



**Federal Aviation
Administration**

FAA AST R&D Overview & Status

***Ken Davidian
COE CST ATM2 in Socorro, NM
October 31, 2012***



Overview

- Housekeeping
- Overview of EC Self-Governance Subcommittee
- Overview of EC Strategic Planning Subcommittee
 - Activity: COE CST BOS Survey
- Overview of EC Collaboration Subcommittee
- Summary



Housekeeping

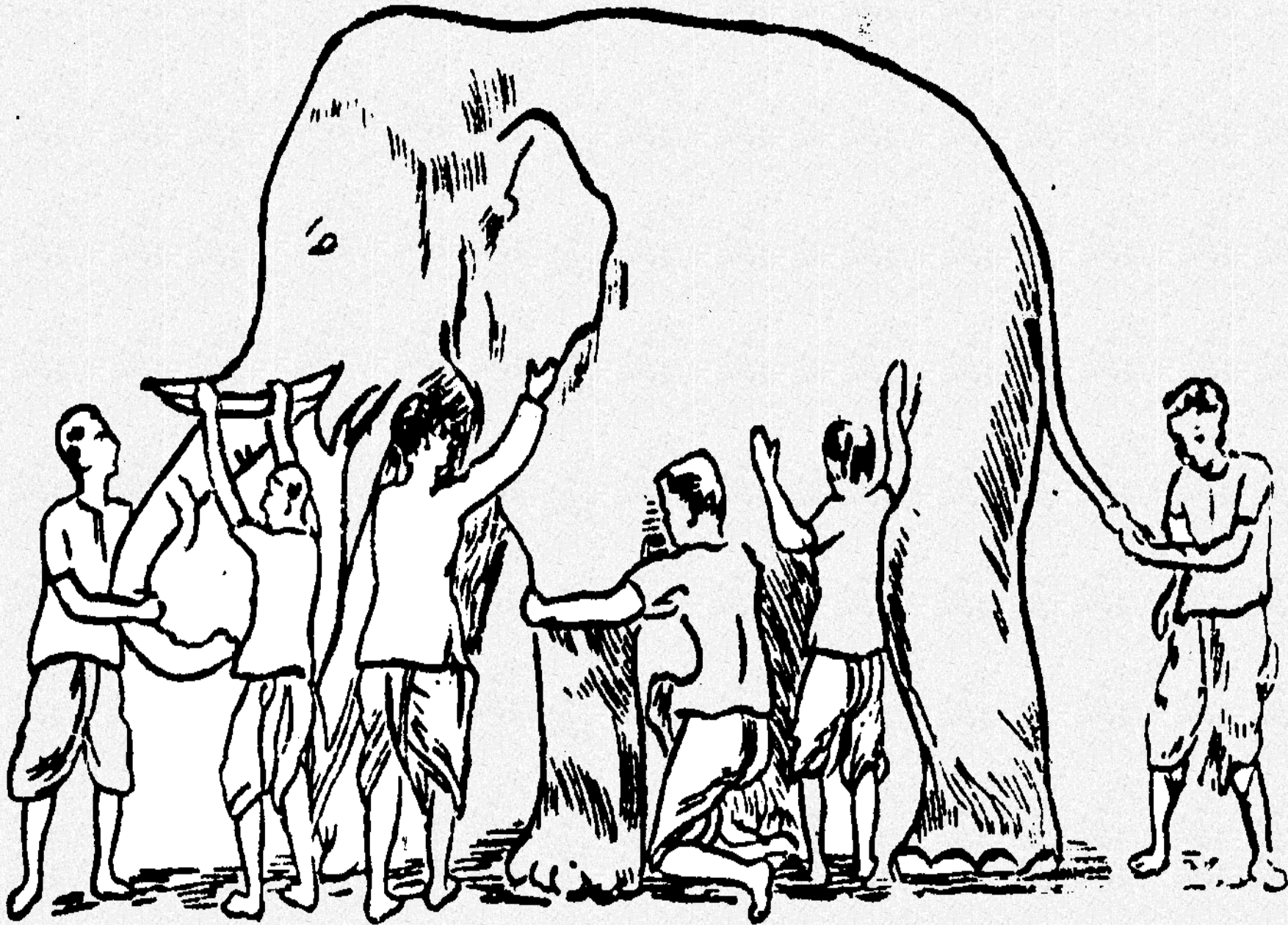
- Q4 Status Reports in OMIS
 - Let's take a look...
- Tracking Deliverables

