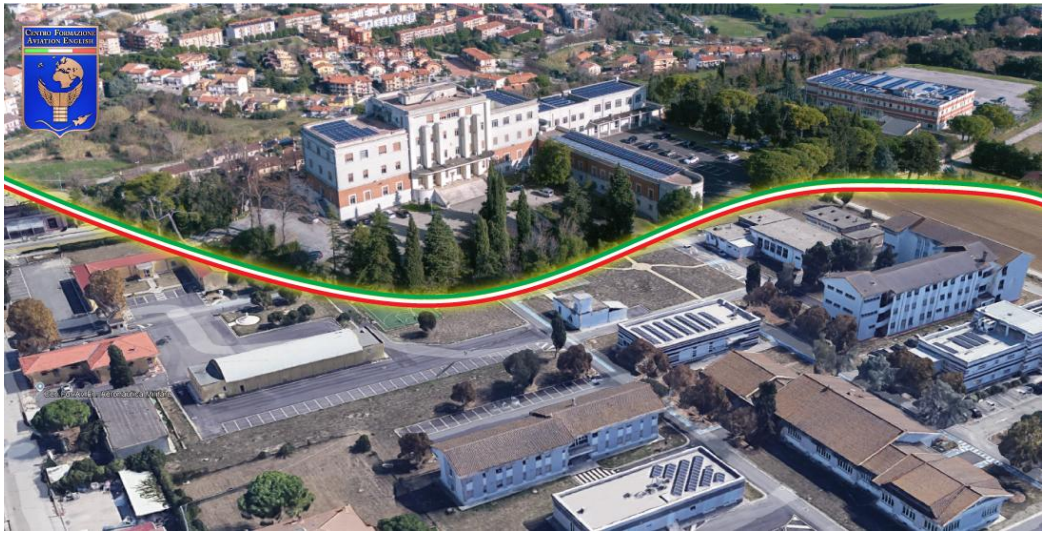


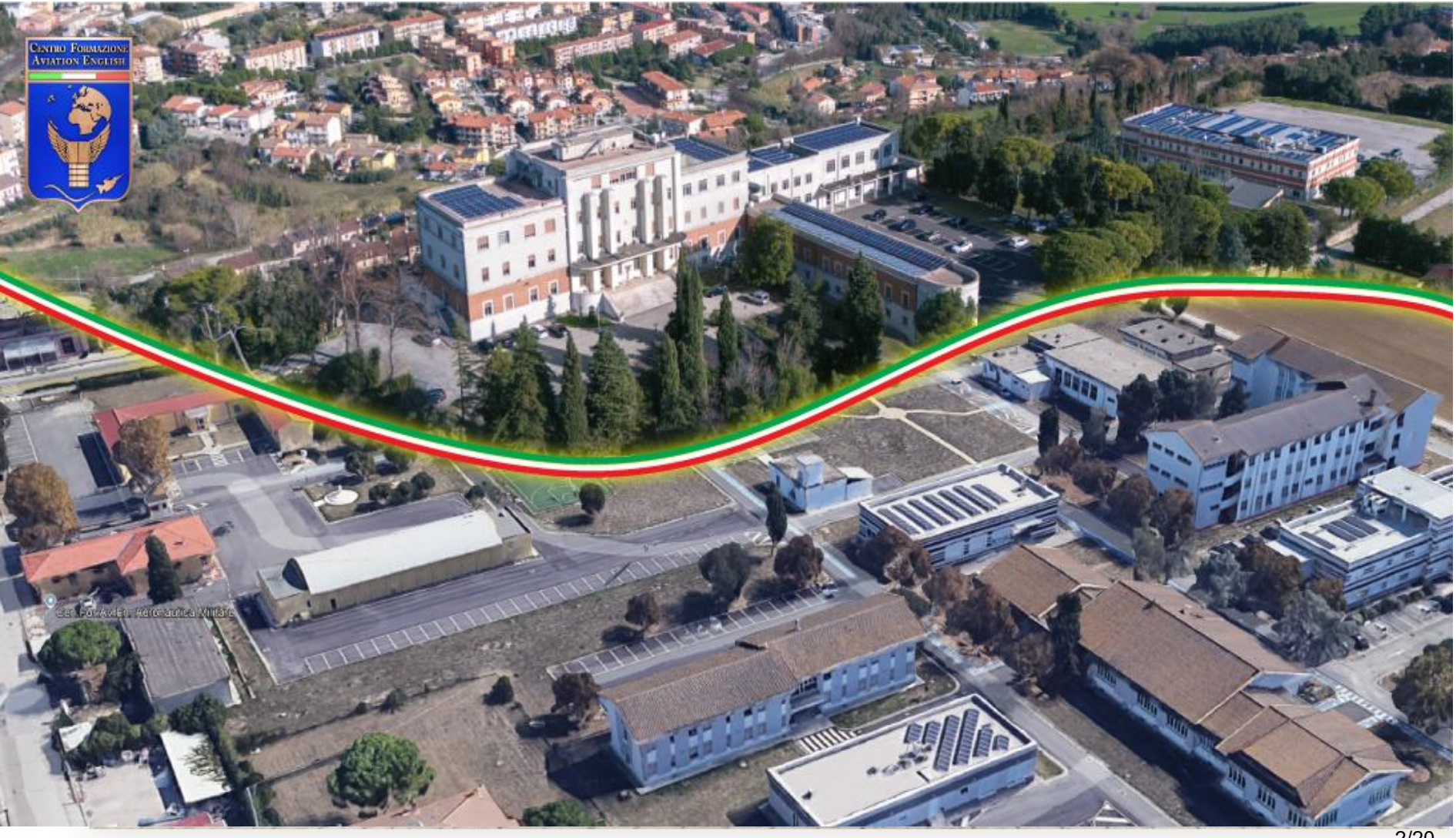
The Human Link: Language Competence for NATO Interoperability and Strategic Communication:

