



NATO Modelling & Simulation Centre of Excellence

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M&S COE E&T Section Chief

Provide an overview of
the main tasks, activities, of the NATO M&S
COE, including current and future
cooperation among JWC

The information in this presentation only represents the point of view of the NATO M&S COE about the subject according to our knowledge and expertise, and does not reflect the official policy or position of any other organization or National position.

Agenda

1. Introduction
2. Contributions to NATO, COE Projects
3. Takeaways
4. Discussion/Questions





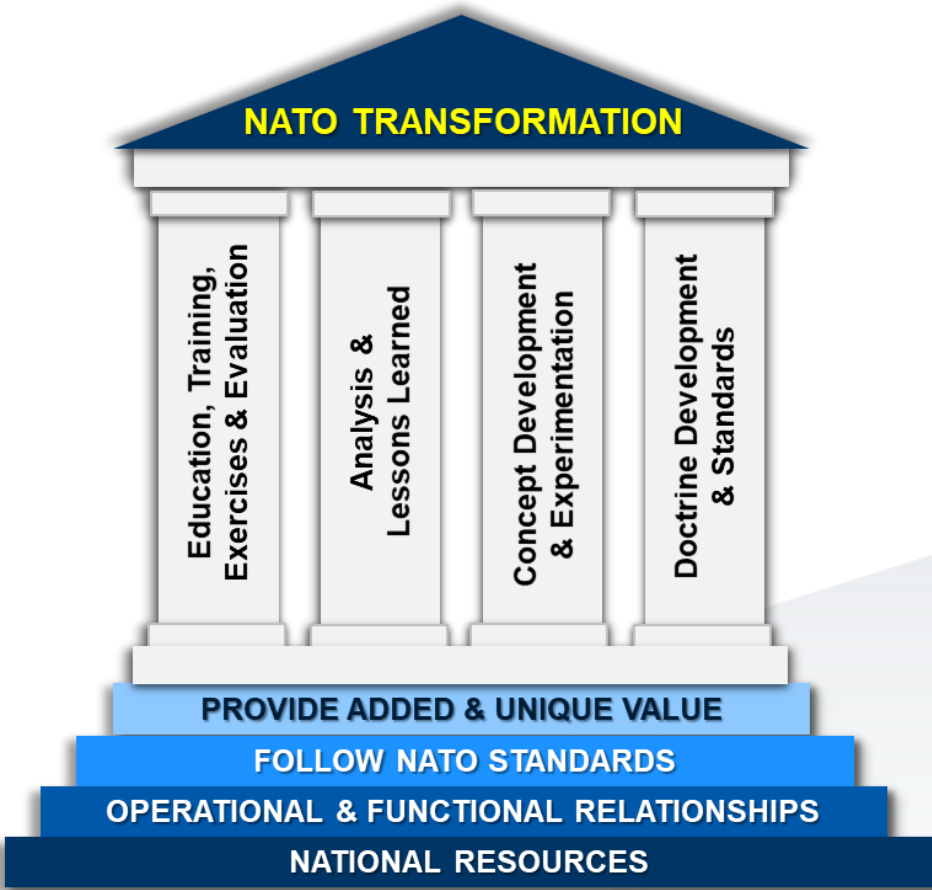
1. Introduction



NATO Accredited COEs



NATO Accredited COEs



Principles

- Established by NATO nation for mutual benefit to NATO and sponsoring nations
- Nationally or Multi-Nationally Funded = No cost to NATO
- Not part of NATO Command Structure; but Conform to NATO procedures, doctrines, and standards
- Relationships with Strategic Commands through Memorandum of Understanding agreements
- Relationships with partners are supported and encouraged

NATO MC 0685

MC Concept for Centres of Excellence

1. Introduction

NATO Accredited COEs



1. Introduction

History

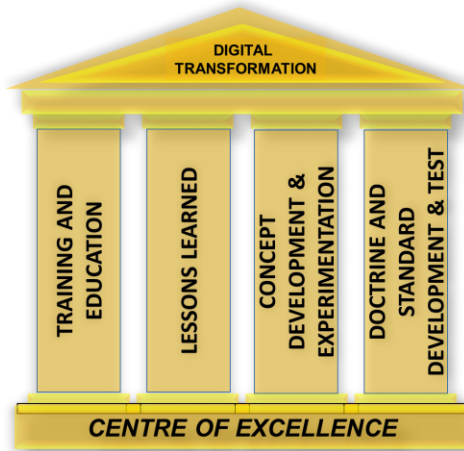


*Temporary

Vision, Mission & Goals

VISION

To **contribute to NATO Transformation** by enhancing operational effectiveness and resource management.

