

MSG-140 Urban Combat Advanced Training Technology (UCATT)



Live Simulation Standards



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Background

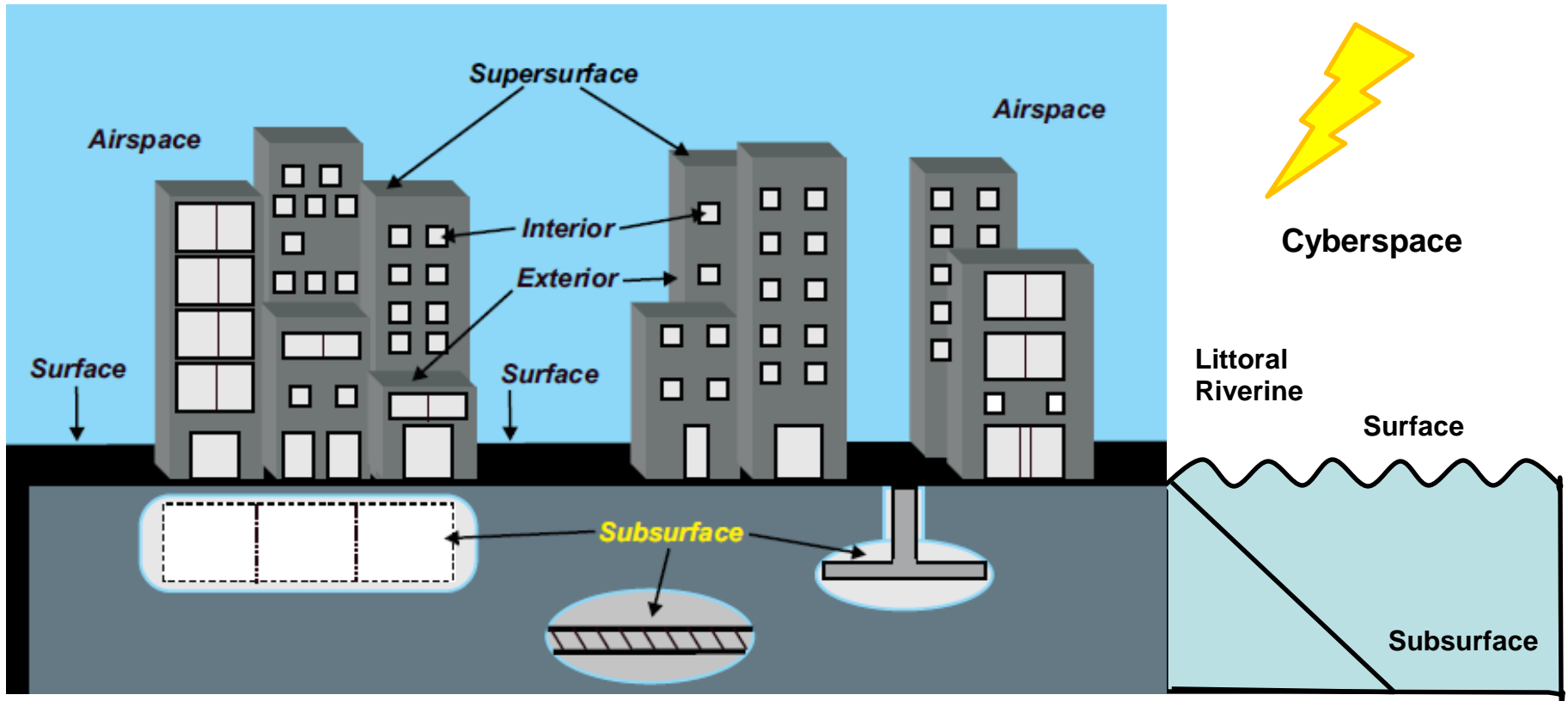
Early 2000 two NATO studies observed that:

urban areas will continue to increase in number and size and are likely to become focal points for unrest and conflict. The physical and human complexity of this environment presents unique challenges for a NATO commander which are not adequately addressed by those military capabilities designed for open environments

Training was recommended as an area that needed to be improved



Urban Ops: the most complex environment



Justification of our mandate

NATO AMSP-01(C):

“The MS3 recognises, however, that much more work is required before open M&S standards enable the targeted interoperability of live training systems both with other live systems or with virtual or constructive simulations”



Overall mission of UCATT

To identify and standardise the interfaces that allow interoperability of different systems for Live Training focusing on the urban environment and to maintain our delivered products.

To allow the customer to:

- Train in an international context
- Choose components instead of systems

To allow industry to:

- Compete on new markets
- Focus on their strengths



Why standardise?



Training is the new operations

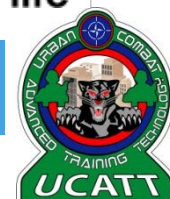
“Deterrence is back”

