Development Center

Combat Engineer / Combat Logistics
Warsaw, Poland
March 2024

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Continental Mobility

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32 Armies • 3,500,000 Soldiers • 1,000,000 Ground Vehicles • 20,000 Aircraft



Mobility Options

- Roads
- Rivers & Canals
- Seaports
- Aerodromes
- Railroads
- Cross-country

Mobility Restrictions

- Bridge MLC & Tunnels
- Draft & Bathymetry
- MHE & CRSP Yards
- FOD, MOG & Craters
- Gauge & Transloading
- Soft Soils & Corridors

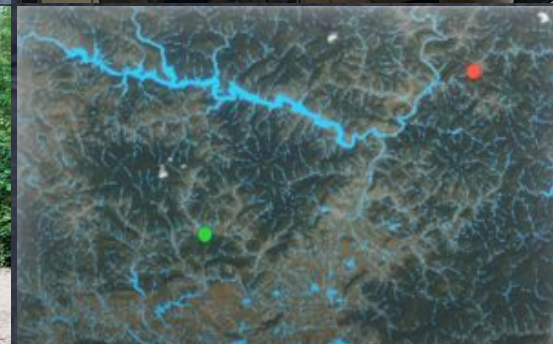




Bridges

Civilian Bridging • Float Bridging • Tactical Bridging • Line-of-Communication Bridging

- MLCs of Standard Bridging
- Capacity of Float Bridging
- Design Loads for Civilian Bridges
- Remote Assessment of Civilian Bridges
- Assessment and Repair of Damaged Bridges
- Up-rating Civilian Bridges
- Alternate Launch & Construction of Standard Bridging



Airfields

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500 Aerodromes • 500,000 m of Runway • 20,000 Military Aircraft • 10,000,000 Sorties



- Airfield Damage Repair
- Conventional vs. Expeditionary
- Pre-staging ADR Kits
- STANAGs & Acceptance Criteria
- Cargo vs Fighters vs Rotary Wing
- F-16 vs F-35 vs F-35 vs Eurofighter
- C-17 vs C-5 vs C-130 vs A400

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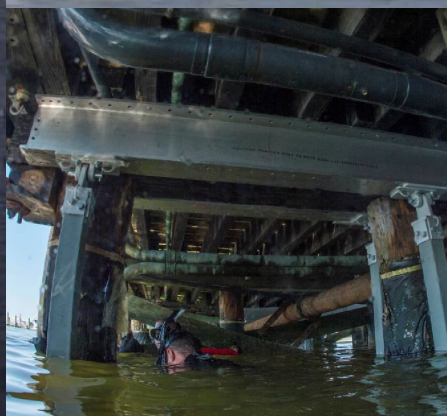
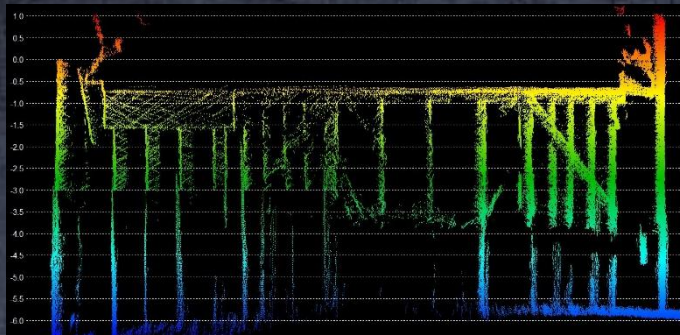
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Seaports

150,000 km of Coastline • 1,200 Ports • 3,500,000,000 tonnes of Cargo



- Assessment of Damaged Ports
- Repair of Damaged Ports
- Conventional vs. Expeditionary
- On-site MHE
- Marshalling Areas, CRSP Yards & AHAs
- JLOTS Connections to MSRs



Railroads

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Tracks • Ties • Ballast • Platforms • Tools • Thermite • Railcars • MHE



- Lack of NATO STANAGs
- Detection of Damage & Sabotage
- Bomb Damage Repair
- Mid-track Transloading Sites
- Assessment of Rail Lines
- Railroad Bridges
- Construction of Spurs and Bypasses

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UNCLASSIFIED Transportation Network

Identification • Assessment • Expedient Upgrade/Repair



Infrastructure

- Bridges
- Airfields
- Seaports
- Railroads
- And more...



