

BUSINESS INNOVATION SYMPOSIUM (E6)

Entrepreneurship and Investment for Innovations in Commercial Space Access Activities (1)

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RESEARCH ROADMAP FOR COMMERCIAL SPACE TRANSPORTATION

Abstract

The Federal Aviation Administration's Office of Commercial Space Transportation (FAA AST) has established a Center of Excellence for Commercial Space Transportation (COE CST) in order to identify solutions for existing and anticipated commercial space transportation problems. This COE CST is a cost sharing partnership of academia, industry, and government that focuses on research areas of primary interest to the FAA and the US commercial space transportation industry as a whole.

Developing a roadmap for future research was identified among the COE CST's first round of research tasks. To complete this, workshops were held where representatives from industry, academia, and government gathered to discuss what they saw as priority research objectives and the underlying organizational structure. The results from these workshops represent a near consensus opinion from these representatives of disparate fields. It is our conviction that these COE CST research goals and objectives will find broad application and relevance to the entire commercial space enterprise.

Research was first divided into four themes:

Space Traffic Management and Operations: Traffic management and operations of vehicles from the ground, through suborbital flight, to orbit. More specifically this includes orbital STM, the integration of air and space traffic, and spaceport operations.

Space Transportation Operations, Technologies, and Payloads: Ground system and operations safety technologies, vehicle safety analyses, vehicle safety systems and technologies, payload safety, and vehicle operations safety.

Human Spaceflight: Medicine, technology and training that is needed for both crew and spaceflight participants. This includes aerospace physiology and medicine, personnel training, ECLSS, habitability and human factors, and the human rating of vehicles.

Space Transportation Industry Viability: Business and government related aspects of commercial space transportation. This includes markets, policies, laws, and regulations.

These representatives developed specific topics, structures, and recommendations for each theme, and the output was collected as a whole to formulate a research roadmap. This paper will highlight the key elements of the roadmap and the process used in its development. In addition, the unique interdependencies between research areas will be emphasized along with potential areas for international collaboration.