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NATO ARMY ARMAMENTS GROUP (NAAG)

**Sponsor Assessment for the NIAG Study 253 on Human Augmentation Technologies
for Exploitation in Battlefield Environments**

Note by the International Staff

References:

1. AC/225(DSS)D(2021)0002 Final report of NIAG Study Group 253 on Human Augmentation Technologies for Exploitation in Battlefield Environments
2. LAMP Ref: DSS-001

1. The NAAG Land Capability Group Dismounted Soldier System (LCGDSS), Soldier Capability Analysis sub-Group (SCAG), as the sponsor of the subject study, submits the attached assessment report.

(Signed) Osman Tasman

Annex: 1

Action Officer: Mr Osman TASMAN, x4300
tasman.osman@hq.nato.int
Original: English



SPONSOR ASSESMENT OF NIAG STUDY FINAL REPORT

Assessment of Human Augmentation Technologies for Exploitation in Battlefield NIAG SG-253

References

- a. NIAG Final Report 31th of May 2021, NIAG SG.253 on Assessment of Human Augmentation Technologies for Exploitation in Battlefield
- b. Study Approval paper DI(2020)0125 11th May 2020 Study order SG253

Sponsor Group and Point of Contact

- a. Sponsor Group: NAAG/LCGDSS
- b. Point of Contact
May - October 2020 LTC Torstein Espolin Johnson Chair NAAG/LCGDSS/SCAG
October – May 2021 Kristin E McKenna new Chair NAAG/LCGDSS/SCAG

Assessment against reference (b) – (including appropriate comments)

- a. Was the Study Objective achieved?

Objectives of the Study

- Assess current and emerging technologies to aid military personnel during training, education, and operations resulting in more effective training, transfer to operations and operations;
- Assess tools and methods to overcome negative effects of promising augmentation technologies (e.g., simulator sickness);
- Analyze the feasibility of battlefield employment of the discovered technologies with respect the achievable superiority;
- Examine the return on investment (ROI) to adopt and deploy any promising augmentation technologies discovered during this assessment.

The Study Objectives are achieved.

- b. Were all the areas for the study addressed?

The study is to review and analyze opportunities for moving new and emerging augmentation technologies from state-of-art to state-of-practice for training and operations within the NATO alliance nations.

Such technologies include:

- advanced IT tools (Virtual/Augmented/Mixed Reality) to improve situational awareness;
- exo-skeletons for empowering the soldier;
- neuro-enhancement;

The study should address the possibility to reduce the training time of every Soldier, Sailor, Marine, and Aviator in all the military organizations of every NATO country by 20-50% while simultaneously enhancing their memory, recall, and performance during operational tasks. The study is thorough and cover most of the areas. Training is discussed, but the possibility to reduce the training time while simultaneously enhance the soldier's capabilities is not discussed in the details as expected.

c. Does the Final Report meet the agreed study output?

The final report should give an analysis of what offer emerging technologies will give NATO in developing more efficient training (e.g., reduced time/cost to competency) and performance aids for operations. The analysis should report the nature, extent, availability, and feasibility of the opportunities the emerging technologies will have. The analysis should also address the needs for standardization and interoperability.

As part of the report, an update of NATO Emerged and Emerging Disruptive Technologies (E2DT) or a similar document should be delivered.

The Final Report meet the agreed study output.

Intentions with regard to Final Report recommendations

a. The recommendations seem adequate. The Emerged and Emerging Disruptive Technologies are developing fast. To take advantage of the development, more studies, research, trials etc. are needed. The recommendations are support.

b. Intended way ahead.

The Sponsor is focused on developing more efficient training and operational performance. Based on the study the Sponsor will look closer into research through STO, consider the need of requirements for standardization and interoperability and monitor the Nations E2DT activity.

Feedback

- a. The study group has performed very well and done a good work.
- b. The Sponsor have learned that the interaction between the Study group and the Sponsor demand more involving from the Sponsor side than first assumed. On the other hand, the interaction is needed to follow up the study.

Overall Assessment

The Study Objectives are achieved. The Final Report addresses most of the areas for the study. The Final Report meet the agreed study output. The study is thorough. The Final Report is a useful document describing the Human Augmentation Technologies for Exploitation in Battlefield. The report support the understanding of Human Augmentation Technologies and will help NATO and Nations' way forward to utilize the possibilities with the technology.

Satisfactory

The Sponsor, NAAG/LCGDSS, is very satisfied with the study NIAG SG-253 and their Final Report.

28th August 2021

Magnus Hallberg (sign)
Major
Chairman LCGDSS