Supporting VEA standardisation through a European Demonstrator

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Introduction

Vehicle Mission Systems

- A key element of Armed Forces to achieve their mission, whatever the task
- Up to now, largely bespoke, designed and built for one mission, one vehicle platform

VMS need Vehicle Electronic Architecture

- Numerous third parties equipment to be integrated
- Electronic life cycle shorter than platform thus VEA brings optimisation through the whole system life

The VEA standardisation interest is growing

- Need to do more with less
- Supported by EDA and MILVA initiatives
  - LAVOSAR and the NATO-GVA STANAG on going

How to assessed the results?

- Need to be adopted by stakeholders
- First "Paper" step should be consolidated

Openess, Modularity, …?

Easy to use, …?

A set of ideas
to support the VEA standardisation through a demonstrator

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Reminder - LAVOSAR and MILVA initiatives

Europe is currently involved through two main VEA standardisation initiatives. The LAVOSAR team is involved on both – that should facilitate the coherency and the consistency between

MILVA	***LAVOSAR***
Mandated by the NATO LCG2 group to develop a VEA STANAG	EDA owned funded study
Various stakeholders involved – MODs, military industrials, research universities	RDE, SELEX, VRC, FKIE, THALES involved
Aim is to develop a STANAG called NATO-GVA – based on GVA DEF STAN 23-09 issue 3	This study shall serve as a basis for a new standard of Open Architecture accepted by: European military Land Vehicle manufacturers, Equipment suppliers, The Ministries of Defence of EDA participating Member States
First draft expected at end of 2013	End of study in November 2013

Both "paper" initiatives should be consolidated – with a demonstrator

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Potential drivers for a VEA standardisation demonstrator

Drivers	Rationale
Use the outputs of LAVOSAR and the preliminary elements from MILVA	Compatibility with the standardisation initiatives
Multiple countries and multi industrials (vehicle manufacturers, system integrator, product providers, …) to be involved	Suitability for the European stakeholders (MODs, Operational users, military industrials)
Not a vendor lock-in solution	Demonstrate integration of numerous third parties solutions (sensors, effectors, applications, …)
Demonstration with integration into multiple vehicles	Solution suitability for military environment and various mission systems
Data exchange “on” and “between” platform(s) through a standardised Data Model	Demonstrate Interoperability with focus on the equipment aspects

Demonstrate a standardised VEA in multiple vehicles environment

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Building a demonstrator

Proposal is to complement the paper studies (LAVOSAR & MILVA) by physical demonstrator (s)

Various possibilities but could be for example:

- Multiple implementation in countries involving vehicle manufacturers
- A core set of industrials could build the standardised VEA (as recommended by LAVOSAR)
- A wider panel of partners could propose some HW and/or SW products (European or/and worldwide) to be demonstrated (a set of product compatible with the standard)

3 tiers approach similar to AUTOSAR

Assess maturity of technologies suitable for VEA standardisation

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Benefits

Standardisation should provide benefits to the different European countries, MODs, operational users and military industrials.

The demonstrator example would enable to

- **Consolidate some paper studies – continuity of LAVOSAR**
- **Permit to accelerate the emergence of a standard – 2 to 5 years estimated for a STANAG**
- **Evaluate the complexity of the standardisation – single VEA implementation not expected**
- **Go one step toward interoperability – build a common Land Data Model at equipment level, …**
- **Demonstrate the VEA "openness" – through integration of numerous products**
- **Synchronize various European programmes – multi countries involvement**
- **Evaluate TRL of key technologies – current & future technologies performances evaluation,**
- **Build reference platform(s) for integration**

Demonstrator providing benefits for all stakeholders

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Proposed scenarios

Possible scenarios to

- **Adaptation of the same standardised VEA infrastructure solution to multiple countries**
  - Selection of equipment according to the Vehicle Mission Systems to be integrated (A, B, C)

- **Operational exchange between various platforms/countries to demonstrate fleet management in coalition scenario**
  - Fleet management data exchanges induce to send logistic information
  - Logistic information should cover common Vehicle Mission System status (as an example : food, water, ammunitions, fuel, equipment status, …)

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Programmatic aspects

A 18 to 24 months programme starting in 2014 – continuity with LAVOSAR

Programme type cat. B

standard shared between the various participants (agencies, governments and industries)

Implementation owns by countries/industries – VEA implementation is an industrial discriminator

Loan of equipment and platforms (unless there is a which for a "reference" solution)

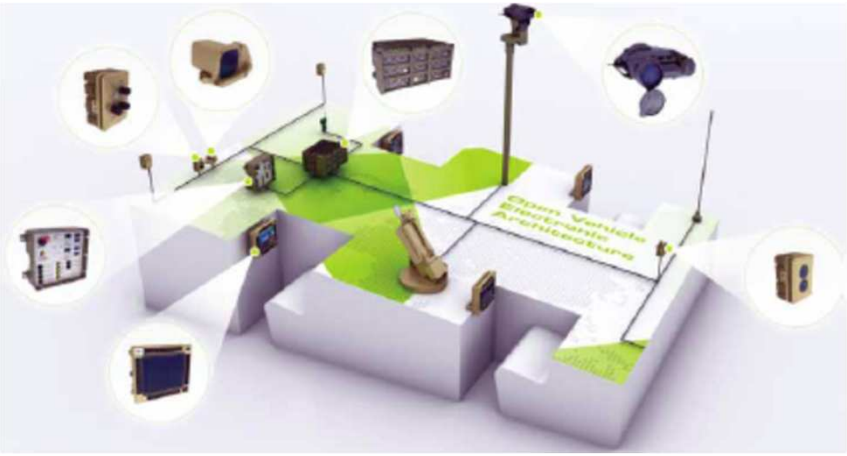
Conclusion

A complementary approach to current paper studies facilitating the emergence of a matured standard

Tight schedule to guarantee continuity with EDA studies (2014)?

That could also federate states demonstrators

Thales Ready to participate to such a demonstrator



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Thank you for your attention

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