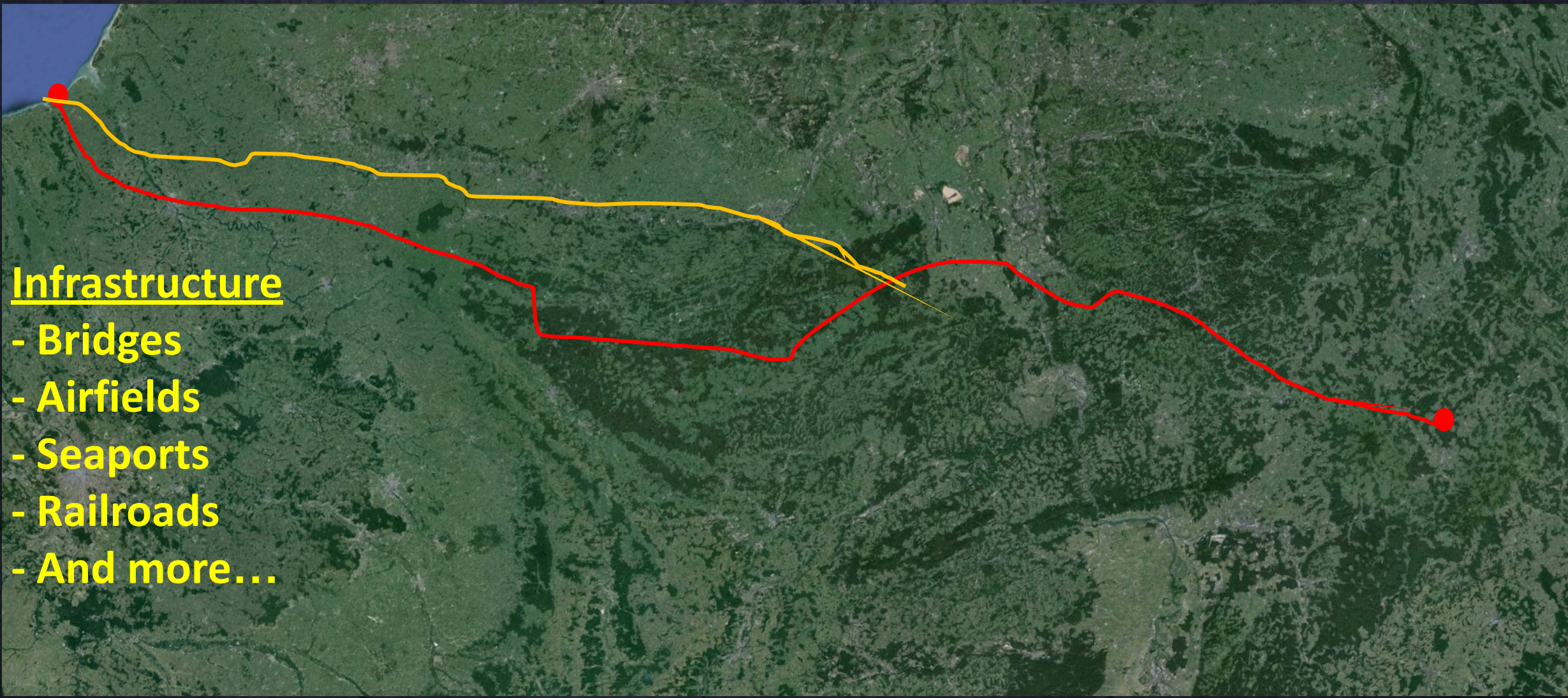
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UNCLASSIFIED Transportation Network -