Self-Governance Subcommittee

- Goal: To Iteratively Develop A Set Of Self-Governance Documents
 - Step 1. “EC Terms of Reference”
 - Step 2. “EC Management Plan”
 - Step 3. “EC Constitution” - the foundational document for the COE CST entering its self-sustaining phase.
- Current Membership:
 - Nat Villaire (FIT)
 - Norm Fitz-Coy (UF)

Self-Governance - Next Steps

- Sample documents provided by Pat Hynes.
- Discussion of Next Steps



COE CST Second Annual Technical Meeting (ATM2)
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Strategic Planning Subcommittee

- Goal: To provide the basis for sustained, meaningful activities among the participating members.
- Current Membership:
 - Dave Klaus (CU)
 - Dan Kirk (FIT)
 - Billie Oates (FSU)
 - Scott Hubbard (SU)
 - Sigrid Close (SU)
 - Juan Alonso (SU)
 - Andrei Zagrei (NMT)

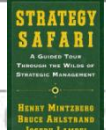
Strategic Planning Background

- Membership
 - Good start with 7 volunteers.
 - Dave Klaus has offered to lead group
- Approach
 - “Go With What You Know” is common
 - Complement to AST activities
 - Other options: academic perspectives...

1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
1. THE DESIGN SCHOOL (No dominant academic source)												
		SELZNICK, Philip (1919 - 2010)				1957: Leadership in Administration	• Distinctive Competence, Int. State + Ext. Expectations					
		CHANDLER, Alfred D. (1918 - 2007)				1962: Strategy and Structure	• Establishes link between strategy and structure.					
		ANDREWS, Kenneth R. (1916 - 2005)				1965: HBS Text and Cases	• Written with Edmund Learned, Christensen and Guth.					
2. THE PLANNING SCHOOL (Urban planning, systems theory)												
		ANSOFF, H. Igor (1918 - 2002)				1965: Corporate Strategy						
		KAHN, Herman (1922 - 1983)	• The Father of Scenario Planning					• 1985, Wack: "Scenarios: Uncharted Waters Ahead"		• 1985, Wack: "Scenarios: Shooting the Rapids"		
					SCHOEMAKER, Paul (1949 -)							
3. THE POSITIONING SCHOOL (Industrial organization economics, military history)												
• Wave 1: Early military writings by Sun Tzu and von Clausewitz.			SCHENDEL, Dan (1934 -)		HATTEN, Ken (? -)							
• Wave 2: Consulting imperatives of the 1970s.		HENDERSON, Bruce (1915-1992)				1963: Henderson founds Boston Consulting Group (BCG)	• 1968: Portfolio Matrix: Cash Cows, Stars, Pets and ?s					
• Wave 3: Michael Porter.					PORTER, Michael (1947 -)	1947 von Neumann and Morgenstern: Development of Game Theory	1980: Competitive Strategy		• 1993, Brandenburger and Nalebuff			
4. THE ENTREPRENEURIAL SCHOOL (No dominant academic source)												
SCHUMPETER, Joseph A. (1883 - 1950)				1942: Capitalism, Socialism and Democracy	• Coins "creative destruction"							