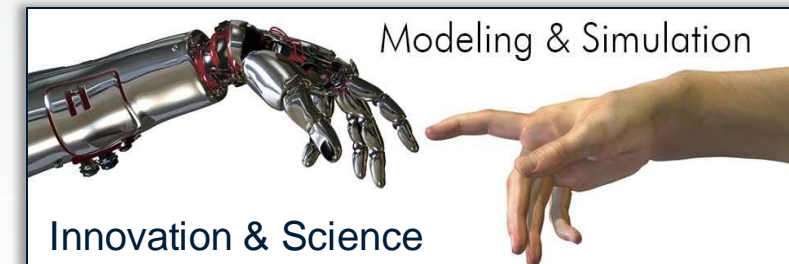


MISSION

To **support NATO, its Nations and Partner Nations** by providing leadership, **subject matter expertise**, and technological capability in all aspects of M&S activities.

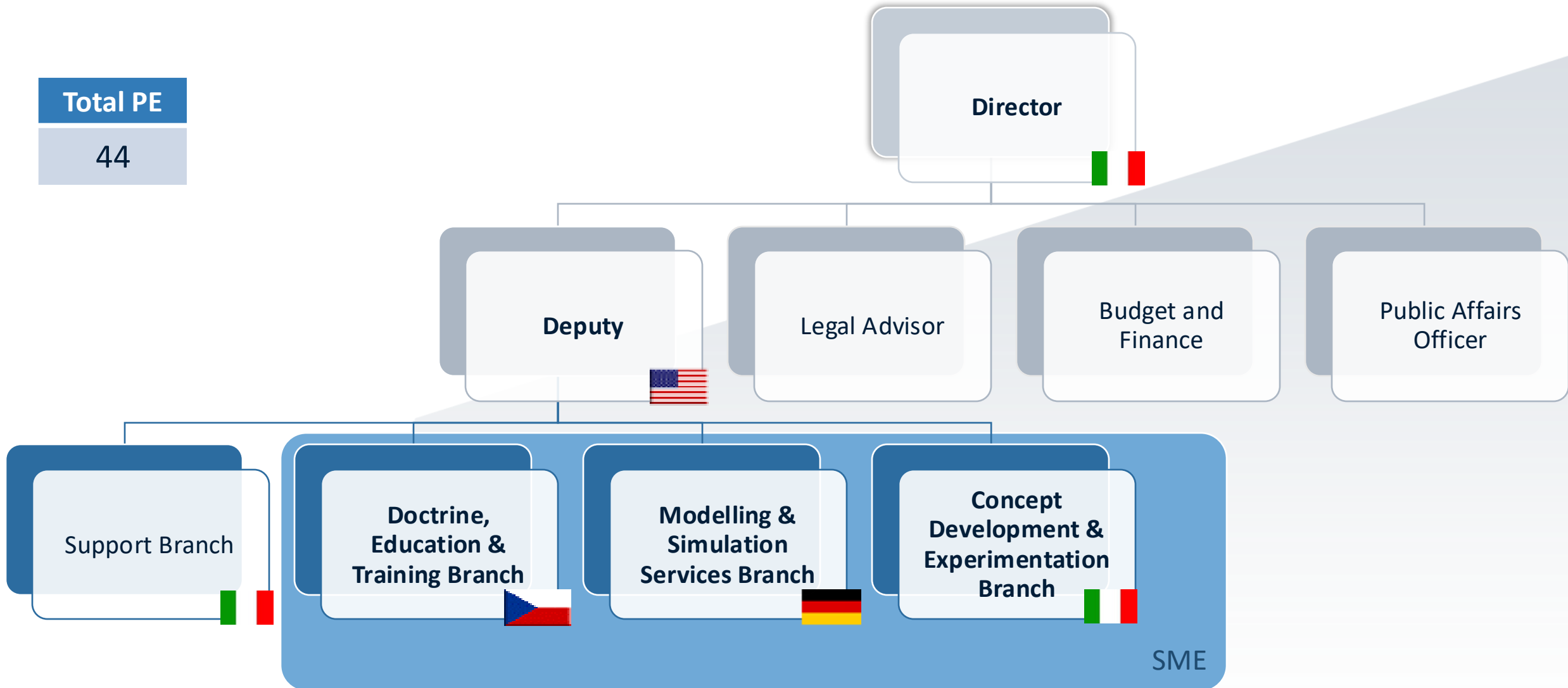
OUR GOALS

- Be the **core** of NATO's M&S expertise
- Improve cooperation between NATO and other entities for the development and construction of M&S capabilities
- Take a global approach to **support the M&S capabilities of NATO, Nations and Partners**



