

SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND  
DEVELOPMENT (D3)

Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and  
Development (1)

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BUILDING ON THE ISS PARTNERSHIP

**Abstract**

As evident in the “Global Exploration Roadmap (August 2013),” developed by the International Space Exploration Coordination Group (ISECG), there are new and evolving themes in space exploration. Mars is still the most compelling objective but we presently lack some of the basic capabilities necessary to reach, explore, and colonize the red planet. Efforts are underway around the globe, however, to develop new infrastructure and technologies which will enable an international expedition to Mars at least by the 2030s. The difficulty and complexity of human exploration beyond Earth orbit will require an unprecedented degree of inter-dependency among national and regional space agencies. The partnership which formed and now maintains the International Space Station (ISS) is a model and a pathfinder for these new international efforts now getting underway. The legal collaborative framework established by the Canadian Space Agency (CSA); the European Space Agency (ESA), representing 11 participating ESA member states; the Japan Aerospace Exploration Agency (JAXA); the Russian Federal Space Agency or Roscosmos; and the United States National Aeronautics and Space Administration (NASA), has proven to be effective in enabling complex technical interfaces in a high stakes setting over the long term. New undertakings will undoubtedly expand beyond these fifteen nations to include emerging programs, like those involved in ISECG which includes the Indian Space Research Organization (ISRO), the Korea Aerospace Research Institute (KARI) and the National Space of Ukraine (NSAU). As the history of ISS has established, there is also a benefit to peace and stability here on Earth as former adversaries learn to cooperate and trust each other, using a proven framework to spread the cost and benefits of developing architecture, technologies, and logistics while acquiring greater cultural insight and understanding. This study explores the factors that have led to the success of the ISS Partnership, how such a partnership can be replicated and expanded, and the types of collaborations that might most benefit from following such a model. 500 years ago an age of exploration began characterized by fierce national competition, colonial imperialism and not-so-occasional warfare. Today, we are on the threshold of a new era of exploration and cooperation expanding the space frontier, one that will demonstrate humankind’s progress in the last half millennium. The voyages to come will be led by a multi-national coalition on crafts staffed by diverse crews from disparate countries and cultures following the cooperative heritage of the ISS Partnership.