Identification

Multiple Routes • Critical Infrastructure • Transportation Network Optimization



Infrastructure

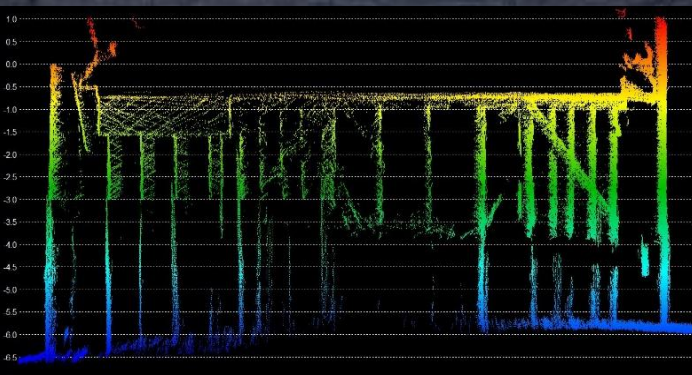
- Bridges
- Airfields
- Seaports
- Railroads
- And more...

Transportation Network -

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Assessment • Expedient Upgrade/Repair



- Increasing Assessment Needs vs. Decreasing Engineer Forces
- Assessment Prioritization
- AI/ML Enabled Solutions: SME-enabled decision support tools for non-expert users
- Common Training Opportunities

UNCLASSIFIED Transportation Network –

Upgrade/Repair

Identification • Assessment • Expedient Upgrade/Repair



- Partnerships with Industry:
Leverage industry techniques
and methodologies for military
usage



- Adapt Existing Technologies for
New Uses



- Understand Expedient vs.
Permanent Repairs

Ways to Support Research



Multiple Avenues to Get Involved



US Military

Research Endorsements

-

Operational Expertise

-

Demonstration Partner

-

Wargame Inclusion

-

Exercise Planning

Allies & Partners

Parallel Efforts

-

Local Technical Knowledge

-

Data Sharing

-

Host Nation Methods

Industry & Academia

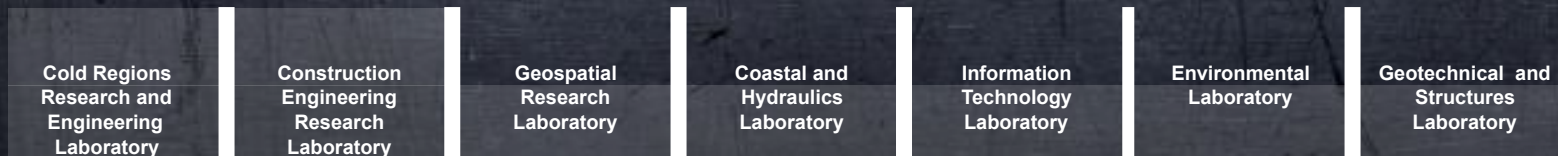
Cooperative Research and Development Agreements (CRADA)

-

Testing Services Agreements (TSA)

-

Commercial Off the Shelf (COTS) Solutions



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ERDC Partnerships

For scientific innovation and technology development



GOVERNMENT PARTNERS



ACADEMIA PARTNERS



INDUSTRY PARTNERS



INTERNATIONAL PARTNERS



12 Countries
2 Active International CRADAs
3 Active MOAs/MOUs



CONNECT: Mechanisms & Authorities



OTHER TRANSACTION AUTHORITY (OTA)

Broad Agency Announcement (BAA) Authority

Cooperative Ecosystem Studies Units (CESU) National Network



ERDC

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Daniel Harder, P.E.

Research Civil Engineer

daniel.e.harder@usace.army.mil

+1-601-634-4145

Danielle Whitlow, Ph.D., P.E.

