Cybersecurity Risks in Overseas Military Construction

Moderator:

Emmanuel Ine, Jacobs

Speakers:

- Jonathan Hard, CEO, H2L Solutions, Inc
- Daniel Hilgendorf, USACE | Europe

March 5, 2026 | 10:00 a.m. – 11:00 a.m.

THANK YOU EXHIBITING COMPANIES

AECOM

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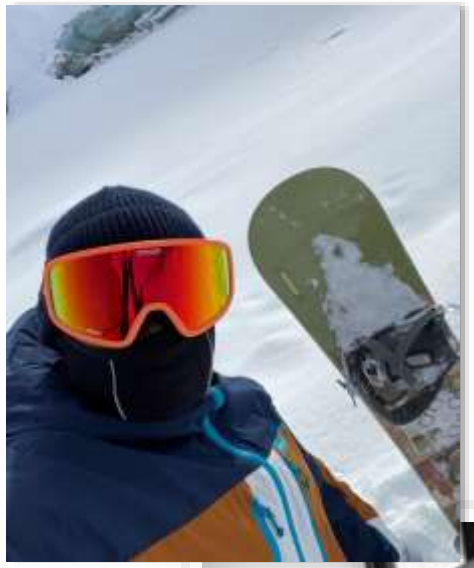


Emmanuel Ine

Jacobs

Fun Facts

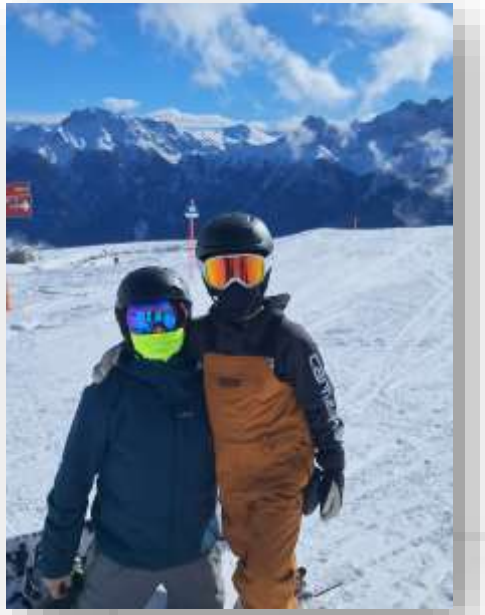
Grew up in:	• Washington D.C.
Currently binge-watching:	• Dune: Prophecy
Proudest accomplishment:	• The Bartlett, UCL
Biggest fear:	• A plain piece of paper

Jonathan Hard

H2L Solutions, Inc

Fun Facts

Grew up in:	• Fayetteville, TN
Currently binge-watching:	• Love is Blind
Proudest accomplishment:	• Kids/Ranger School
Biggest fear:	• Failure



Daniel Hilgendorf

USACE | Europe

Fun Facts

Grew up in:	• Omaha, NE
Currently binge-watching:	• Yellowstone
Proudest accomplishment:	• Masters & P.E.
Biggest fear:	• Sharing my biggest fear with a roomful of strangers

WARNING

“A Horror Movie Scene”

Session Agenda

- Spotlight Talk
- Panel Discussion with Q&A
- Closing Comments

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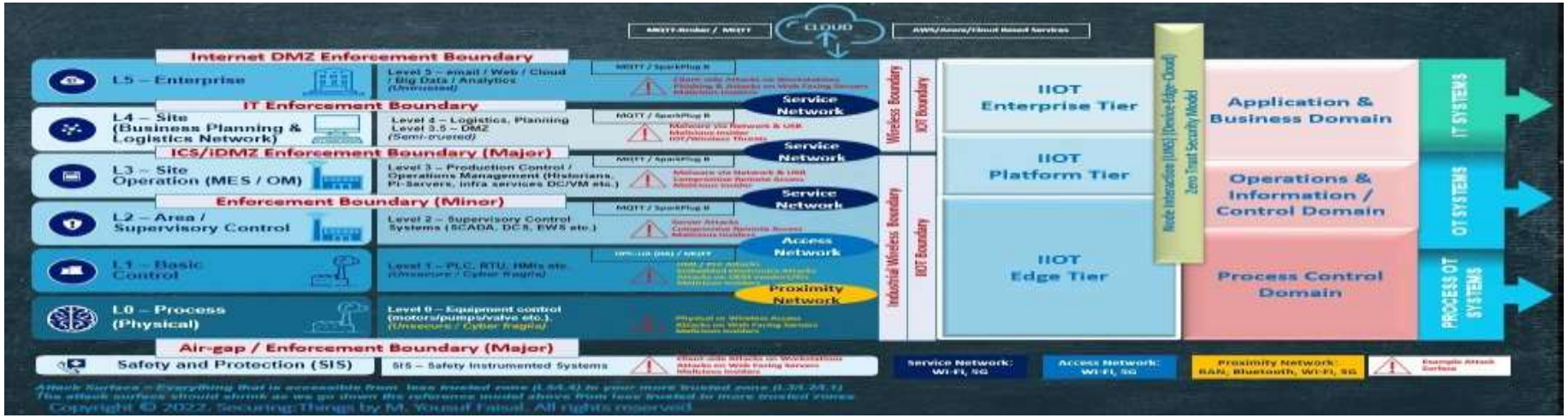
Spotlight Talk

