

An Industry-Perspective on BML



NMSG-079,
Farnborough, February 25th

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE FEB 2010		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE An Industry-Perspective on BML				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) EADS Defence and Security				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADA564685. 2010 Coalition Battle Management Language Workshop (Atelier 2010 sur le langage de gestion du champ de bataille pour les operations en coalition). RTO-MP-MSG-079					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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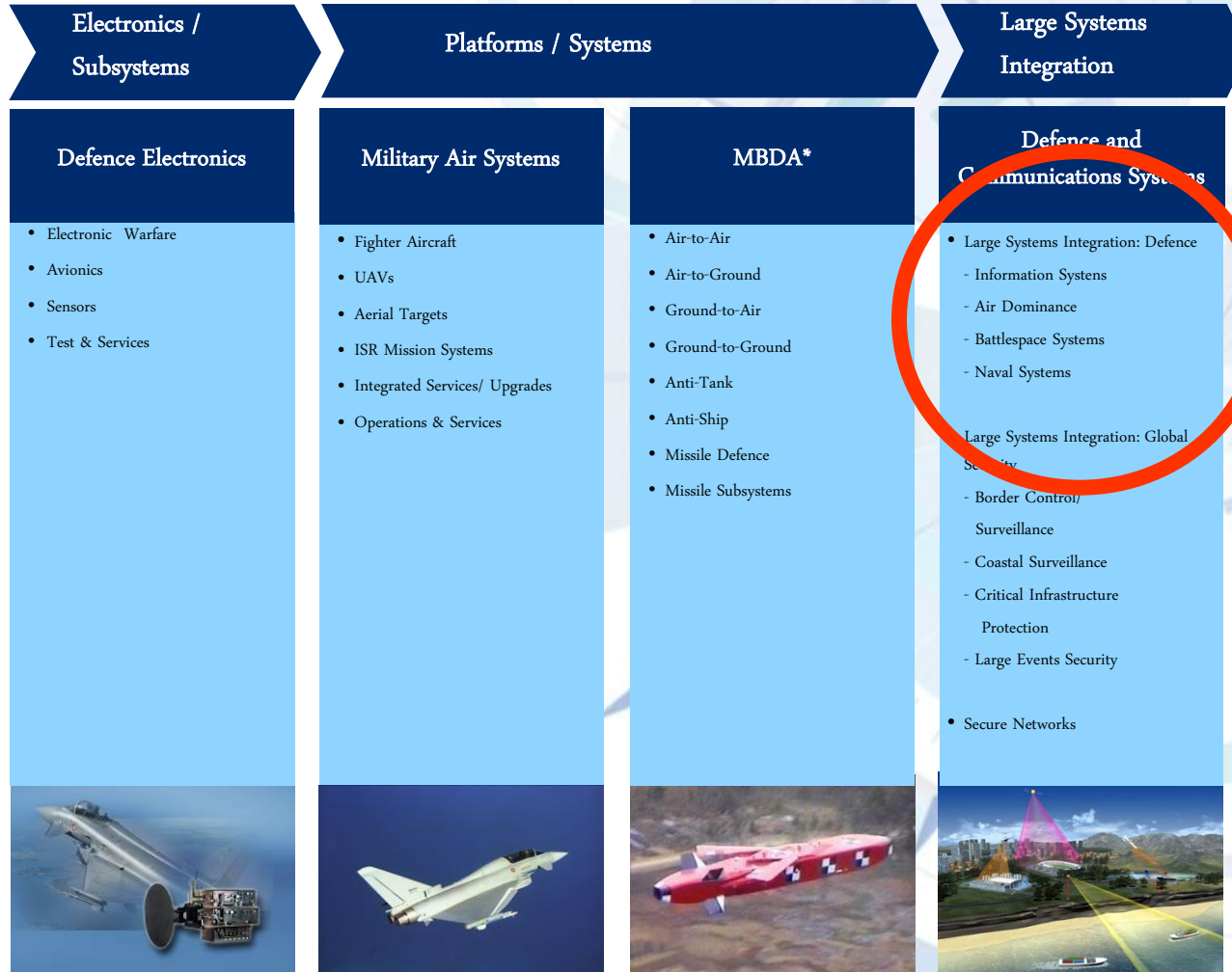
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C4I systems developed by EADS DS

