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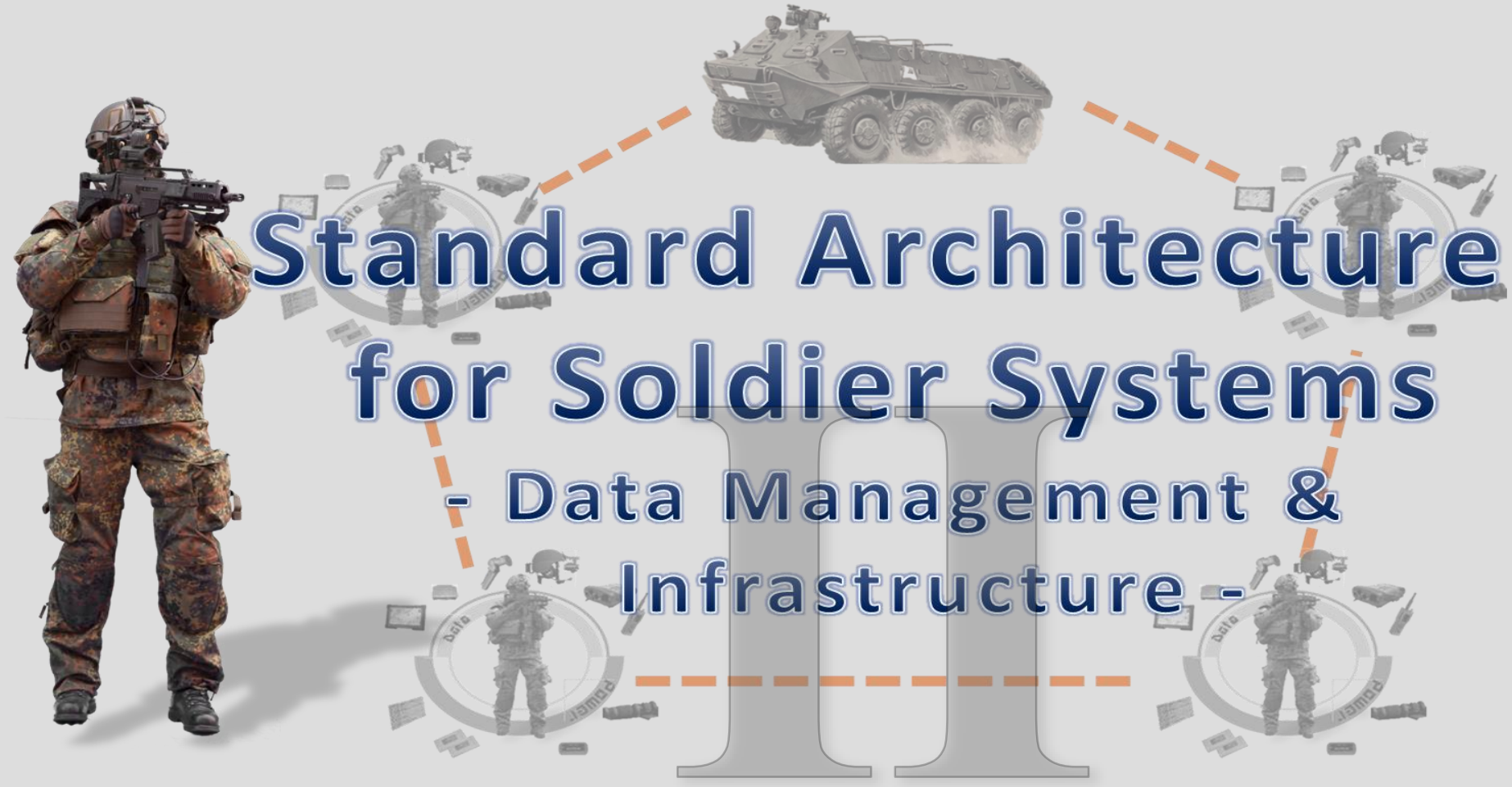
EUROPEAN DEFENCE AGENCY