Integrating language requirements into force planning and readiness:

Supporting Language Needs in Air-to-Surface Integration (ATOSI)

CenForAvEn
Commander Col. Marco ATTANASIO

BILC Conference, Budapest 2026
Ms. Angela LOGUE


Centro Formazione
Aviation English

CONTEXT

- Language training for defence personnel:
  - *Navy - Army - Carabinieri*
  - *Coast Guard*
  - *State Police*
  - *Guardia di Finanza*
  - *Firefighters*

  ESP Courses
    - ✓ Aviation English
    - ✓ Maintenance English
    - ✓ Space Operations, Cyber defence & EOB
    - ✓ ATOSI
- Shift in perspective:
  - Language as capability, not subject
  - English as working language of NATO command, coordination & execution

What is ATOSI

- The concept of ATOSI emerged progressively from World War II air–ground cooperation
- Formalised during the Cold War
- Now codified in NATO joint air operations doctrine, although the term itself is a recent training and capability label
- Derived from principles of joint air operations and integration of air capabilities with land and maritime forces as described in AJP-3.3, particularly Chapter 4 (Joint Air Operations)

Italian Joint Air Operations School (ItaJAOS)

- NATO-accredited Joint Air Operations School:
  - *Remote Targeting*
  - *ISR*
  - *Personnel Recovery*
  - *Satellite Imagery*
  - *Space Operations*
  - *Air-to-Surface Integration*
- Doctrine-to-execution interface
- Translation of doctrine into operational systems

Italian Joint Air Operations School (ItaJAOS)

ATOSI COURSE:

The purpose of the course is to: *Prepare personnel for duties related to air to-surface integration (ATOSI)*

- Rooted in NATO doctrine, concepts and operational practices, it provides a tailored training solution in support of the requirement authority and the department head for the air discipline.
- Particular focus on the provision of air support at the NATO operational level of command.
- Specific attention is devoted to the requirements for effective air support integration in multi-domain operations
- Procedures conducted within a joint force air component to coordinate and synchronize air operations

https://www.difesa.it/assets/allegati/46596/itajaos_atosi.pdf

Project Requirement

- Pre-course vocabulary support for ATOSI students
- 30 key doctrinal terms
- Pre-operational cognitive alignment

These terms sit inside:

- Air Tasking Cycle
- Airspace control systems
- Joint targeting processes

Readiness conditioning through terminology access.

GROUP 1 TERMINOLOGY
C2 Structure & Integration Of Operations

1. Joint Force Air Component (JFAC)	6. Air Apportionment Decision
2. Air Operations Coordination Centre (AOCC-L / AOCC-M)	7. Joint Targeting Coordination Board (JTCB)
3. Air Tasking Order (ATO)	8. Joint Target List (JTL / JPTL)
4. Air Operations Directive (AOD)	9. Airspace Control Authority (ACA)
5. Air Tasking Cycle (ATC)	10. Airspace Control Order (ACO)

1. Joint Force Air Component (JFAC)

Definition: The Joint Force Air Component (JFAC) is the commander responsible for planning, directing, and controlling air and space operations in support of the Joint Force Commander (JFC). The JFAC integrates air capabilities into the overall joint campaign.

Operational ATOSI Example: During a joint campaign, the JFAC develops the Air Operations Directive (AOD) and oversees the Air Tasking Cycle to ensure that air missions support land and maritime priorities identified by the JFC.

Core Challenge

Non-native speakers & NATO C2 complexity

- Linguistic Limitation – Complex Environment – Conceptual density
- Each term is not vocabulary. It is a system function.

ATO, AOD, JFAC, ACO - Each represents a different node in operational planning.