EADS DS designs, develops, integrates and supports all relevant command, control, communications and information systems (C3I) for battlefield applications

Major programmes

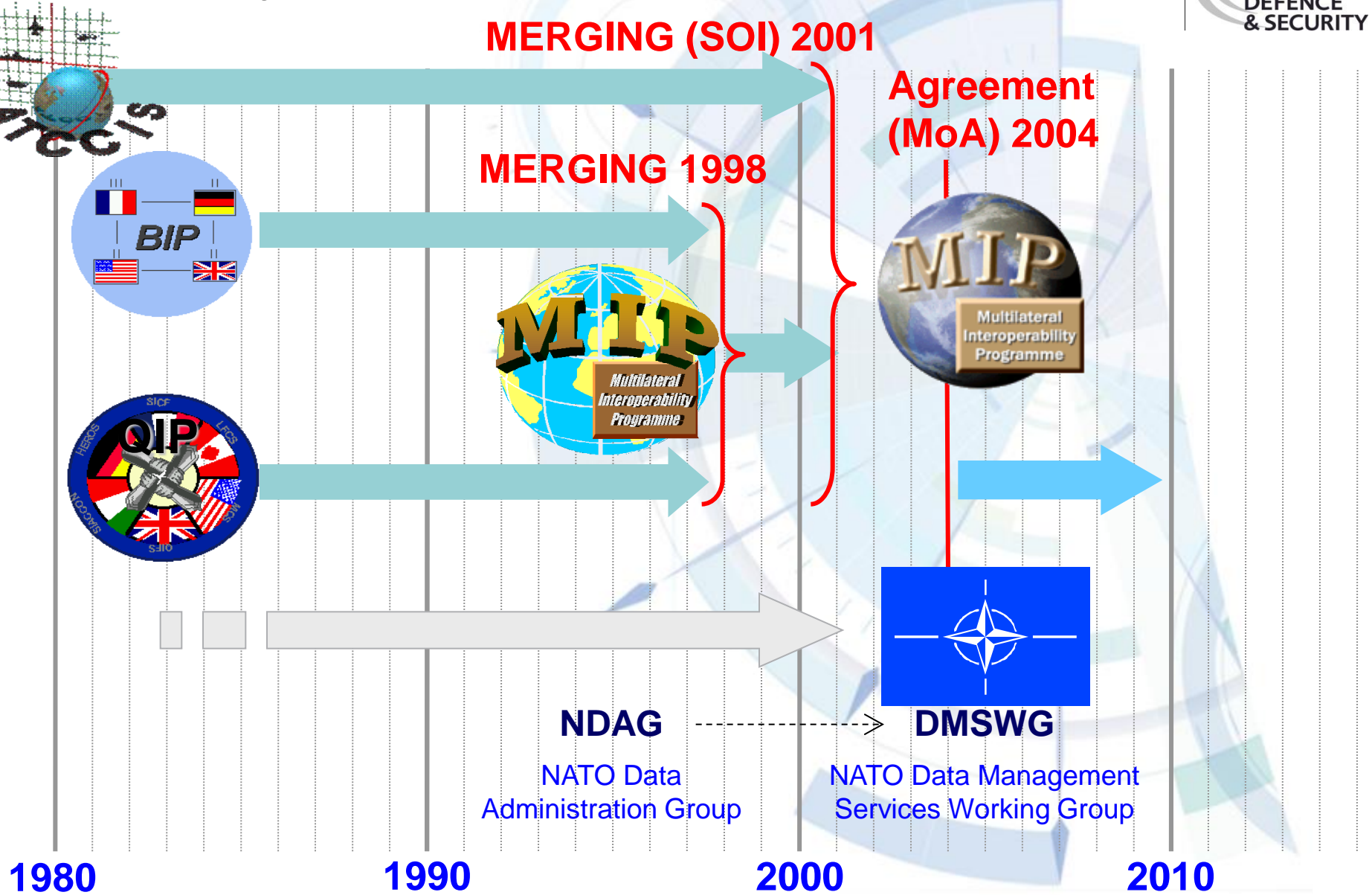
- SIR (Système d'Information Régimentaire)
- MOIE Sic Terre (Fédération de Système de l'armée de Terre)
- JoCCIS (Joint Command and Control Information System)
- SILCENT (Système d'Information Logistique)
- SICA / PSP (Système d'Information et de Commandement des Armées)
(Pôle Stratégique Paris)
- IFTS (Interim Force Tracking System – NATO – Kosovo)
- FIS-H (Führungsinformationssystem)
- FAUST (Führungsaustattung taktisch)