Standard Architecture for Soldier Systems - Data Management & Infrastructure -

STASS II Industrial Workshop
16.CAT.OP.131
Brussels, 6th September 2017

Jose Luis Delgado Gamella – GMV

Study Presentation

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Agenda

TIME	TOPIC	REMARKS
10:00 – 10:15	Introduction	EDA
10:15 – 10:45	Brief Study Presentation	GMV
10:45 – 11:25	Definition of Common European Capabilities, Scenarios, and Requirements. [Capability Views, Operational Views and Service Oriented Views]	Rheinmetall
11:25 – 12:00	Analysis of Current Systems and Identification of Standardization / Technology Potentials – [Background View]	Larimart
12:00 – 13:00	**Lunch break**	
13:00 – 13:35	Relevant Standards and Technologies – [Technical View]	TNO
13:35 – 14:15	Soldier System Description, Interface, Standards and protocols definitions – [System View]	GMV
14:15 – 14:30	**Coffee break**	
14:30 – 14:50	Cost Benefit estimation and Road map – [Business View]	Rheinmetall
14:50 – 15:15	Concluding remarks / Open Discussion	Contractor/All
15:15 – 15:30	**End of workshop**	
15:30 – 16:30	**STASS II Design v2 progress meeting**	EDA/PMG/Study team only

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STASS II Industrial Workshop

- **Project Information**
- Related and Previous Developments
- All View (Overview and Summary)
- Architectural Views
- Study Timeline

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Project Information (I)

EUROPEAN DEFENCE AGENCY

Project Officer:	**Marek Kalbarczyk**
Budget:	**246.5K€**
Project Duration:	**Dec. 2016 – Feb. 2017**

- **Team**

gmv INNOVATING SOLUTIONS

Jose Luis Delgado (PM and Tech. Expert)
Vicente Javier de Ayala (Tech. Expert)

RHEINMETALL GROUP

Dr. Norbert Härle (PM and Tech. Expert)
Mario Sonka (Tech. Expert)

LARIMART a LEONARDO company

Fabrizio Parmeggiani (PM and Tech. Expert)
Marco Stella (Tech. Expert)

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Mark van den Brink (PM)
Marcel van der Lee (Tech. Expert)

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Project Information (II)

- **STASS-II Point of Contacts**

Name	Organisation	Email	Function
Jose Luis Delgado	GMV	jldelgado@gmv.com	Contract and Project Manager
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Fabrizio Parmeggiani	Larimart	fabrizio.parmeggiani@larimart.it	Project Manager
Mark van den Brink	TNO	mark.vandenBrink@tno.nl	Project Manager

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Project Information (III)

Deliverables and Milestones

Meeting / Deliverable		Date
Kick-Off Meeting	✓	Thu **01/12/2016** T0
Meeting/workshop with stakeholders	✓	Wed **01/03/2017** T0+3
STASS II Design Document v1	✓	Tue **02/05/2017** T0+5
Progress Meeting 1	✓	Thu **30/05/2017** T0+6
Milestone 1		
STASS II Design Document v2	✓	Tue **01/08/2017** T0+8
Progress Meeting 2	◀	Wed **06/09/2017** T0+9
Milestone 2		
STASS II Design Document v3		Tue **17/01/2018** T0 + 13
Progress Meeting 3		Tue **01/02/2018** T0+14
Milestone 3		

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Related and previous developments

- **Previously: Definition of a Generic Vehicle Architecture**
  - UK DefStan 23-09 “Generic Vehicle Architecture (GVA)”, no Issue 3
  - NATO STANAG 4754 “NATO Generic Vehicle Architecture (NGVA) for Land Systems”
    - based on DefStan 23-09
    - accompanied by EDA Study 12.R&T.OP.336 “Land Vehicles with Open System Architecture (LAVOSAR)”

LAVOSAR

- **Now: Definition of a Standard Architecture for Soldier Systems**
  - UK MOD published DefStan 23-12 “Generic Soldier Architectures (GSA)”
  - NATO Land Capability Group for “Dismounted Soldier Systems” (LCG DSS), C4I
  - EDA Study “Standard Architecture for Soldier Systems (STASS). Starting Point of this Study

