



Artificial Intelligence and Military Operations Research: Analytic Allies

Lt Col Amanda Gustave, Chief Data Officer – SHAPE/Task Force Maven Lead
NATO Supreme Headquarters Allied Powers Europe (SHAPE)



AGENDA



1. NATO: The “Power” of 32- Need for Interoperability
2. The AI-OR Ladder
3. Maven Smart System Operating Model
4. Innovation Ecosystem
5. AI-OR Workflows
6. Video Demonstrating European Tech Integrations
7. Strategic Insights from Past Year
8. Questions & Discussion



What is NATO?



The North Atlantic Treaty Organization is one of the world's major international institutions. It is a political and military alliance that brings together 32 member countries from Europe and North America. NATO provides a unique, transatlantic link between these two continents for political and security cooperation.



MEMBER COUNTRIES (+DATES OF ACCESSION)

Albania - 2009	Lithuania - 2004
Belgium - 1949	Luxembourg - 1949
Bulgaria - 2004	Montenegro - 2017
Canada - 1949	Netherlands - 1949
Croatia - 2009	North Macedonia - 2020
Czechia - 1999	Norway - 1949
Denmark - 1949	Poland - 1999
Estonia - 2004	Portugal - 1949
Finland - 2023	Romania - 2004
France - 1949	Slovakia - 2004
Germany - 1955	Slovenia - 2004
Greece - 1952	Spain - 1982
Hungary - 1999	Sweden - 2024
Iceland - 1949	Türkiye - 1952
Italy - 1949	United Kingdom - 1949
Latvia - 2004	United States - 1949

Protecting People

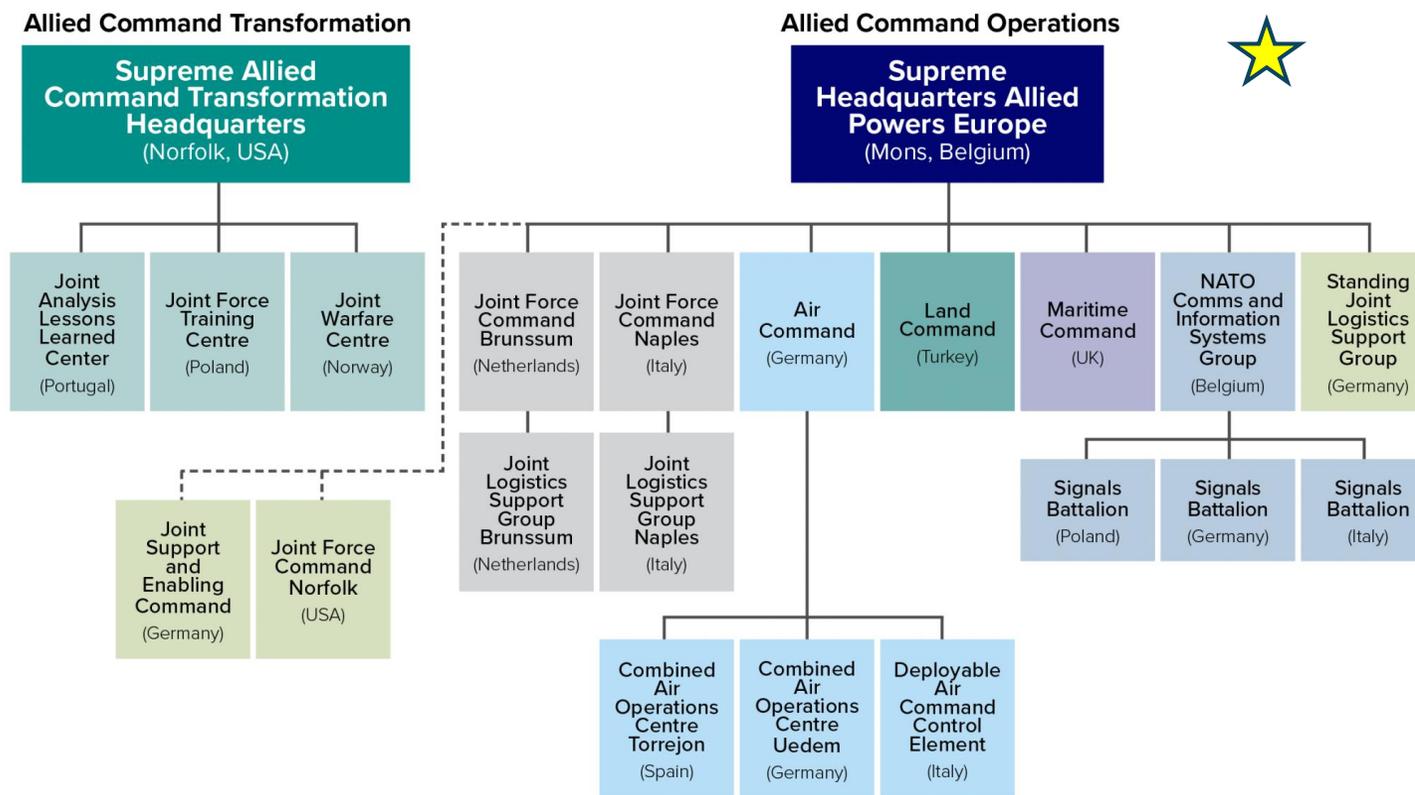
Building Peace & Stability

Forging Partnerships

Combating New Threats



NATO Structure





The Interoperability Challenge

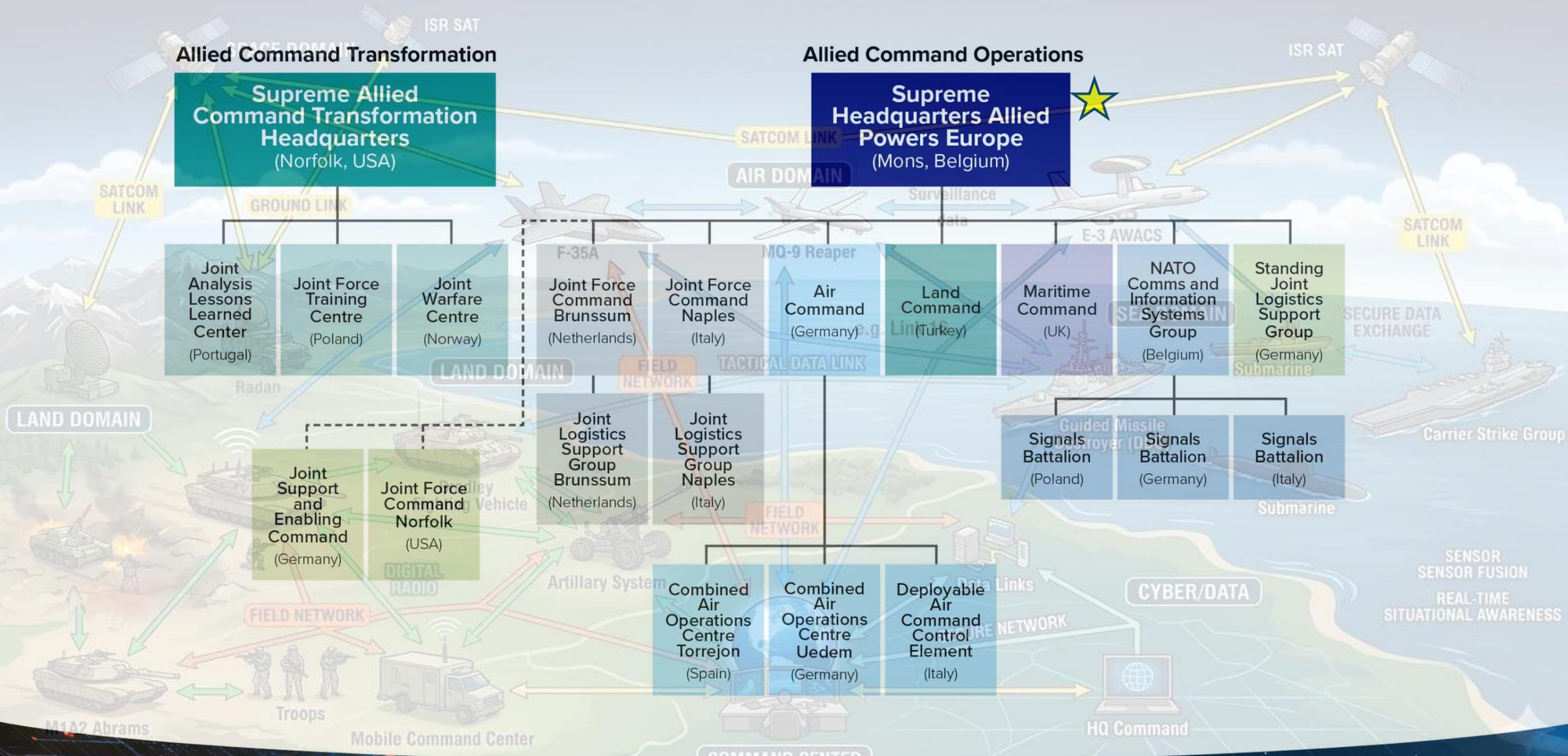


Allied Command Transformation

Supreme Allied Command Transformation Headquarters
(Norfolk, USA)

