

# Defense Interest Group

## S1000D in defense projects

**Mr. Gerke Mulder**

Senior Advisor ILS

Netherlands Ministry of Defense

E-mail: [g.mulder@mindef.nl](mailto:g.mulder@mindef.nl)

# Introduction

- S1000D Defense Interest Group (DIG)
  - Early years of this decade: Nations start a program to provide guidance proceedings in conformity with S1000D as applicable to defense projects
- DIG members believe that applying S1000D in defense projects leads to
  - Higher quality results
  - Lower costs
  - An optimization of resources and a minimization of time to delivery of technical publications in military S1000D projects
- This presentation
  - Overview of the DIG
  - Insight in content of DIG Business Rules (DIGBR)
  - The approach of some nations implementing DIGBR
  - DIG BREX
  - Planned efforts

# Agenda

- Overview of the DIG
- DIG Business Rules (DIGBR)
- Nation's approach implementing DIGBR
- DIG BREX
- Future efforts and conclusion

# DIG – Terms of Reference

- The S1000D Defense Interest Group (S1000D DIG) is an independent body representing defense customers who have a vested interest in the specification.
- The role of the S1000D-DIG is to ensure that defense requirements are articulated on and presented at the S1000D Steering Committee and Council. the overall objective is to ensure that S1000D continues to meet the needs of global users and producers of defense products.
- Membership on the S1000D-DIG is comprised of representatives from defense customers, national ministries and departments of defense. Each nation may be represented by a primary and a secondary representative. National representatives may be supported by a specialist when required.
- The Chair represents the DIG at the Council meetings and at the S1000D Steering Committee.

# S1000D Defense Interest Group (DIG) founded in 2013

DIG was formalised in 2013 from the informal defense Working Group that existed at the time. Main reasons for having such a group:

- Defense organizations represent the biggest community of S1000D users with an implementation experience of over 25 years.
- Although each organization has a different operating model, the experiences, the challenges, the valuable successes have been identified as being common across all organizations.
- Need for a forum for the sharing of information relating to:
  - S1000D Tools,
  - Business rules,
  - Contracting issues,
  - Policy documentation,
  - Integration with other standards,
  - Other matters as raised by the DIG members.