- NATO Review Magazine

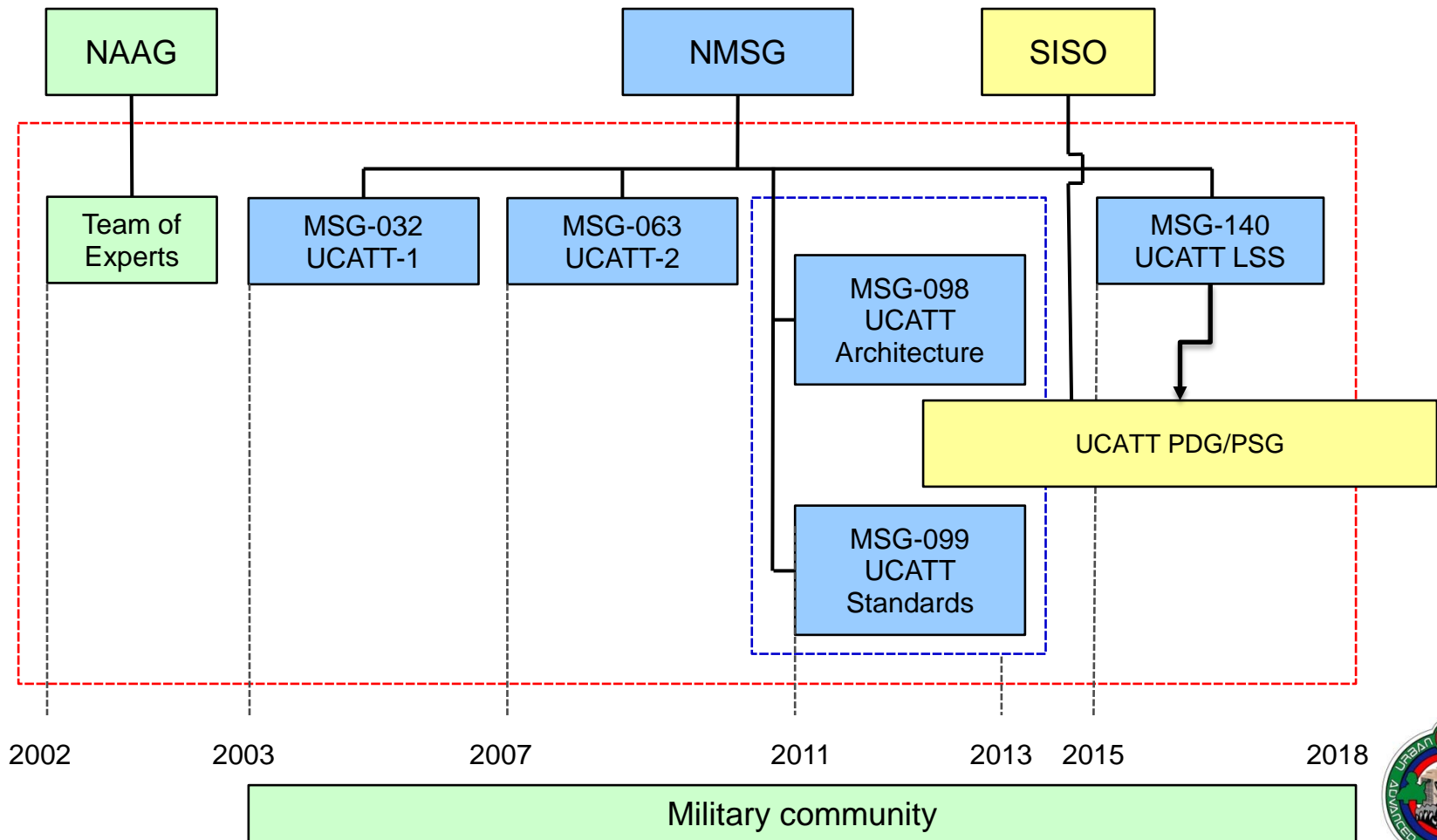


UCATT-LSS members

Country	Military	GOV	Industry	Companies
 Norway	X	X		
 United States	X	X	X	Cubic US, MITRE, Lockheed Martin US
 Switzerland	X		X	RUAG
 Germany	X	X	X	RDE, RUAG
 Sweden	X	X	X	SAAB
 Netherlands	X		X	TNO
 United Kingdom		X	X	QinetiQ, Lockheed Martin UK, Cubic UK
 France	X	X	X	Airbus, Thales
 Canada	X		X	MIL SIM FX
 Austria	X			
 New Zealand			X	Cubic NZ
 Slovenia	X			
 Denmark	X			

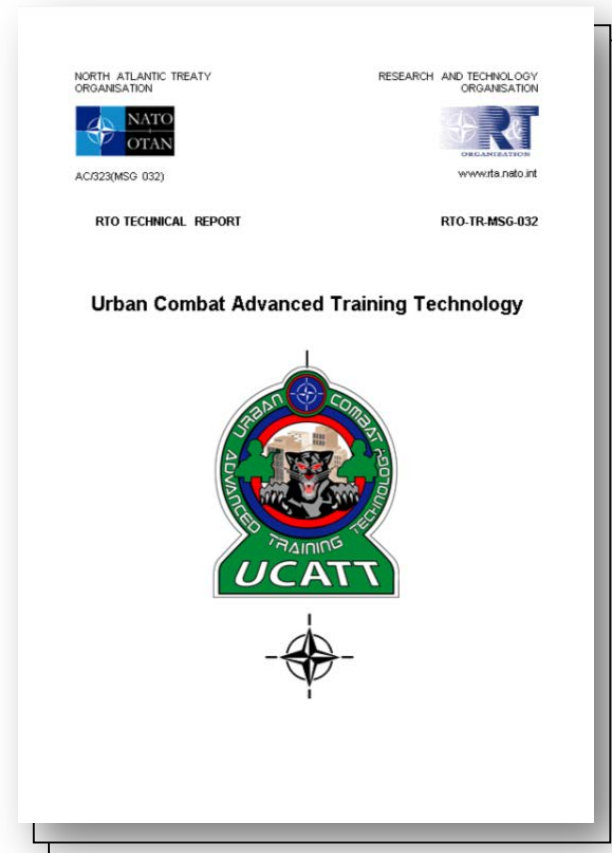


UCATT structure - overview

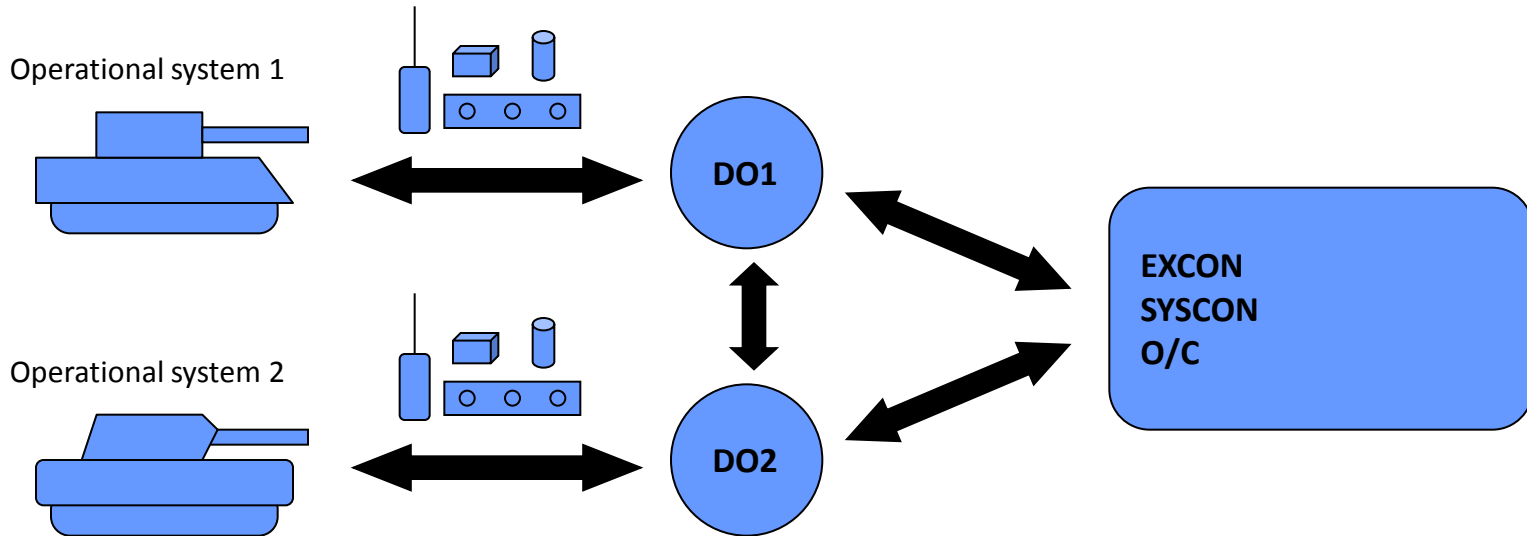


UCATT-1 (2003 – 2007)