Organization

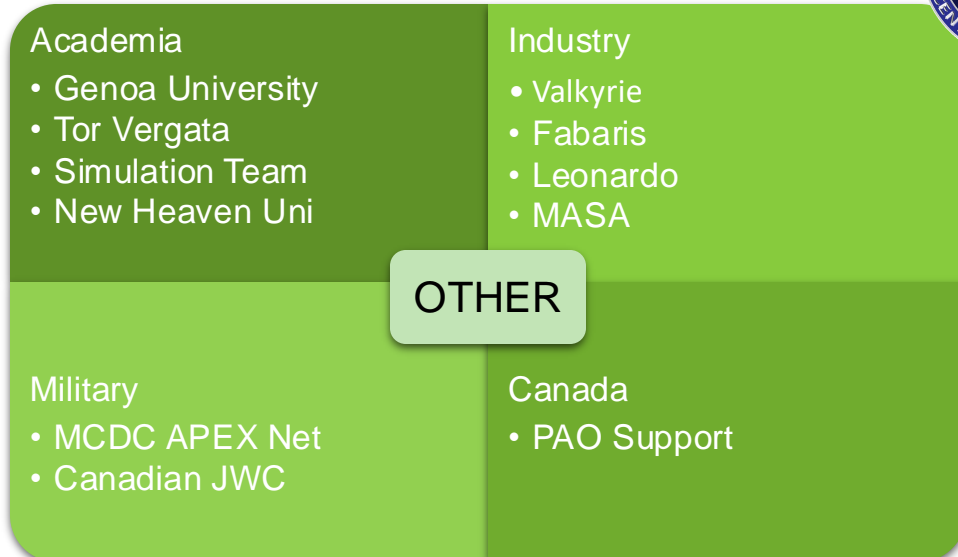
Total PE
44



1. Introduction



Relationships



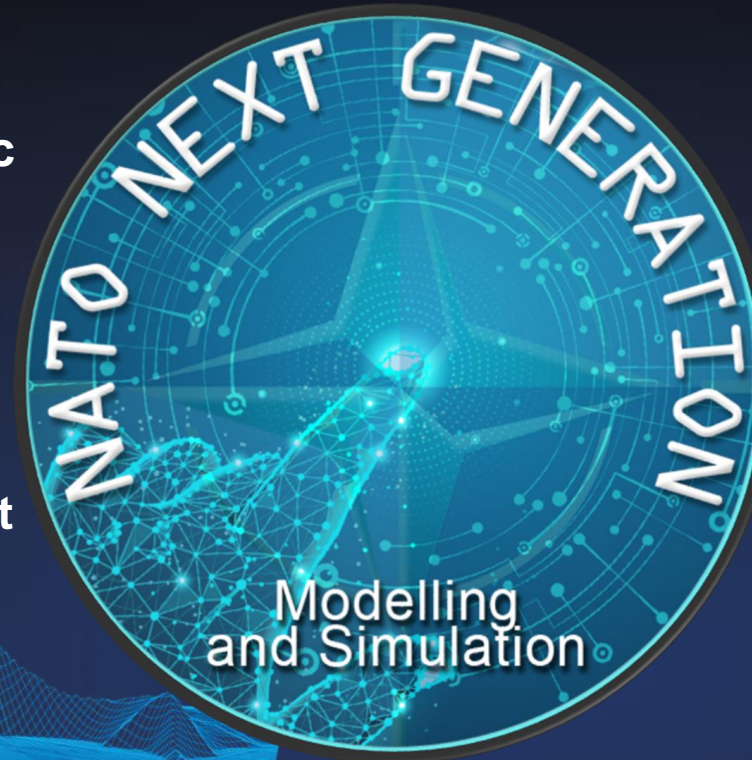
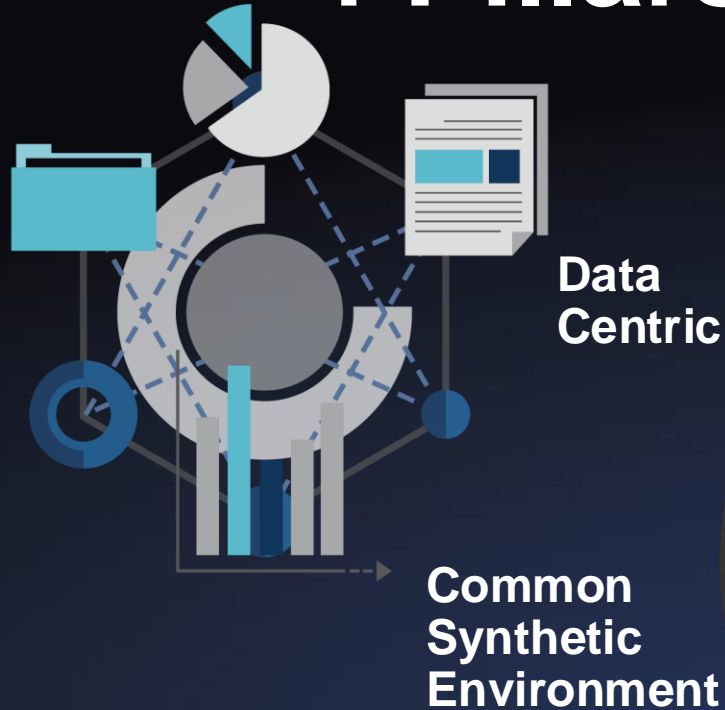
Agenda

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Next Generation of M&S (NEXGEN)