Allied Command Operations

Supreme Headquarters Allied Powers Europe
(Mons, Belgium)



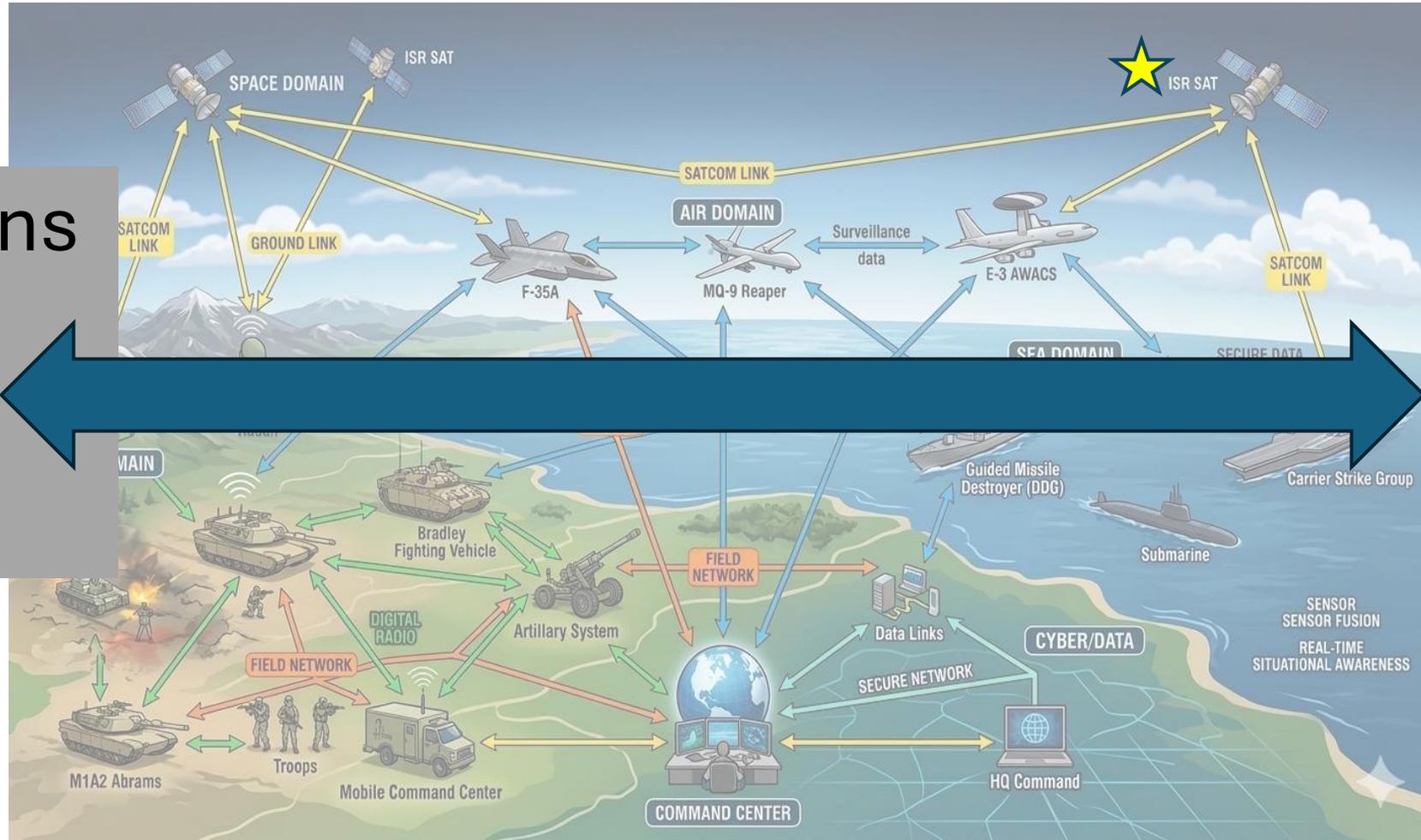


The Multi Domain "Problem"



5 Domains

AIR
LAND
MARITIME
CYBER
SPACE



32 Nations

Bring different capabilities and systems to the Alliance for Defence (Approx 150 different Air, xx Land, XX Maritime)

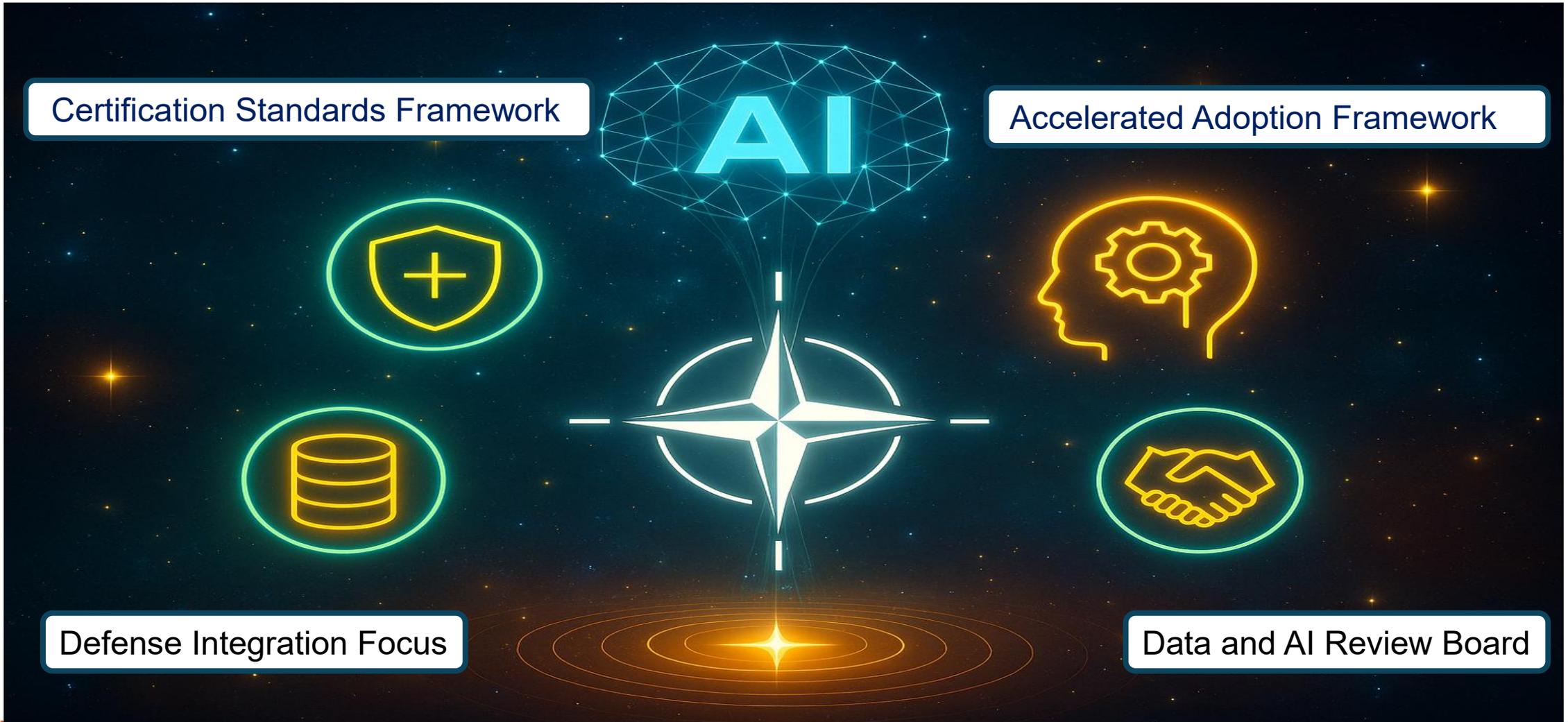


Overview NATO Responsible AI Policy



6 Principles of Responsible Use:

Lawfulness, Responsibility, Accountability, Explainability, Traceability, Reliability, Governability and Bias Mitigation

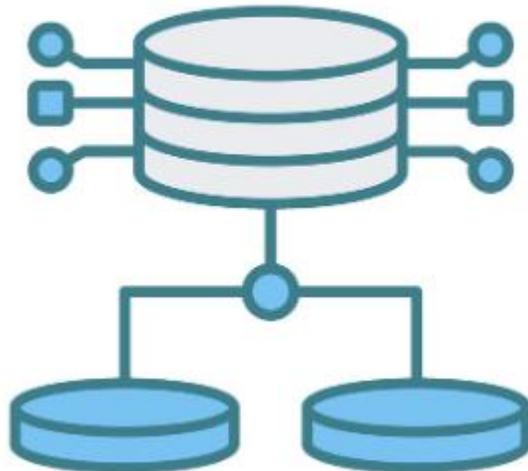




In Feb 2025, the North Atlantic Council approved NATO's 1st comprehensive Data Strategy for the Alliance (DaSA) emphasizing NATO's commitment to leveraging data as an enduring strategic asset driving sustainable battlespace advantage and business efficiency by 2030.