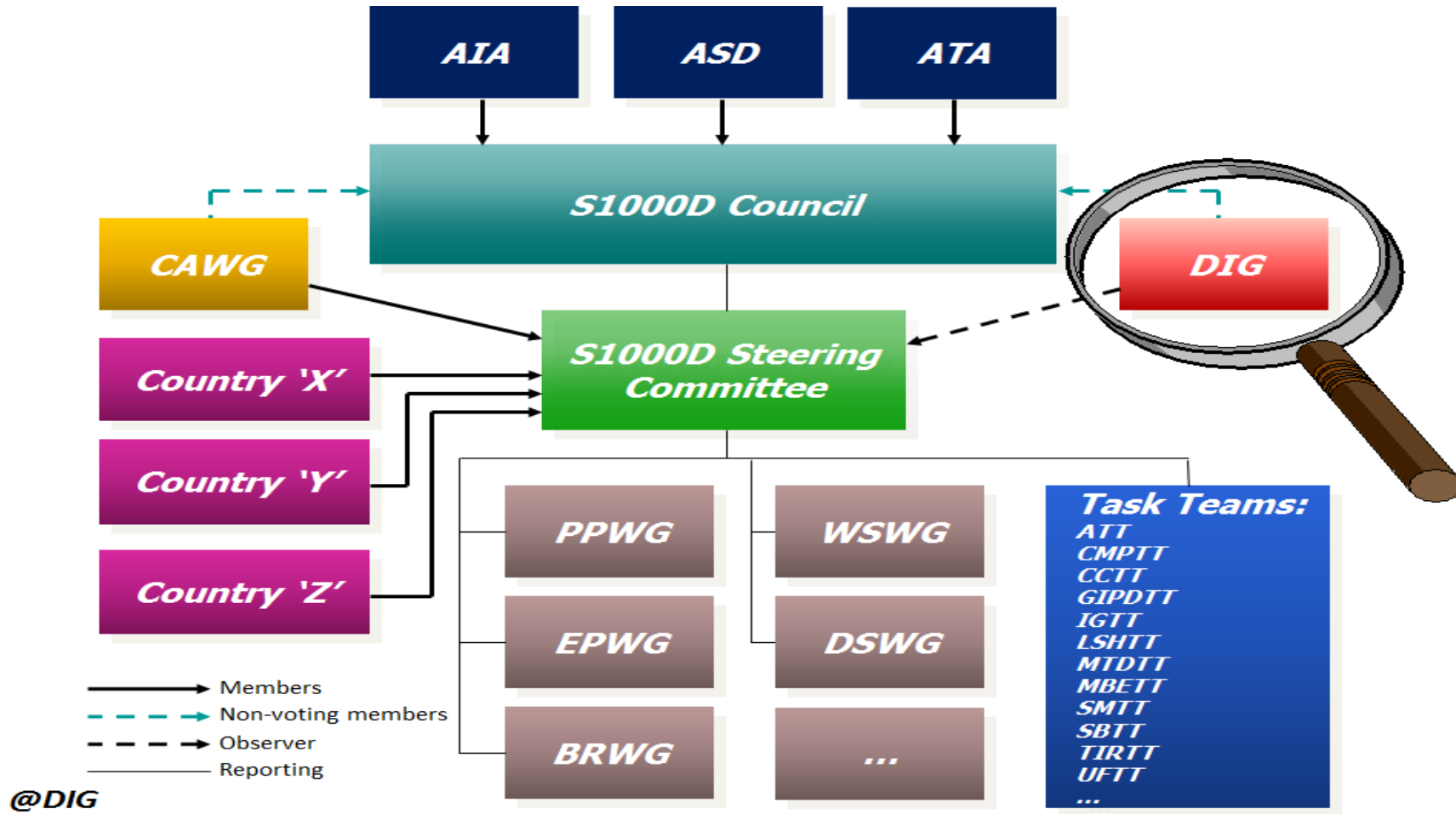
# DIG – Issues

- Which S1000D Issues to contract
- Maintenance of previous issues
- Compatibility between issues
- Difference between issues
- Harmonize Business rules
- Process for S1000D software
- Share Lessons learned
- Lack of releasable validated samples
- Common infrastructure for IETM programs
- Common viewer for different projects
- Viewer purchase or enhancements
- Lack of a consistent commenting process
- Distribution of updated data
- Data print, ability to print from data base
- Publish finalized org business rules to improve program success
- Information tracking with ERP for higher level requirements
- Interoperability
- Training and familiarization with S1000D
- Sustainability and maintainability of the specification
- Integration and harmonization with other standards

# DIG – S1000D Guidance for Defense Projects

- The DIG aims to provide guidance in conformity with the S1000D specification as applicable to defense projects. This encompasses in practice, the definition of a common set of information regulations specific to defense projects in accordance with the S1000D specification.
- DIG guidance documents are part of the so called DIG suite of information. The DIG suite of information contains, but is not limited to:
  - The documented DIG Business Rules
  - The DIG BREX data module
  - any other software or information under the heading “DIG suite of information”

# DIG in the S1000D Community





# Agenda

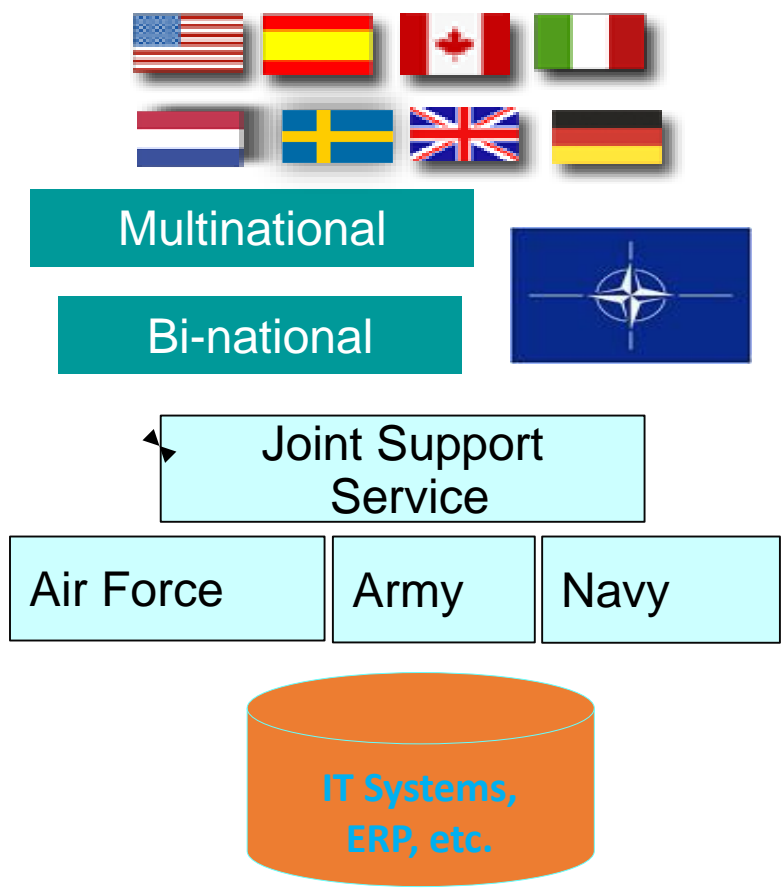
- Overview of the DIG
- DIG Business Rules (DIGBR)
- Nation's approach implementing DIGBR
- DIG BREX
- Future efforts and conclusion

# DIGBR: Recall the Vision

This document and its content is the property of the S1000D Defense Interest Group. It shall not be communicated to any third party without the owner's written consent. © All rights reserved.