The need for interoperability

- C4I systems are not stand-alone systems
 - multiple systems, multiple contractors
 - need for interconnection and standards
- Nationally
 - Interoperability based on ad-hoc interfaces
 - Interoperability based on standards
- Coalitions and multinational contexts
 - Standards are mandatory
 - Industry contributes to standards definition
 - BIP, QIP, ATCCIS, MIP
 - MAJIIC
 - ...
- National standards tend to align on multinational standards
 - e.g. MPIA vs JC3IEDM in France
- MIP is the reference in the C4I domain

MIP history



MIP Objectives

- The Aim of MIP is:
 - To achieve **international interoperability** of Command and Control Information Systems (C2IS)
 - **At all levels** from corps to battalion, or lowest appropriate level
 - In order **to support multinational (including NATO), combined and joint operations.**
- The MIP Scope is:
 - To deliver an interoperability solution to **Land** operational users in a **Joint environment**
 - To encourage and harmonise contributions from Air, Maritime and other **Communities of Interest (Cols)**



MIP nations



FULL MEMBERS

CAN		TacC2IS
DEU		HEROS-2/1
DNK		DACCIS
ESP		SIMACET
FRA		SICF, SIR
GBR		ATacCS/ComBAT
ITA		SIACCON
NLD		ISIS
NOR		NORTaC/NORCCIS
SWE		ISMAR, SLB
TUR		TACCIS
USA		MCS

ASSOCIATE MEMBERS

ACT		BiSC-AIS-LC2IS
AUS		JCCS, BCSS
AUT		PHOENIX
BEL		ISIS
BUL		FICIS
CHE		FIS HE
CZE		GF-TCCS
FIN		FINACCIS
GRC		HARCCIS
HRV		CAF
HUN		HAVIR
LTU		TAVVIS
POL		SZAFRAN / C3IS Jasmine
PRT		SICCE
ROU		SIAAB
SVK		C2SYS
SVN		SITAWARE

* Country codes according NATO STANAG 1059 Ed 8.

What is MIP?



- MIP is:
 - The **Provider** of Consensus-based Technical Specs.
 - The Joint C3 Information Exchange Data Model (JC3IEDM) (STANAG 5525)
 - Two Exchange Mechanisms:
 - The Data Exchange Mechanism (DEM), also known as MIP Replication
 - The MEM, an extension to SMTP for informal exchanges
 - A **Forum** for exchanging information relevant to national implementation and fielding plans to enable synchronization
 - A **Rendezvous** for international interoperability testing
- MIP **is not**:
 - A typical cooperative development program:
 - No common funding
 - No single Program Manager
 - No common hardware or software development
 - MIP is **NOT** empowered to direct how nations develop their own C2IS.

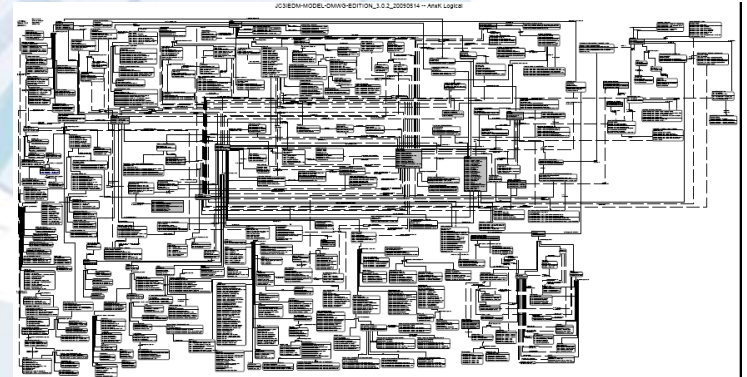
MIP Products



- MIP produces:

- A **common semantic model**: the **JC3IEDM** (Joint C3 Information Exchange Data Model)

- STANAG 5525
- Current version corresponding to MIP Baseline 3 is 3.0.2



- The specification of two **Exchange Mechanisms**:

- **DEM**: Data Exchange Mechanism (data replication mechanism)
- **MEM**: Message Exchange Mechanism (based on SMTP, some specific extensions)

- **Supporting documents** explaining:

- How to use the JC3IEDM
- How to use the MIP Solution (Operational Procedures)



MIP status : lessons were learnt

- After almost 10 years of development and usage of the MIP Solution, a thorough internal MIP review concluded that:
 - There were **very positive aspects** to the MIP Solution, especially the existence of a **common semantic model**
 - But that some aspects could be improved:
 - **Increase Responsiveness** to Needs
 - **Diversify the MIP exchange mechanisms** to support NATO and National architecture requirements
 - **Increase MIP Solution understandability, visibility & accessibility**
 - **Lower the total cost** of developing MIP-compliant stable solutions
- The conclusions of this review were that **a new approach is needed**



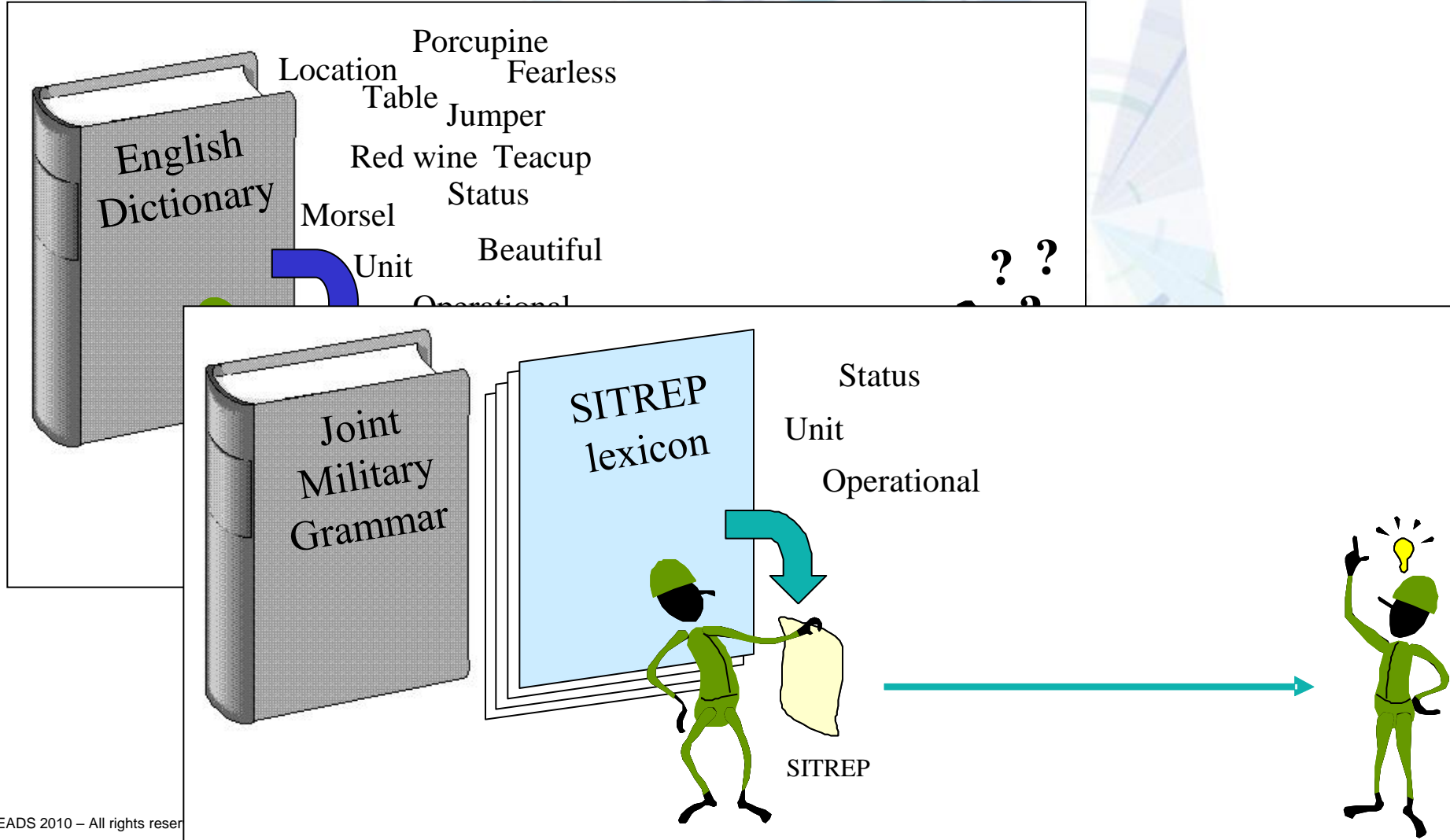
Way Ahead: new MIP orientations



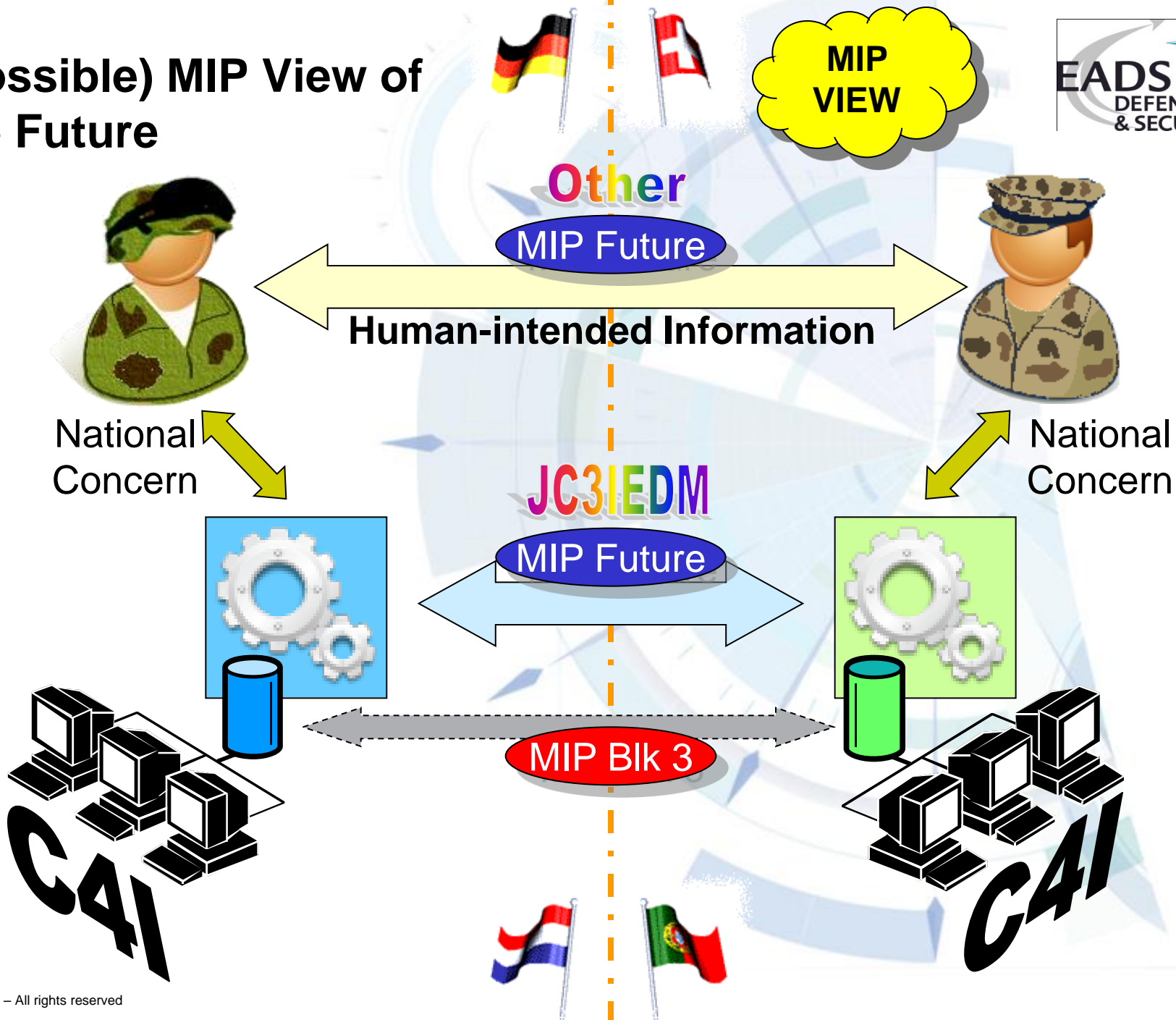
- The conclusions of the MIP internal review were that **a new approach was needed**
- Therefore, the MIP programme has started its **transformation** by changing its organisation and its objectives
 - Establish **Two Streams**:
 - Maintenance of Block 2 and 3
 - Future Block
 - Adopt a **Capability-based Approach**, supported by a **Service-Oriented Architecture**
 - **Better separate** Semantic Specification from Exchange Mechanism(s)
 - Adopt **standard practices and notations** (UML, NAF, XML...)
 - **Restructure the JC3IEDM** to overcome its known limitations
 - **Develop sub-views** to better suit the **various COIs** and implementation communities
 - Focus more on the **usage** of information and data than in the past
 - Distinguish between **Data** and **Human-intended Information**
 - **Adopt an Iterative Approach**, with frequent incremental releases

