

Chapter 1 – INTRODUCTION

NATO RTO has coordinated a number of studies into the modelling of personnel and platforms for use in military simulations (Dompke & Scheckeler, 1999; RTO, 2001) and interest in human modelling continues in a number of NATO RTO panels. Pew and Mavor's (1998) review of the field identified a number of shortfalls in the current state of the art, as have the above mentioned NATO and TTCP (The Technical Cooperation Program, Hawkins et al., 2003) reports. The RTO HFM-128/RTG on *Human Behaviour Representation in Constructive Simulation* is in the process of providing guidance for operational analysts, modellers and engineers on human factors that can be included in operational models and simulations that have personnel as a core element. Such models are used for various assessments – notably materiel, mission support and tactics – as well as training.

The goal of HFM-128/RTG is to make recommendations to the HBR modelling community regarding the use of human factors in constructive models in a systematic way, paving the way for standardisation and re-use of modules describing specific human factors. The modeller would then plug-and-play modules within standardised human factors architecture. HFM-128/RTG identified the requirement to hold a Specialists' Meeting in which the approach that the panel is following could be communicated to and challenged by specialists in the field, as well as to discuss a number of issues relevant to human modelling for military applications.

HFM-143/RSM "Human Behaviour Representation in Constructive Modelling" was initiated by HFM-128/RTG as part of its activities to further the field of human modelling for NATO M&S. A RTO Specialists' Meeting (RSM) technical team activity aims at promoting exchange of state-of-the-art knowledge among an audience of specialists with selected speakers on an important scientific or applied topic. The prime purpose of an RSM is to enhance the capability of the NATO R&D community to respond adequately to the military requirements of NATO.

Thirty-three people with an interest in modelling human behaviour and performance from seven NATO member and Partners-for-Peace countries gathered at the Canadian Forces College in Toronto, Canada for a 2-day workshop (30-31 May 2007) to discuss, debate and exchange ideas on aspects of human modelling. The list of attendees is included in the Appendices. The list of participants and the meeting agenda are provided in the Appendices 1 and 2 respectively.

The RSM was opened by the Co-chair Mr. Cain, stressing that the format of the meeting was intended to promote discussion rather than listening to formal presentations and that participation in the discussions by attendees was essential to the meeting's success. Two keynote speakers presented perspectives from NATO as well as from industry. These presentations served to set the stage for discussions, focussing on the HBR requirements and technologies that could be brought to bear on NATO M&S for the representation of personnel.

The following seven topic areas were discussed in separate sessions at the Specialists' Meeting and these proceedings summarize those discussions:

- 1) What Human Factors does an operation involve?
- 2) Human task representation in M&S.
- 3) Behaviour generation – variability and choice.

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- 4) The concept of moderators.
- 5) Militarily relevant mental output measures – workload, situation awareness and other useful concepts.
- 6) Complexity, Hierarchy, Modularity, and Validity in HBR Architectures.
- 7) From individual to group behaviour.

Each session comprised some introductory remarks by session chairs and brief presentations by researchers in the field to offer perspectives on the discussion topic. This was followed by a general discussion among the participants. Presentations were kept brief to provide time to explore and debate ideas. This format seemed to be well received and prompted widespread participation by the attendees.

Summaries of the session discussions were written by the session chairs with input from the panel and various presenters; slides from the presentations are included in Appendix 1. The SM technical evaluator, Mr. Fraser, summarized the discussions at the end of each day, bringing out observations relevant to NATO. Mr. Fraser's technical evaluation of the meeting is included in Chapter 12.