STASS

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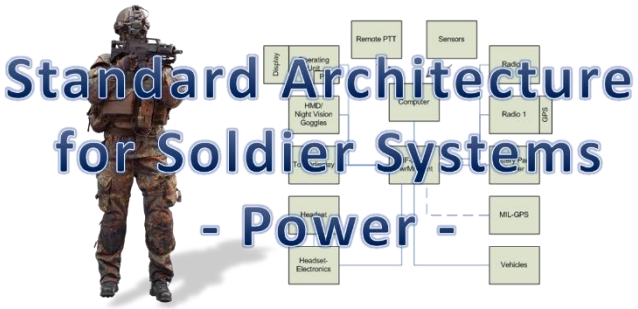
Related and previous developments – STASS I

- **Findings (I)**
  - Recommendation to develop a complete Open Soldier System Reference Architecture before standardisation
  - Consider UK and NATO similar activities
  - Ethernet and USB 2.0 connectors used as basis for STASS
  - Architecture should be based on centralized batteries and separate batteries for essential devices (Li-Ion, rechargeable).
  - Governmental feedback: Minimum core system with voice radio, incl. headset, and position measurement (GPS) – Blue Force Tracking
  - There is also a need to develop interconnection with the Vetronics of a NGVA compliant vehicle



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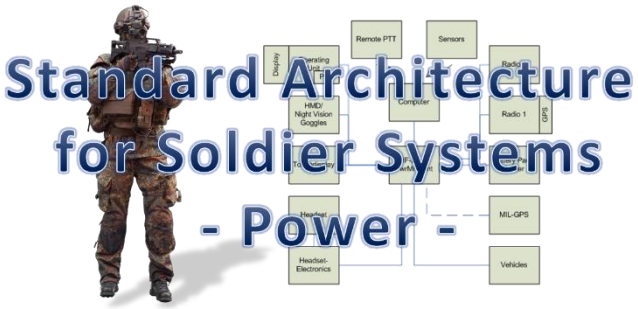
Related and previous developments – STASS I

- **Findings (II)**
  - The analysis of current connectors showed that there is almost no standard suitable for soldier systems.
  - Industrial feedback: connector companies are very willing to standardize on connectors for soldier systems as soon as the exact requirements are formulated
  - Business model could be developed in a brief and qualitative way, due to the lack of data aspect considerations.
  - The major benefits are for the user (the soldier) who, with a STASS compliant system, uses a flexible, powerful, performant and state of the art system which would otherwise be extremely costly



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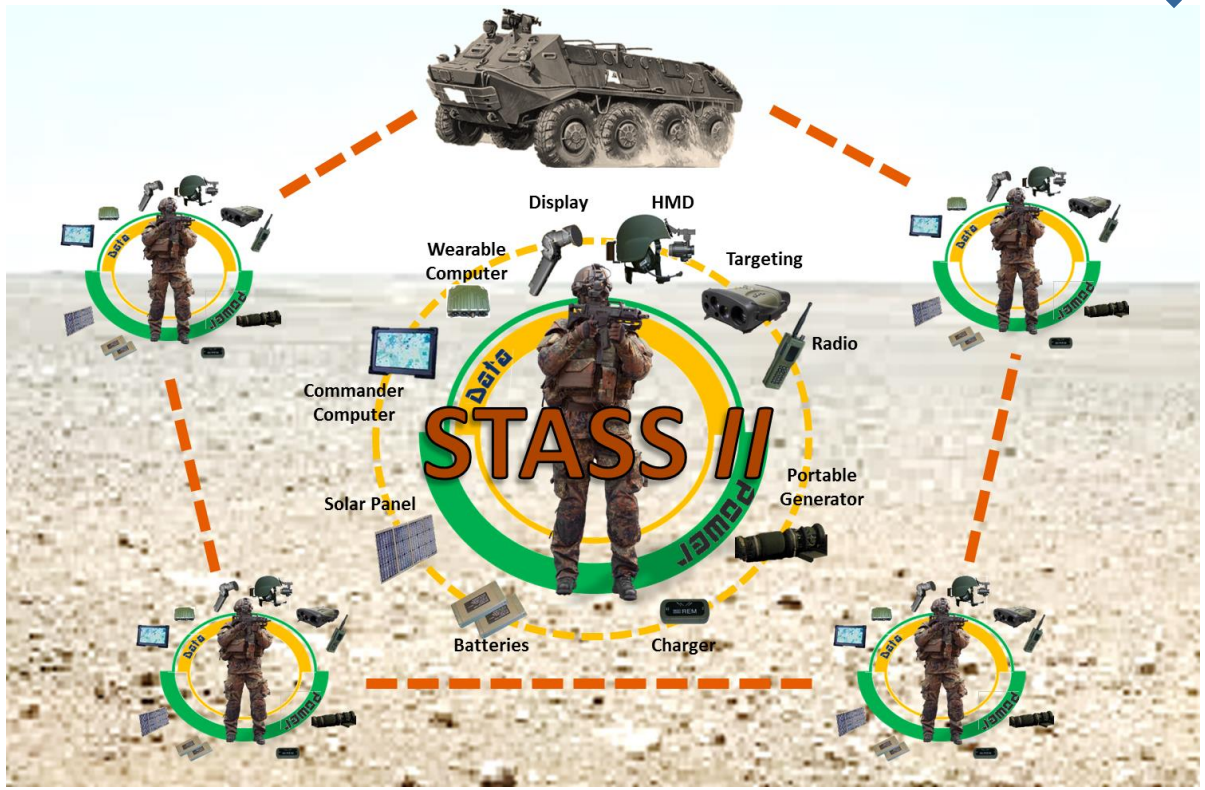
All View – Overview and Summary Information (I)

