
Segment: International Cooperation

Roles and Strategies in International Programs

By Peter G. Smith
International Affairs, International Relations Division

More than 1,200 agreements with over 130 countries and international organizations have been negotiated by NASA in the past 30 years. In fact, noted Smith, international cooperation is mandated by the *Space Act of 1958*. The benefits of such cooperation has been monetary (more than \$12 billion contributed or pledged), strategic (access to foreign expertise and facilities) and, of course, political. The downsides, however, include management complexity, technical and programmatic risk and, of course, political risks. On balance, NASA programs have been greatly enriched and strengthened with international cooperation, Smith noted.

As far as program and project managers are concerned, Smith urged specific division of responsibility with international partners. Management structure and responsibilities must be made clear from the start, augmented by clear reporting documentation and monitoring.

Help in international expertise, coordination with other agencies and skilled negotiators are readily available to the project manager from the International Relations Division. International Relations is organized by both functional area and major cooperative partner, including special relationships with Russia.

An Overview of NPO Energia/NASA Commercial Relations

by Jeffrey Manber
Energia USA

"Space holds a special place in our psyche," said Manber, who wondered aloud if "aerospace is going the way of steel or autos" in terms of international consortia. "America has lost the soul, the drive to get back to space," Manber asserted, and the motive has instead become mired in litigation. He questioned why NASA does not use the Mir space station, for example. "It does not have to be the pinnacle" of technology and hygiene, "just representative," he said. Finally, in defense of Energia being what NASA may call "a quasi-commercial organization," Manber asked: "How private is the private sector when Rockwell gets most of its dollars from NASA and the U.S. government?"

He added: "The Russians are not going to go away. They're not going to make just toasters and refrigerators . . . It seems very clear that the space industry is going the way of the automobile industry and the

steel industry. And it's going to be international. And you'll have 20 percent equity ownership from a XYZ company, and 15 percent from the Russian government, and 18 percent from J.P. Morgan . . .

"Robert Reich, the Secretary of Labor, said recently the very idea of an American economy is becoming meaningless. As are the notions of American corporation, American capital, American products, and American technology.

"And so, you know I would say to you that even though you are all government people, that one of the strongest new commercial markets in the aerospace space arena is in the capabilities of the former Soviet Union. I think that at some point industry is going to be moving in. I think that will give us a more robust capability. It will lower the costs of doing business in space."

International Shared Experiences

Dr. Steven Holt, Director of Space Sciences at Goddard Space Flight Center, led this panel, with Gil Ousley of BDM Federal, Robert McBrayer, Task Team Manager of the Lunar Ultraviolet Telescope Experiment (LUTE) at Marshall Space Flight Center, and Joseph Alexander, Associate Director of Space Sciences at Goddard Space Flight Center.

A Panel Discussion

International Project Management

by Gilbert W. Ousley, Sr.
Former NASA European Representative

The basic bible for a NASA International Project Manager is the Memorandum of Understanding (MOU) or the Letter of Agreement (LOA) that outlines the basic responsibilities of each participant and authorizes the project managers to carry out the execution of these responsibilities. The MOU/LOA is not a contract but an agreement between partners to use their best efforts to conduct their part of the program. This agreement is executed on the basis of no-exchange-of-funds.

The key relationships for the project manager are with the NASA project scientist, the NASA program manager and the co-project manager in the other country. Joint project management is "very much like a marriage" where each partner brings something essential to the combined team, and a successful relationship requires the practices of flexible understanding and patience. Careful recognition and consideration of each partner's contribution must take place continuously (as in a marriage), and

a strong feeling of mutual dependence and trust is required to navigate the many difficulties (including cost) jointly affecting both sides in an interdependent manner. Neither project manager should dominate the relationship with a foreign counterpart regardless of the proportions of the individual country's contribution, and persuasion is the preferred tactic of total successes. At the end of a scientifically successful program, each side should be eager to continue the same relationships into future cooperation.

Clear, simple and definable hardware and software interfaces must exist near the beginning of a project, and some means of verification (usually with an engineering model) should be exercised as early as possible in the project's life. A Joint Working Group, co-

chaired by the project manager, that meets on a regular/specified schedule (every four or six months) and which produces timely minutes containing discussions, agreements, and action items (with assignees and due dates) is essential. Interactions must be discussed openly and objectively, and resolved in a mutually satisfactory manner. All scientific data should eventually be made available in a form suitable for analysis to the National Science Data Center for distribution to the international science community.

Successful cooperative projects in which the scientific objectives are clearly met in a harmonious, timely and cost effective manner do not just happen; they are made to happen.

International Scientific Payloads

by Robert O. McBrayer
LUTE Task Team Manager, Goddard Space Flight Center

Serving as Assistant Mission Manager for the Spacelab One and Spacelab Three Shuttle/Spacelab International Missions was excellent preparation for assignment as the Mission Manager for the First International Microgravity Laboratory (IML-1) Spacelab/Shuttle Mission. This seven-year project involved NASA and other international space agencies, over 200 science investigators from 14 countries, and over 42 different investigations.

As Mission Manager of the IML-1 Mission, I have had to deal with continual pressure to minimize the cost increases associated with Shuttle manifest changes, continually balancing budget, schedule, technical complexity and the scientific requirements and desires of the scientific community, while interacting with five other NASA Centers and five international space agencies. A Letter of Agreement was signed by International Relations and identified the program managers and the program scientists for each Agency (i.e., NASA and ESA). This Letter of Agreement established the conditions of participation for the foreign partner and the specific duties of each Agency. For IML-1, NASA provided the flight opportunity for a foreign partner's hardware developers and science investigators in exchange for use of their apparatus, or

data, by U.S. investigators. The Letter of Agreement established a framework for the development of a detailed interface agreement between the experiment developer and mission management. The mission manager then utilized existing mission documentation (i.e., Instrument Interface Agreement and Operations and Integration Agreement) to establish requirements for the integration of each experiment into the IML-1 payload.

Interaction with foreign partners (management, scientists, and experiment developers) on IML-1 was an extremely positive experience. International cooperation dictates the understanding of other cultures and sensitivity to communications. A good understanding of the schedule, technical and resource interfaces is a necessity for communicating with the language and cultural challenges facing personnel on both sides. Straightforward relationships were a key aspect of successful interaction with the foreign partners on IML-1. These same principles can be equally applied to interaction with any partner, foreign or domestic, on any project. There is no real substitute for a clear, unambiguous planning, understanding of the other partners' constraints and needs, and straightforward relationships in any successful program or project.