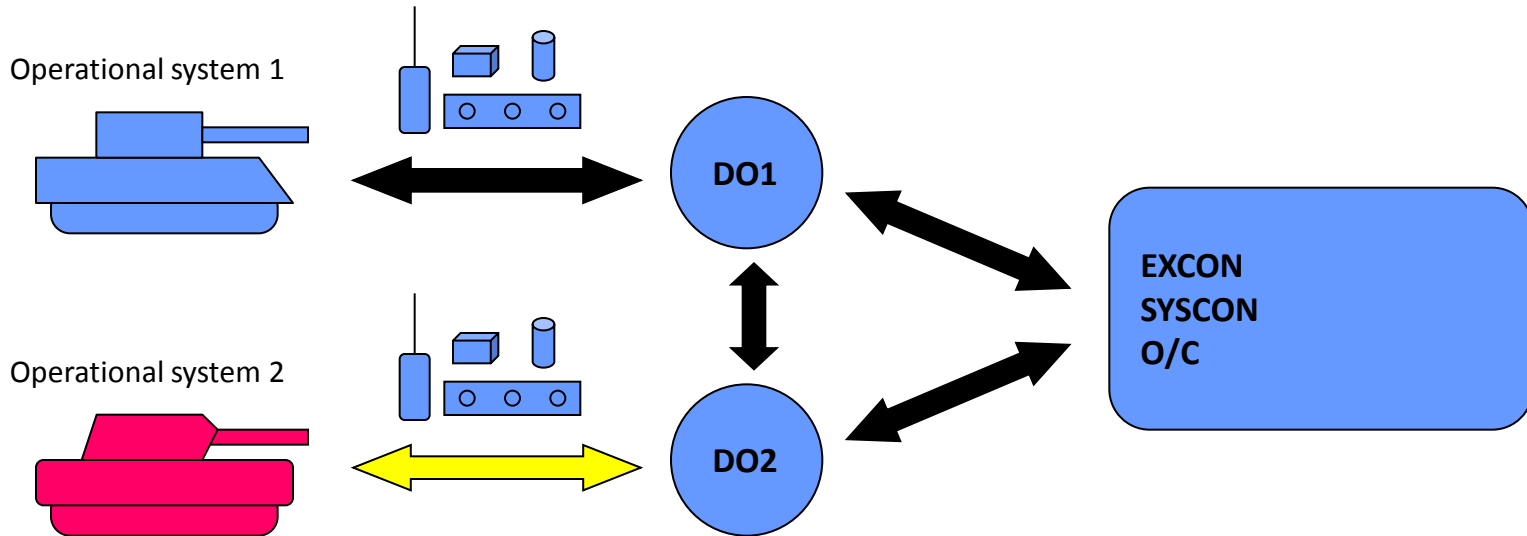
- Use Cases
- Terminology
- List of user requirements
- Initial development of the Functional Architecture
- Urban training Site register
- UCATT-1 report



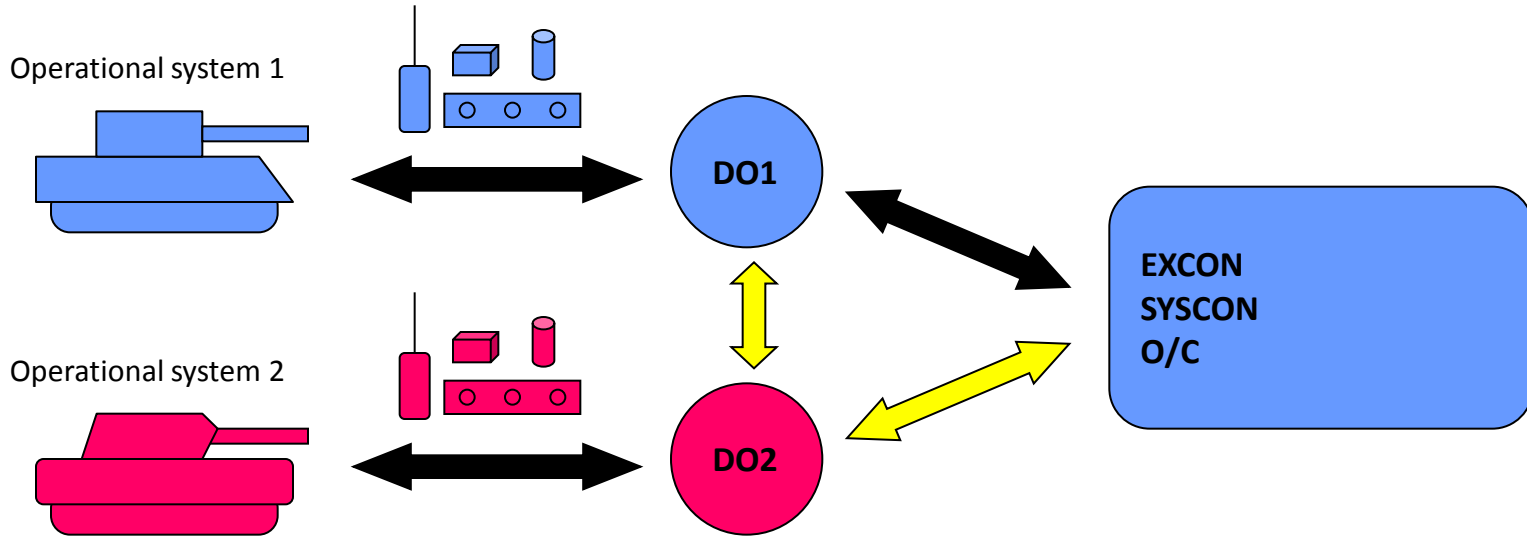
Use case 0: national training on national site



