

PREPARATORY ACTION ON DEFENCE RESEARCH



Session Soldier Systems

INFODAY AND BROKERAGE EVENT
27 JUNE 2017

Does not represent an official legal opinion of the European Defence Agency

PREPARATORY ACTION ON DEFENCE RESEARCH



Call Text presentation RA topic Force Protection and Soldier Systems

Research in Technology and products in the context of Force protection and Soldier Systems

Specific Challenge

Force protection and advanced soldier systems beyond current programmes

Interoperability

- Vehicle, infrastructure and soldier systems open standards
- Enable:
 - Effectiveness
 - Adaptability to mission profile
 - Maintaining state of the art
 - Reducing life cycle, logistic and human resource footprint

Safety of military personnel

- Individual ballistic protection still essential
- Main challenges:
 - Weight reduction
 - Inflexibility to better fit differences in anatomy
 - Protection against kinetic threats only
- Current technology based on fibre technology and hard plate technology
- New solutions e.g. shearthickening fluid known but not yet fully implemented

Survivability

- Strong civilian development of technologies in visual appearance however not suitable for military applications
- Increase of sophistication in advanced sensors systems
- No solutions available for longer (invisible) wavelength
- Need for research in adaptive materials, structure and components in short wave infra red, thermal infrared and radar

Sub-topic (a)

Force protection and advanced soldier systems beyond current programmes

Scope: Generic open system architecture

Ready for standardization

Comprehensive coverage: group, squad, multi-national, vehicle, etc.

Architectural domains: Electronics; Voice and data communication; Software; Human interfaces devices; Effectors

Technical validation

Build on recent results from EDA and NATO

Sub-topic (b)

Force protection and advanced soldier systems beyond current programmes

Scope: Tailor-made blast, ballistic and CBRN protection of military personnel

- Light weight ballistic and blasting protection with 20% reduction
- Effective dissipation of energy and body protected zones
- Explore integrate CBRN detection and/or protection
- Flexibility and modularity
- Advancement in manufacturing

Sub-topic (c)

Force protection and advanced soldier systems beyond current programmes

Scope: Adaptive camouflage

- Active and passive camouflage methods rapidly reconfigure or change to surrounding
- Active against variety of present and future threats from advanced sensors systems and observation means

The proposals

Force protection and advanced soldier systems beyond current programmes

- The implementation of these topics are intended to:
 - Focus on TRL 2 to 3 for topic (a)
 - Focus on TRL 2 to 4/5 for topics (b) and (c).
- 2017 Budget - 6.78 M€
- Proposal could cover one of the following subtopics:
 - Generic open system architecture – EU contribution 1 - 1.5 M€
 - Tailor-made blast, ballistic and CBRN protection – EU contribution 2 - 3 M€
 - Adaptive camouflage – EU contribution 2 - 3 M€

**Deadline for proposals
21 September 2017**

Expected Impact

Force protection and advanced soldier systems beyond current programmes

- Convincing demonstration of EU-wide research cooperation in defence research
- Promotion of the integration of interoperability standards
- Enhancement of the effectiveness of military personnel
- Reduction in life cycle costs

Combat Equipment for Dismounted Soldier Feasibility Study Programme (CEDS FSP)

- **Aim:** Identify possibilities offered by innovative technologies for soldier systems:
 - Observation
 - Energy
 - Human factors
 - Survivability
- **Timeframe:** Jan. 2013 – 1st Q 2017
- **Status:** running
- **Expected project results:** Demonstration of state of the art technological solution in all CEDS FSP domains
- **Military benefits:**
 - Update of the Common Staff Requirements (CSR) for CEDS



CEDS FSP projects

OBSERVATION



OBSERV



Precision Targeting



ENERGY



SPER-PACK



Energy Harvesting

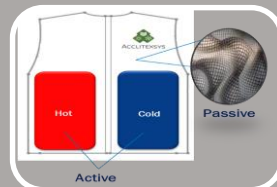
HUMAN FACTOR



MUMSIS



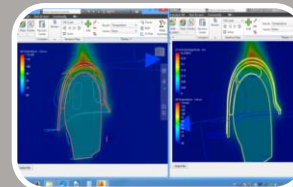
SURVILABILITY



ACCLITEXSYS



LIVEST



iHELMMAT



ACAMS

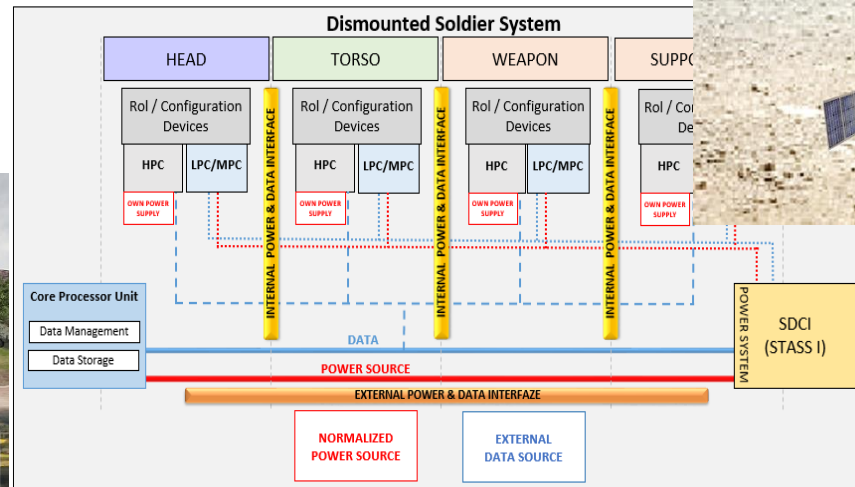


Standard Architecture for Soldier Systems

System view



Technical view



Operational view





The information contained in these slides on EDA projects/studies is provided for informative purposes only, and is not a prerequisite (precondition) for application for the call of proposals.
The only legally binding documents are those published in the Research and Innovation Participant Portal.