4 Pillars of NATO NexGen M&S



Modular Architecture

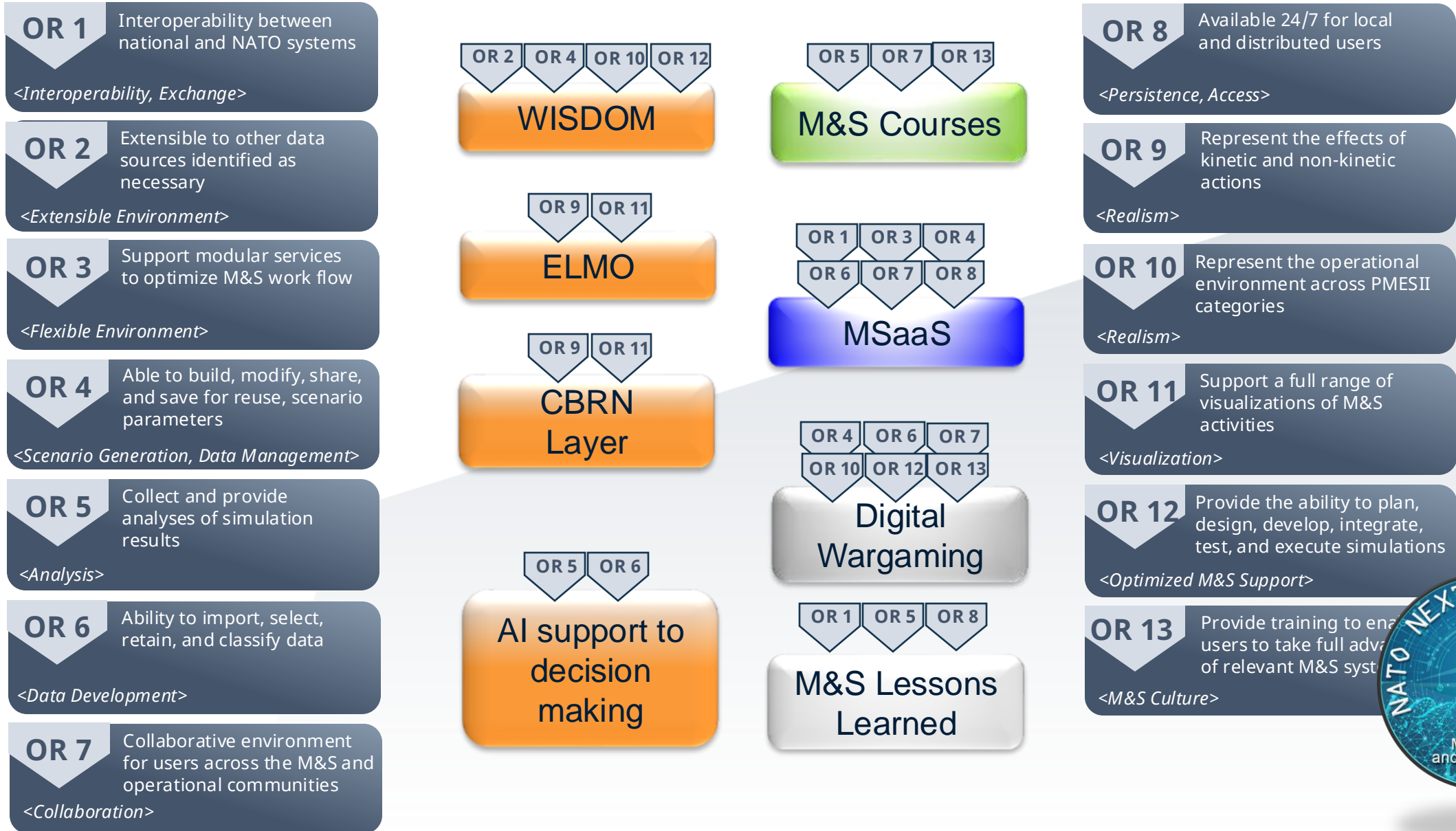


Web Enabled



2. Contributions to NATO, COE Projects

Next Generation of M&S (NEXGEN)



2. Contributions to NATO, COE Projects

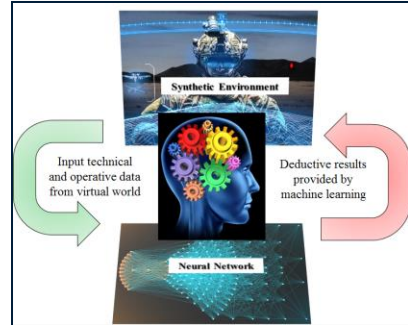
Concept Development & Experimentation (CDE)

- M&S MASTER PLAN UPDATE
- WDA SUPPORT
- MCDC APEX NET
- SUPPORT TO LL PROCESS
