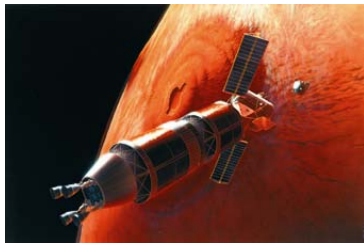


MARS MISSION

A space application for the Mood Toolset

British software from Salamander was chosen by a key US aerospace company to develop the concept of returning man to the Moon, Mars and beyond.

The USA's vision for space exploration is being taken from concept to reality with the help of the Mood Transformation Toolset. Salamander partner Lockheed Martin STASYS Limited has been working with Raytheon, one of 11 US companies funded to conduct preliminary concept studies to support NASA's Concept of Exploration and Refinement (CE&R). This extremely complex programme is looking at the robotic and human exploration of the Moon and Mars over the next 25 years.



Raytheon's early proposals involve the development of crew exploration vehicles, robotic systems and habitats to support habitation and exploration on the lunar surface - using Mood to develop an Enterprise Architecture approach to the challenge of this exciting and ambitious new phase in space exploration.

NASA began moving the vision for space exploration from concept to reality in September last year by appointing the best in the US aerospace industry to look at the concept work for space transportation systems needed for future space exploration. "These study contracts reflect NASA's new commitment to find the best outside expertise that will work in partnerships to benefit the nation's goals for space exploration," said retired Rear Admiral Craig E Steidle, Associate Administrator of NASA's Exploration Systems Mission Directorate.

NASA's aim is to get humans on Mars by 2030 and this initial work, involving Mood, explored how that might be feasible as a sustained and affordable human and robotic programme. US-based Raytheon chose LM STASYS and the Mood capability as they



wanted to create a dynamic and highly visual representation of the Enterprise Architecture for the CE&R to articulate the space exploration vision.

Says Mike Gordon, Business Unit Leader for Architecture Development in LM STASYS: "Raytheon chose the LM STASYS architecture capability to enhance their own systems engineering approach, through the application of the Mood Toolset. This enabled them to represent their ideas and concepts in an integrated and interactive Enterprise Architecture for the CE&R." At the Raytheon briefings to NASA in April and May, the CE&R enterprise architecture developed in Mood was very well received. Mike Gordon commented: "They were very impressed by Raytheon's robust systems engineering approach and the integrated architecture capability of Mood, which allowed data and

graphics to be imported from and linked to other toolsets, such as: requirements; synthetic operational visualisations; dynamic data activation to analysis spreadsheets; and knowledge activation to trade study, technical and concept documents.”



He continued:“MooD was selected to complement the functionality of a number of other toolsets due to its particular suitability for representing Operational and Capability Views in the CE&R Enterprise Architecture. This fitted in with the multiple toolset approach adopted in the Raytheon Enterprise Architecture Process (REAP™).” The sheer complexity of the CE&R programme means that a number of systems engineering approaches and methods will be involved and it will be critical that these can be integrated effectively. Mike Gordon explained: “The scale and complexity of the programme will require a multi-tool approach and MooD has an excellent interface allowing integration with other toolsets. “Telelogic's DOORS and System Architect applications as well as Microsoft's Project, Excel and Word will be used in the next stages of the programme, all of which have working interfaces with MooD. Of particular interest to Raytheon is the exciting Performance Activation capability in MooD, which will provide a powerful management dashboard for representing the Figures of Merit (FOM) for each of the candidate architectures. This feature links to dynamic data models and spreadsheets, which is not available in other toolsets.”