COLE, G.D.H. (1889 - 1959)	• 4 types of entrepreneurs: the calculating inventor, the inspirational innovator, the overoptimistic promoter, and the builder of a strong enterprise.											
5. THE COGNITIVE SCHOOL (Psychology)												
	SIMON, Herbert (1916 - 2001)	• 1947, Simon			1958, March & Simon	Steinbruner	1974, Tversky & Kahneman	• 1994, Corner, Kinicki, and Keats				
	• Decision making not so much rational as a vain effort to be rational.				• 1962, Meyers "Meyers-Briggs"	• 1985, Duhaime and Szeif	1987, Simon		1991, Balman and Deal "Reframing Organizations"			
				• 1966, Polanyi "Tacit" knowledge	• 1972, Janis "group think"		• 1990, Huff		• 1993, Reger and Huff, Bogue, and Thomas			
6. THE LEARNING SCHOOL (Math chaos theory)												
						• 1959, Charles Lindblom "The Science of 'Muddling Through'"	• 1980, James Brian Quinn "Strategies for Change"					
						• 1963, Cyert and March, "A Behavioural Theory of the Firm"	• 1983, Donald Schon					
						• 1967, H. Edward Wrapp, "Good Managers Don't Make Policy Decisions"	• 1976, Chris Argyris		• 1990, Peter Senge "The Fifth Discipline"			
						• 1977, Richard Normann	• 1989, Hamel et al.		• 1997, Bolman and Deal			
						• 1975, 77-78, Sarrazin: political side of planning	• 1977, Pettigrew, Strategy formulation as a political process		• 1978, MacMillan "Strategy Formulation: Political Concepts"			
• MICRO POWER						• 1978, Majone & Wildavsky, 1978, Lipsky, 1980, Kress et al.,	• 1978, Zald and Berger "Social Movements in Organizations"		• 1978, Zald and Berger "Social Movements in Organizations"			
• MACROPOWER						• 1978, Pfeffer and Salancik, "The External Control of Organizations"	• 1979, Bower and Doz, Strategy formulation as a political process		• 1982, Mintzberg			
						• 1985, Macmillan and Guth	• 1987, Moulton and Thomas		• 1989, Mintzberg			
7. THE POWER SCHOOL (Political science)												
8. THE CULTURAL SCHOOL (Anthropology)												
						• "Resource Based Perspective" 1990, Prahalad and Hamel	• 1975, Wernerfelt		• 1991, Barney			
						• Late 1960s, Rhenman & Normann	• 1996, Kogut and Zander, Conner and Prahalad					
9. THE ENVIRONMENTAL SCHOOL (Biology, political sociology)												
						• 1977, Hannan and Freeman "The Population Ecology of Organizations"	• 1979, Van de Ven		• 1991, Oliver			
						• 1976, Hage	• 1984, Hannan and Freeman					
10. THE CONFIGURATION SCHOOL (History)												
						• 1970, Khandwalla	• 1962: Strategy and Structure		• 1995, Kotter			
		CHANDLER, Alfred D. (1918 - 2007)						• 1990, Beer, Eisenstat & Spector	• 1976, Miller			
								• 1985, Mintzberg and McHugh	• 1979, Mintzberg			
								• 1980, 1982, 1984, Miller and Friesen	• 1996, Miller			