- M&S CBRN DOCTRINE
- M&S NEXGEN SUPPORT

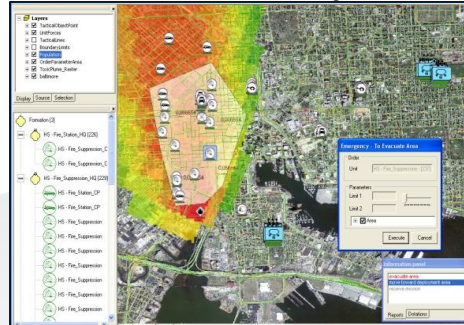
- ❑ Research activities with NATO ACT, NMSG and MCDC
- ❑ CD&E support to NEXGEN
- ❑ Doctrine development
- ❑ Lessons Learned support

- ELMO
- M&S IN SUPPORT OF CBRN
- AI/ML IN SUPPORT OF M&S

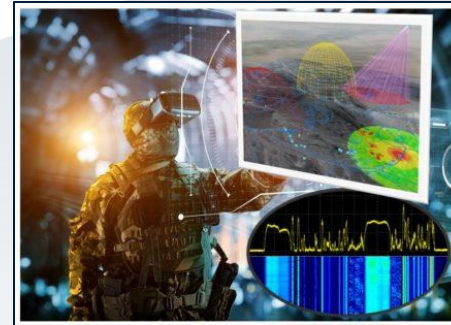
AI support



CBRN Layer



ELMO




- Internship Program (Universities)