Language friction reduces operational thinking time

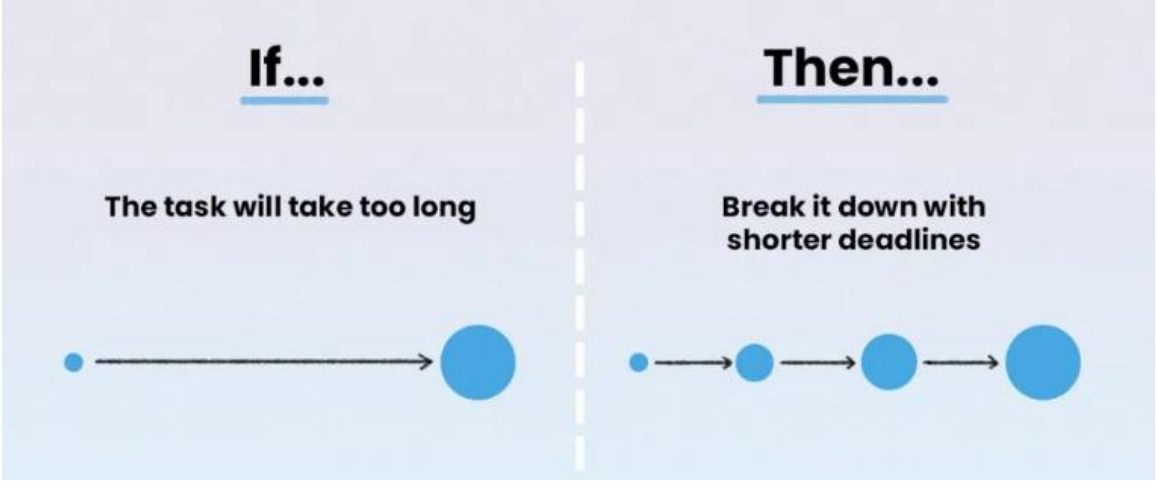
APPROACH

Three principles guided the design:

1. progressive cognitive loading

2. functional clustering

3. contextual embedding



1. Progressive cognitive loading

Joint Force Air Component (JFAC)

Level 1:
The JFAC is the commander responsible for air operations.
Level 2:
The JFAC plans, directs, and controls air operations in support of the JFC.
Level 3:
The JFAC plans, directs, and controls air and space operations and integrates air capabilities into the joint campaign.

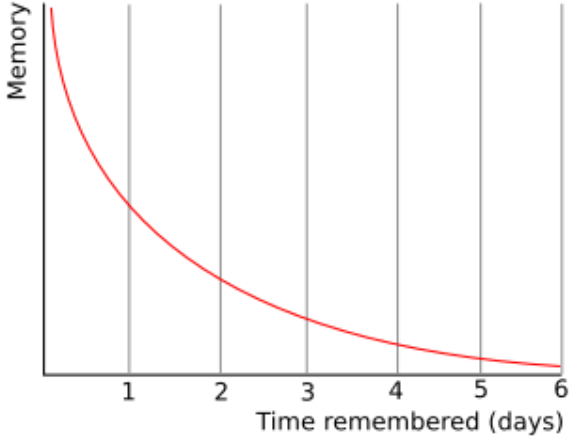
Definition: *The Joint Force Air Component (JFAC) is the commander responsible for planning, directing, and controlling air and space operations in support of the Joint Force Commander (JFC). The JFAC integrates air capabilities into the overall joint campaign.*

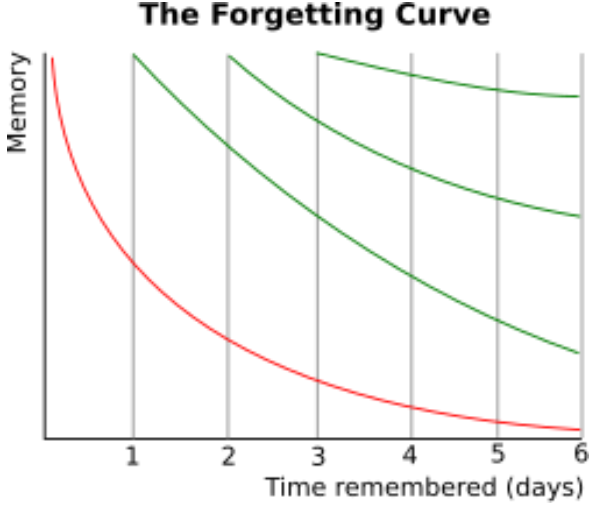
Operational ATOSI Example: During a joint campaign, the JFAC develops the Air Operations Directive (AOD) and oversees the Air Tasking Cycle to ensure that air missions support land and maritime priorities identified by the JFC.