- **Architecture Scope**
  - To develop a Generic Open Reference Architecture for Soldier Systems with focus on data management and infrastructure
  - To be used to derive the target data architecture for a specific system to be procured or built
  - To be standardized or used as contribution for standardisation
- **Identification**
  - EDA Study "Standard Architecture for Soldier Systems with focus on data management and infrastructure" (STASS II, 16.CAT.OP.131)
    - GMV (ESP, prime contractor)
      - Project Management, All and System Views
    - Rheinmetall Electronics (DEU)
      - Capability, Operational, Serv. Or. and Business Views
    - Larimart (ITA)
      - Background View
    - TNO (NLD)
      - Technical View

STASS II Representing Picture



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All View – Overview and Summary Information (II)

- **Background**
  - **Open Architectures or Generic Architectures are seen as a key to make complex systems affordable by**
    - reducing integration effort through standardisation,
    - enhancing competition for sub-systems by making them interchangeable,
    - reducing technical risks by using sub-systems and integration approaches with high Technology Readiness Levels (TRL),
    - reducing logistic and maintenance efforts by lowering the variety of sub-systems and by using a common technical approach,
    - allowing innovation by upgrading sub-systems which can be easily integrated,
    - increasing operational effectiveness by complete networking of all systems.

"Standards level the playing field"

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All View – Overview and Summary Information (III)

- **Aim**

  The Standard Architecture for Soldier Systems (STASS – *composed of STASS I and STASS II*) in general shall represent a comprehensive architecture for soldier systems which shall

  – Improve operational effectiveness
    - Typical European operations in a squad as part of a platoon
    - Focus on a single soldier but it shall also consider the squad context
    - Foment a burden's reduction on individual dismounted soldier: Weight, Cognitive, Thermal

  – Foster standardisation and harmonization
    - Promoting: interoperability and interchangeability
    - Considering the data distribution concept with reduced cabling effort,
    - Taking into account lessons learned by Nations with soldier systems
    - Being geared towards standardization, based on a harmonized concept
    - Proposing a roadmap to establish a standard based on it.
    - Allowing a modular approach to support different equipment configurations
    - Synchronizing and complementing with NATO Dismounted Soldier System

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All View – Overview and Summary Information (IV)

- **Aim**
  - Consider technological innovations
    - Being applicable to current/future systems
    - Considering: body sensors, augmented reality, night vision devices, dissemination of information, C4ISTAR technology, inertial navigation or vision-generated data
    - Taking into account the integration of new technologies (incremental improvement of systems)
  - Improve cost efficiency
    - Reducing the whole life cost of ownership
    - Making better use of commercial-off-the-shelf products (COTS)
    - Promoting third party competition by providing modular components
    - Allowing technology insertion whilst minimizing integration costs
    - Guiding component developers

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Architectural Views (I)

- **NATO Architecture Framework v3**

1. STRATEGIC LEVEL VIEWS	NAV, NCV	USER	Who? What?
2. OPERATIONAL LEVEL VIEWS	NOV	TASK	Why?
3. SYSTEMS LEVEL VIEWS	NSV	SYSTEM	Whereby?
4. SERVICE LEVEL VIEWS	NSOV	SERVICE	How?
5. TECHNICAL LEVEL VIEWS	NTV	STANDARD	How?