Use case 1: multinational force on national site



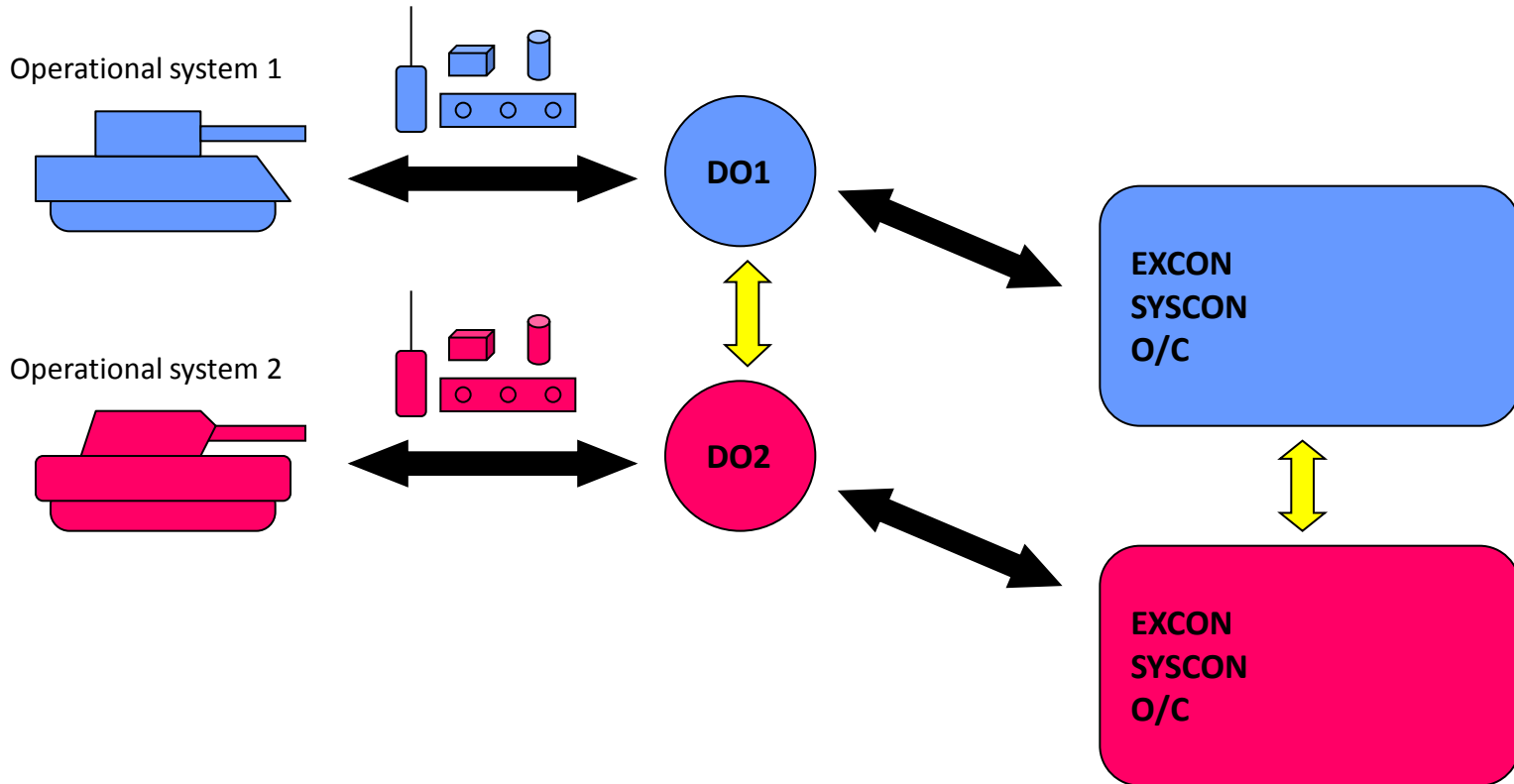
Use case 2: Use other nations training facility and staff



Option 1: they only bring training equipment for their operational systems



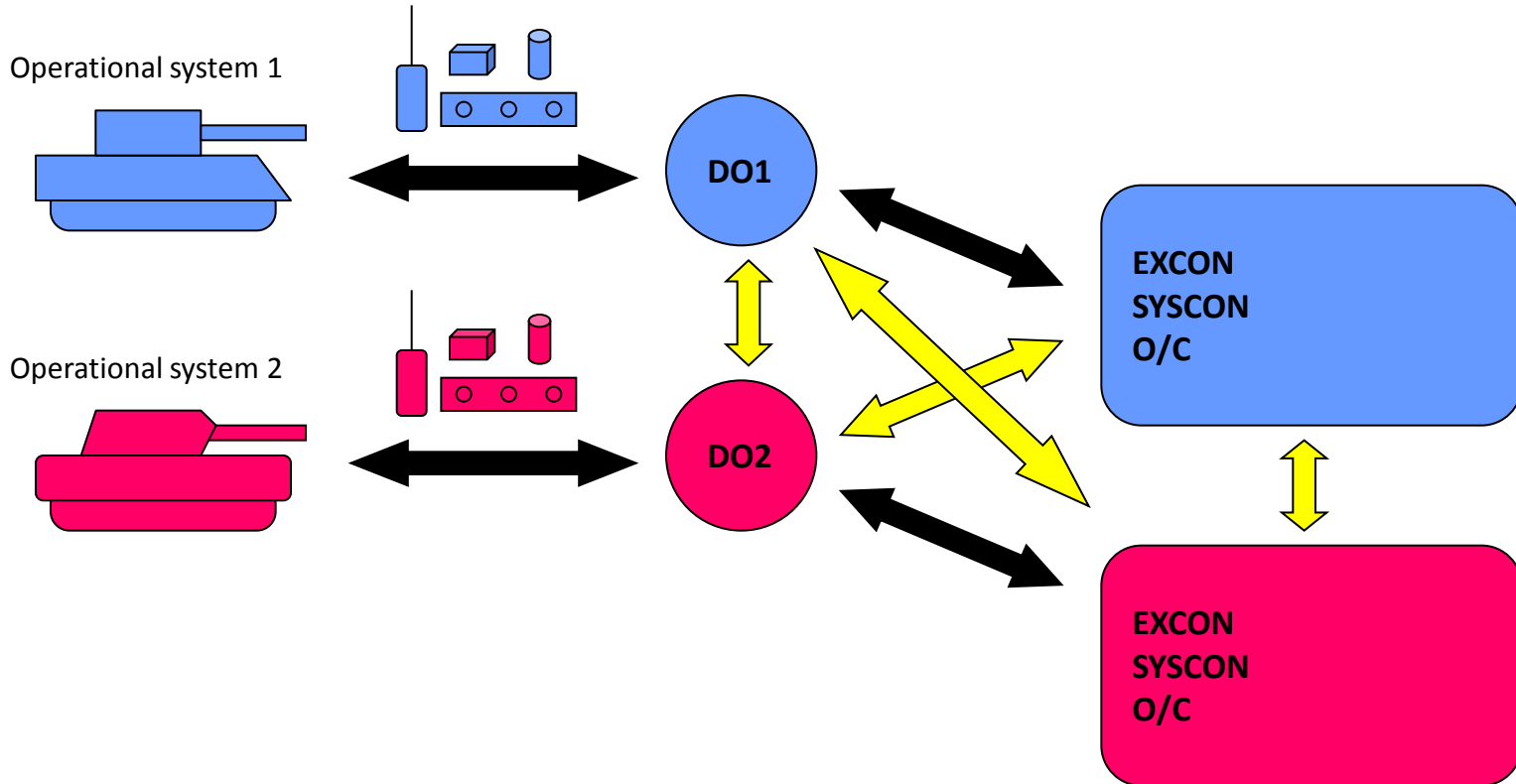
Use case 2: Use other nations training facility and staff