Defense Organizations & agencies



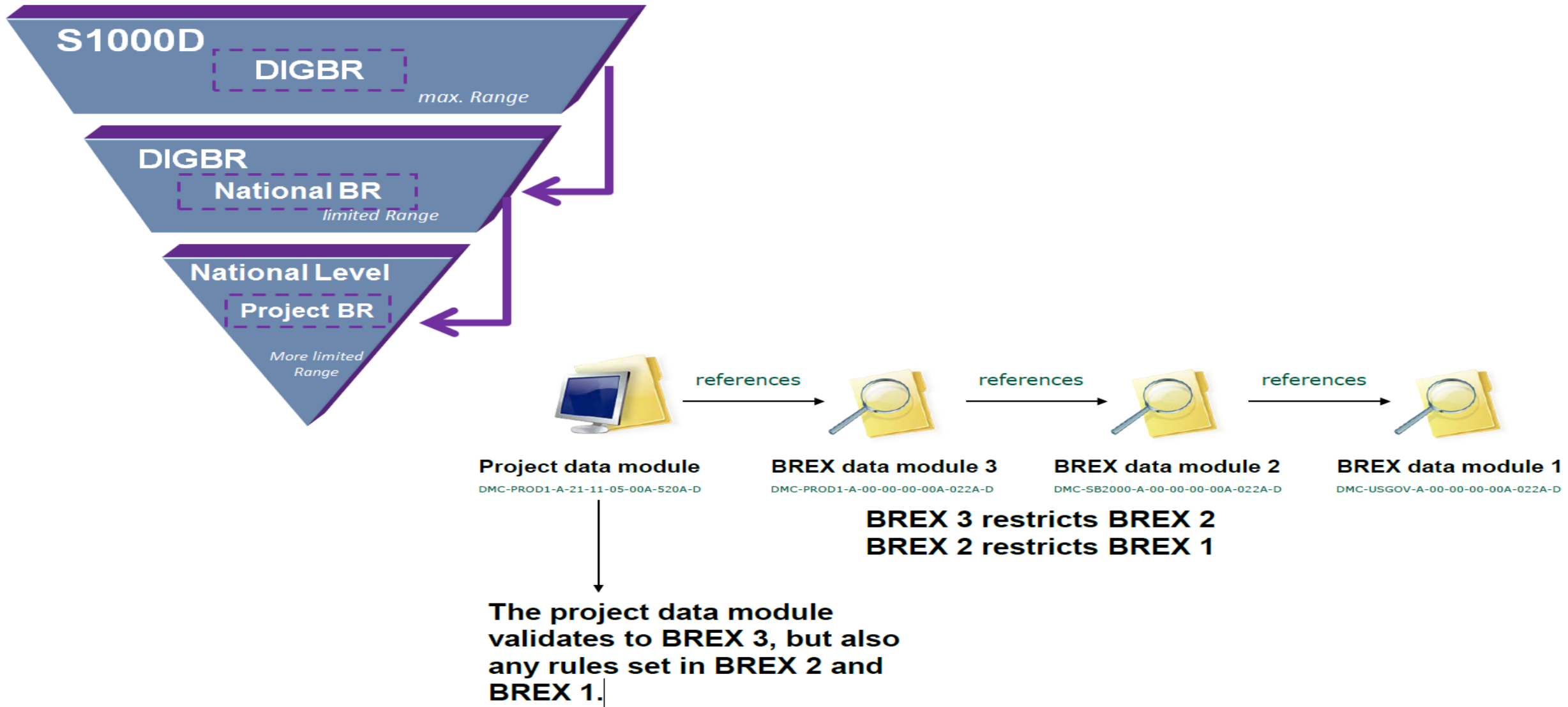
# DIGBR: Recall the Main Drivers

The drivers reported by the nations	AT	DE	NL	SWE	TR	UK	US	NSPA
Interoperability	•	•		•				•
Same Language especially for multi-national projects				•				•
Format, Terms & Terminology	•	•	•	•		•	•	
Awareness of defense requirements	•	•		•				
Sharing resources							•	•
Define guidance on BRDP decisions						•	•	•
Simplify the decision process for projects	•	•	•		•	•		•
Minimum set of mandatory schemata & S1000D optional attributes						•		•
Easier start for projects	•	•			•			
Common international rules & policy for contracting S1000D; harmonizing the military requirements internationally	•	•	•	•		•	•	•
Learning & applying the spec	•	•	•					
Reduce national BR effort through using layered BR out of DIGBR						•		•

# DIGBR: Definition & Goal

- A set of common business rules decision points and additional regulations
  - developed by DIG nations
  - developed to tailor S1000D to defense projects
  - fully compliant with the S1000D specification
  - uses the S1000D „Layered Approach“
  - provides guidance, proceedings and examples
- A basis for new projects -> Reduction of start-up effort and resources
- Applicable to all published issues of the S1000D which means ready for each individual project!