TWO FOCUS AREAS: Consolidation of ongoing data-related activities & create a Data-Centric governance framework

7 Guiding Principles of NATO's Data Governance

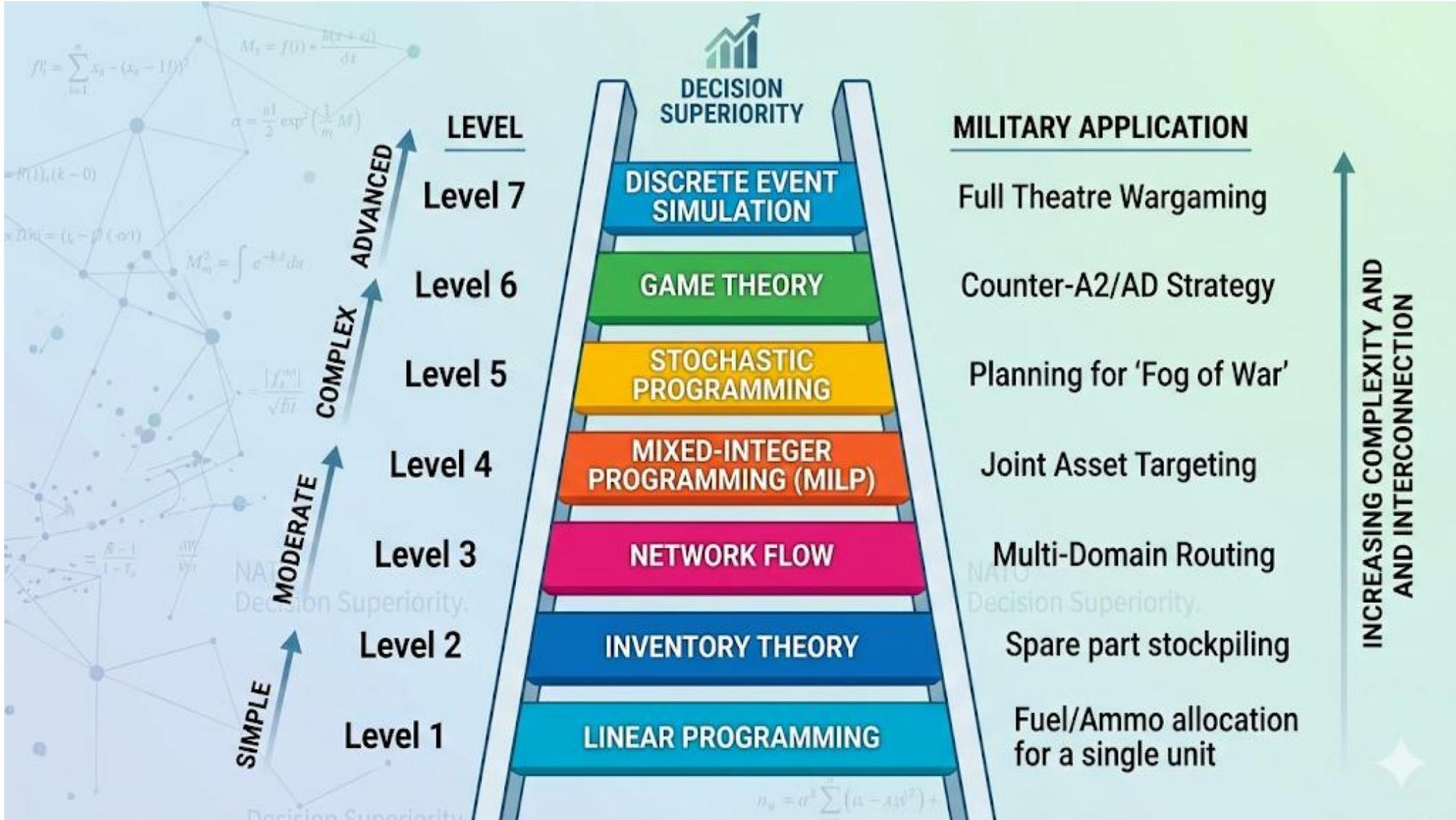


Data must be:

1. Discoverable
2. Accessible
3. Reliable
4. Regulated
5. Interoperable
6. Shared
7. Secure



The Military OR Ladder





The Military OR Ladder- In Depth



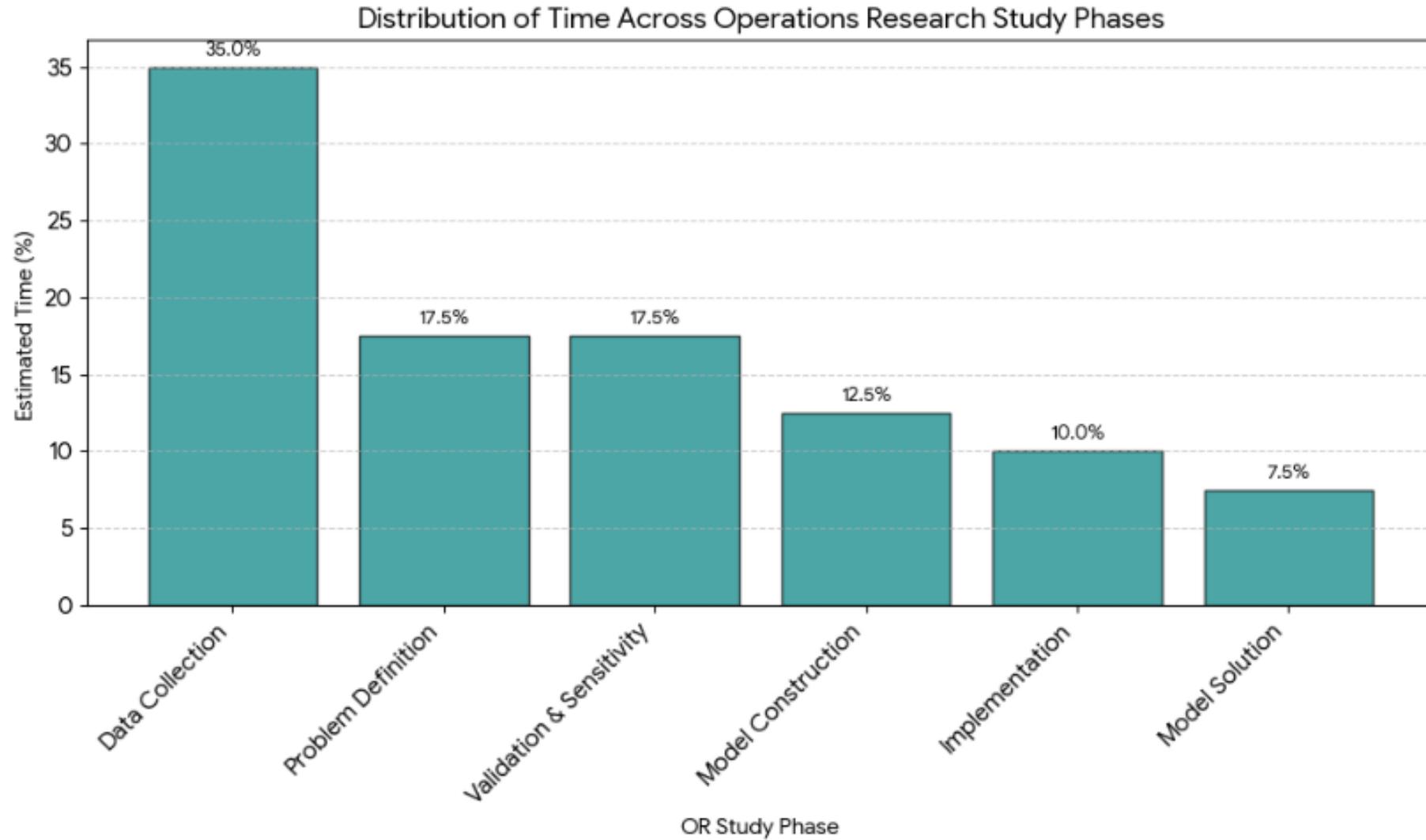
Military Application	Traditional "Manual" Process	AI-Assisted Enhancement
Theatre-Level Wargaming & Mission Rehearsal	Manual Scripting: Analysts hard-code every "If/Then" rule; simulations are static.	Reinforcement Learning: Agents "learn" from every run to discover optimal, emergent tactics.
Counter-A2/AD (Anti-Access/Area Denial) Strategy	Fixed Payoff Matrices: Human analysts guess enemy values in a limited "chess" board.	Multi-Agent Systems: Thousands of competitive "adversary" agents evolve tactics in real-time.
Course of Action (COA) Planning under uncertainty	Small Scenario Trees: Limited by how many "What-ifs" an analyst can manually type.	Generative AI: Creates millions of extreme "Black Swan" scenarios to stress-test plan resilience.
Joint Asset Targeting & Resource Allocation	Long Solver Runtimes: Computers take hours/days to crunch "Yes/No" targeting math.	AI Heuristics: Neural networks "prune" the math to find top-tier solutions in near-real-time.
Multi-Domain Routing & Supply Chain Optimization	Batch Processing: Data is updated once a day; plans are often "stale" on arrival.	Predictive Analytics: Dynamic rerouting based on live sensor data and satellite imagery.
Spare Part Stockpiling & Prepositioning	Reactive Adjustments: We wait for a "Low Stock" alert before ordering more parts.	Machine Learning: Predicts adaptive "burn rates" based on mission intensity before shortages occur.
Fuel & Ammo allocation for a single unit	Manual Data Entry: Analysts spend hours cleaning spreadsheets to update model limits.	NLP/Vision: Instantly ingests field reports to update model constraints automatically.



