



AEROSPACE AND AVIATION SECTOR PARTNERSHIP UPDATE

WDB Meeting
December 5, 2019

AEROSPACE AND AVIATION SECTOR PARTNERSHIP

- Why this?
 - The Aerospace and Aviation industry is expected have a 1.6% annual job growth rate within the Central Planning region through 2024.
- Why now?
 - Colorado has the 2nd largest aerospace economy in the United States. We need to ensure that we keep it that way.
- Why all of us?
 - It will take all of us working together to keep this industry strong!



AEROSPACE



According to Brookings, Colorado possesses "one of the most diversified, multidimensional, and high-potential space economies in the nation."

WHY AEROSPACE IN COLORADO?

Colorado is a thriving aerospace hub that includes companies developing a complete spectrum of products and systems for commercial, military and civil space applications.

2ND

Colorado has the nation's **2nd largest aerospace economy**.

2,000

2,000 kilometers and beyond: We're leading the nation's most notable aerospace projects. **Dream Chaser**®, **Mars 2020**, and **Orion**, are just a few examples of how companies in Colorado will take humans into low Earth orbit and beyond.

4

Colorado is the U.S. center for military space. Colorado's **four military commands** encourage industry growth through space-based research, development, acquisition, and operations activities

2ND

Colorado ranked 2nd for the 2016 Milken Institute State Technology and Science Index and No 2 for Top State for **High-Tech Share of All Businesses** by the U.S. Chamber of Commerce Foundation

1. Massachusetts
2. Colorado
3. Maryland
4. California
5. Washington
6. Connecticut
7. Minnesota
8. Madison



SOURCES:
GCEW 2016, Annual Averages, Colorado
PwC Moneytree, Historical Trend Data, <https://www.pwcmoneytree.com/>

INDUSTRY FACTS

997

NUMBER OF COMPANIES

17K

NUMBER OF EMPLOYEES

\$1.7B

TOTAL ANNUAL WAGES (2016)

2nd

MOST HIGHLY EDUCATED STATE IN THE U.S.

PROFESSIONAL ASSOCIATIONS

- THE COLORADO SPACE COALITION
- THE COLORADO SPACE BUSINESS ROUND TABLE
- COLORADO SPACE GRANT CONSORTIUM
- SPACEPORT COLORADO



MAJOR FINANCIAL SERVICES COMPANIES



COLORADO ASSETS



ACCESS TO A LARGE, HIGHLY QUALIFIED WORKFORCE

- CO is the 2nd most highly educated state in the U.S. 39.9 percent of the population years 25+ have a Bachelor's degree or higher in CO
- Colorado ranked 7th in the number of science and engineering degree holders in 2016 (Bloomberg Business, US State Innovation Index)
- One of the highest astronaut alumni in the nation



ACCESS TO QUALITY EDUCATION

- Two academic institutions in Colorado offer nationally ranked aerospace programs or degrees:
The **University of Colorado Boulder's** aerospace engineering sciences graduate program ranked among the top-four programs in the nation by the National Research Council and 10th by U.S. News & World Report in 2015
The **U.S. Air Force Academy in Colorado Springs** ranked 2nd in the nation for undergraduate aerospace engineering program



HOME TO INNOVATION AND TECHNOLOGY

- Colorado received the **third-highest NASA prime contract awards** in the nation—more than \$1.8 billion—in 2015.
- Colorado has consistently scored among the top 10 in innovation categories among US state rankings.

