NORTH ATLANTIC TREATY ORGANISATION

RESEARCH AND TECHNOLOGY ORGANISATION

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RTO TECHNICAL REPORT **TR-HFM-078**

Uninhabited Military Vehicles (UMVs): Human Factors Issues in Augmenting the Force

(Véhicules militaires sans pilote (UMV) :
Questions relatives aux facteurs humains
liés à l'augmentation des forces)

Final Report of the RTO Human Factors and Medicine Panel (HFM) Task Group HFM-078/TG-017.

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The Research and Technology Organisation (RTO) of NATO

RTO is the single focus in NATO for Defence Research and Technology activities. Its mission is to conduct and promote co-operative research and information exchange. The objective is to support the development and effective use of national defence research and technology and to meet the military needs of the Alliance, to maintain a technological lead, and to provide advice to NATO and national decision makers. The RTO performs its mission with the support of an extensive network of national experts. It also ensures effective co-ordination with other NATO bodies involved in R&T activities.

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The total spectrum of R&T activities is covered by the following 7 bodies:

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- HFM Human Factors and Medicine Panel
- IST Information Systems Technology Panel
- NMSG NATO Modelling and Simulation Group
- SAS System Analysis and Studies Panel
- SCI Systems Concepts and Integration Panel
- SET Sensors and Electronics Technology Panel

These bodies are made up of national representatives as well as generally recognised 'world class' scientists. They also provide a communication link to military users and other NATO bodies. RTO's scientific and technological work is carried out by Technical Teams, created for specific activities and with a specific duration. Such Technical Teams can organise workshops, symposia, field trials, lecture series and training courses. An important function of these Technical Teams is to ensure the continuity of the expert networks.

RTO builds upon earlier co-operation in defence research and technology as set-up under the Advisory Group for Aerospace Research and Development (AGARD) and the Defence Research Group (DRG). AGARD and the DRG share common roots in that they were both established at the initiative of Dr Theodore von Kármán, a leading aerospace scientist, who early on recognised the importance of scientific support for the Allied Armed Forces. RTO is capitalising on these common roots in order to provide the Alliance and the NATO nations with a strong scientific and technological basis that will guarantee a solid base for the future.

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Optimum operator/vehicle ratio
Shared situation awareness
Situational awareness
Supervisory control
Systems engineering
UMV (Uninhabited Military Vehicle)
Unmanned vehicles
Virtual team performance

14. Abstract

Uninhabited Military Vehicles (UMVs) are used to augment manned forces in dull, dirty, or dangerous tasks. Human factors issues range from control station design, to vehicle interoperability, and integration with manned systems. New principles are reviewed for supporting the operator, and for collaboration between multiple operators. Future study is needed on techniques for distributive collaboration, command and control of UMV teams, and enabling flexible human supervisory control of multiple, highly-automated UMV assets.

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