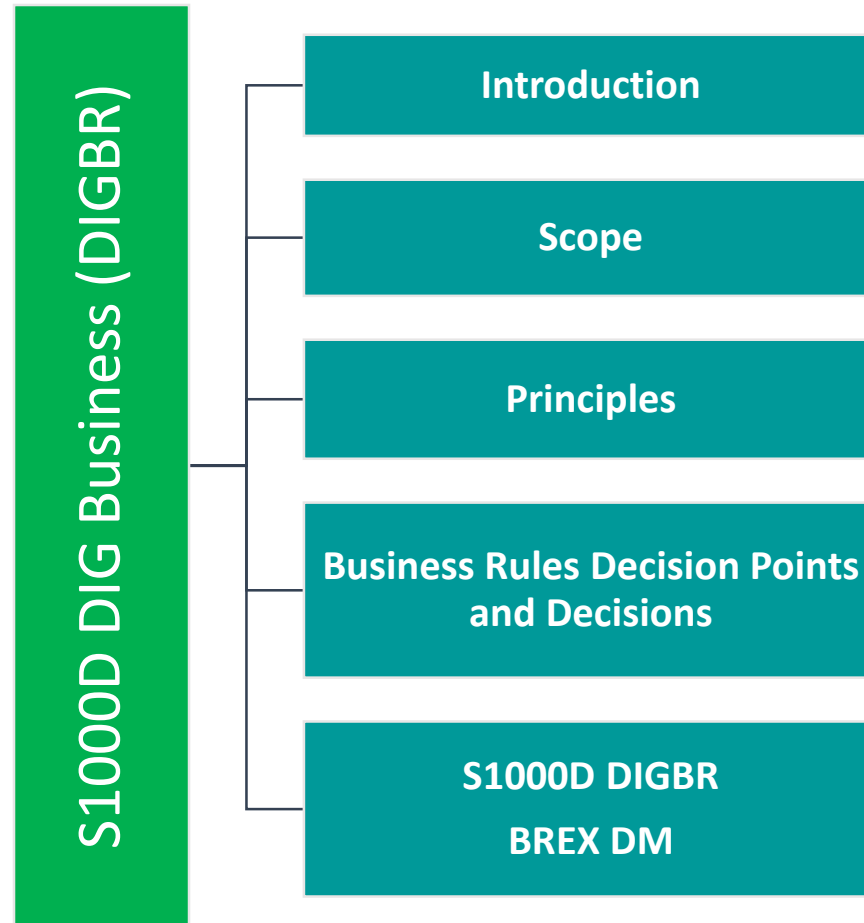
# DIGBR: S1000D Layered Approach



# Common DIG BRDPs

BRDP	Title	Decision/Impact	
1	BRDP-S1-00001	Use of "I" and "O" (Decide whether and when to use the alpha characters "I" and "O")	How to use the specification
2	BRDP-S1-00119	Use of cross-references from titles	No cross referencing from titles shall not be used for levels 6 thru 8 except in the case of legacy data
4	BRDP-S1-00122	Use of tables as graphics	Tables
5	BRDP-S1-00150	Use of the attribute id on the element <supportEquipDescr> in the element <preliminaryRqmts>	The attribute id shall always be used for cross-referencing purposes
6	BRDP-S1-00155	Use of the attribute id on the element <supplyDescr> in the element <preliminaryRqmts>	Cross referencing from a procedure to the supplies
7	BRDP-S1-00156	Use of the attribute id on element <sparesDescr> in the element <preliminaryRqmts>	Cross referencing from a procedure to the spares
8	BRDP-S1-00180	Level of depth of descriptive data modules	Descriptive information
9	BRDP-S1-00181	Minimum para occurrences	Descriptive information
10	BRDP-S1-00186	Decide on the maximum number of step levels in a procedure	Procedural information
11	BRDP-S1-00216	Use of the element <natoStockNumber> (NATO stock number)	Parts information
12	BRDP-S1-00217	Use of hotspots in IPD data modules	Parts information
13	BRDP-S1-00237	Use of BREX to define the non S2000M elements	Parts information
14	BRDP-S1-00279	Define maximum number of steps levels in <checkListProcedure>	Maintenance Check lists and inspections
15	BRDP-S1-00304	Use of hierarchical Table of contents	Front matter
16	BRDP-S1-00306	Use of issue number and/or issue date in the Table of contents	Front matter
17	BRDP-S1-00338	Number of characters in assembly code	Data module code
18	BRDP-S1-00350	Use of data management requirement list	Data management lists
19	BRDP-S1-00352	Use of CSDB status list	Data management lists
20	BRDP-S1-00366	Use of a project specific BREX data module	BREX data module
21	BRDP-S1-00367	Use of layered BREX data modules	BREX data module
22	BRDP-S1-00369	Use of the BREX data module to exchange SNS	BREX data module
23	BRDP-S1-00370	Include restrictions in using various illustration, multimedia object or other data information formats	BREX data module
24	BRDP-S1-00372	Use of the generic IC 951 for identification of process data modules	Process data module
25	BRDP-S1-00385	Identification of container data module	Container data module
26	BRDP-S1-00386	Use of applicability within container data module	Container data module
27	BRDP-S1-00387	Use of applicability	Applicability at the data module level
28	BRDP-S1-00450	Include the manufacturer's part number or reference number in the LOAP	Presented number in the LOAP

# DIGBR: Document Content



# Agenda

- Overview of the DIG
- DIG Business Rules (DIGBR)
- Nation's approach implementing DIGBR
- DIG BREX
- Future efforts and conclusion



# Apply DIGBR



## Within NATO at NAPMA and NSPA

Projects	S1000D Implementation
AN/FPS-117	- <b>Conversion</b> from paper to S1000D 4.1 and <b>NSPA IETP viewers</b> provisioning
S-743D	- <b>Conversion</b> from paper to S1000D 4.1 and <b>NSPA IETP viewers</b> provisioning
AWACS NATO E-3A	<ul style="list-style-type: none"> <li>- <b>Conversion</b> from S1000D 1.7 to 4.0.1 and from 4.0.1 to 4.1</li> <li>- <b>Conversion</b> from paper (25,000 pages) to S1000D 4.0.1</li> <li>- <b>Hosting and customization</b> of a <b>COTS S1000D Viewer</b></li> <li>- <b>Conversion</b> from Raster to Vector graphics including hotspots</li> </ul>
ACCS HIN	- <b>New</b> S1000D Implementation (various projects), Issue 4.0.1
AGS	- <b>New</b> S1000D Implementation, Issue 4.0.1 and <b>NSPA IETP Viewers</b> provisioning