AUDIENCE QUESTION:
**Which phase of an OR project takes the
LONGEST??**

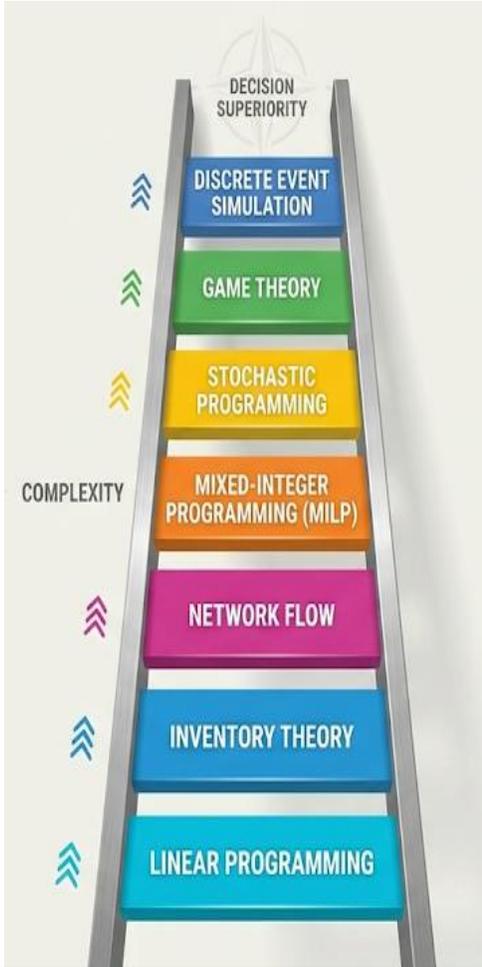


Rapid Capability Integration: An Alliance Innovation Ecosystem





Data Cleaning Techniques



DATA CLEANING

Technique	Traditional OR Method (Manual)	AI-Enhanced Way (Automated)
Normalization	Manually converting units (Liters vs. Gallons) and date formats in Excel.	NLP & Computer Vision: Automatically extracts and standardizes units from diverse NATO reports.
Deduplication	Manually scanning rows to find "Double-Counted" tanks or fuel trucks.	Fuzzy Matching: Uses probabilistic logic to identify identical entities even with typos or different naming conventions.
Imputation	Filling missing sensor data with simple averages (Means) or zeros.	Predictive Modeling: Uses historical patterns to "guess" the missing value based on related variables (e.g., speed + terrain = fuel use).
Anomaly Detection	Visual inspection of scatter plots to find "impossible" data (e.g., a truck at 500 mph).	Unsupervised Learning: Automatically flags data that deviates from physical or logical norms, including potential "spoofed" data.
Entity Resolution	Cross-referencing disparate databases by hand to link "Unit A" to "Bde 1."	Knowledge Graphs: Automatically maps relationships between people, places, and assets into a connected web of data.