Patent Activity — 1st
Labor Market — 1st
Technology & Innovation — 3rd
R&D Expenditure — 3rd



SOURCES:
University of Colorado, 2014; Bloomberg Business, 2016; Milken Institute, 2016

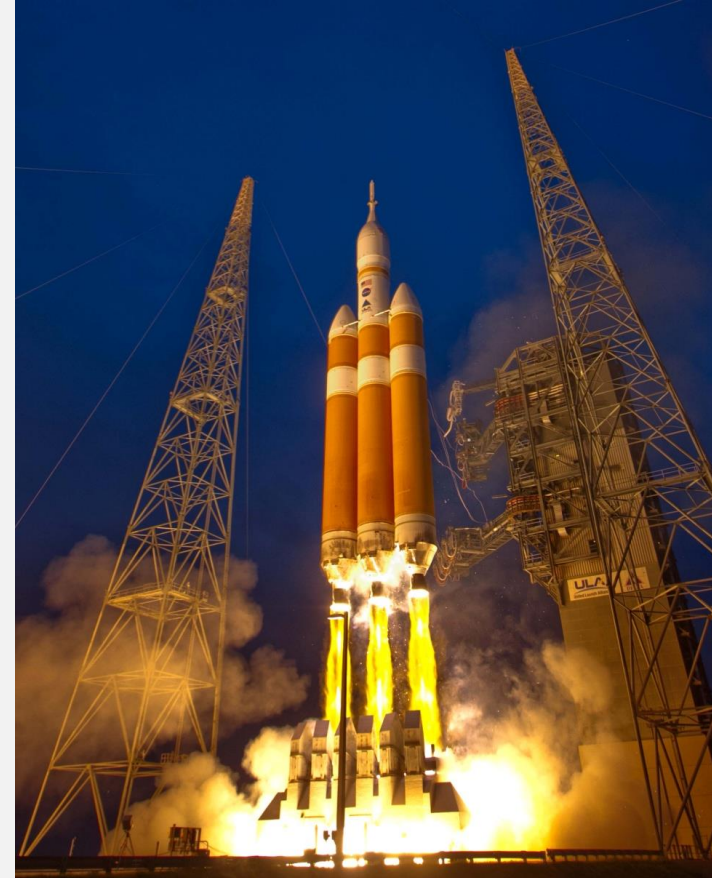
CHOOSE COLORADO

www.choosecolorado.com

Colorado Aerospace Economy*

* Metro Denver EDC 17 Apr 2018

- 1st in nation per capita in employment
- **180 + aerospace companies**
- **More than 500 suppliers provide space-related products & services**
- **84% small business**
- 190,880 + indirect jobs
- 4.7 % revenue growth in 2017
- \$15.4B Colorado economic impact
- Approx 80% Govt funded, 61% DoD



Colorado aerospace propels a diverse economy through innovation & advanced technology

CURRENT MARKET

- NASA awards Lockheed Martin long term production agreement for up to 12 Orion spacecraft going into the 2030's
- The Spaceport is approved
- Colorado moved up from 8th in 2017 to 5th in Aerospace Manufacturing
- Centennial Airport 2nd highest volume private airport in the United States
- DIA sets a record for passenger traffic in 2017 at 61,379,396 people. Up 5.3% from 2016.
- ULA received \$1.8 Billion contract yesterday to complete five Delta 4 missions

Space Based Infrared Systems (SBIRS)