Research Civil Engineer

danielle.whitlow@usace.army.mil

+1-601-634-2246

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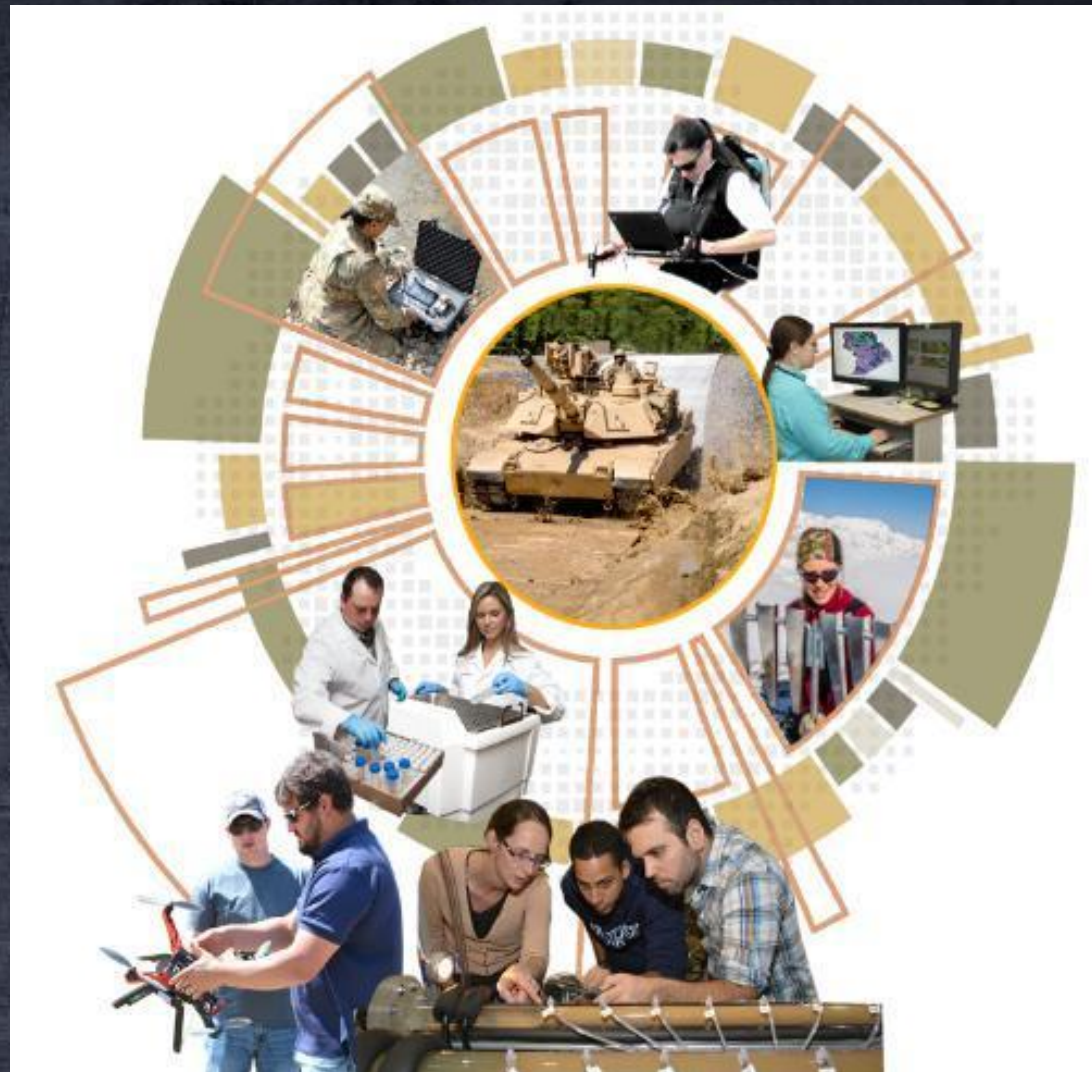
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new ways to make the world safer and better