APPLICATION LAYER



Customized software applications are built in **weeks** and **days**, not years



AIP

APIs



3rd Party Integrations

AI, Advanced Analytics &



Models

Deployed:
Mistral Small
Meta's Llama



DATA LAYER

NATO Secret

VeVA

UNCLASSIFIED

DATA SECURITY & GOVERNANCE

Identity Based Access Controls

Classification and Attribute Access Controls

Permissioning at the User and Data Level

DATA SOURCES

Nations

NATO Command Structure

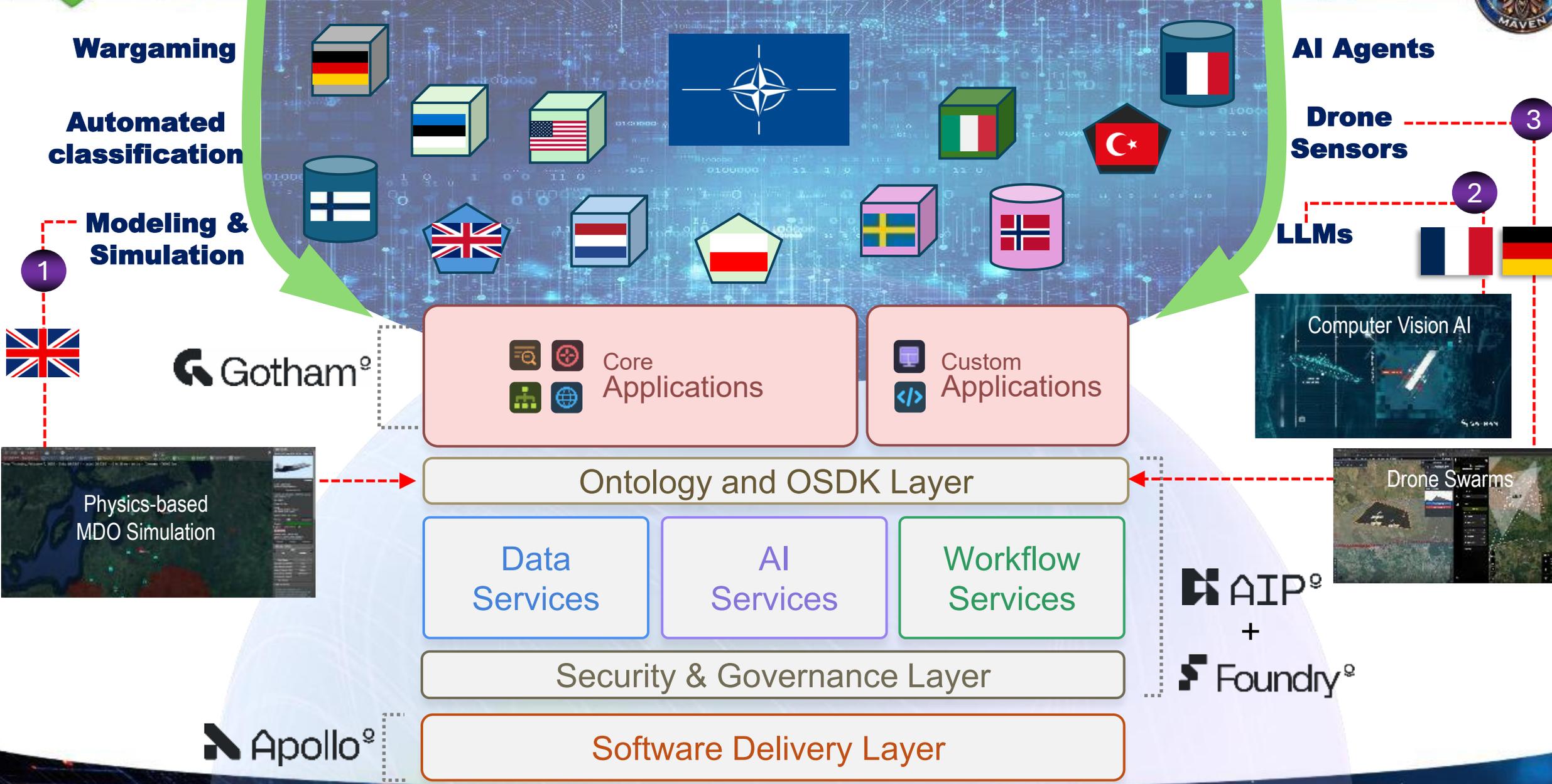
NATO Force Structure



Open-Source Information

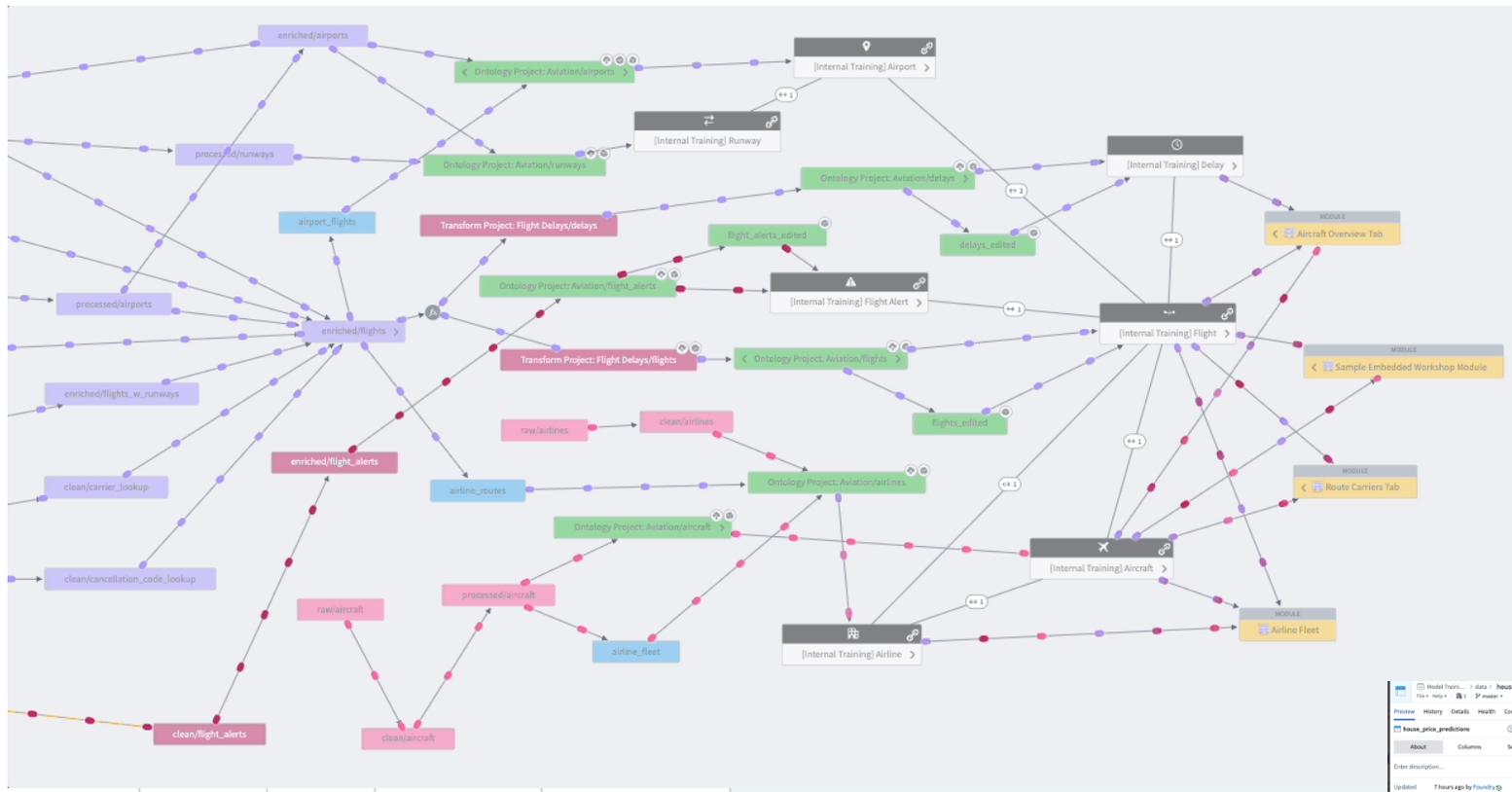


(e.g., Janes & Dataminr)





Building an AI assisted Foundational Data Layer



DATA LINEAGE TOOL

Preview History Details Health Compare Projections

house_price_predictions

Columns Schedules

Find... View in code workbook

```

1 def hubble_entities(all_entities, all_accounts):
2     selected_accounts_fields = all_accounts.selectExpr(
3         'entity_id',
4         'subaccount_types',
5         'account_pk',
6         'opened_first_account_at',
7         'closed_last_account_at'
8     )
9
10    df = all_entities.join(selected_accounts_fields, 'entity_id')

```

id	longitude	latitude	household_size	household_age	total_rooms	total_bathrooms	population
1	-122.25015520338818	48.45565784530094	9.1887182478761818	8.689.584582454000	1887.8682359862326	2967.8862348558106	192294.2847478888
2	-122.0877820446227	39.1111200000164	27.16518622118893	1832.309923770000	358.5472200000000	506.4697084474000	262171.288382839220
3	-121.54678682314664	37.425121828282828	22.17076210210000	5106.566778170000	236.8957861748000	535.2114517881100	21986.4868518700
4	-124.25323232839308	39.26787100730738	22.393583828282828	381.5217814187996	489.2618248782000	168.5327162242658	3.9312328249627100
5	-125.18602638929256	39.48547447447447	78.12097474120000	1887.5058982828282	421.8613846182328	893.4898263182000	427.18222828282828
6	-121.2261287395500	35.738882128282828	31.05116041823282	1437.8134517124200	255.1637832122200	738.4527878224200	245.1482732210000
7	-125.78888888888888	37.86568888888888	22.28888888888888	1287.8577882222222	242.2451288888888	653.8888888888888	228.12588888888888
8	-121.63617828282828	38.48118181818181	28.137718718181818	255.2189828282828	478.4528282828282	1225.4888888888888	486.48412828282828
9	-121.8317474782828	38.78888888888888	24.307742828282828	366.1132828282828	568.8888888888888	1692.7892312828282	2.1388212828282828
10	-125.72487878787878	39.455414218232828	18.65414218232828	1189.2288888888888	492.3898888888888	677.8577877777777	271.15321271483200
11	-125.92888888888888	38.48541888888888	17.248418888888888	289.7431823282828	48.2328128232828	31.162888888888888	1.8999188888888888
12	-122.28888888888888	38.88888888888888	16.178282828282828	1882.8888888888888	387.2882828282828	718.8888888888888	295.18888888888888
13	-122.18888888888888	39.78111871818181	15.788888888888888	1317.8318232828282	294.3871818181818	567.9871818181818	274.445382828282828
14	-122.57977888888888	39.22888888888888	11.288888888888888	486.2217888888888	826.2217888888888	285.2474122222222	88.26122222222222
15	-122.4471353792006	39.43393881225778	38.43393881225778	1036.4795845588888	1024.4661458888888	2034.4661458888888	2.1392744444444444
16	-121.58888888888888	37.221492828282828	38.8781221492828	2233.8888888888888	446.6478122149282	1619.1617477777777	428.8282789182828
17	-121.52398888888888	39.118888888888888	28.118888888888888	1703.8888888888888	381.2788888888888	689.7838888888888	386.71128888888888
18	-121.38178888888888	37.223282828282828	29.145512828282828	1379.4792248282828	551.3933322222222	1379.5488282828282	520.2122241282828
19	-121.82888888888888	31.888888888888888	11.888888888888888	1181.8888888888888	381.1888888888888	1004.8888888888888	462.18888888888888
20	-122.4471353792006	39.43393881225778	38.43393881225778	1036.4795845588888	1024.4661458888888	2034.4661458888888	2.1392744444444444
21	-121.58888888888888	37.221492828282828	38.8781221492828	2233.8888888888888	446.6478122149282	1619.1617477777777	428.8282789182828
22	-121.52398888888888	39.118888888888888	28.118888888888888	1703.8888888888888	381.2788888888888	689.7838888888888	386.71128888888888
23	-121.38178888888888	37.223282828282828	29.145512828282828	1379.4792248282828	551.3933322222222	1379.5488282828282	520.2122241282828
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25	-122.4471353792006	39.43393881225778	38.43393881225778	1036.4795845588888	1024.4661458888888	2034.4661458888888	2.1392744444444444
26	-121.58888888888888	37.221492828282828	38.8781221492828	2233.8888888888888	446.6478122149282	1619.1617477777777	428.8282789182828
27	-121.52398888888888	39.118888888888888	28.118888888888888	1703.8888888888888	381.2788888888888	689.7838888888888	386.71128888888888
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29	-121.82888888888888	31.888888888888888	11.888888888888888	1181.8888888888888	381.1888888888888	1004.8888888888888	462.18888888888888
30	-122.4471353792006	39.43393881225778	38.43393881225778	1036.4795845588888	1024.4661458888888	2034.4661458888888	2.1392744444444444
31	-121.58888888888888	37.221492828282828	38.8781221492828	2233.8888888888888	446.6478122149282	1619.1617477777777	428.8282789182828
32	-121.52398888888888	39.118888888888888	28.118888888888888	1703.8888888888888	381.2788888888888	689.7838888888888	386.71128888888888
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47	-121.52398888888888	39.118888888888888	28.118888888888888	1703.8888888888888	381.2788888888888	689.7838888888888	386.71128888888888



Entity Extraction for Battle Space Objects (BSO)



Problem: It takes analysts too long to read reports, identify relationships, and create red order of battle for use in Wargaming and Simulation Tools

