



**Simulation Interoperability
Standards Organization**

"Simulation Interoperability & Reuse through Standards"

NMSG Training Data Analytics & Standards Update

SIM-2024-Presentation-08



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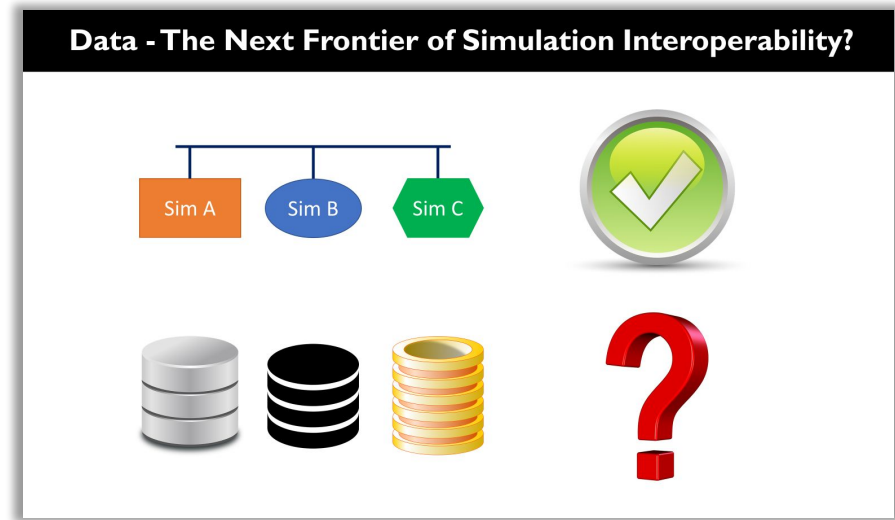
Outline

- **Why the NMSG Interest in Warfighter Training Data?**
- **Exploratory Team Activity 2024**
- **Proposed 2024-26 Research Project**



Why the NATO Modelling & Simulation Group?

- NMSG has an existing recognised role in simulation standards in procurement





Why Data? Potential Warfighter Data Exploitation



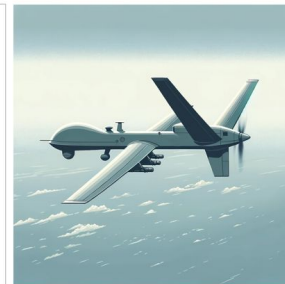
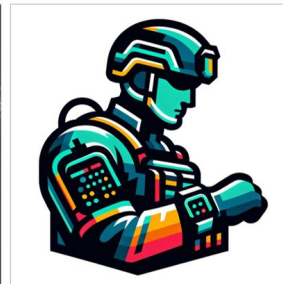
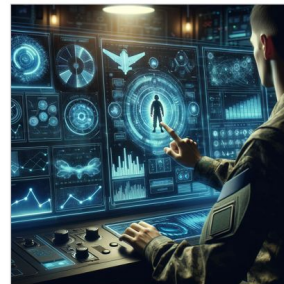
Career Planning and Recording and Health Monitoring



Education and Training



Human Factors Studies and Equipment Acquisition Optimisation



Operational Planning, Warfighter Monitoring and Operating Autonomous Systems



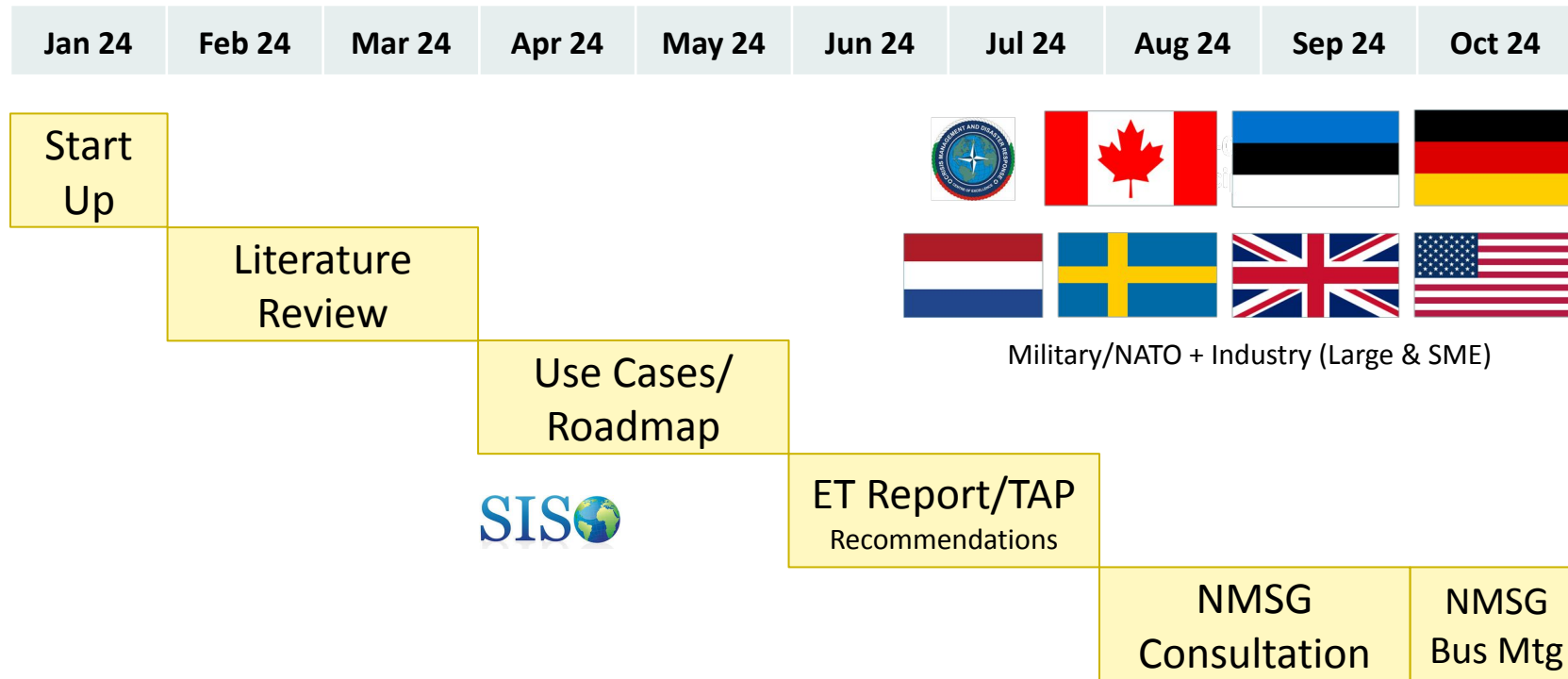
What's the Problem?