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Architectural Views (II)

- **NAF v3 + complementary views**: Background and Business Views

STRATEGIC LEVEL	NATO All View (NAV): captures overarching aspects of the architecture that relate to all seven views. The NAV also contains a dictionary for the architecture and documents changes (core meta data). NATO Capability View (NCV): serves the analysis and optimization of capabilities (detecting gaps and overlaps of capabilities).	WP1 WP6
OPERATIONAL LEVEL	NATO Operational View (NOV): describes tasks and activities of organizational elements (information flows, frequency of information exchanges, tasks and activities).	WP1
SYSTEM LEVEL	NATO Systems View (NSV): They describe systems, their components, their interfaces, and their interconnection (Supports the operational demands of the NOV Views).	WP4
SERVICE LEVEL	NATO Service-Oriented View (NSOV): describes cross-functional services that support operational tasks.	WP1
TECHNICAL LEVEL	NATO Technical View (NTV): describes interfaces and standards of systems.	WP3

+

Background View: Analysis of current soldier systems and identification of standardization technology potential	WP2
Business View: Business model analysis and cost benefit estimation	WP5

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STASS II Industrial Workshop

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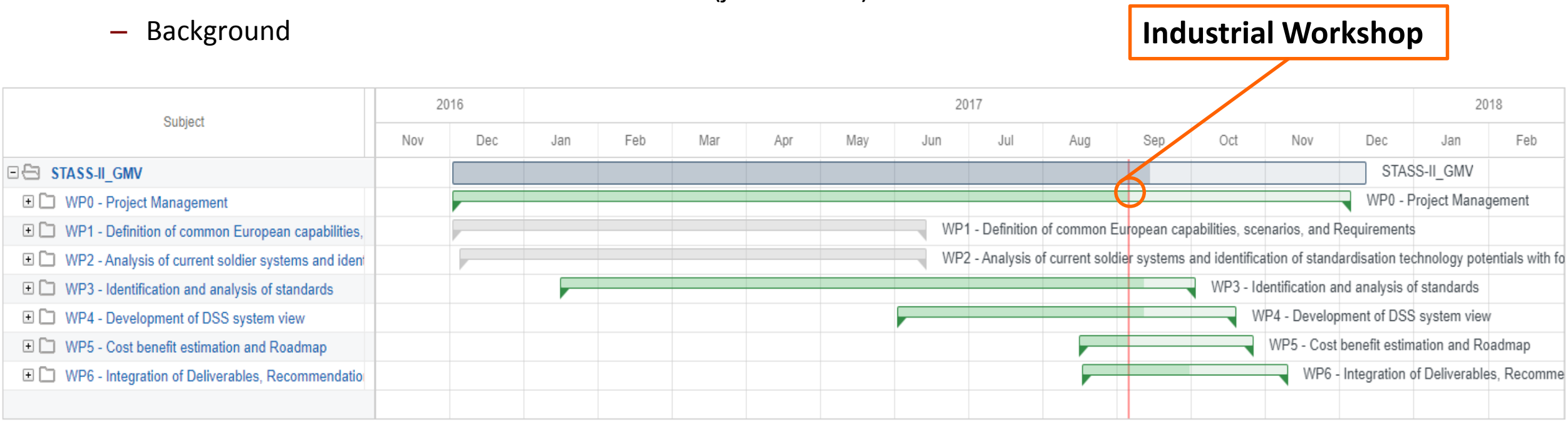
Study Timeline

- **Completed views**
  - Capability,
  - Operational,
  - Service Oriented
  - Background
- **Views under development**
  - Technical,
  - System,
  - Business (just started)



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Study Timeline – Next Steps

- **Milestone 3**
  - **STASS II Design Document v3 (Final Version)**

Tue. 17/01/2018

  - **Progress Meeting 3**
    - **29th Ground Systems CapTech (EDA)**

Th. 01/02/2018

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THANK YOU

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