# Apply DIGBR

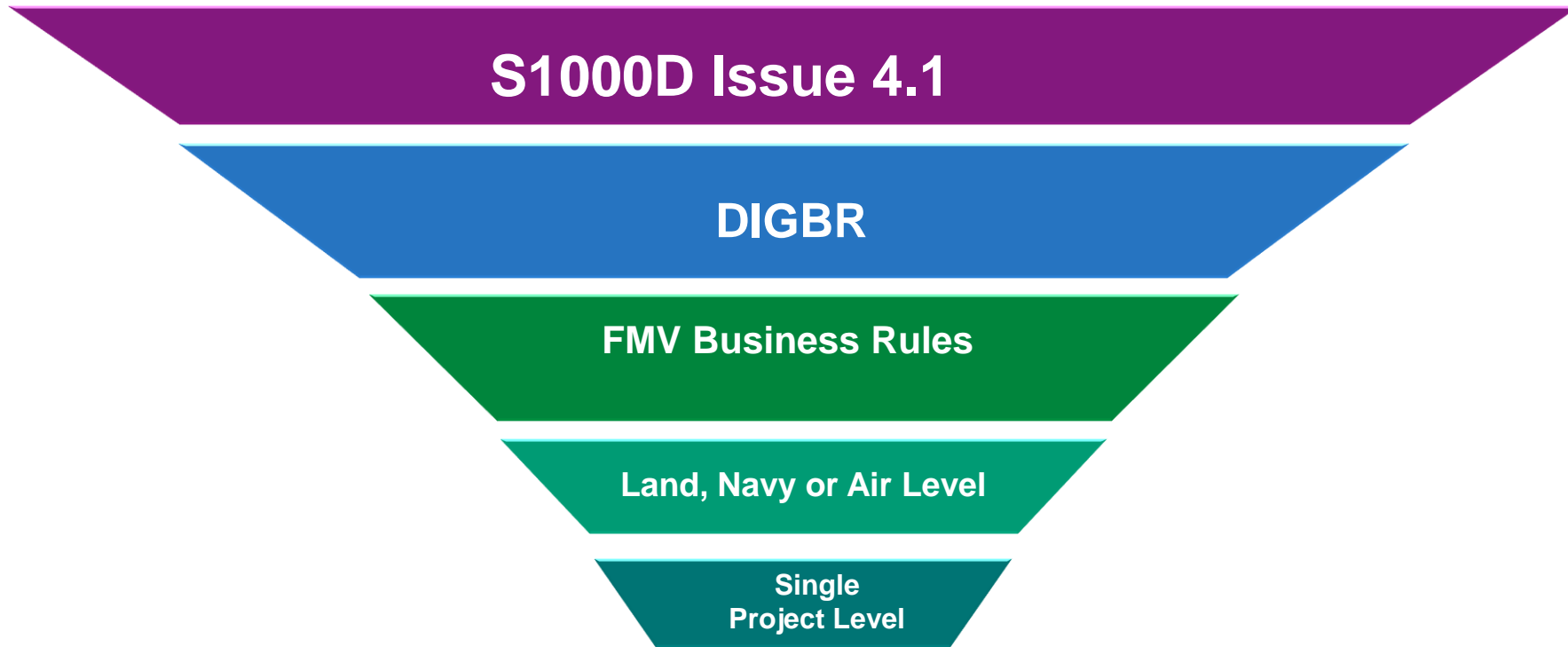


## Within Sweden

Projects	S1000D Implementation
<b>Leopard</b>	S1000D issue 2.3 (conversion from issue 1.8 to issue 2.3) <b>Will be in the “spirit of” DIGBR!</b>
<b>Combat Vehicle 90</b>	S1000D issue 4.1 (conversion from issue 1.8 to issue 4.1)
<b>Submarine A26</b>	S1000D issue 4.1 ( new project, in progress)