Option 2: they also bring excon equipment (interfacing option a)



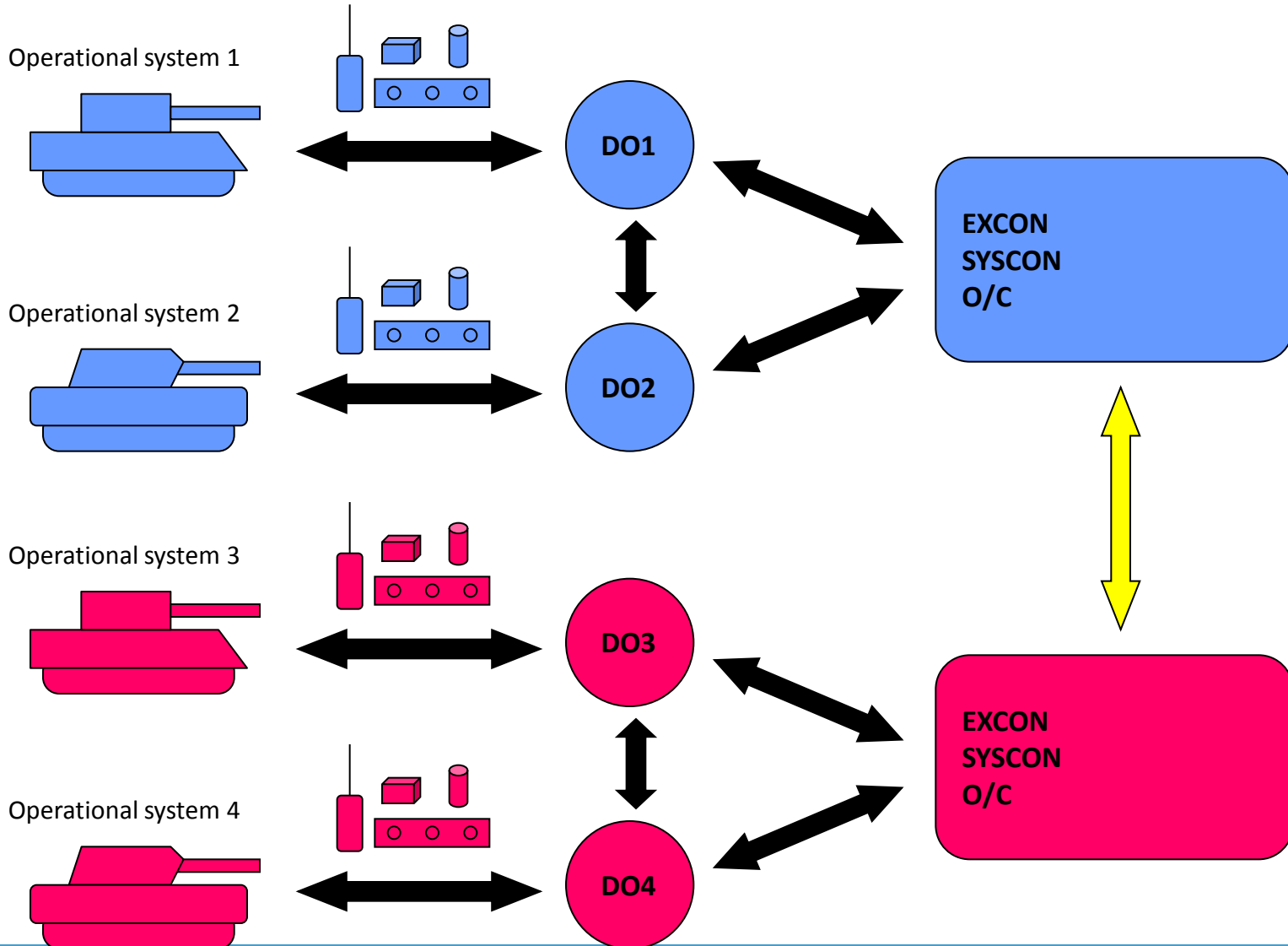
Use case 2: Use other nations training facility and staff



Option 3: they also bring excon equipment (interfacing option b)