- ❑ Outreach to Universities to provide qualified interns
- ❑ Enriching project outputs through niche expertise

2. Contributions to NATO, COE Projects

Modelling & Simulation Services (MSS)



SAS-172
SAS-180
SAS-223
CAX support
WIN25 support
Cyber Wargame
Cyber Simulator



Support WG activities

- Support to MSG - SAS activities
 - Support to NATO CAX exercises
 - WIN Event 2025
 - Digitalization of **Cyber Wargame CHESS**
 - Development of a strategic cyber simulator
-
- Support to CZE Wargaming events
 - Support to DEU Wargaming events
 - Support to **NDC Wargaming events**



2. Contributions to NATO, COE Projects



Doctrine, Education & Training (DET)

❑ **NATO Accredited COE**

The NATO M&S COE is an officially accredited E&T facility within NATO.

❑ **Support to NATO and Partner Nations**

The M&S COE provides SME, leadership, and training to enhance operational effectiveness for NATO, its member nations, and partner countries.

❑ **Aligned with NATO Standards and Procedures**

Fully conforms to NATO's doctrines, standards, and guidelines in the delivery of high-quality educational and training services.

❑ **Internationally Recognized Courses**

Offers a range of NATO-approved M&S courses, such as NATO M&S Course, CAX Specialist Course, and JTLS-GO Foundation/Practitioner Courses.

❑ **Continuous Improvement and Expansion**

Constantly evolves its training portfolio to meet the needs of NATO and its partners, ensuring the highest level of preparedness in M&S capabilities.



2. Contributions to NATO, COE Projects

Doctrine, Education & Training (DET)



NATO M&S Basic Course

NATO Integration Specialist Course

NATO CAX Specialist Certification Course

NATO M&S Course Development

NATO M&S support to Exp and Wargaming Course Development

ADL 211 M&S Introductory Course - Review



JTLS Foundation Course

JTLS Practitioners Course

- 3x NATO Approved M&S Courses
- Courses development and revision
- Quality Assurance
- Support to NATO Doctrine