1



RAW Intel Reports in Database

Extracts people, places, things and

2

DATA VERIFICATION INBOX

ID	SOURCE	PENDING ENTITY
P_001	Field Report - Sierra	Maj. Davies (Person)
O_005	Field Report - Bravo	Weapon Cache (Object)
L_012	Field Report - Sierra	Command Post (Place)
L_013	Field Report - Alpha	Supply Depot (Place)
L_014	Field Report - Sierra	Observation Point (Place)
L_015	Field Report - Zulu	Safe House (Place)
P_002	Field Report - Sierra	Agent Ramirez (Person)
L_016	Field Report - Bravo	Forward Base (Place)
L_017	Field Report - Alpha	Communication Hub (Place)

ENTITY EXTRACTION DETAILS: P_001 (Maj. Davies)

Name: Maj. Davies
Rank: Col.
Affiliation: NATO
Last Seen: 2023-11-15

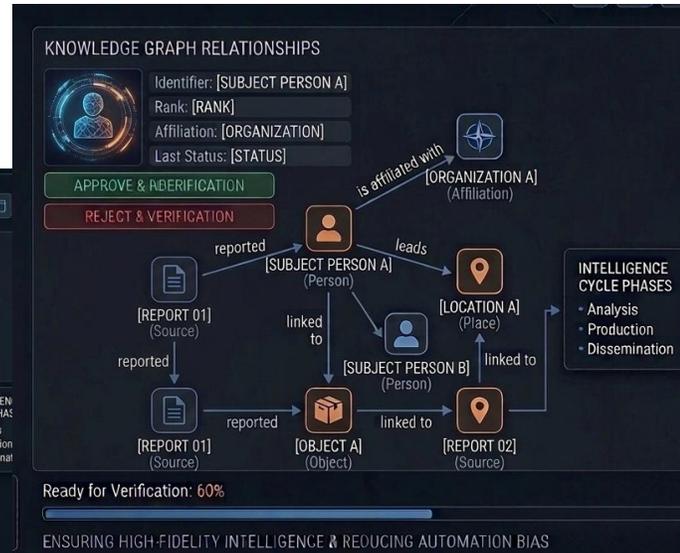
ENTITY VERIFICATION PROTOCOL

- CORROBORATE IDENTITIES (CROSS-REFERENCE)
- VALIDATE GEOLOCATION DATA
- SPECIFY OBJECT SUB-TYPES (E.G., VEHICLE -> TANK)
- RESOLVE DUPLICATE ENTITIES
- RESOLVE ATTRIBUTE CONFLICTS
- APPROVE OR REJECT EXTRACTED ENTITIES

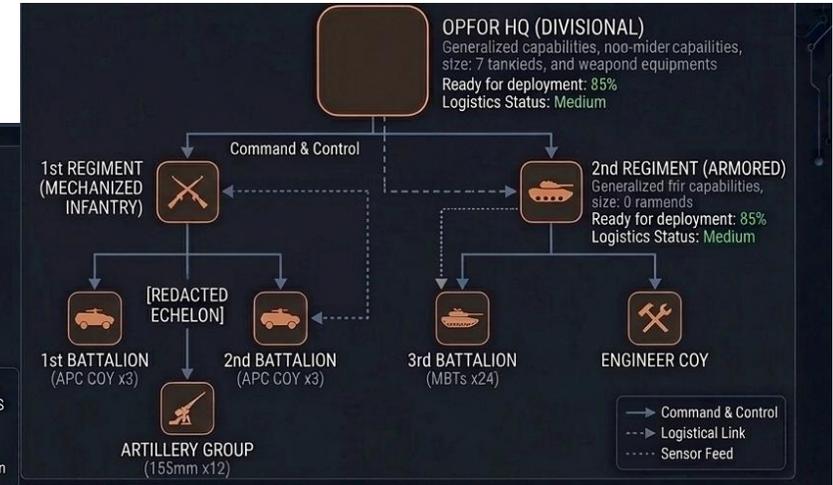
Ready for Verification: 60%

ENSURING HIGH-FIDELITY INTELLIGENCE & REDUCING AUTOMATION BIAS

3



4



RED ORDER OF BATTLE

KNOWLEDGE GRAPH: Create a structured, interconnected view.

ENTITY EXTRACTION: Uses Natural Language Processing to create suggested relationships based on specific prompts.

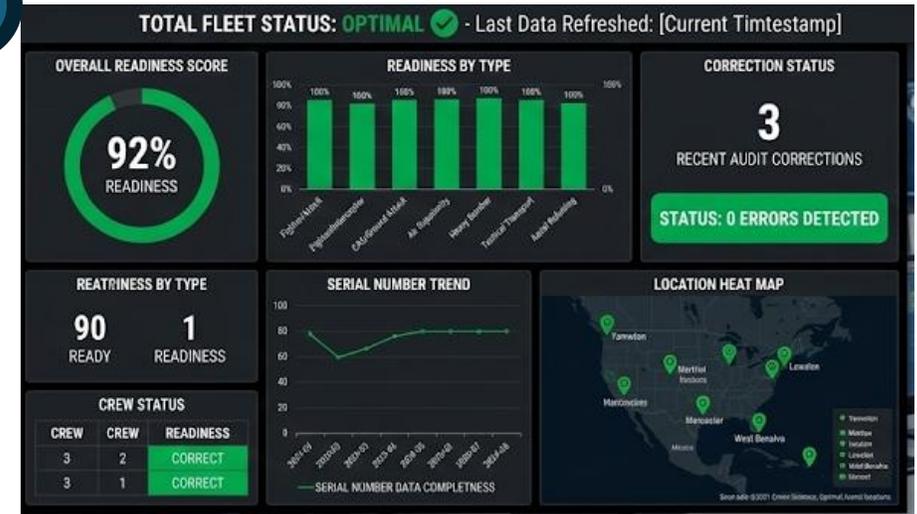


Single Version of the Truth- Executability Analysis



Problem: It takes too long to give my Commander an accurate view of what military capabilities they have to execute our plans as readiness changes.

3



2

FLEET READINESS & CAPABILITY AUDIT (CONFIDENTIAL)

Unit ID	Military Capability	Nomenclature (Aircraft Type)	Serial Number	Status	Crew	Location
UNIT 1	FIGHTER/ATTACK	F-35A LIGHTNING II	7102360	Correct	2	Ewst Anton
UNIT 2	CORRECTED FIGHTER/INTERCEPTOR	F-22 RAPTOR	AF-08-0158	Correct	1	Yamrtion
UNIT 4	CAS/GROUND ATTACK	A-10C WARTHOG	W/72150	Correct	2	Martilian
UNIT 5	FIGHTER/INTERCEPTOR	A-10C WARTHOG	V000013	Correct	2	Lowalon
UNIT 7	CORRECTED AIR SUPERIORITY	F-15E STRIKE EAGLE	AF-91-0300	Correct	1	Yaomion
UNIT 8	CORRECTED HEAVY BOMBER	B-52H STRATOFORTRESS	B-52401H	Correct	2	Mercaster
UNIT 9	CORRECTED TACTICAL TRANSPORT	C-130J SUPER HERCULES	AF-16-5815	Correct	1	Location
UNIT 9	AERIAL REFUELING	KC-135R STRATOTANKER	KC-135R	Correct	2	West Benalva

1

FLEET READINESS & CAPABILITY AUDIT (CONFIDENTIAL)

Unit ID	Military Capability	Nomenclature (Aircraft Type)	Serial Number	Status	Crew	Location
UNIT 1	FIGHTER/ATTACK	F-35A LIGHTNING II	7102360	Correct	2	Ewst Anton
UNIT 2	ERROR FIGHTER/INTERCEPTOR	C-130 HERCULES		MISMATCH: Capability/Type	1	Yamrtion
UNIT 4	CAS/GROUND ATTACK	A-10C WARTHOG	W/72150	Correct	2	Martilian
UNIT 5	FIGHTER/INTERCEPTOR	A-10C WARTHOG	V000013	Correct	2	Lowalon
UNIT 7	MISMATCH AIR SUPERIORITY	AH-64 APACHE		ERROR: Rotary/Fixed-wing	1	Yaomion
UNIT 8	HEAVY BOMBER	B-52H STRATOFORTRESS	B-52401H	Correct	2	Mercaster
UNIT 9	VALIDATION ERROR TACTICAL TRANSPORT	F-16D FIGHTING FALCON		MISMATCH: Bomber/Fighter/Transport		Location
UNIT 9	AERIAL REFUELING	KC-135R STRATOTANKER	KC-135R	Correct	2	West Benalva

Unclean, BUT structured data from 32 nations data, from all joint services

AI assisted cleaning based on highly specific prompting and unsupervised ID of inconsistencies-normalize language, capability mismatch etc

Creates metrics dashboard, use LLM to interrogate the data “ask questions” qualitative and quantitative providing analytics in hands of average person





Go home NOTIONAL DATA

Create Map Sheet Slide deck

Latest

Map Active map Enterprise map AI Tasking Live ISR

Map Sheets Slide decks Videos AI Taskings

Search by title, author, or labels

Enterprise maps

- All maps
- Created by me
- Shared with me
- Shared with my teams
- Favorites

NAME	TYPE	ACTIVE	CREATED BY	LAST UPDATED	LABELS	ACTIONS
Map	Map	Active	...	01/12/2023 4:00 PM		...
Map	Map	Active	...	01/12/2023 3:58 PM		...
Map	Map	Active	...	01/12/2023 3:58 PM		...
Map	Map	Active	...	01/12/2023 3:49 PM		...