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Information on EDA projects / studies

CBRN activities

PROSAFE – Next Generation of Protection Garments Against Warfare Agents

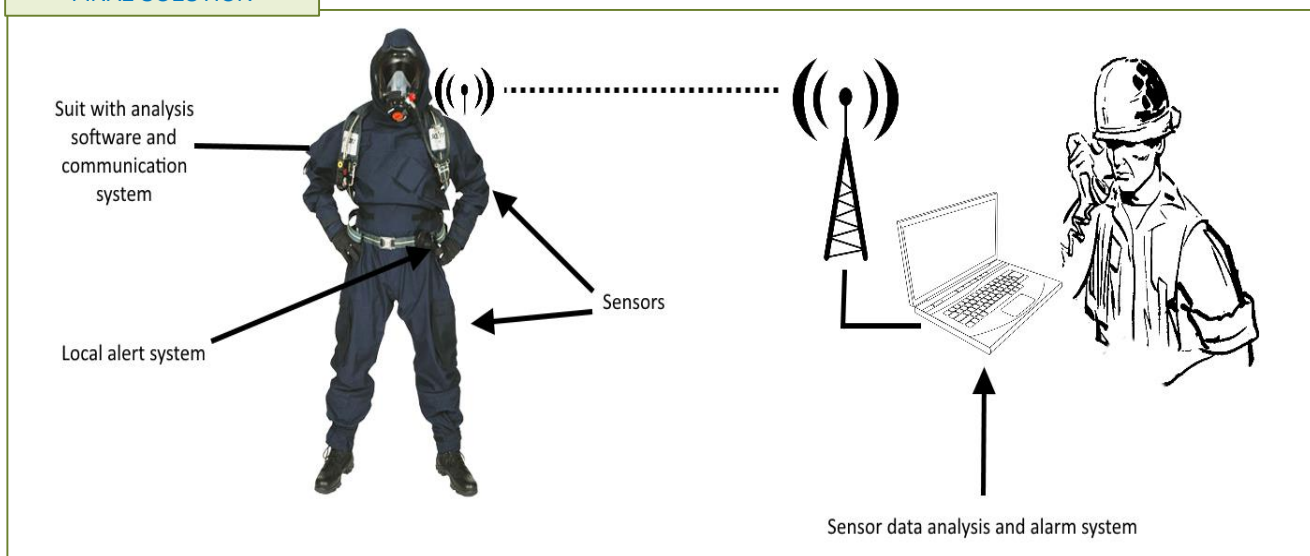
MAIN OBJECTIVE

Development of a CBRN suit integrated system able to detect and quantify the concentration of warfare agents

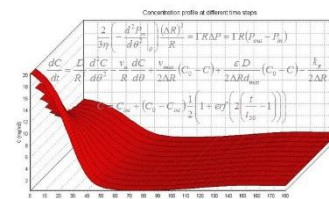
MILITARY BENEFITS

- Quantification of warfare agent concentrations.
- Determination of security level for military.
- Prevention of warfare agent saturation in the CBRN
- Remote monitoring from the military base of the exposure to warfare agents and environmental conditions.
- “Self-cleaning” CBRN suit by photo-degradation of warfare agents.

FINAL SOLUTION



UNIVERSITAT POLITÈCNICA DE VALÈNCIA



SWITCHPROTECT: Low Burden Individual Protective Equipment with Adaptive Protection

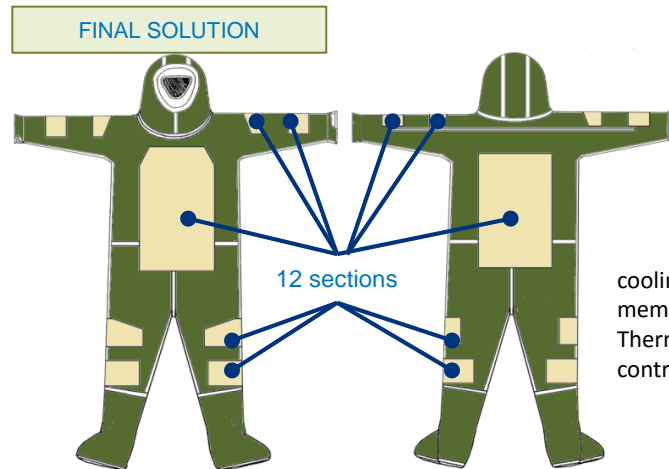


MAIN OBJECTIVE

Development of a CBRN suit that can be switched from a permeable low burden mode to an impermeable CBRN protective mode on demand

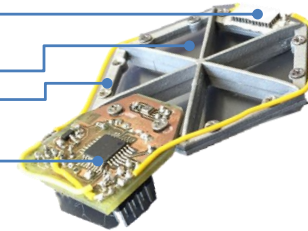
MILITARY BENEFITS

- ❑ Combines advantages of permeable and impermeable CBRN protection
- ❑ Low physiological burden
- ❑ High air permeability
- ❑ Stand-by CBRN protection for whole-day wearing
- ❑ Quick response to CBRN / TIC threat
- ❑ 2 minutes switching time from permeable to impermeable
- ❑ Low energy consumption / portable energy supply



Switching Module

- cooling unit
- membrane
- Thermally conductive metal frame
- control electronics



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