- 2x Courses on JTLS-GO
- Opportunity for future accreditation



M&S Basic
CAX Specialist
M&S Integration Specialist

2. Contributions to NATO, COE Projects

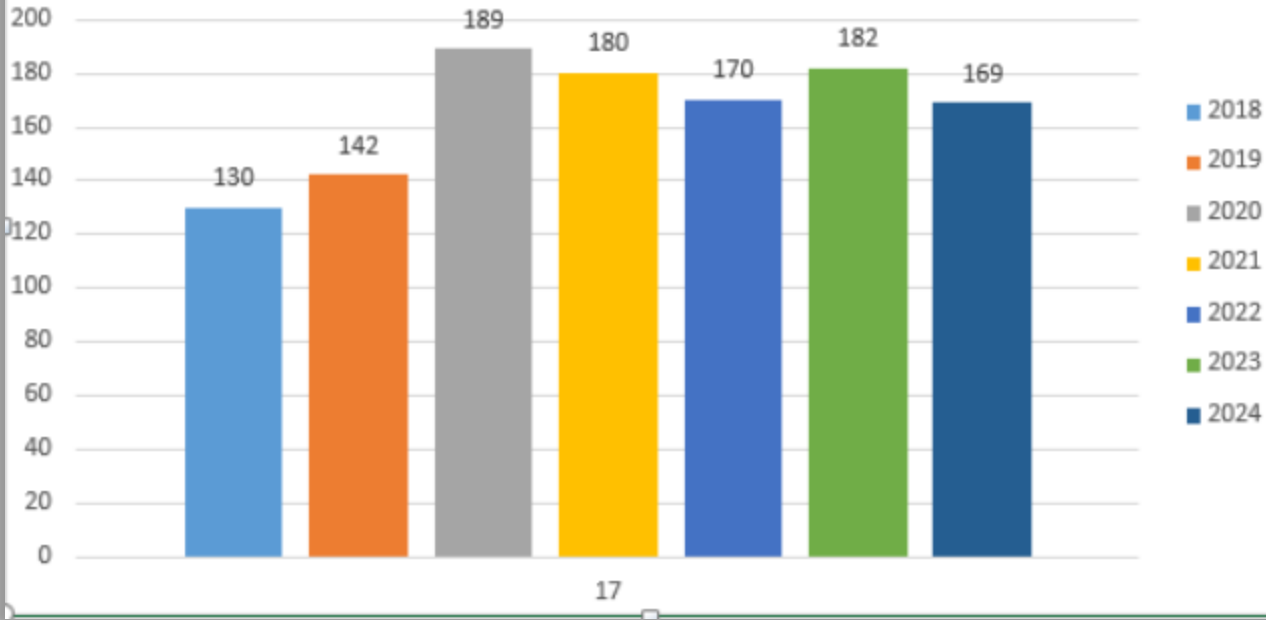
NATO M&S COURSE PORTFOLIO

- 1 ADL 211 M&S Introductory Course v.1.0 - 24/7
- 2 NATO M&S BASIC Course - Spring & Autumn
- 1 NATO Integration Specialist Course - Spring
- 1 JTLS-GO Foundation Course - Summer
- 2 NATO CAX Specialist Course - Winter & Summer
- 1 JTLS-GO Practitioner Course - Autumn

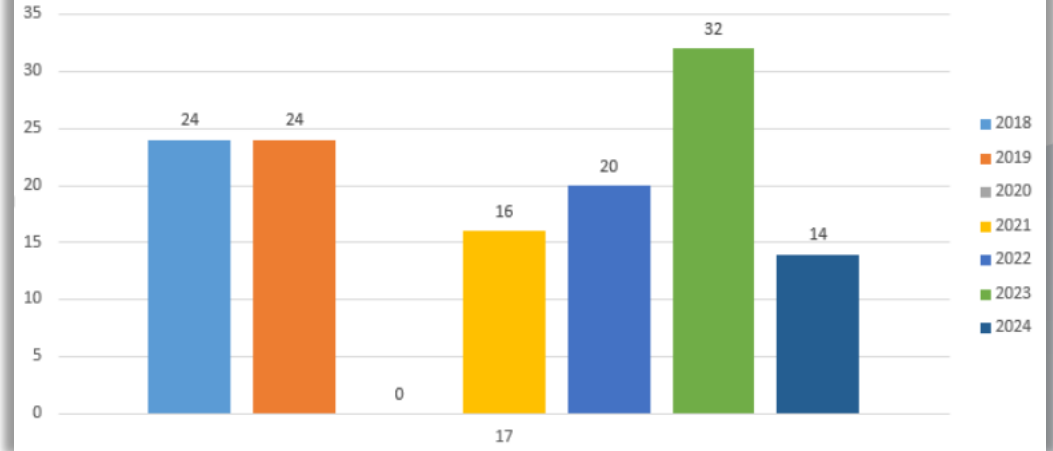
**M&S COE portfolio in 2023
expanded from 4 to 8 courses!**

