Industry Workshop | MINUTES

Meeting date - time: 09 July 2015 - 10:30 | Meeting location: **EDA, Brussels**

Chair:	**Marek Kalbarczyk, EDA**	Attendees:
Rapporteur:	**Norbert Härle, RDE**	**Workshop Participants:**
Telephone:	**+49(421)457-1503**	See Appendix 1 "List of Participants"
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Date of Minutes:	**26 Aug. 2015**	

AGENDA TOPICS

Time	Topic
10:30 – 10:45	Introduction by EDA
10:45 – 11:15	LAVOSAR II Study presentation
11:15 – 11:45	WP1 - Architectural Domain Analysis and Requirements
11:45 – 12:45	WP3 - Workflow and Procedure Update
12:45 – 13:30	**Lunch Break**
13:30 – 14:00	WP2 - Open Reference Architecture Standards Update
14:00 – 15:00	WP4 - Through Life Capability
15:00 – 15:15	**Coffee Break**
15:15 – 16:00	WP6 - Architecture Contribution to EDA Repository
16:00 – 16:45	WP5 - Alignment with NGVA
16:45 – 17:15	Concluding Remarks and Way Ahead

Introduction by EDA
Presenter: **Marek Kalbarczyk** | Time allotted: **15min**

Marek Kalbarczyk gave an introduction into European Defence Agency (EDA) and its intents within CapTech Ground Systems.

LAVOSAR II Study presentation
Presenter: **Dr. Norbert Härle** | Time allotted: **30min**

Dr. Norbert Härle gave a briefing to Land Vehicles with Open System Architecture (LAVOSAR) study results and an introduction into LAVOSAR II study. Participants of LAVOSAR II were introduced and the audience of the workshop introduced themselves.

WP1 - Architectural Domain Analysis and Requirements
Presenter: **Dr. Norbert Härle** | Time allotted: **30min**

Dr. Norbert Härle presented current results of the "Architectural Domain Analysis and Requirements" Work Package.

Comments received:

- EU Rapid Reaction Forces (RRF) Concept is a very high level, joint level effort whereas LAVOSAR II scope is lower tactical echelon and restricted to land domain. Therefore, extracting requirements from EU RRF is difficult and implies many assumptions.
- Practically, using national extensions to the NATO Generic Vehicle Architecture (NGVA) would be necessary to satisfy national specifics. It would be easier for United Kingdom (UK) to adopt NGVA and maintain their national extension instead continuing their own DefStan 23.09 Generic Vehicle Architecture (GVA).
- Form factors as interface between electronic and mechanics needs to be an industry standard which supports military specifications. OpenVPX should be considered as a candidate. Military standards in this area were never successful because of the low numbers and fast innovation speeds.
- Operating systems to be used need
    - to provide the possibility to control configuration,
    - to be maintainable during the rather long life time of military equipment
    - to provide an acceptable licensing policy.
- Instead of prescribe a single Operating System (OS) in a standard, it might be useful to recommend an OS-independent programming interface, e.g. Portable Operating System Interface (POSIX).
- The applicability of an European standard for exports to non-European nations should also be considered as European companies do not only provide products to EU countries. The use of the standard for export and further to increase international competitiveness of European Industry shall be considered.

WP3 – Workflow and Procedure Update
Presenter: **Dr. Tarik Khoutaif** Time allotted: **60min**

Dr. Tarik Khoutaif presented current results of the "Workflow and Procedure Update" Work Package.

Comments received:

- **Changing roles might be required. E.g. a gunner may play the role of the vehicle commander and needs to be able to use the commander services of the crew terminal. The role of "deputy" should therefore be introduced.**
- **The use cases "Antitank mine" could be generalized by using a term "deployable weapon".**
- **For slide 10, it should be stated who is carrying out the stated activities.**
- **For slide 7, changing roles for vehicle crew shall be considered.**
- **For slide 12,**
  - **changing roles of vehicles shall be considered,**
  - **the standard Maintenance Levels (ML) 1,2, and 3 shall be used, and**
  - **also three information levels shall be used:**
    - **Critical Information,**
    - **Support and Maintenance Information (close to the theatre), and**
    - **Long Term Maintenance.**
- **Detection of failure from the measured data should also be considered (diagnostics, tools, algorithms, services)**
- **Potential customers for LAVOSAR II shall be more clearly identified and the documents should be more oriented towards these customers and more clearly understandable.**

WP2 – Open Reference Architecture Standards Update
Presenter: *Edouard John Louis Mouchel* Time allotted: *30min*

Edouard Mouchel presented current results of the "Open Reference Architecture Standards Update" Work Package.

