

# COE CST First Annual Technical Meeting:



**Federal Aviation  
Administration**

## Defining the Future by Engaging Emerging Leaders

**Task 193: Role of COE CST in  
EFP**

**PI: George H. Born  
Bradley Cheetham**

**10.31.2012**





# Overview

- Team Members
- Task Purpose/Objectives
- Theory Based Analysis
- ESIL-02 Workshop
- ESIL-03 Workshop
- Next Steps
- Contact Information



# Team Members



- **George H. Born** – Director, Colorado Center for Astrodynamics Research
- **Bradley Cheetham** – Graduate Research Assistant, Aerospace Engineering Sciences
- **Juliana Feldhacker** – Graduate Research Assistant, Aerospace Engineering Sciences



# Purpose of Task



- Objectives:
  - Identify key industry characteristics to facilitate EFP efforts
  - Host targeted workshops to engage student and young professionals
  - Support conferences to educate students and young professionals
  - Incorporate young professional perspectives in ongoing industry planning efforts



# FAA COE CST Objectives



- **Research**

- Industry Structural Analysis – Commercial Crew to Orbit Industry Segment

- **Training**

- Emerging Space Industry Leaders Workshop Series

- **Outreach**

- Disseminating activity results, promoting a broader understanding of commercial space



# Theory Based Analysis



Theory Based Analysis of the Commercial Crew to Orbit Transportation Industry Structure and Evolution

Presented at 2012 International Astronautical Congress

- IAC-12-E6.1.6
- Third iteration on analysis
- Based on Michael Porter Competitive Strategy Theory

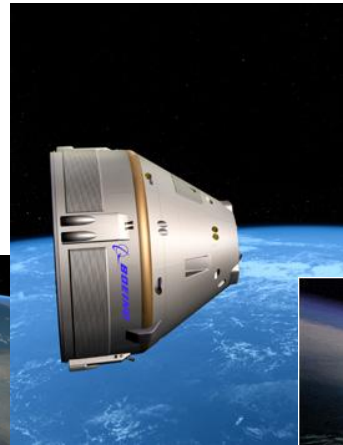


# Theory Based Analysis



Scope: Commercial delivery of humans to Earth orbit

- Considering the transport vehicle only
- Launch vehicle is a supplier



# Theory Based Analysis



<u>Forces</u>	2010	2011	2012
<b>Threat of Entry</b>	L	L	L
<b>Rivalry</b>	H	M	M-H
<b>Substitute</b>	L	L	M
<b>Buyers – NASA</b>	H	M-H	H
<b>Buyers - Other</b>			L
<b>Suppliers</b>	H	M	L



# ESIL Workshop Series



- Bring together emerging industry leaders
- Objectives
  - Inform – perspective, background, context
  - Perform – group analysis on identified market
  - Network – internal and external to industry
- Output
  - Product of attendees and newly strengthened network



# ESIL-01 Workshop



# ESIL-02 Workshop



COE CST Second Annual Technical Meeting (ATM2)  
October 31 – November 1, 2012



Federal Aviation  
Administration

# ESIL-02 Workshop



- “Emerging Leader” Defined:
  - Early- to Mid-Career Young Professionals and Graduate Students
- Broad industry backgrounds/experience
- Total Attendees: 11
  - Male: 5
  - Female: 6
- Total Guest Speakers: 8
- Location: Capitol Hill, Washington D.C.



# ESIL-02 Workshop: Objectives



Assemble a knowledgeable group representing emerging leaders within the U.S. space sector to:

Objective 1: Identify the current role of the U.S. Government in the commercial space sector

Objective 2: Identify how this role should evolve in the future from the perspective of the assembled group

Connect emerging leaders throughout the industry with peers and current industry leaders