Cybersecurity Risks in Overseas Military Construction

Why This Matters Now

- Modern MILCON is digitally dependent:
  - FRCS (HVAC, power, lighting, access control)
  - Network-connected OT/ICS systems
  - Vendor remote access
  - Cloud-based design platforms
  - Cyber risk impacts cost, schedule, safety, and mission assurance



Where Cyber Risk Enters the MILCON Lifecycle

- Planning – Undefined cybersecurity scope
  - 35% Design – No OT architecture segmentation
  - 65% Design – No STIG or control alignment
  - Submittals – Uncontrolled remote access
  - Construction – Unvetted firmware/controllers
  - Commissioning – No secure configuration baseline

Governing Requirements: UFGS 25 05 11 + UFC 4-010-06

- RMF alignment (DoDI 8510.01)
  - AR 25-2 compliance
  - Cybersecurity Plan (60 days prior)
  - Dedicated cybersecurity professional (25 08 11.00 20)
  - eMASS integration
  - STIG application
  - Risk Assessment Reports
  - Physical & Logical Network Diagrams
  - ATO pathway integration

Germany's Construction Environment – STLB-Bau

- Prescriptive Specifications (Leistungsverzeichnis)
  - Exact materials and installation methods
  - Defined quantities and pricing
  - Minimal interpretation
  - GAEB formatted structure

THE GERMAN STLB-BAU SPECIFICATION SYSTEM

Among the German specification systems the STLB-Bau (*Standardleistungsbuch für das Bauwesen*), the library of specification texts for standard construction works, is the only one which enables the user to dynamically build up a single specification text out of a non-restricted number of text fragments. The library texts are compiled by working groups within the GAEB (*Gemeinsamer Ausschuss Elektronik im Bauwesen*), the joint committee for information technology in building & construction, produced by the software company Dr. Schiller und Partner GmbH and published by DIN, the German Institute for Standardization.

As the STLB-Bau is the library of specification texts for new and re-development, the STLB-BauZ, compiled by different working groups within the GAEB and also published by the DIN, provides texts for repairing works under a fixed-term contract. In the following this treatise will purely concentrate on the STLB-Bau.

The GAEB, founded in 1966, is now one of the three steering committees of the "German Committee for construction contract procedures" under the umbrella of the German Federal Ministry of Transport, Building and Housing. Among its members are building departments of the federal government, central organizations of the building and construction technology industries, public building authorities, central municipal organizations, associations of architects and engineers and professional associations. They support the work of GAEB by sending honorary members to its approximately 100 working groups. The DIN, also a member of GAEB, gives secretarial and some administrative support.

The texts of the STLB-Bau and the STLB-BauZ are based on the 'German construction contract procedures' (*Vergabe- und Vertragsordnung für Bauleistungen* - VOB) which all construction contracts of the public authorities must, by law, be based upon. Not only does the VOB specify the awarding of construction contracts but also contains general technical specifications in 60 different trades (VOB edition 2003). These, amongst other things, identify which tasks have to be specified, which tasks are to be seen as included without being mentioned (special and associated tasks) or how the accounts in the different trades should be settled.

The accomplishment of the construction work is object of a contract based on the VOB. Taking additionally into account that according to the VOB the construction work also covers the supply of the relevant materials, the specification texts of the STLB-Bau only have to contain the description of construction components to describe an item of work sufficiently.