Comments received:

- **Achieving common European standards is difficult:**
  - **Even under the "5 Power Nations" USA/GBR/ITA/DEU/FRA there is a very large number of different standards and no joint solution yet.**
  - **Common C4I concepts and approaches have been tried for many years without success. There are even different non-interoperable C4I systems inside a single nation.**
- **Standardisation does not mean interoperability as nations may use the standard with national extensions or leave out key aspects for interoperability.**

WP4 - Through Life Capability
Presenter: *Teemu Alakoski and Pasi Niemela* Time allotted: *60min*

Teemu Alakoski and Pasi Niemela presented current results of the "Through Life Capability" Work Package.

Comments received:

- **In slide 8,**
  - **maintenance and repair is missing**
  - **eventually two way communication is needed (arrow in both directions)**
  - **Maps are part of Command, Control, Computer, Communication and Intelligence (C4I) data**
  - **refuelling after a mission needs to be included**
  - **scenario is needed which describes the maintenance action (also for slide 6)**
- **No ammunition or petrol is in a vehicle while in long-term storage**

- **Long-term storage is more than 6 months (up to 5 or 10 years)**
- **For slide 11,**
    - **Universal Serial Bus (USB) connectors are not secure enough (rename to interface/connector)**
    - **Previous connection to Health and Usage Monitoring System (HUMS) is missing now. Should still be there.**
    - **HUMS is shown bottom up but it should be top down**
    - **Original Equipment Manufacturers (OEM) should be in close touch**
        - **To improve their knowledge**
        - **Learn by experience**
- **Slide 14**
    - **Off platform HUMS is preferred**

WP6 - Architecture Contribution to EDA Repository
Presenter: *Daniel Ota* Time allotted: *45min*

Daniel Ota presented current results of the "Architecture Contribution to EDA Repository" Work Package.

Comments received:

- **The term LAVOSAR vehicle should be avoided as the European community will rather go for an NGVA vehicle. LAVOSAR could complement NGVA or support in its development, but the vehicle will then not be a LAVOSAR vehicle.**
- **Observation, preparation, targeting, verification of the functionality and counting of ammunition of the weapon station could be done using NGVA based communication and software. Because of safety implications (Safety Integrity Level, SIL), only the final authorisation of firing must remain a hard wire connector in the near future.**
- **Slide 2**
    - **It should be made more clear what LAVOSAR really offers to NGVA**
    - **The first LAVOSAR study report is currently used by several people as a reference to look up certain aspects on vehicle mission systems**
- **Slide 14**
    - **Unconnected Weapon Stations are not used anymore. They are all remote controlled and need to provide their status**
    - **SIL levels shall be referred to. However, it is not always black and white.**
- **Slide 24**
    - **Arrows shall be defined**

WP5 - Alignment with NGVA
Presenter: *George Valsamakis* Time allotted: *45min*

George Valsamakis presented current results of the "Alignment with NGVA" Work Package.

Comments received:

- **Slide 5**
    - **There is interest in further NGVA Allied Engineering Publications (AEPs)**
        - **embedded training,**

- HUMS and Logistics,

- Net-Centricity (System-of-Systems),

- Effector Integration (DEU),

- There is a lot of interest in Modular Safety cases as the modularity of the standard architecture also requires modularity in safety certification, and

  o It was mentioned that the Crew Terminal Software Architecture is not under consideration. It will be part of this NGVA version.
- Slide 7
  o Upgrade related issues shall be part of Architecture AEP.
  o Studies are currently underway related to fitting legacy systems to NGVA.
- Slide 9
  o HUMS and logistics may be combined. However, there is a strong standard in Germany concerning logistics already and it may be difficult to re-discuss this German standard.
  o External communication shall not be restricted to HUMS and logistics. Vehicles also need to communicate horizontally (Systronics).
- LAVOSAR provides a vision, whereas Military Vetronics Association (MILVA) is doing the hard work to specify individual standard for specific subjects. Both of them should work together.

Concluding Remarks and Way Ahead
Presenter: *Marek Kalbarczyk and Dr. Norbert Härle* Time allotted: *30min*

Marek Kalbarczyk and Dr. Norbert Härle summarized the workshop and chaired the discussion.

- MILVA members should work together with LAVOSAR. LAVOSAR needs to tell MILVA about what it is doing.

- Modular Safety Cases are an important issue but there is only little expertise in the vehicle domain.

- Executive Summary is needed for such projects as the Final Report is too large.

- The new German point of contact for LAVOSAR will Mr Sebastian Müller who takes over from Uwe Münch. Uwe Münch will have new tasks in the BAAINBw and we wish him all the best and success in his new position.

References

- LAVOSAR II Industry Workshop Presentations:
  o 2015-07-09 Workshop 2, LAVOSAR II - 1. Study Presentation.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 2. WP1.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 3. WP3.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 4. WP2.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 5. WP4.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 6. WP6.pdf
  o 2015-07-09 Workshop 2, LAVOSAR II - 7. WP5.pdf