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## **Chapter 7 – KEYNOTE ADDRESS: DAY 2 – A ROADMAP FOR HUMAN BEHAVIOUR MODELLING**

### **Session Chair: Mr. Joe Armstrong**

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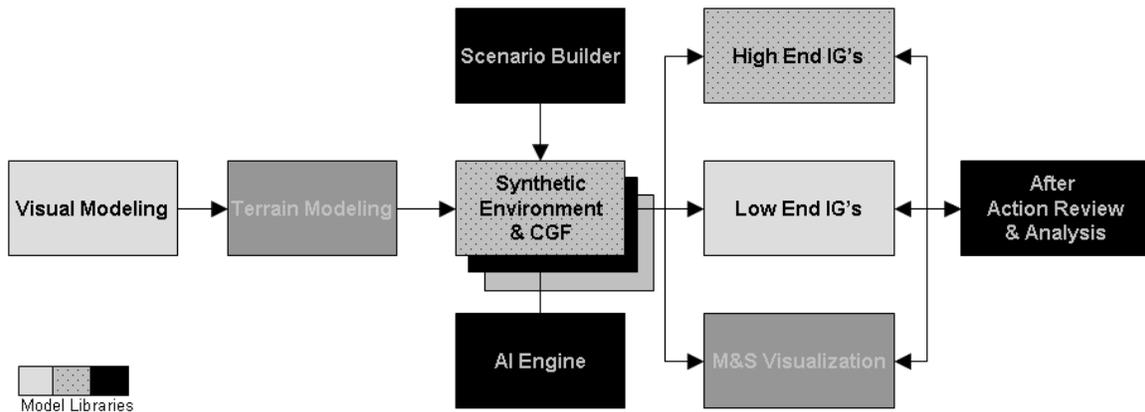
### **Presenter: Mr. Mike Greenley**

Vice President Modelling and Simulation  
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Mike Greenley from CAE, Inc. presented a vision for the future of human behaviour modelling from an industry perspective. CAE is a global leader in the design of civilian and military training systems for air, land and sea applications, having supplied the defence forces of more than 50 nations with military training systems and services. CAE offers a range of simulation equipment and M&S software that span the military domain into civil emergency management applications, where the incorporation of behaviour models for entities such as terrorists and civil actors is becoming increasingly important. This experience provides a broad base of M&S expertise that can be applied to predicting the needs of HBR in future military M&S.

Mike noted that accurate representations of human behaviour are becoming increasingly important for the conduct of military and civilian M&S activities across the domains of training, experimentation, and acquisition support. However, the current market space for Human Behaviour Modelling (HBM) is relatively fragmented, un-standardized, and does not support a coherent approach to the development of cost-effective HBM applications that can adequately address client requirements. Close collaboration between customer stakeholders, academic research institutes, and industrial partners is key to the advancement of state-of-the-art HBMs and to support the development of standardized methodologies for the application of HBM techniques. Successful collaboration will be contingent on the clear identification of the roles and responsibilities of industry, academic, and government stakeholders in the joint evolution of HBM technologies and practices.

Mike also identified that a requirement for re-usable software is driven by the need within the client domain to reduce the necessity of re-engineering or re-creating components developed for one application into another. In the concept of an overall simulation architecture, an important component relevant to the HBR community is to provide modular and Advanced Intelligence Solutions (AIS) characterized by the figure below, while maintaining a balance between optimization solutions such as those espoused by the AI and Robotics communities, and the accurate representation of human behaviour.



Mike also provided some insights into future growth areas for HBR, including:

- 1) Significant interest from the training community in providing higher-fidelity models of entity behaviours, intelligent tutors, and team-mates. In addition, exploitation of the current training market is estimated at approximately 10 percent. Expanding this domain into simulation support for corporate leadership is potentially even larger.
- 2) Though the desire for standardized tools and methodologies for developing HBR applications is substantial, standardization will only succeed where there is a clearly identified need that is driven by the client community and a specific application. Orchestrated standardization is extremely difficult, and history has demonstrated that this approach is not likely to succeed.
- 3) A major challenge for HBR applications is the difficulty in moving HBR capabilities from one simulation domain to another. However, software languages are beginning to emerge for the development of translation languages that will support the migration of modular HBR applications from one environment to another.