2. Contributions to NATO, COE Projects

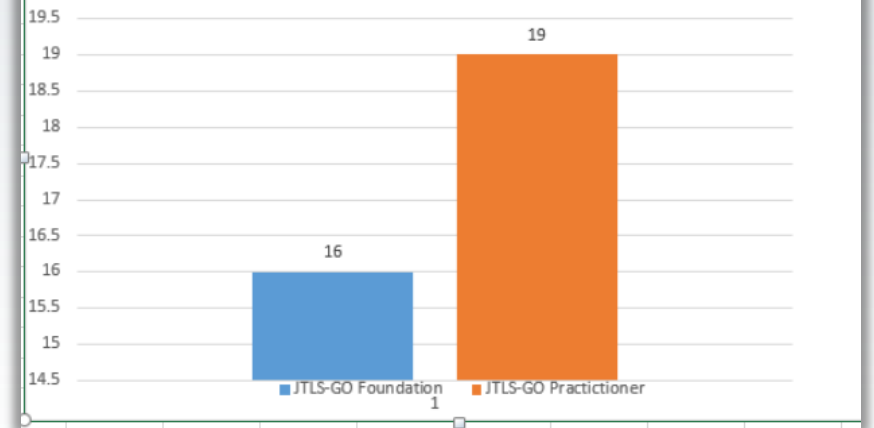
NATO M&S COE TRAINING CERTIFICATES



Cax Specialist



JTLS-GO SINCE 2023



JWC – M&S COE CUSTODIAN STUDENTS LIST COMMON DB

2. Contributions to NATO, COE Projects

2023 1st NEW WINTER EDITION



DEC 2023
16th Edition
supported by
NATO JWC –
CESIVA (ITA-A)

Provide students
basic **knowledge**
package about
NATO exercises
and training

Develop **basic**
CAX **operator**
skills; requisite
for an effective
conduction of a
CAX

Create a **pool of**
NATO CAX
specialists
deployed into
Response Cells
within NATO
CAX's.



2. Contributions to NATO, COE Projects

Professional Forums

- ❑ Computer Assisted Analysis, Exercise, Experimentation (CA2X2) Forum
- ❑ 23-25 September 2025, Rome IT
- ❑ On behalf of NATO ACT
- ❑ 383 Participants, 34 Nations, 31 Exhibitors, 57 Panels and Sessions



- ❑ Modelling & Simulation for Autonomous Systems (MESAS) Conference
- ❑ 21-23 October 2025, Istanbul TR
- ❑ Cooperation with the Czech UoD
- ❑ 33 Participants, 10 Nations, 4 Universities, 9 Military Organizations

24|25|26 SEPTEMBER 2024 **ROME ITALY**

CA2X2FORUM 19TH EDITION | 2024

Enabling Multi-Domain Operations through M&S



[MSCOE.ORG](https://mscoe.org)   



3. New ACT M&S Requirements

NEW EXP & WG COURSE

ACT REQUIREMENTS

- PO1. Produce a SIM based Experiment Report**
- PO2. Apply Data Contribution techniques to SIM**
- PO3. Develop SIM Hardware Requirements**
- PO4. Coupling a M&S and WG event report**
- PO5. Coord.of M&S Demand and Access Services**

NEW M&S COURSE LVL 300

ACT REQUIREMENTS

- PO1. Identify, Dev.ment, Val. and Coord M&S Req.**
- PO2. Identify & Coord Dev.ment of M&S Solutions**
- PO3. Track M&S Tech.gy Progress while Coord. Res.ch and Dev.ment in M&S**
- PO4. Provide advice & expertise in NATO M&S policy, programmes & project context**
- PO5. Final Performance**

1. Introduction
2. Contributions to NATO, COE Projects
3. **Takeaways**
4. Discussion/Questions



4. Takeaways

- Interaction between JWC, JFTC, and MS COE enhances collective training and specialized education.
- JWC and JFTC provide large-scale training context and operational planning; MS COE offers advanced simulation expertise.
- Creation of an Italian Joint Warfare Centre (IJWC) would foster synergy with allied forces, boosting training quality and effectiveness.
- The ITA JWC would specialize in complex multi-domain warfare scenarios, enhancing interoperability between Italian and allied forces.
- Direct collaboration with NATO JWC would leverage existing competencies, optimizing costs and ROI.
- The center would provide targeted training, improving readiness and response capabilities for Italy and NATO.

4. Takeaways

- ❑ NATO M&S COE is the ITA JTLS-GO License Holder
- ❑ NATO M&S COE JTLS-GO courses directly support NATO JWC & ITA Joint Op HQ
- ❑ Propose including NATO M&S COE JTLS-GO courses in the IUC course portfolio
- ❑ Enhance cooperation to expand NATO M&S JTLS-GO course offerings within the IUC

1. Introduction
2. Contributions to NATO, COE Projects
3. Cooperation with JWC
 - ✓ Current
 - ✓ future
4. Takeaways
5. Discussion/Questions



5. Discussion/Questions

1 Centre of Excellence, **4** Nations
Connecting a Community of Interest
In the thousands!





NATO Modelling & Simulation Centre of Excellence

Col. Francesco PACILLO, ITA A

M&S COE Director