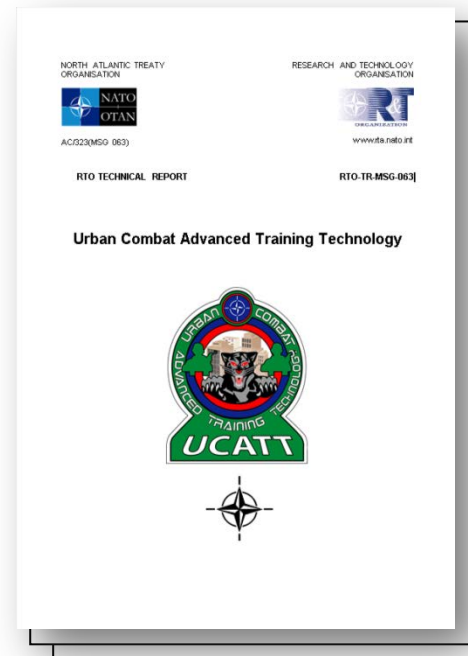


Use case 3a: Distributed combined training

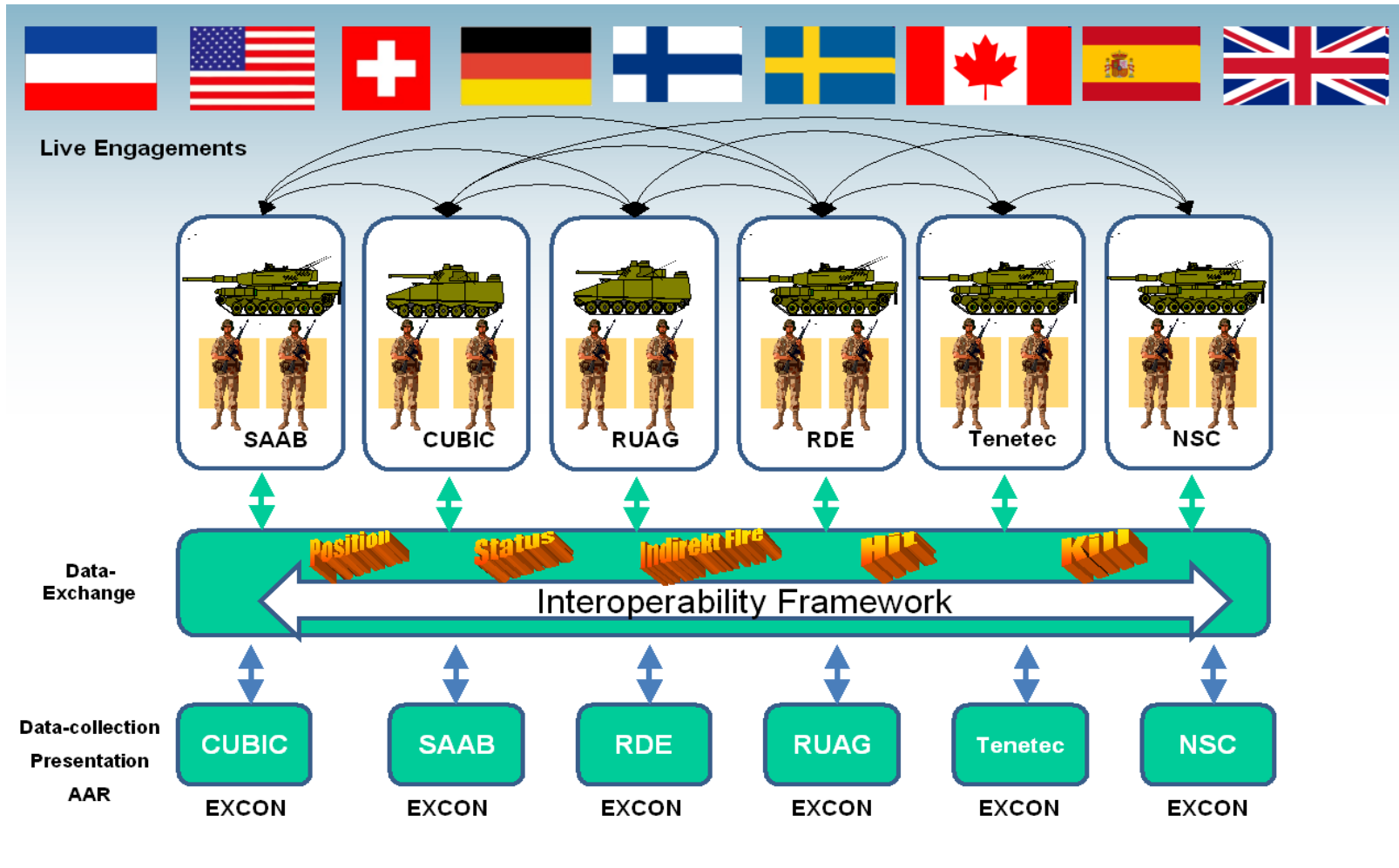


UCATT-2 (2007 – 2011)

- Evolution of the Functional Architecture
- Interoperability demonstration 15-16 SEP 2010, Marnehuizen, NLD
- Validation of use cases
- UCATT-2 report
- Decision made to continue to UCATT-3



Proof of concept demonstration 2010, Marnehuizen (NLD)

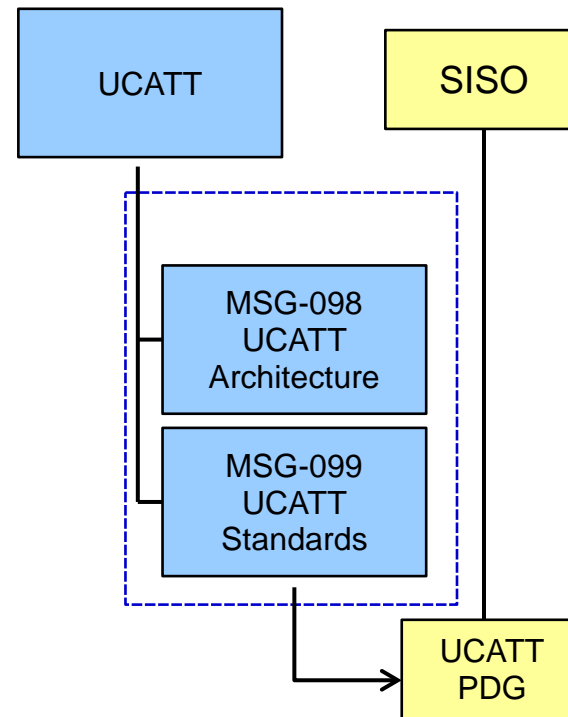


UCATT-3 (2011 – 2015)