STRUCTURING AND CLASSIFICATION OF THE GERMAN STLB-BAU SPECIFICATION SYSTEM

The STLB-Bau library has a tree structure with four hierarchical levels:
1st level: trades (*Leistungsbereiche* - LB)
2nd level: groups of (similar) work items (*Teilleistungsgruppen* - TLG)
3rd level: criteria of a work item (*Beschreibungsmerkmale* - BSM)
4th level: properties of a criterion (*Ausprägungen* - APR)

By working through the criteria of an item of work (BSM - 3rd level) and choosing respectively one of their text-forming properties (APR - 4th level), the user of the STLB-Bau system composes the specification text for one item of work.

While there are 76 trades (2005-04 – see also http://www.gaeb.de/download/StlbBauzf.pdf [German]) within the STLB-Bau, there are (theoretically) no restrictions to the number of TLG (2nd level) within one trade, the number of BSM within one TLG, nor accordingly to the number of APR within one BSM.

To prevent data redundancy within the STLB-Bau library, the BSM are placed into a global pool, from where

Core Structural Clash

- UFGS – Performance-based, framework-driven
  - STLB-Bau – Prescriptive, execution-driven
  - RMF artifacts vs Line-item pricing
  - Documentation workflow vs Installation workflow

What Happens in Practice

- Cyber scattered across 4,000+ page specs
  - Or isolated as standalone policy section
  - Field office enforcement complexity
  - Contractor pricing confusion
  - Coordination burden with Cyber MCX

Field Office Squeeze

- FRCS architectures vary project to project
  - Submittals unfamiliar to construction staff
  - Cyber MCX expects UFGS-format artifacts
  - German contractors expect STLB structure
  - Results in delays and rework

Real-World OT Consequence Example – Medical Facilities

- Legacy unpatchable devices (MRI, CT)
  - Connected medical equipment expands attack surface
  - Ransomware disrupting operations
  - Dual compliance burden (U.S. + German KRITIS)
  - Operational impact when OT cybersecurity is ignored

The Real Problem

Not resistance or incompetence

- Spec structure mismatch
- Lifecycle integration gap
- Lack of translation between RMF and STLB-Bau

Practical Fix #1 – Shift Cyber Left

Integrate at planning and 35% design

- Require OT architecture diagrams early
- Define network segmentation before IFC
- Establish vendor remote access policy early

Practical Fix #2 – Translate to Prescriptive Deliverables

- Firewall rule table submittals
  - Firmware version documentation
  - Password policy submission
  - Remote access configuration details
  - Network communication schedules

Practical Fix #3 – Standardized Cyber Submittal Matrix

Defined deliverables and approval authority

- Clear enforcement language
- Aligned expectations: Field Office, MCX, Contractor
- Commissioning validation criteria

Practical Fix #4 – Integrate Cyber into QA/QC

Include cyber in QC inspection plans

- Verify configuration at commissioning
- Require documentation before beneficial occupancy
- Treat cyber as system integrity, not paperwork

What Success Looks Like

No last-minute redesign
- Reduced rework
- Predictable ATO pathway
- Reduced field burden
- Resilient infrastructure at turnover

Key Takeaways

Cyber in MILCON is infrastructure assurance

- UFGS 25 05 11 embeds RMF into construction
- Germany’s prescriptive system differs structurally
- Translation and early integration reduce friction
- Engineering alignment improves mission assurance

Operational Context: Ramstein & EUCOM Medical Infrastructure

U.S. installations in Germany operate under dual compliance: DoD + German regulations

- Medical facilities include networked FRCS and connected clinical systems
- High mission sensitivity: patient care, aeromedical evacuation, force readiness
- KRITIS regulatory environment increases scrutiny and reporting requirements
- Specification misalignment directly impacts schedule, commissioning, and ATO

UFGS vs STLB-Bau – Structural Specification Comparison

UFGS 25 05 11

Performance-Based

- RMF-driven
- Outcome-focused
- Framework documentation
- STIG implementation
- eMASS workflow
- ATO lifecycle integration

STLB-Bau / Leistungsverzeichnis

Prescriptive

- Exact materials
- Exact installation methods
- Defined quantities
- Defined pricing
- GAEB structured
- Minimal interpretation

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Panel Discussion
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Closing Comments

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Changed Thinking

Cybersecurity is no longer an IT add on—it is a core engineering and program management requirement across the entire MILCON lifecycle.

- Cybersecurity cannot be treated as a final-stage check.
- EUCOM and AFRICOM environments, success depends on early integration
- Nation alignment, strong supply chain controls, and secure OT delivery

Thank You