Area of Interest /

INTRODUCING AIP FOR DEFENSE

AI processing on SAR imagery has detected potential unusual enemy activity.

AE (YOU)

Show me more details

AIP Assistant

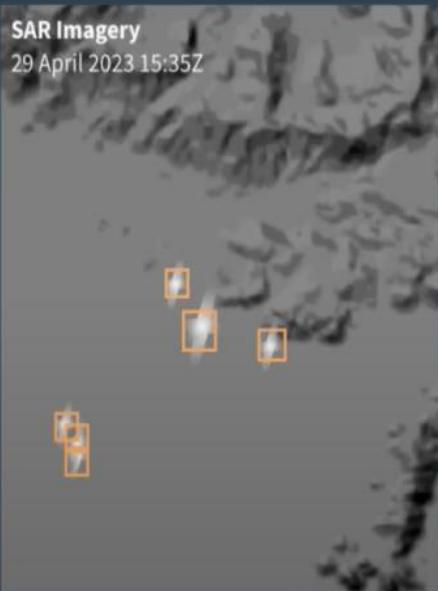
Alert - Anomalous military activity detected

Hand-off Inspector

Here are additional details about this alert.

SAR Imagery

29 April 2023 15:35Z



Summary

This satellite image was captured 8 minutes ago. An algorithm that detects military equipment found 5 pieces of equipment in the image.

Details

Timestamp	29 April 2023 14:39Z
Satellite	StarTech N-58200
Imagery Type	SAR
Image Quality	1m
Algorithm	Military Vehicle Detector V 25.3.0



Start typing something to explore with AIP...



Area of Interest /

INTRODUCING AIP FOR DEFENSE

(MOCK SECRET // NOT OAK) THE NEXT available satellite pass is STANSA-13 in 39 minutes. It has a resolution of 0.5m.

How would you like to proceed?

AE (YOU)

Task the MQ-9 to capture video of this location

AIP Assistant

Tasking Request Sent

Hand-off Inspector

ISR Air Tasking Order

View details

Timestamp	29 April 2023 14:39Z	Imagery Type	EO / IR
Asset	IRIS-52 MQ-9	Tasking ID #	902853-RRN

AIP Assistant

Tasking Request Approved

Hand-off Inspector

ISR Air Tasking Order

View details

Tasking ID #	902853-RRN	Approved on	29 April 2023 14:40Z
Approved by	Col McHansten	Status	Approved

Start typing something to explore with AIP...

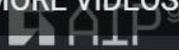


18:27:13 Z

18:22:30 18:23:00 18:23:30 18:24:00 18:24:30 18:25:00 18:25:30 18:26:00 18:26:30 18:27:00

17:28

Live 18:27:13





AIP Terminal

Investigations

Proposals

Share

File Edit

Saved

Battlefield Overview

MOCK DATA

AE (YOU)

Generate 3 courses of action to target this enemy equipment

AIP Assistant

3 Courses of action generated

Hand-off Inspector

Created three options outlined below.

COA 1 — Target with Air Asset

View COA details

Time required	18 min	Distance to target	40.3 km
Asset	HAWK11 (F-16)	Fuel Level	935 kg (89%)
Armament	4x AGM-114	Personnel Req	8

COA 2 — Target with Long Range Artillery

View COA details

Time required	7 min	Distance to target	53.5 km
Asset	Knight 114 (HIMARS)	Vehicle Status	READY
Armament	4x ER GMLRS	Personnel Req	4

COA 3 — Target with Tactical Team

View COA details

Time required	2 hr 15 min	Distance to target	39.5 km
Team	Team Omega	Team Status	On Mission, Ready
Armament	6x Javelin Missile	Personnel Req	9

Start typing something to explore with AIP...



AIP Assistant

Generating route

Hand-off Inspector

Route details

View details

Start Location	11SNV0749708718	Speed	Stryker (40 kph)
End Location	11SNV1292226454	Terrain	Offroad / Mountain

MD (YOU)

How many javelin missiles does Team Omega have?

AIP Assistant

Team Omega has 31 Javelin missiles.

Hand-off Inspector

The nearest unit with Javelin missiles is Team Omega. It is 15.3 km from enemy unit.

Details

View Unit details

Unit Size	ODA	Javelin Missiles	31 / 50	<div style="width: 62%;"></div>
Callsign	OMEGA - 511	R-052 Missiles	25 / 30	<div style="width: 83%;"></div>
Assigned Mission	Horizon Shield	Micro Drone	3 / 3	<div style="width: 100%;"></div>
Vehicle	Stryker	FR-5128 Weapon	13 / 14	<div style="width: 93%;"></div>

Start typing something to explore with AIP...



Selection

SOF Team Omega
Friendly Unit

Updated 3 min ago
Unit Size ODA
Commander CPT Danielson

Munitions Supplies

Javelin Missiles	31/50	<div style="width: 62%;"></div>
M4A1	15/15	<div style="width: 100%;"></div>
5.56 x 45mm	802 / 2k	<div style="width: 40%;"></div>
MK 16 SCAR-L	5/9	<div style="width: 56%;"></div>

Details

Appearance

Area of Interest /

INTRODUCING AIP FOR DEFENSE

Demo > Detect GPS Jamming Trucks

Home > Evaluation

Viewing metrics on

Testing Data - GPS Jammer Truck

Using latest metrics for each model

Select models to view on dashboard

Select models

Clear all

Add specific models to the evaluation dashboard

- Platinum Q v2.5.1
- Platinum Z v2.6
- Platinum Q

Select models...

Search for models

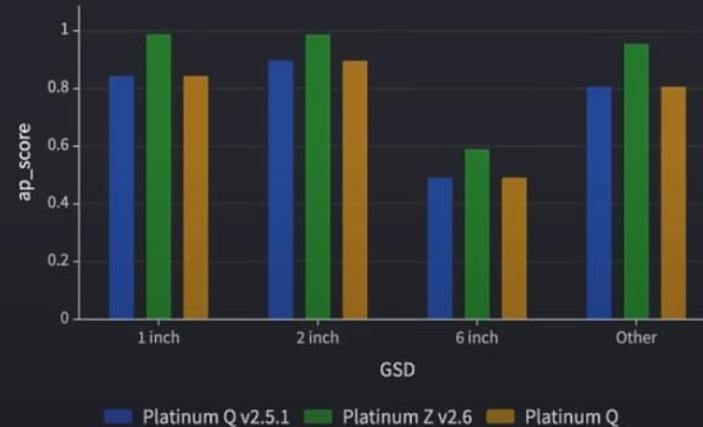
Add models via search results on model metrics or metadata

Search

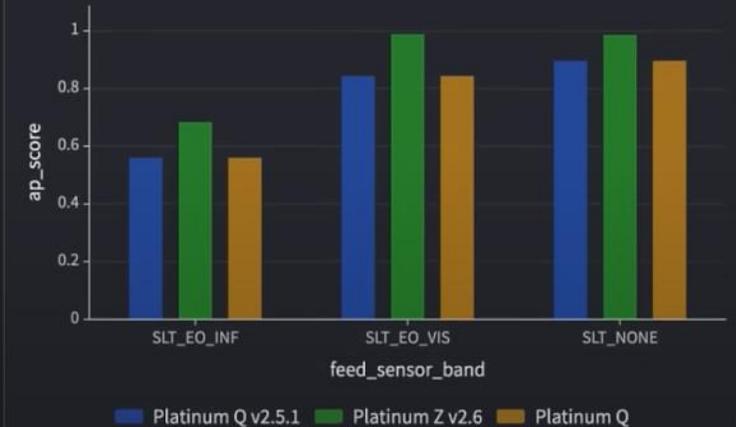
Overall GSD and category category and feed_sensor_band area_code and category All and category area_code All pinned Overview Det

	ap_score	max_f1		ap_score	max_f1		ap_score	max_f1
Platinum Q v2.5.1	0.517	0.557	Platinum Q v2.5.1	0.567	0.712	Platinum Q v2.5.1	0.567	0.712
Platinum Z v2.6	0.568	0.765	Platinum Z v2.6	0.692	0.821	Platinum Z v2.6	0.692	0.821
Platinum Q	0.517	0.557	Platinum Q	0.567	0.712	Platinum Q	0.567	0.712

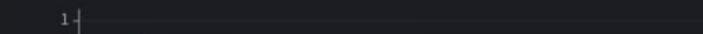
Comparison of ap_score by GSD with category as GPS Jammer



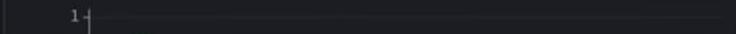
Comparison of ap_score by feed_sensor_band with category as GPS Jammer



Comparison of ap_score by GSD with category as Vehicle



Comparison of max_f1 by GSD with category as Vehicle



MORE VIDEOS

MD (YOU)

Summarize the operation plan

AIP Assistant

Summary of Operation Plan

Hand-off Inspector

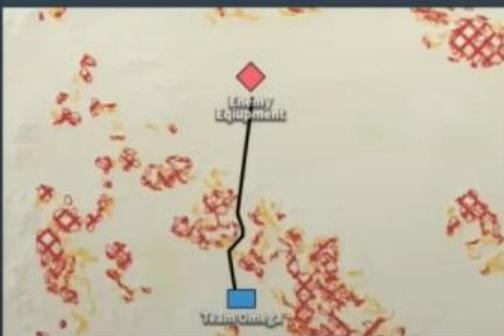
Initiate Communications Equipment Jamming

[View details](#)

Time required	3 min	Distance to target	39.5 km
Assets	3	Equipment Status	Ready
Targets	4	Personnel Req	4

Team Omega move to enemy equipment and engage

[View details](#)



Time required	2 hr 15 min
Team	Team Omega
Armament	6x Javelin Missile
Distance to target	39.5 km
Team Status	On Mission, Ready
Personnel Req	9

Start typing something to explore with AIP...