Learning Theory

- **Spaced repetition**
- **Recognition** → comprehension → recall
- Improved retention under operational pressure

Hermann Ebbinghaus: *The Forgetting Curve & The Spacing Effect*





2. Functional clustering

GROUP 1 TERMINOLOGY

1. Joint Force Air Component (JFAC), Air Operations Coordination Centre (AOCC-L/AOCC-M)
2. Air Tasking Order (ATO), Air Operations Directive (AOD), Air Tasking Cycle (ATC), Air Apportionment Decision
3. Joint Targeting Coordination Board (JTCB) Joint Target List (JTL / JPTL)
4. Airspace Control Authority (ACA) Airspace Control Order (ACO)

1. Command & Control **JFAC - AOCC** **Directs and coordinates air operations**	**2. Planning & Tasking** **AOD – ATC – Air Apportionment – ATO** **Defines priorities and assigns missions**
3. Targeting **JTCB - JPTL** **Selects and prioritises targets**	**4. Airspace Management** **ACA - ACO** **Ensures safe & coordinated use of airspace**

3. Contextual embedding

Developing procedural capability

- The **JFAC** issues the **AOD**, prioritising maritime operations.
- During the **ATC,** air assets are allocated to support these priorities.
- The **JTCB** selects and prioritises targets, producing the JPTL.
- The **ATO** is then published with assigned missions.
- The **AOCC-M** coordinates execution with maritime forces.

1. Identify the sequence:
What comes first: ATO, AOD, or ATC?

2. Match the function:
Who prioritises targets? What document assigns missions?

3. Complete the sentence:
The JPTL feeds into the _____

Implementation

- Three-layer structure: definition, scenario, reinforcement
- Embedded within operational reasoning
- From memorisation to system function knowledge

SAC Collaboration

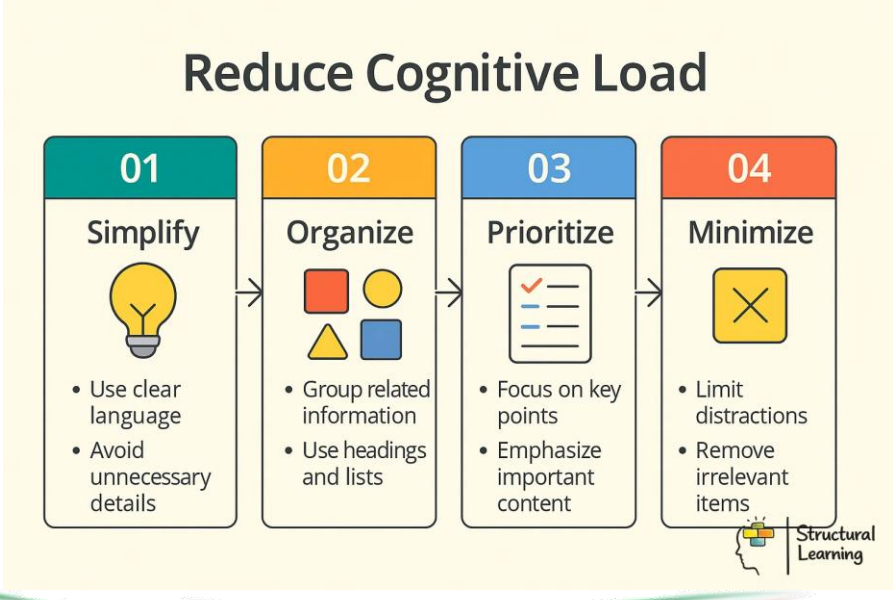
- Prioritised vocabulary selection
- Operational frequency and mission relevance
- Alignment with real-world doctrine

NATO Alignment

Traditional view	Emerging view
Language supports training	Language supports readiness
Separate from operations	Embedded in operations
General proficiency focus	Task-specific communication focus
Educational responsibility	Shared operational responsibility
“Learn English, then deploy”	“Develop language within operational capability”

Key Expectations

- Reduced cognitive load
- Faster terminology decoding
- Increased operational reasoning time

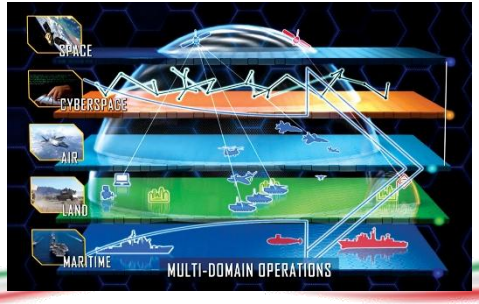


Way forward?

- Satellite imagery language

- Personnel recovery terminology

- Multi-domain lexicons



Conclusion

- Language as operational capability
- Core enabler of interoperability

IF LANGUAGE FAILS INTEROPERABILITY FAILS