**SBIRS 4 Launched Jan 20, 2018
Built By LMC Space
Launched by ULA
Operated by AF Space Command**

Buckley AFB Is Epicenter for SBIRS

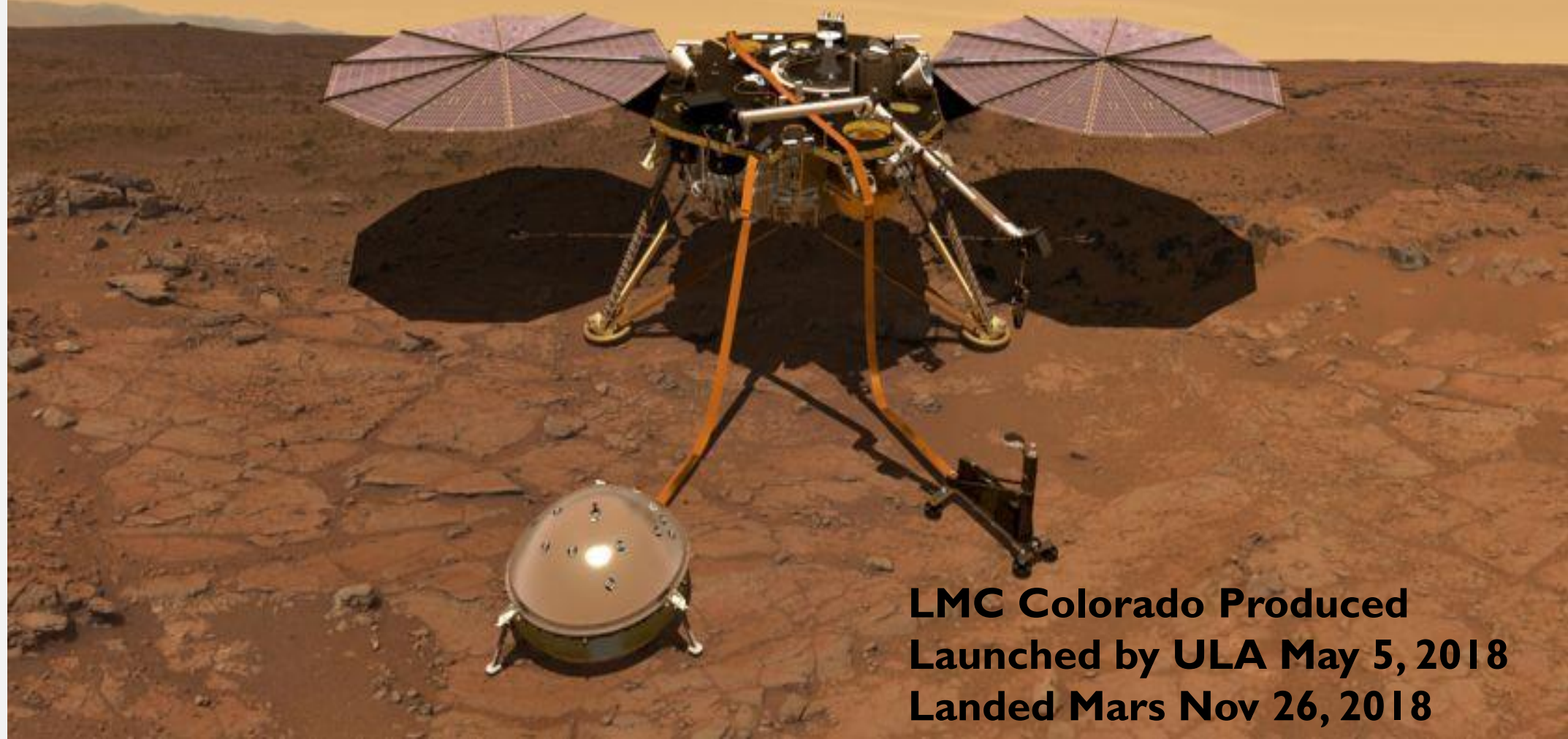
NASA Orion



**LMC Space Building
NASA's next Human
Space Exploration Vehicle**

***The Next Big Leap Into Space Begins in
Colorado!***

NASA MARS INSIGHT SPACECRAFT



**LMC Colorado Produced
Launched by ULA May 5, 2018
Landed Mars Nov 26, 2018**

SNC Dream Chaser Cargo Spacecraft



“Dream Chaser Received (February 2018) NASA’s Authority to Proceed For First Mission to the ISS in Late 2020”