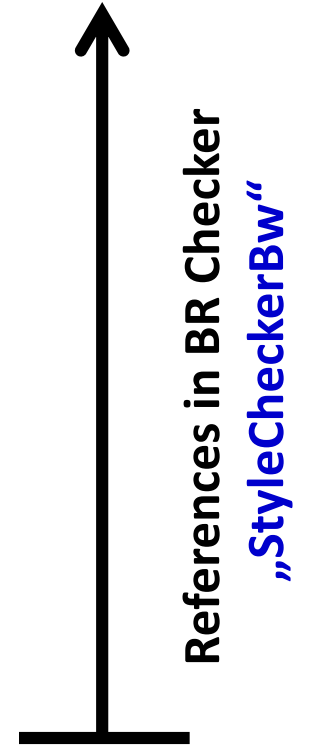
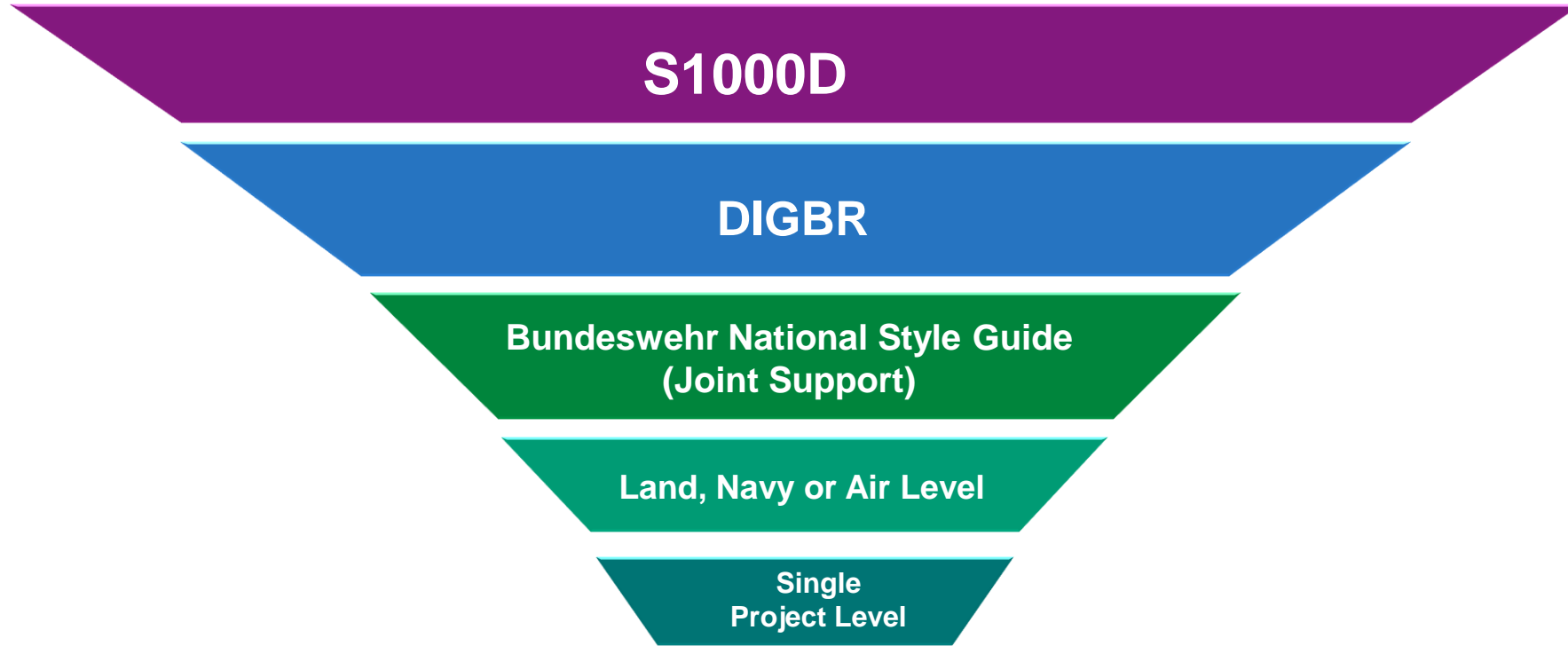
# Apply DIGBR

**Within FMV:**  
The vision for future projects!



# Apply DIGBR

**Within Bundeswehr:**  
The vision for future projects!



# Apply DIGBR



## Within Netherlands

Projects	S1000D Implementation
<b>CV90, Leopard ( engine)</b>	Conversion from S1000D issue 1.9 to issue 2.3 to be started in the „spirit of“ DIGBR.
<b>Boxer, Kodiak, NH90</b>	Consideration to convert from S1000D issues 1.x, 2.x to higher issues using DIGBR
<b>New</b>	Consideration to acquire all new S1000D using DIGBR

# Agenda

- Overview of the DIG
- DIG Business Rules (DIGBR)
- Nation's approach implementing DIGBR
- DIG BREX
- Future efforts and conclusion

# DIG BREX – S1000D Definitions

- BREX = Business Rules Exchange
- BREX mechanism
  - A means to communicate business rules that have been developed and agreed upon within a project or enterprise
- BREX data module
  - The (BREX) data module provides a means to represent adopted business rules in a formal way that enables unambiguous automatic processing of the rules.
  - Such processing includes, without being restricted to, verification that the XML objects in the Common Source Database (CSDB) fulfill the requirements expressed in the business rules.
- BREX examples
  - recording and exchanging rules while they are being developed in a project or enterprise.
  - The possibility to make a formal description of the business rules decreases the risk of misinterpretations and misunderstandings.
  - supporting a correct interpretation of CSDB objects. This is of particular significance for security and safety related information (for example classification and units of measure for threshold intervals).
  - enabling validation of the CSDB objects against agreed upon rules, for example when applying automated methods