- Warfighter data is plentiful, but is in different formats, on different systems, and not managed and exploited on an enterprise basis
- The full potential of Warfighter Data is not being realised





ET-056 Outline Plan





ET-056 - Literature Review

- IEEE
- SISO
- ADL
- Crisis management / EU
- UK Dstl
- NATO previous research
- Sports, Fitness, E-sports, medical industries
- Security, ethics, AI, GDPR





ET-056 - Literature Review - Examples

- **IEEE:**
 - Digital Twin technology and Human Data Models for fitness management and e-learning
- **SISO (Simulation Interoperability Standards Organization):**
 - Development of Human Performance Measurement Language (HPML) for standardising human performance data
- **Esports and Sports Data:**
 - Esports lacks standardised performance data models, though increasing online data accessibility is beneficial
 - In sports (e.g., football), common standards like XML/JSON are used, but proprietary analytics approaches are often undisclosed
- **ADL (Advanced Distributed Learning):**
 - Focus on future learning ecosystems using xAPI and Total Learning Architecture (TLA)
 - Alignment with NATO's goals for data-driven lifelong learning and interoperability





Next Steps – Proposed Research Task Group - 2024-26



NORTH ATLANTIC TREATY ORGANIZATION
SCIENCE & TECHNOLOGY ORGANIZATION



TECHNICAL ACTIVITY PROPOSAL

Panel/Group	Select Panel/Group	Activity Title <i>Training Data Analytics and Standards</i>	
Reference Number	To be filled by CSO		
Activity Type	Research Task Group		
Panel Approval Date To be filled by CSO	Board Approval Date To be filled by CSO	Activity Start Date Late 2024	Activity End Date Late 2026
Related Activity		Mention other related STO or NATO activities	
Projected Meeting Location(s)		Location(s) and dates where the activity will be held. Mandatory for RL3s and RTG2. For RTGs, LTSSs, STs and MASs, initial meetings should be held preferably at CSO.	
Lead Nation		GBR + IRL/DEU	
Team Leader(s)		MR Andy FAWKES, MS Gagandeep KAUR	
Panel/Group Mentor		TBD	
NATO Nations/orgs. Invited To Participate		All NATO Nations are invited to participate	
Non-NATO Nations/orgs. Invited To Participate		BEC, UoA	
Nations/orgs. Committed To Participate		To be filled by CSO	
Security Classification Level of the Activity		RELEASABLE TO THE PUBLIC	
Keywords		Analytics, Data Standards, Interoperability, AI, Performance, Simulation, Training, Feedback	
NATO and National Resources Required	Endorsing nations are expected to assign personnel with relevant knowledge and experience in military training and simulation analytics and standards. Travel costs to be covered by the individual nations.		

Objectives

Training Data Interoperability

- Assess standardized data formats for seamless exchange across training systems
- Develop secure frameworks for data capture, storage, and sharing across platforms like visualization tools and AI
- Create a data standards profile to guide procurement

Analytics for Decision Making

- Assess tools and models to support training decisions and performance
- Establish standardised feedback outputs for trainees, crews, and instructors
- Study data analytics for individual and team training
- Research decision-support systems to enhance operational readiness

Learning Analytics Security, Privacy, and Ethics

- Research the ethical implications of data usage and ensure compliance with privacy standards
- Research security measures to protect sensitive training data
- Research guidelines for ethical data management and usage in training analytics



Outcomes

Military Relevance

- Impact on **NATO and National Training**
- **Optimising training** through interoperable standards and analytics
- Aligning with the **DOTMLPFI** framework to address capability gaps
- Benefits for operational **readiness** and **decision-making** for NATO and national authorities.

Expected Achievements

- Standardised training and biometric data exchange formats profile for use in procurement (e.g. a **STANAG**)
- Establishment of **standardised training feedback formats** profile for trainee / crew / instructor
- A **Community of Interest** for training data analytics and standards, together with a comprehensive body of knowledge
- A **guide** to training data security, ethical and privacy issues.
- A **Cooperative Demonstration of Technology** (CDT) of TRL 7 to validate these advancements





Finally ...

- **Open to shaping and joining future work**
- **Link with other work/initiatives**



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QUESTIONS