Targets 4

4

Personnel Req

4

Team Omega move to enemy equipment and engage

[View details](#)



Time required 2 hr 15 min
 Team Team Omega
 Armament 6x Javelin Missile
 Distance to target 39.5 km
 Team Status On Mission, Ready
 Personnel Req 9

MD (YOU)

Submit orders

AIP Assistant

Orders submitted

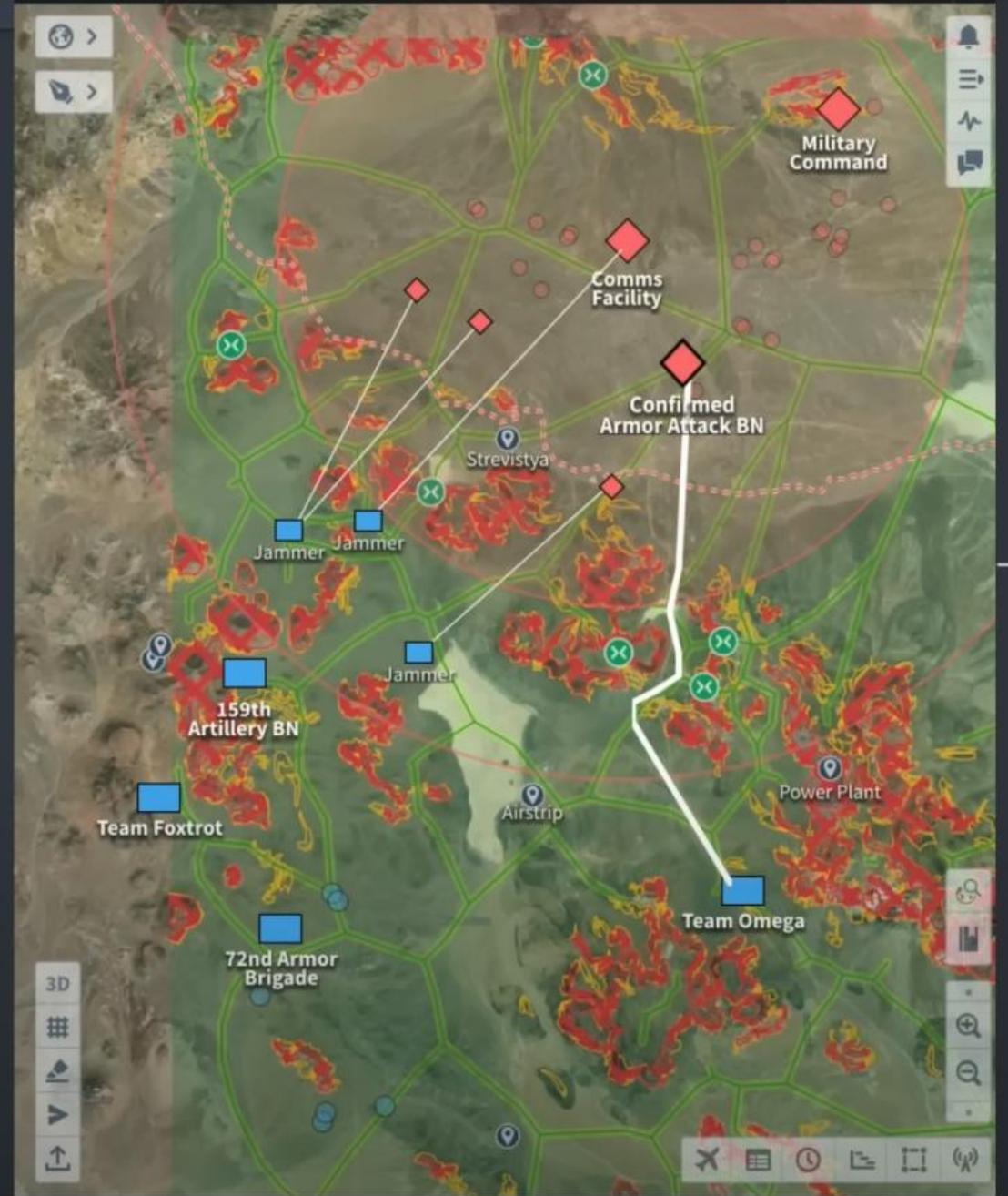
Hand-off Inspector

Operation Plan

[View details](#)

Operation ID #	141440-RPNE-L	Submitted on	29 April 2023 14:40Z
Submitted by	Commander Daniels	Status	Pending

Start typing something to explore with AIP...





Multinational Integrations onto Maven Smart System

DEMO / NOTIONAL DATA ONLY



Safran.AI

Detection Alerting Inbox

Image Viewer

AI Agent Detection Map

Edit ? ? ?



All Search object types and properties...

APPLICATIONS

Applications built for detection exploration

Alerting Application
Get alerts as new detections become available

Image Viewer
View satellite images and ask questions to an AI Agent

OBJECT TYPES 3

Explore foundational Safran.AI Objects

Safran AI Detections 12.01k

Areas of Interest 4

Commercial Satellite Images 25

FAVORITE RESOURCES

Easy access to favorites

Safran.AI & MSS Integration

NATO Industry Day Data Lineage

QUICK LINKS

Jump into helpful resources

Gaia Map
View satellite images and detections in the broader operating environment

Detection to Targeting Automation
Understand how detections become targets



Multinational Integrations onto Maven Smart System



industryday.galileo.com/apps/mapApp/#/id=41DgVqW5XK6vD85ta6v=11.51.54.37284.22.20454

Symbol

Maven Smart System Gaia Map

Reconnaissance Maneuver
Quantum Systems Maneuver

Title: Reconnaissance Maneuver
Priority: No value
Detection Targets: No value
Created at: Nov 19, 2025, 1:28 PM

Tack Maneuver
Delete Maneuver

Mobile: Connect and Control

192.168.243.13.6062

Reconnaissance Maneuver - alpha

Overview

Status: Not started
Total Time: 19 min
Distance: 34.7 km

Vehicle: alpha

Plan

Steps: 60

- 1 Takeoff (AGL: 439 m)
- 2 Waypoint (AGL: 690 m)
- 3 Waypoint (AGL: 690 m)
- 4 Waypoint (AGL: 600 m)
- 5 Waypoint (AGL: 690 m)

Elements

Fleet 3

- TWISTER alpha (Mission, 2 min)
- TWISTER beta (Mission, 2 min)
- TWISTER harly (Mission, 2 min)

Quantum Systems Drone Swarm





Strategic Insights from Past Year



Cost Savings & Benefits



Enabled the most powerful and **secure data integration** in Alliance history.

JWC MEL/MIL Scripting
Workshop (5 Days in Stavanger)
From **425 PAX @ €2M+** to **50 PAX @ €300k**

SHAPE J5 Force Sourcing Impact Dashboard from **3+ months** (still not complete) on **TOPFAS** to **3 days** on MSS



Interim Security Accreditation at record speed. TF Maven is helping change the NATO **Accreditation** process.

Joint Targeting and Effects (JTE)
Bulk target editing and tracking
From **5 days** to **<1 hour**

SACEUR's Strategic Warfighting Dashboard took **6+ months** to build in Power BI but **<6 weeks** to re-implement in MSS with increased capability and data visualisations



Created over 35+ New, Bespoke **Applications** for ACO, providing AI capability to 5k + users now, headed to 10k this year.

OIF Comparison to Present Day AI Use
What took a staff of **2,000+** personnel during OIF only takes **20** people using MSS

Document Summarization for Point Paper Creation
Leveraging LLM
From **3+ days** to **15-45 min**



Any Questions?

THINK SMARTER — DECIDE BETTER — ACT FASTER