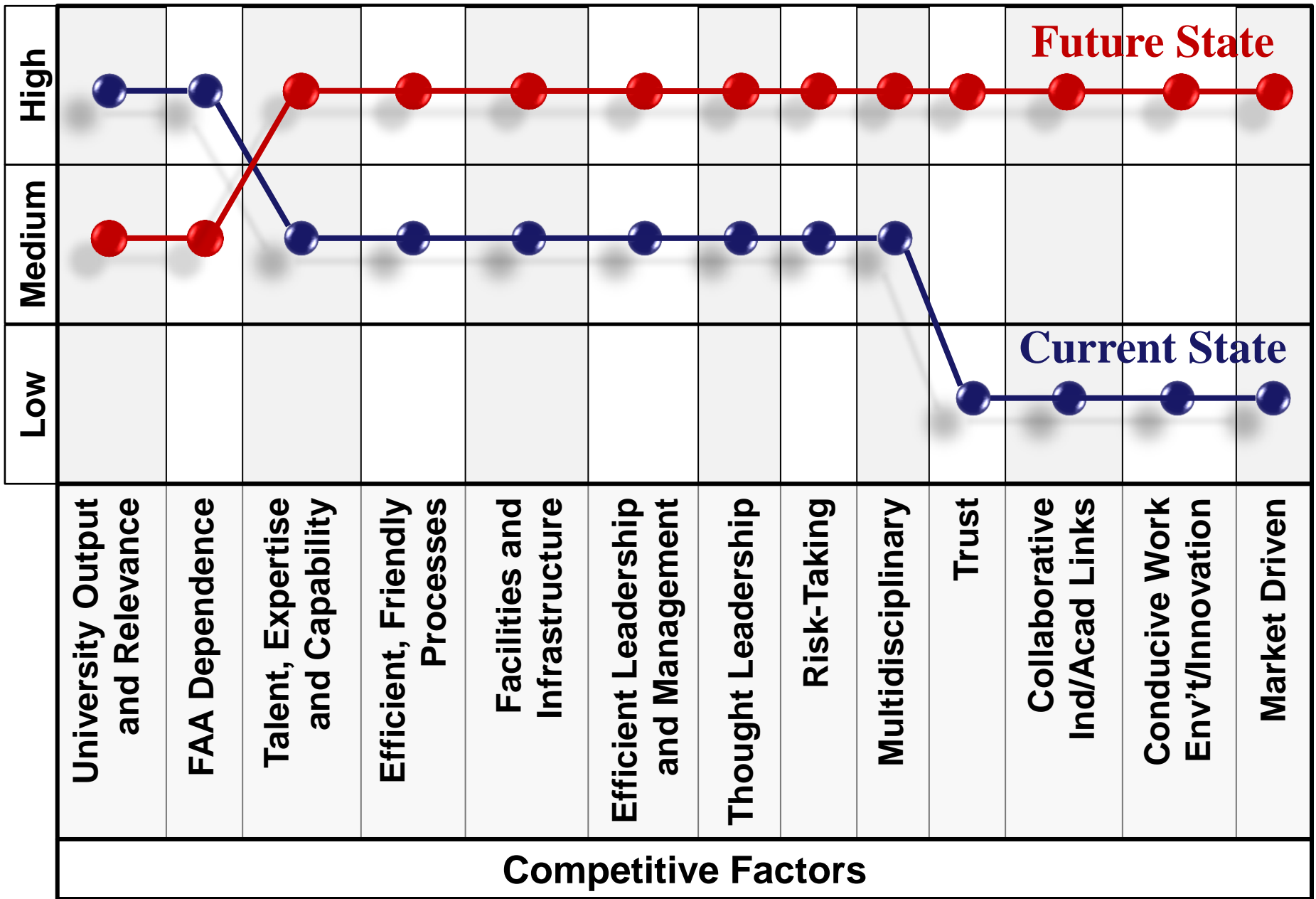
OBJECTIVE SCHOOLS

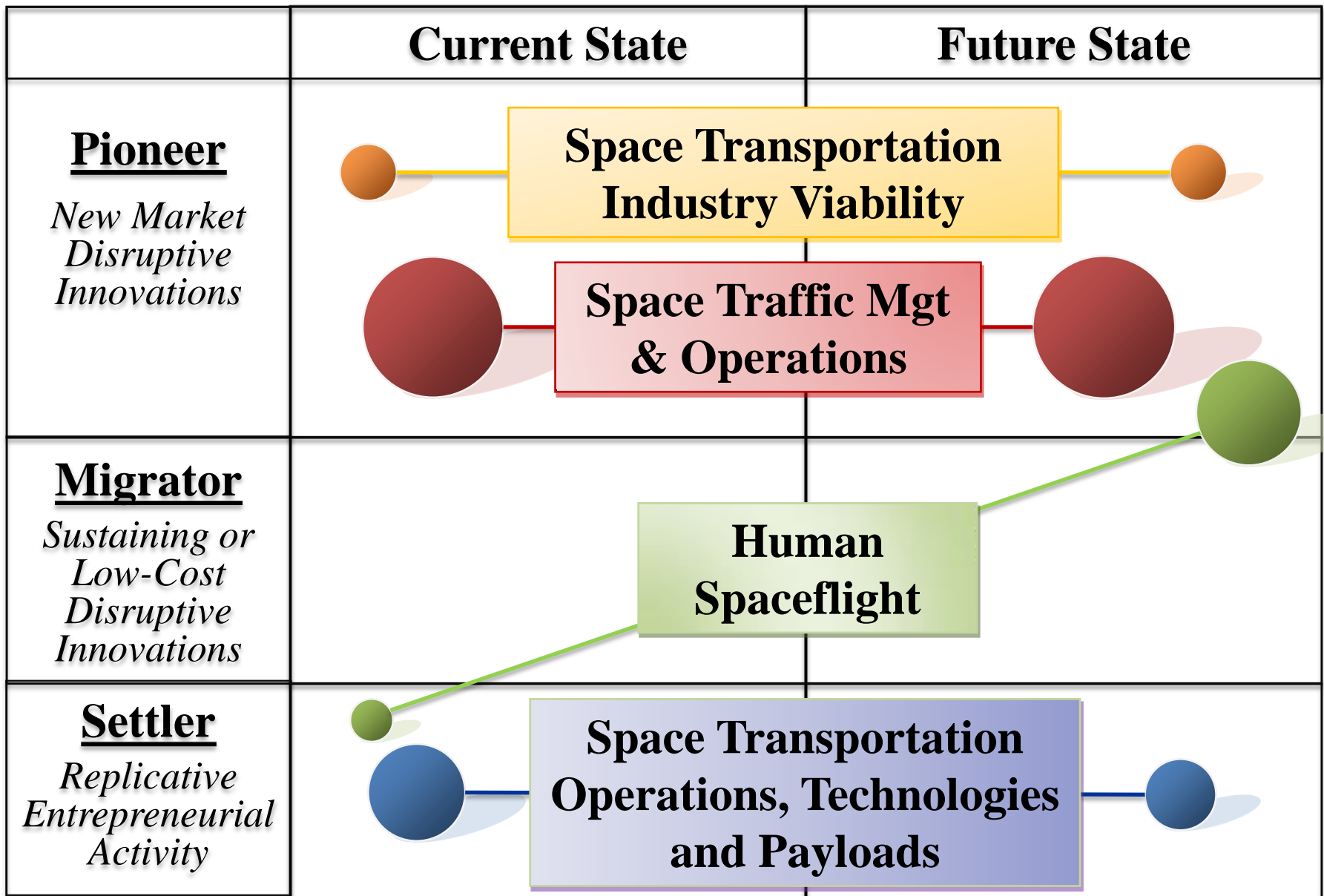
SUBJECTIVE SCHOOLS



AST's COE CST Strategic Planning

- Based on Kim & Mauborgne's "Blue Ocean Strategy"
- Initial Results
 - COE CST Form, Function, Purpose
 - Identification of Substitutes, Alternatives
- External (i.e. "your") Inputs Needed
 - Competitive Factors - Strategy Canvas
 - Portfolio Evolution Map
 - BOS Survey in Survey Monkey