COLORADO AIR & SPACE PORT; AUG 2018



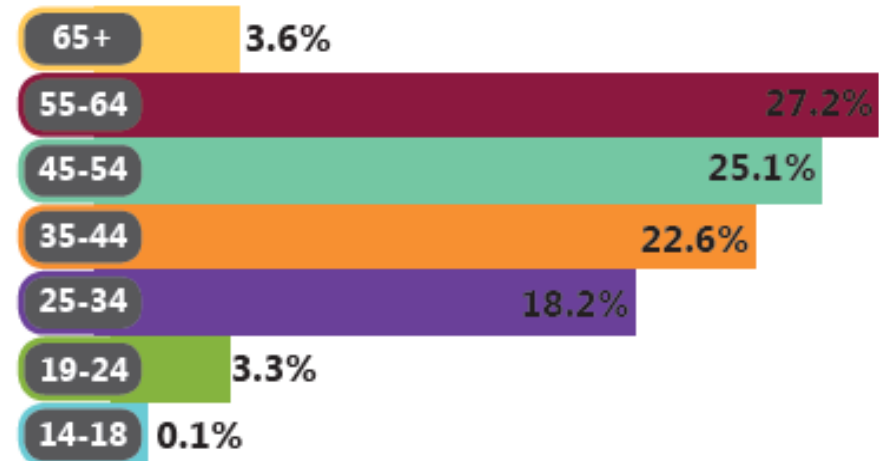
RISKS

- Opening statement at last years Aerospace and Defense small business day
 - “We need Engineering Technicians”
- Skilled Labor Shortage (Crisis) in Aviation & Aerospace
 - As we see the aviation and aerospace fields prepare to launch into a new age of technological advancements, a potentially massive road block also comes into view. Aviation & Aerospace skilled labor shortages are nearing “crisis” level, with Forbes, and many other accredited sources, pointing to the year 2022 as “the year of reckoning”. (PartsBaseEXPO)

Age Bands

It is helpful to know the age bands in a sector, because if there is a substantial percentage of people above 55 years old, it means there will be opportunity as retirements happen.

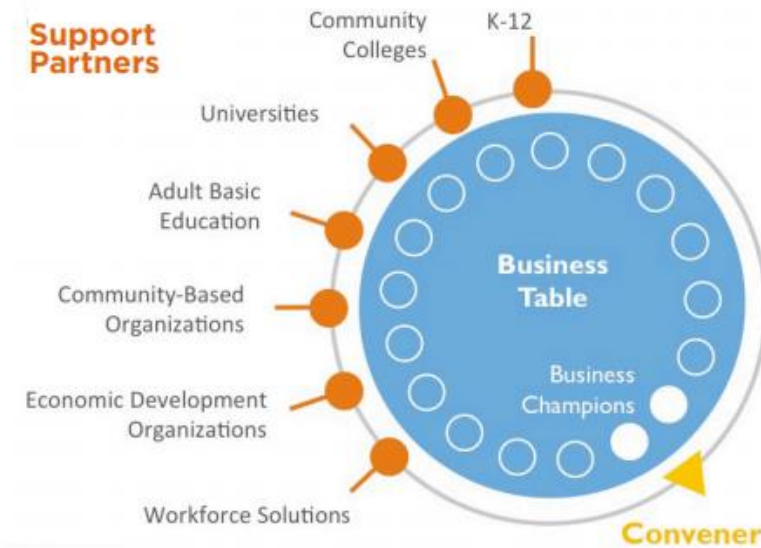
Based on Age Distribution, Arapahoe/Douglas Works! has developed a way to measure the 'age gap' in an industry by comparing the number of workers over age 45 to the number under age 34. Age gap is shown both as a percentage and a count.



ABOUT NEXT GEN SECTOR PARTNERSHIP

- Business centered
- Follows the geographic footprint of Industry
- Public partner alignment
- Long term relationships

INDUSTRY-DRIVEN, COMMUNITY-SUPPORTED SECTOR PARTNERSHIP





LAUNCH MEETING



- Wings Over the Rockies
- ~~October 30th~~ - November 18th
- 9:00am to 11:00am
- Judy Emery – Facilitating
- Maj. Gen. Jay Lindell opening speaker



Industry:

First and Last Name	Company/Organization Name	Email Address	Action Team
Andrea Yerkes	Northrop Grumman	andrea.yerkes@ngc.com	People - Bringing in the Talent
Kia Silverman	United Launch Alliance (ULA)	kia.silverman@ulalaunch.com	People - Bringing in the Talent
Sarah Turner	Lockheed Martin	Sarah.j.turner@lmco.com	People - Bringing in the Talent
Scarlett Burney	TTM Technologies	scarlett.burney@anaren.com	People - Bringing in the Talent
Stevan Richards	Ball Aerospace	sjrichar@ball.com	People - Bringing in the Talent
Bradley Cheetham	Advanced Space, LLC	cheetham@advancedspace.com	Telling the Colorado Story
Christie Lee	Lockheed Martin Space	christie.j.lee@lmco.com	Telling the Colorado Story
Dave Fischer	RUAG Space USA	david.fischer@ruag.com	Telling the Colorado Story
Janet Williams	United Launch Alliance	janet.m.williams@ulalaunch.com	Telling the Colorado Story
Michelle Jansen	TTM Technologies	michelle.jansen@ttmtech.com	Telling the Colorado Story
Robert Olislagers	Centennial Airport	rolislagers@centennialairport.com	Telling the Colorado Story
Zach Pfeffer	Centennial Software Solutions	zach.pfeffer@centennialsoft.com	Telling the Colorado Story

Public Partners:

First and Last Name	Company/Organization Name	Email Address	Action Team
Bill Gilmore	Littleton Public Schools	wgilmore@lps.k12.co.us	People - Bringing in the Talent
Corey Edwards	University of Colorado	corey.edwards@ucdenver.edu	People - Bringing in the Talent
Diana Herring-Stark	Jefferson County Business & Workforce	dhstark@jeffco.us	People - Bringing in the Talent
Janel Highfill	Community College of Aurora	janel.highfill@ccaaurora.edu	People - Bringing in the Talent
Kristi Strother	Arapahoe Community College	Kristi.Strother@arapahoe.edu	People - Bringing in the Talent
Noelle Glasser	Adams County Workforce & Business Center	nglasser@adcogov.org	People - Bringing in the Talent
Chris Juarez	Colorado Community College System	chris.juarez@cccs.edu	People - Bringing in the Talent
Alicia Cartwright	Arapahoe Libraries	acartwright@ald.lib.co.us	Telling the Colorado Story
Christine Shapard	Denver South EDP	christine@denversouthedp.org	Telling the Colorado Story
Deborah Kerrigan	South Metro Denver Chamber	dkerrigan@bestchamber.com	Telling the Colorado Story
Jonathan Woodward	Aurora Economic Development Council	Woodward@auroraedc.com	Telling the Colorado Story
Vicky Lea	Metro Denver EDC	Vicky.lea@metrodenver.org	Telling the Colorado Story
Cindy Nowak	Manufacturer's Edge	cnowak@manufacturersedge.com	People - Bringing in the Talent
Marcia McGilley	Aurora-South Metro SBDC	mmcgilley@auroragov.org	People - Bringing in the Talent
Stephanie Mufic	Arapahoe/Douglas Works!	smufic@arapahoe.gov	Telling the Colorado Story

FOLLOW UP FROM MEETING

- We need two industry Co-Chairs for the partnership. If you are interested please reach out to Stephanie Mufic. The job description for Industry Leader Co-Chairs is attached.
- We would like to ask for leaders/Co-leaders for the two action teams listed below. Please let Stephanie Mufic know if you are interested. Conference calls will be set up for December 10th for each team. We will be sending calendar notices to each of the team members identified below.
- We are working on setting up our next partnership meeting at the Cherry Creek Innovation School our target date is February 6, 2020 from 9:00am to 11:00am. A calendar invitation will be sent when the details are finalized. If you would like to host or would like to suggest locations for future meetings please let us know. Hosts will be asked to set-up, tear-down and provide refreshments for the meeting.
- If you know of any others that you think would benefit from participating in this partnership please feel free to provide them with Stephanie Mufic's contact information. She will reach out to them to provide more details and get them added to the partnership.

NEXT STEPS

- Two teams are holding opening calls December 10th
 - “People – Bringing in the Talent”
 - “Telling the Colorado Story”
- Next partnership meeting scheduled for February 6th at the Cherry Creek Innovation School.
 - Presentation by Aviation Instructor