UCATT-3 (and onwards) is the delivery and maintenance phase of UCATT

Split into two subgroups

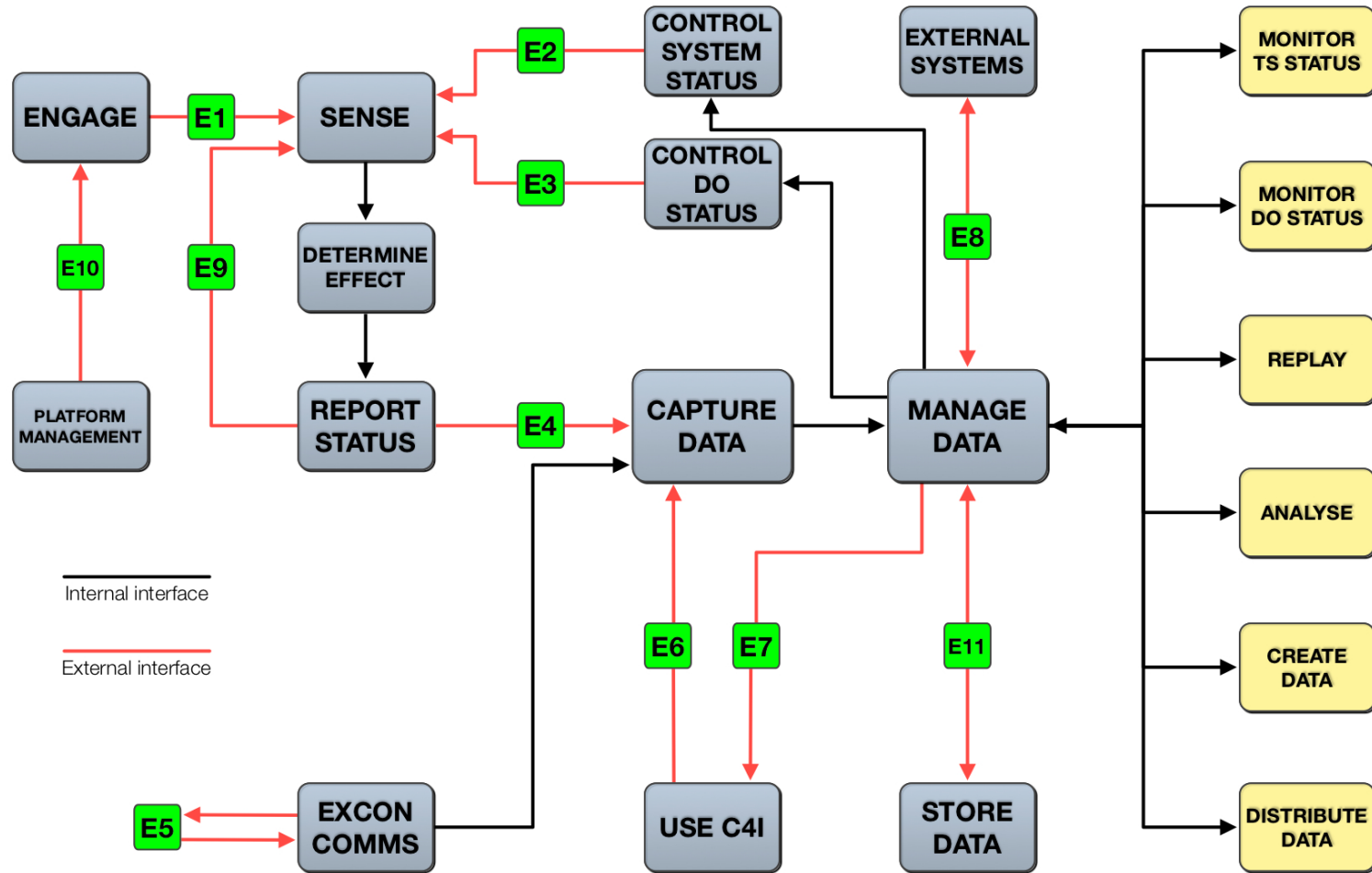
- *Architecture*: focus on user requirements for each interface
- *Standards*: produce a first UCATT Standard



Adoption of SISO processes in accordance with NATO policy



UCATT Functional Architecture



UCATT “family of standards”



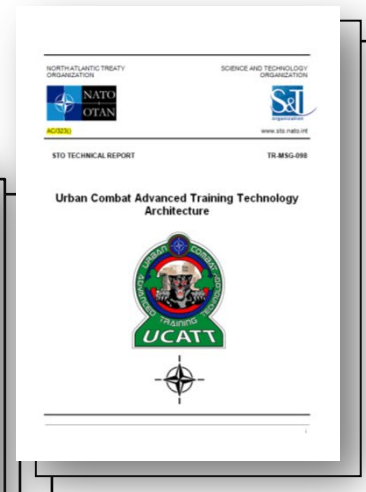
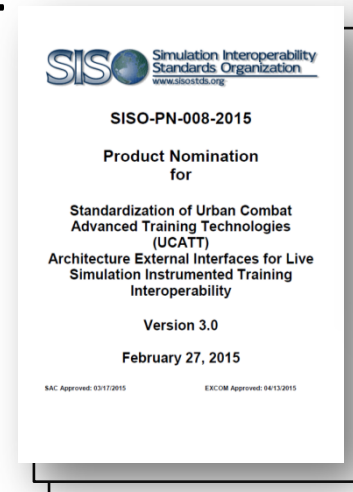
Functional interfaces versus implementation

		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12
I1	Long range radio DO to DO	X											
I2	Laser	X	X	X									
I3	Short range radio	X											
I4	IR- Short Range												
I5	Reserved												
I6	Reserved												
I7	Reserved												
I8	EXCON to EXCON								X				
I9	Fire Control unit interface												
I10	Serial interface between TES and Radio modem		X	X	X								
I11	Long Range Radio – DO / EXCON		X	X	X								
I12	Ethernet – NC to EXCON				X								



UCATT-3

- Distinction between functional interfaces (E) and physical interfaces (I)
- First standard E1/I2: UCATT interface standard for laser engagement
- Validation of use cases
- UCATT-3 reports (MSG-098 and MSG-099)
- SISO Product Nomination
- Delivery of SISO-REF-00-059-2015
- UCATT Ammo table



Choices for E1/I2

First standard E1/I2: UCATT interface standard for laser engagement

MSG-099 propose to select on of the following codes as baseline for laser code interoperability

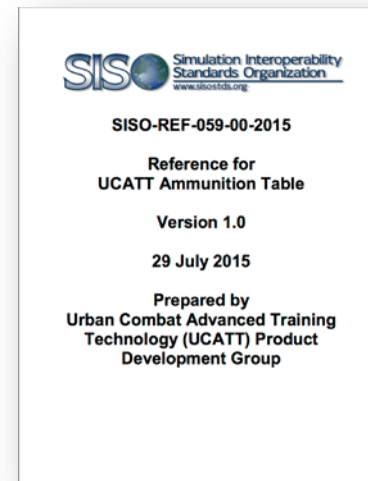
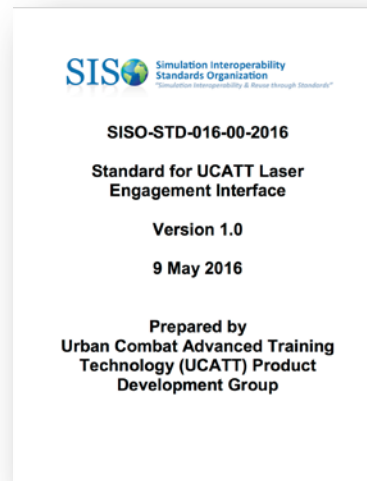
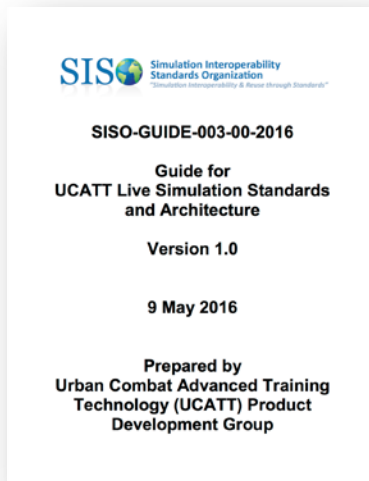
- *CoSIM*
- *OSAG 2*
- *Totally new – unknown*

MSG-099 did not promote:

- *MILES – laser safety, ballistic simulation*
- *NCL – Code efficiency, Player ids*



Delivered SISO products to date



SISO-GUIDE-003-00-2016 Guide for UCATT Live Simulation Standards and Architecture

SISO-STD-016-00-2016 Standard for UCATT Laser Engagement Interface

SISO-REF-059-00-2015 Reference for UCATT Ammunition Table



MSG-140 UCATT-LSS (Live Simulation Systems)

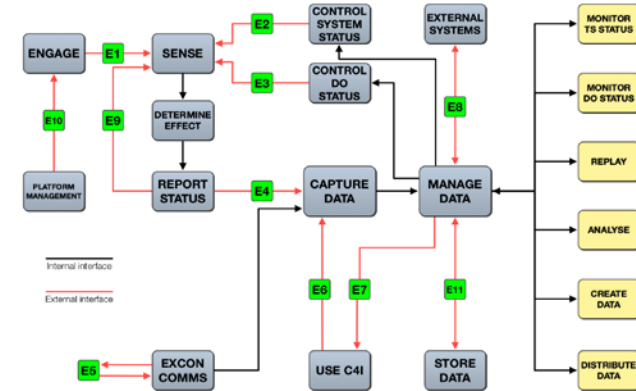
- Maintenance of delivered products through UCATT SISO Product Support Group
- Laser standard -> NATO STANREC/STANAG
- Development of Compliance Test Plan for the Laser Standard (SISO PSG)
- Recognition of the increasing use of LVC to deliver training output (e.g. synthetic wrap)
- Marketing and promotion of delivered SISO products
- Continuation of work on two new interfaces



Current standardisation activity:

- Player to EXCON (E4)
- EXCON to External systems (E8)

UCATT Functional Architecture



UCATT does not necessarily seek to create new standards but investigates potential best-fit candidates among existing SISO and/or IEEE standards

For example:

HLA, RPR-FOM and DIS are being investigated as potential candidates for **E8**

USB, RS-232, Ethernet, CAN and RS-485 are potential candidates for **E4**

C-BML, MSDL and C2-SIM are considered potential candidates for **E6 and E7 (C4I)**

UCATT seeks to deliver change requests to best-fit standard support groups, in order to optimize those standards for live training.

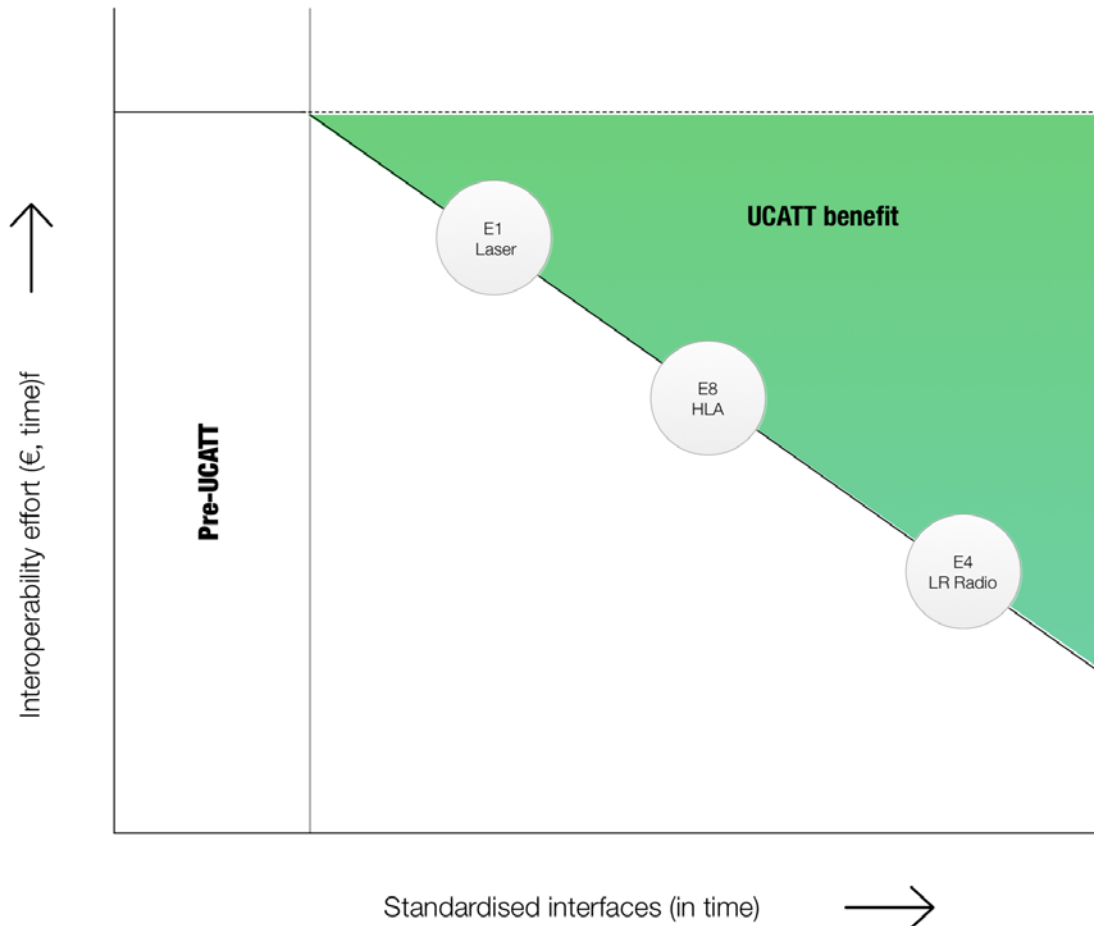


How do the UCATT activities translate to practice today?

- Defence procurements is demanding a NATO UCATT standard in their requirements;
- The UCATT Standard for Laser Engagement already enables full interoperability for uninstrumented/home base exercises;
- Industry are moving towards the laser standard and are developing multi-code capabilities to deal with legacy equipment;
- US 7th Army (JMRC Hohenfels/Grafenwöhr) is moving away from MILES and towards the UCATT laser standard;
- Fixed CTC augmentation by mobile assets are easier to engineer;
- Several instrumented (multi-national) exercises have been executed based on the UCATT principals and concepts, e.g.:
 - FTX Noble Ledger 2014 (NATO Response Force certification exc)
 - GER-NLD-AUT combined training in GÜZ Altmark;
 - UK TTESIK on Salisbury Plain (CUBIC-Saab)



The benefit of UCATT to the live simulation community



“UCATT, being the only NATO MSG and the only PDG within SISO with a focus on live simulation has become a focal point and go-to advisory group in respect of live simulation”



QUESTIONS?