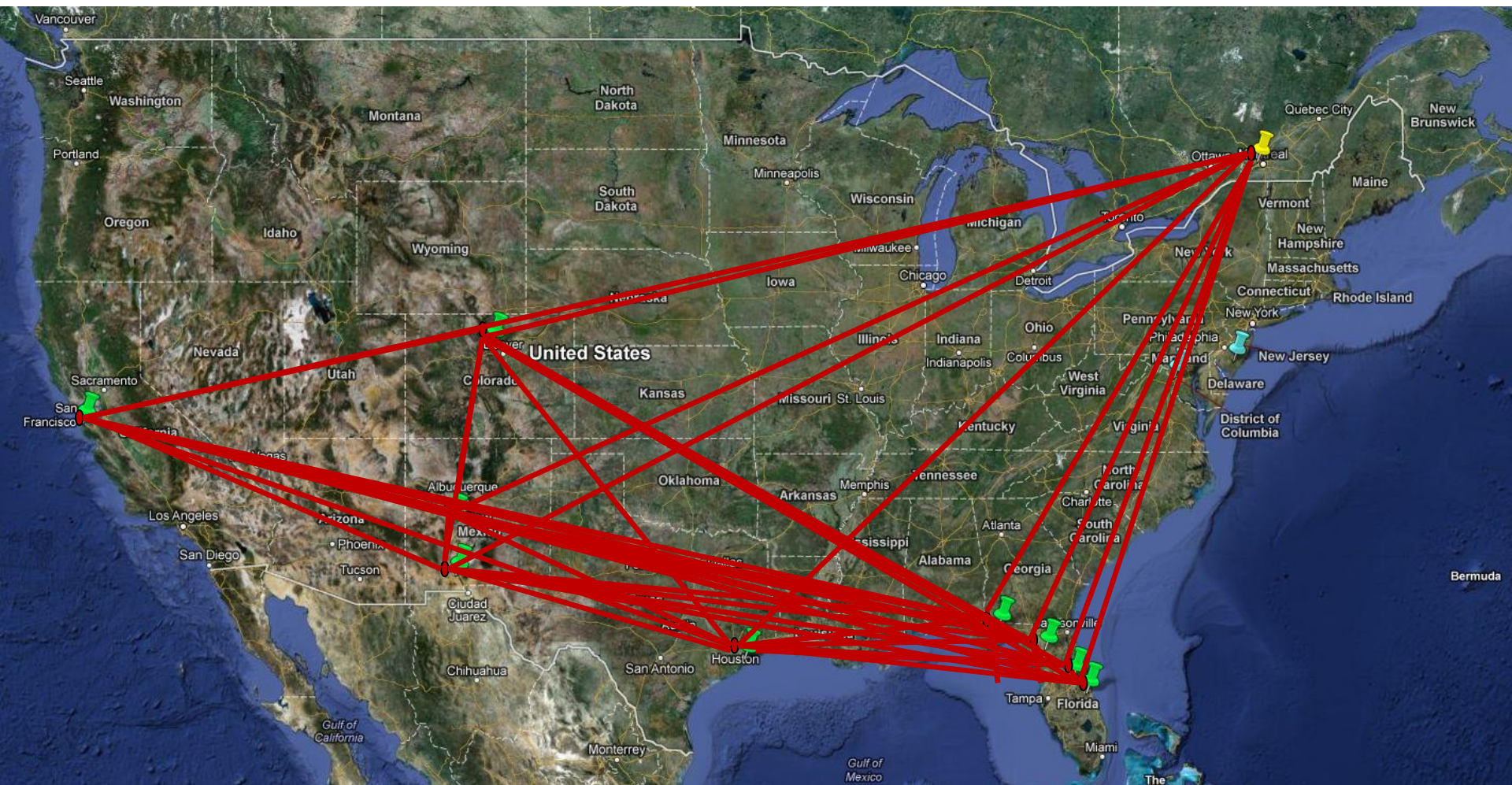


COE CST BOS Industry Survey

- On the web at
<https://www.surveymonkey.com/s/2BZL8DQ>
- Paper copies available



Collaboration Subcommittee



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Collaboration Subcommittee

- Goal: To foster cooperative efforts among internal and external COE CST entities.
 - Also... To respond to FAA and external funding solicitations.
- Current Membership:
 - Mark Sheplak (UF)
 - Penny Axelrad (CU)
 - Warren Ostergren (NMT)
 - Dan Scheeres (CU)
 - ***Tristan Fiedler (FIT)***
 - Pat Hynes (NMSU)
 - Jim Vanderploeg (UTMB)

Collaboration Subcommittee

- Encourage, facilitate and promote collaborative activities.
 - Among member universities.
 - Of new Affiliate Members, Supporting Orgs.
- Current Plans
 - Incremental collaborative steps of increasing formality toward final status of consortium.

Incremental Collaborative Step #1

- Adoption of central research theme in support of which multiple research tasks would contribute.
 - Based on NASA ARC Virtual Institute Model
 - Example: Space Transportation Concept of Operations (integration into the NAS, NextGen)

1. Space Traffic Management & Operations (5 Tasks)

- 186(2x) - Space Environment Modeling
- 247 - Air & Space Traffic Considerations
- 220 - Space Operations Framework
- 186 - Unified 4-D Trajectory

2. Space Transportation Operations, Technologies & Payloads (6 Tasks)

- 244 (4x) - Autonomous RDV & Docking
- 257 - Launch & On-Orbit Ops Lab
- 258 - Multidisciplinary Analysis of Safety Metrics

3. Human Spaceflight

- None identified.

4. Space Transportation Industry Viability

- 301 - Worldwide Spaceport Regs

Summary

- Self-Governance Subcommittee
- Strategic Planning Subcommittee
- Collaboration Subcommittee