A Major Shift in the MIP View

- Switching from a Vocabulary to a Vocabulary + a Grammar



(Possible) MIP View of the Future



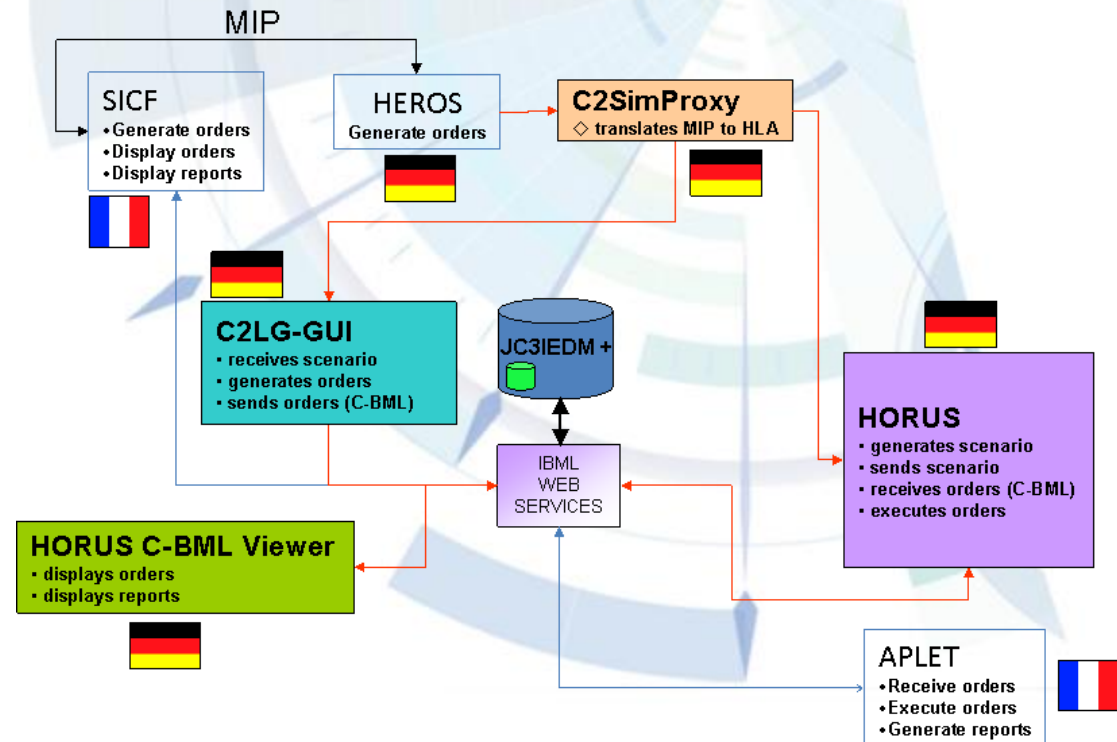
Back to BML

- Why BML ?
 - There is an emerging need for C4I-simulation interoperability
- For Training
 - to reduce number of simulation controllers
- For Decision Support
 - to integrate simulation as an embedded function in C4I
 - e.g. Course of Action Analysis

Interoperability is based on standards

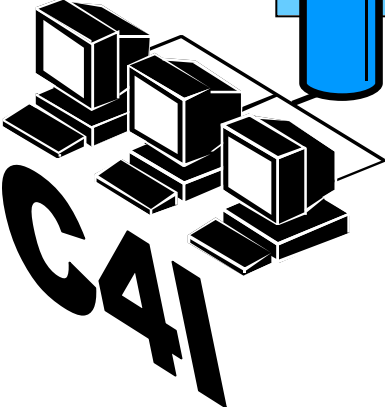
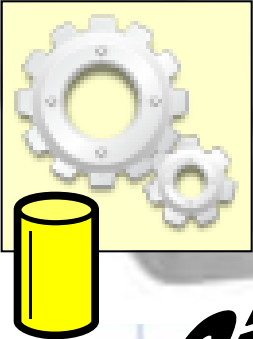
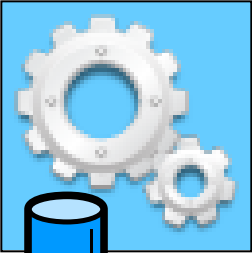
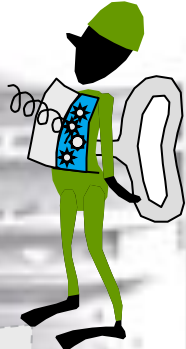
- Several initiatives for C4I – simulation standardisation
- SISO C4ISR-simulation TRM
- SISO C-BML (standardization)
- NMSG C-BML (experimentation)

- EADS contributions:
 - SISO SG & PDG
 - NMSG ET-016
 - NMSG 048
 - COMELEC
- EADS just got a french MoD contract to support C4i-simulation standardisation activities