# DIG BREX – Ready for Use!

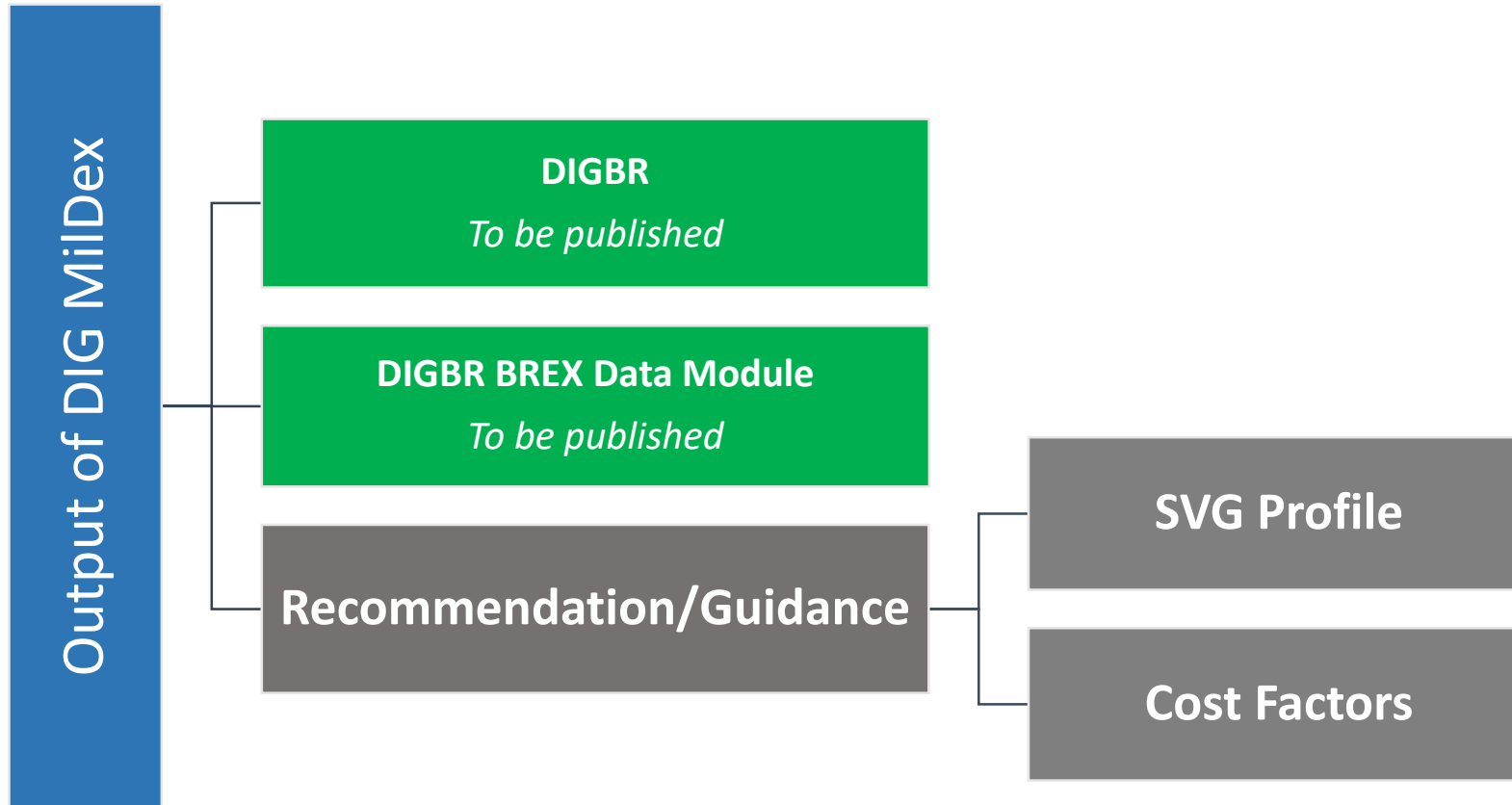
```

DMC-DIG-A-00-00-0000-00AAA-022A-D_001-00_EN-US.XML (~/.Dropbox/Werkdata/Defen...chtergrond_materiaal/BREX) - gedit
[Openen] [Opslaan]
<?xml version="1.0" encoding="UTF-8"?>
<!-- DIG General BR BREX data module for S1000D information -->
<!-- Version 2017-09-21 -->
<!-- Copyright XXXX (DIG) 2017 -->
<!-- This BREX data module reflects the General Business Rules developed -->
<!-- for and adopted by DIG. -->
<!-- The data module will be applied by various DIG governed aquisition -->
<!-- efforts/projects to verify that aquired S1000D information complies -->
<!-- with the general BR. -->
<!-- Questions about the BREX data module can be directed -->
<!-- to dig-chair@members.s1000d.org. -->
<!-- Regarding the BREX identity: -->
<!-- - DIG is DIG registered MI code for the "Defense Interest Group -->
<!-- - SDC is reflecting to which issue the BREX is (mainly) directed -->
<!-- where D = Issue 4.0, E = Issue 4.1, etc (ie S1000D practice). -->
<!-- - The DMC coding practice must be maintained in case the BREX | -->
<!-- is subject of changes/updates. -->
<!-- - Updated versions within an S1000D 'dot issue' -->
<!-- (eg 4.0/4.1/4.2/etc) are distinguished using issue numbers. -->
<!DOCTYPE dmodule [
]>
<dmodule xmlns:dc="http://www.purl.org/dc/elements/1.1/" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:xlink="http://
www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://www.s1000d.org/
S1000D_4-1/xml_schema_flat/brex.xsd">
  <identAndStatusSection>
    <dmAddress>
      <dmIdent>
        <dmCode modelIdentCode="DIG" systemDiffCode="A" systemCode="00" subSystemCode="0" subSubSystemCode="0"
assyCode="0000" disassyCode="00" disassyCodeVariant="A" infoCode="022" infoCodeVariant="A" itemLocationCode="D"/>
        <language languageIsoCode="en" countryIsoCode="US"/>
        <issueInfo issueNumber="000" inWork="02"/>
      </dmIdent>
    </dmAddress>
  </identAndStatusSection>
</dmodule>
XML | Tabbreedte: 8 | Rg 18, kol 69 | INS