# ESIL-02 Workshop: Schedule



	Monday, March 26, 2012 <i>Longworth HOB 1540-A</i>		Tuesday, March 27, 2012 <i>Cannon HOB 5C (adjacent to room 509)</i>
8:30	Welcoming and Introductions	8:30	Working Group
9:00	Overview of FAA AST & COE CST <i>Ken Davidian, AST</i>	9:00	
9:30	Overview of Workshop Objectives	9:30	
10:00	Other Transactional Authorities <i>Richard Dunn</i>	10:00	
10:30	Break	10:30	Break
11:00	Government Representatives (45min): <i>Chris Shank - Deputy CoS, Congressman</i> <i>Lamar Smith</i> Discussion (45min)	11:00	Industry and Regulators (45min): <i>Jim Van Laak - Deputy Associate</i> <i>Administrator, FAA AST</i> <i>Clay Mowry - President, Arianespace Inc.</i> Discussion (45min)
11:30		11:30	
12:00		12:00	
12:30	Lunch	12:30	Lunch
13:00		13:00	
13:30	Working Group	13:30	Working Group
14:00		14:00	
14:30	Break	14:30	
15:00	Civil and Defense (45min): <i>Alan Ladwig, NASA HQ</i> <i>James Finch - Director, Policy and Strategy</i> <i>Development, OSD/Space Policy</i> Discussion (45min)	15:00	Working Group
15:30		15:30	
16:00		16:00	FAA AST - Dr. George Nield
16:30	Evening Reception Tortilla Coast	16:30	Workshop Outbrief <i>Committee on Science, Space, and Technology Room</i> <i>Rayburn 2325</i>
17:00		17:00	



# ESIL-02



# ESIL-03



- Where: Buffalo-Niagara Convention Center  
Buffalo, NY, USA
- When: November 7-8, 2012
- In conjunction with SpaceVision 2012
- Topic: Game Theory Applied to Commercial  
Space – Participant Training Sector





# Next Steps



- Further dissemination of ISA activities
- ESIL-03
  - Expected paper and presentation
- ESIL-##
  - Future workshops hosted around the country in collaboration with other industries
  - Looking for host for ESIL-04
    - West Coast? Financial Sector?

# Contact Information



**George H. Born**

George.Born@Colorado.edu

**Bradley Cheetham**

Bradley.Cheetham@Colorado.edu



# Questions



# TASK 193. ROLE OF COE CST IN ENCOURAGE, FACILITATE AND PROMOTE (GRADUATE WORKSHOPS)



## PROJECT AT-A-GLANCE

- AST RDAB POC: Ken Davidian
- AST RESEARCH AREA: 4.5 Industry Viability–Crosscutting
- UNIVERSITY: University of Colorado at Boulder
- PRINCIPAL INVESTIGATOR: Dr. George Born
- STUDENT RESEARCHER: Mr. Bradley Cheetham (PhD), Ms. Juliana Feldhacker (PhD)
- PERIOD OF PERFORMANCE: Jan 1, 2012 – May 31, 2012
- STATUS: Ongoing. Year 3 of 5.

## RELEVANCE TO COMMERCIAL SPACE INDUSTRY

- The FAA COE program has three primary goals: research, training and outreach. This activity emphasizes COE CST's outreach goal by engaging students in graduate seminar activities, conference attendance that emphasizes commercial space topics, and the execution of specific research work for presentation at professional space conferences in commercial space paper sessions.

## STATEMENT OF WORK

- Identify key industry characteristics to facilitate EFP efforts.
- Support on-going FAA COE CST road mapping efforts.
- Hosted workshops for student and young professionals.
- Support conferences to educate students and young professionals.

## ESIL-02 WORKSHOP ATTRACTED 11 ATTENDEES



## STATUS

- Wrote and presented 2012 IAC paper “Theory Based Analysis of the Commercial Crew to Orbit Transportation Industry Structure and Evolution” which was a third iteration of Michael Porter's Industry Structural Analysis on the commercial crew orbital transportation market segment.
- Conducted the second Emerging Space Industry Leaders (ESIL-02) Workshop in May 2012 in Washington DC
- Presented conclusions from ESIL-02 at IAC 2012

## FUTURE WORK

- Future iterations of Industry Structural Analysis work.
- Maintaining industry contacts to identify appropriate partnerships
- ESIL-03 planned for November 2012 in conjunction with SpaceVision 2012
- Future ESIL workshops expected in other regional or industry areas