(Possible) C-BML View

C-BML
VIEW



C-BML & MIP similarities

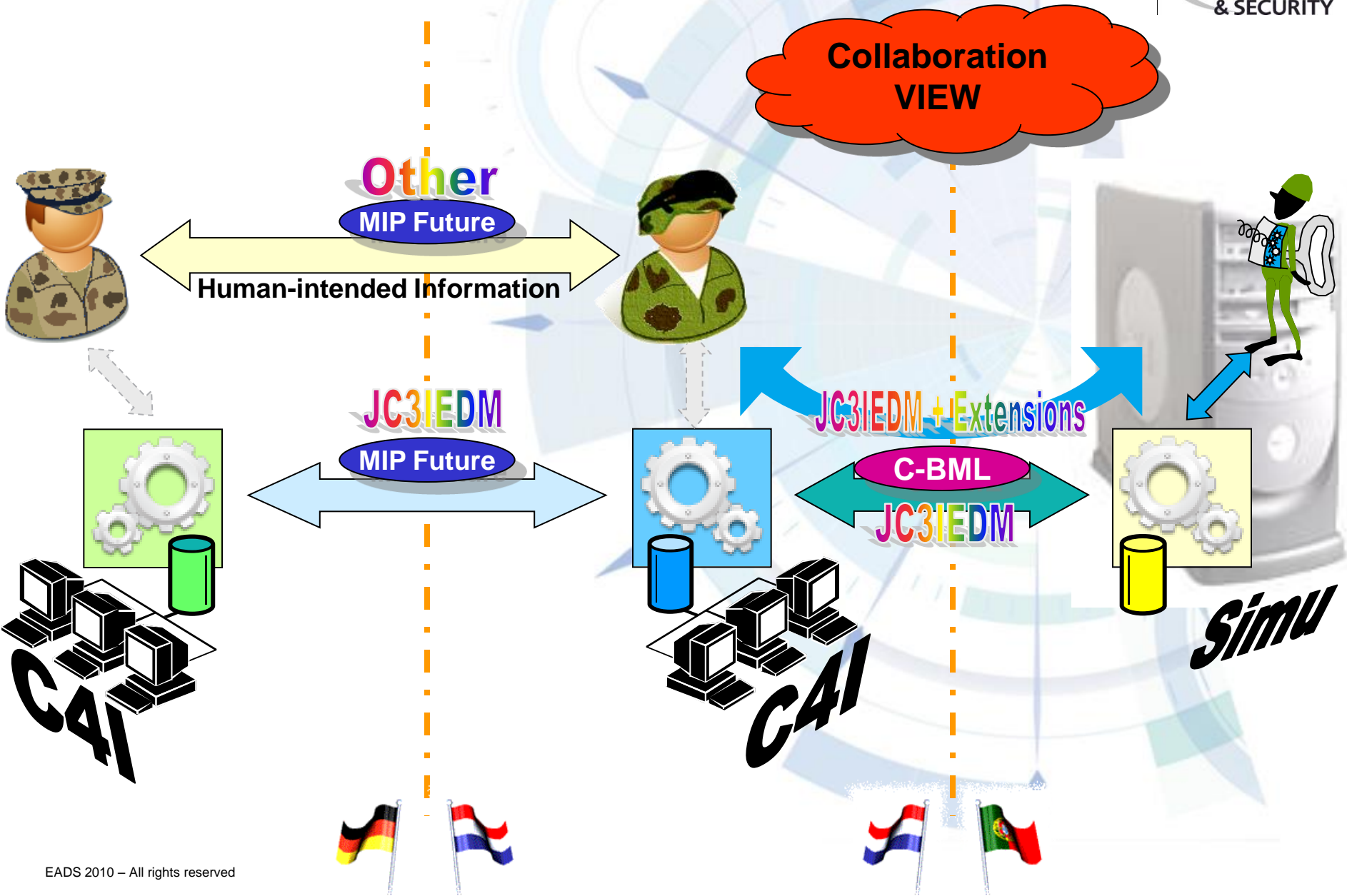
- C-BML
 - is already built using (parts of) JC3IEDM
 - defines some JC3 extensions
 - defines a grammar
 - developed experience using XML and Web services

- MIP
 - defines JC3IEDM and manages its evolutions
 - will focus more on the usage of information and data
 - needs to extend JC3IEDM usage rules
 - needs to develop a grammar
 - needs to define system / user behaviours
 - is adopting a SOA approach
 - will investigate new exchange mechanisms (web services...)
 - will continue to liaise with different COIs (like CBRN, MMW, Air Force...)

Benefits to work more closely together

- MIP reorganization is the opportunity for C-BML to be considered as the “Simulation COI”
- Benefits for C-BML groups
 - better access to JC3IEDM semantics
 - better access to operational expectations and operational experts
 - capacity to promote change proposals
 - better visibility of C-BML to the operational and C4I community
- Benefits for MIP
 - access to C-BML lessons learned (grammar definition, web services implementation)
 - broadens the scope of analysis for plans / orders / reports
 - improve MIP operational testing capability by allowing the introduction of multiple sides war-gaming simulation
- Additional benefits for the C4I community and industry
 - diminishes the semantic distance between C4I-C4I and C4I-simulation exchange concepts

Opportunities for C-BML & MIP collaboration



Conclusion

- MIP is currently updating its MIP communication and liaison plan (MCLIP)
 - It's the right time for C-BML to knock at the MIP door
- According to current MIP schedule, C-BML has the opportunity to influence MIP refoundation and JC3IEDM restructuring
- There are benefits for each group and for industry