```



# DIG Deliverables



*Note: Documents not published are only accessible through DIG members!*

# Where can you get the DIGBR?

## S1000D National/Organizational Business Rules

URL

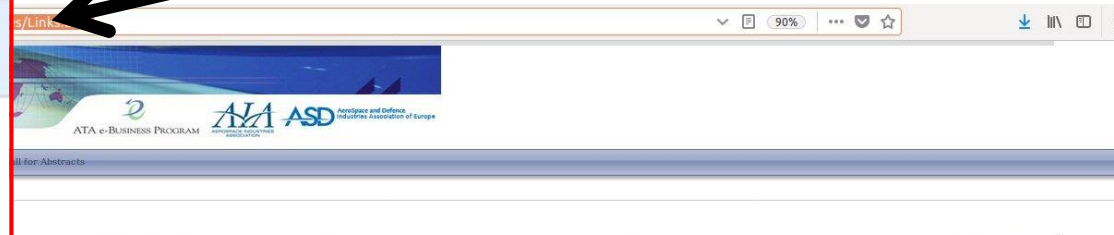
ATA Spec 1000BR

Defense Interest Group Business Rules

Shipdex™

URL:

s1000d.org/Pages/Links.aspx



These links to external sites are being provided as a courtesy. They are for informational purposes only and do not constitute an endorsement, approval or warranty by Airlines for America ("A4A"), the Aerospace and Defence Industries Association of Europe ("ASD"), and the Aerospace Industries Association of America ("AIA") of any of the content, products, services or opinions on the linked sites. A4A, ASD and AIA are not responsible for the accuracy, legality or intellectual property rights of these sites or for those of any subsequent links. Contact the external sites and/or content authors for any questions regarding the site's content and use.

### S1000D Participating Organizations

Organization	Notes
Aerospace and Defence Industries Association of Europe	The AeroSpace and Defence Industries Association of Europe, ASD, represents the aeronautics, space, defence and security industries in Europe in all matters of common interest with the objective of promoting and supporting the competitive development of the sector. ASD pursues joint industry actions which require to be dealt with on a European level or which concern issues of an agreed transnational nature, and generates common industry positions.
Aerospace Industries Association	The Aerospace Industries Association represents the nation's leading manufacturers and suppliers of civil, military, and business aircraft, helicopters, unmanned aerial vehicles, space systems, aircraft engines, missiles, materiel, and related components, equipment, services, and information technology.
AIA/ASD SX0001	International guide for the use of the S-Series Integrated Logistics Support (ILS) specifications
Airlines for America	Founded in 1936 as the Air Transport Association of America, Airlines for America (A4A) is the nation's oldest and largest airline trade association, representing the nation's leading airlines.
ATA e-Business Program	For over 50 years, the ATA e-Business Program has developed and published civil aviation industry standards for exchange of operationally critical information. It's mission is to establish a global commercial aviation information framework that facilitates improved business agility, reduces costs, increases speed of business, and maintains the highest level of safety.

### S1000D National/Organizational Business Rules

URL	Notes
ATA Spec 1000BR	Civil Aviation Business Rules for Implementation of S1000D.
Defense Interest Group Business Rules	The Defense Interest Group (DIG) Business Rules (BR) document was developed to produce a common DIG layer for defense BR based on the S1000D Business Rule Decision Points (BRDP). The approach is based on the development of layered BR, with the DIG BR forming the foundation layer.
Shipdex™	Shipdex™ is the International Business Rules (The Shipdex™ Protocol) developed to standardize the production and the exchange of technical and logistic data within the shipping community.

### National S1000D Web Sites

URL	Notes
Germany	This national S1000D web site addresses the German Industry as well as civil and military customers. It is the national S1000D information platform in German language and provides links to dedicated working web sites for discussion and review activities around S1000D within Germany.

# Agenda

- Overview of the DIG
- DIG Business Rules (DIGBR)
- Nation's approach implementing DIGBR
- DIG BREX
- Future efforts and conclusion

# Future DIG Efforts

- Upgrade DIGBR to **Issue 4.2**.
- Bringing S1000D experts in defense projects together starting with the organization of an **MoD conference** on S1000D in military projects in Erfurt on 30 October 2018.
- **Best practices** in interfacing with other ILS disciplines (under SX000i).
- Develop **more detailed guidance** on the established common set of BRDPs.
- Closely follow **new technology developments**, assess from a Defense project perspective and create new guidance, recommendations and/or changes in the DIGBR.
- Share user experience in IETP **Viewing Environment**.

# Conclusion

- The foundation of the DIG Guidance Proceedings is ready
  - The **DIGBR** were published in April 2017 and have been integrated in several of the nation's national S1000D Business Rules sets.
  - **DIG BREX** will be published in September 2018 and are ready to be used in S1000D defense projects.
- DIG focuses now on bringing S1000D defense experts and non-experts together to further facilitate the adoption and implementation of S1000D in defense projects and organizations.
- You are welcome to work together with the S1000D Defense Interest Group!

# Thank you

for your attention!

## Questions?



Ministry of Defence

**G. (Gerke) Mulder MSc.**

*Senior Advisor System Logistics / Chair of S1000D Defense Interest Group*

M +31 (6) 3073 6521    g.mulder@mindef.nl

Defence Materiel Organisation

Kromhoutkazerne | Herculeslaan 1 | 3584 AB Utrecht, The Netherlands

Postbus 90125 | 3509 BB Utrecht, The Netherlands | [www.mindef.nl/dmo](http://www.mindef.nl/dmo)