

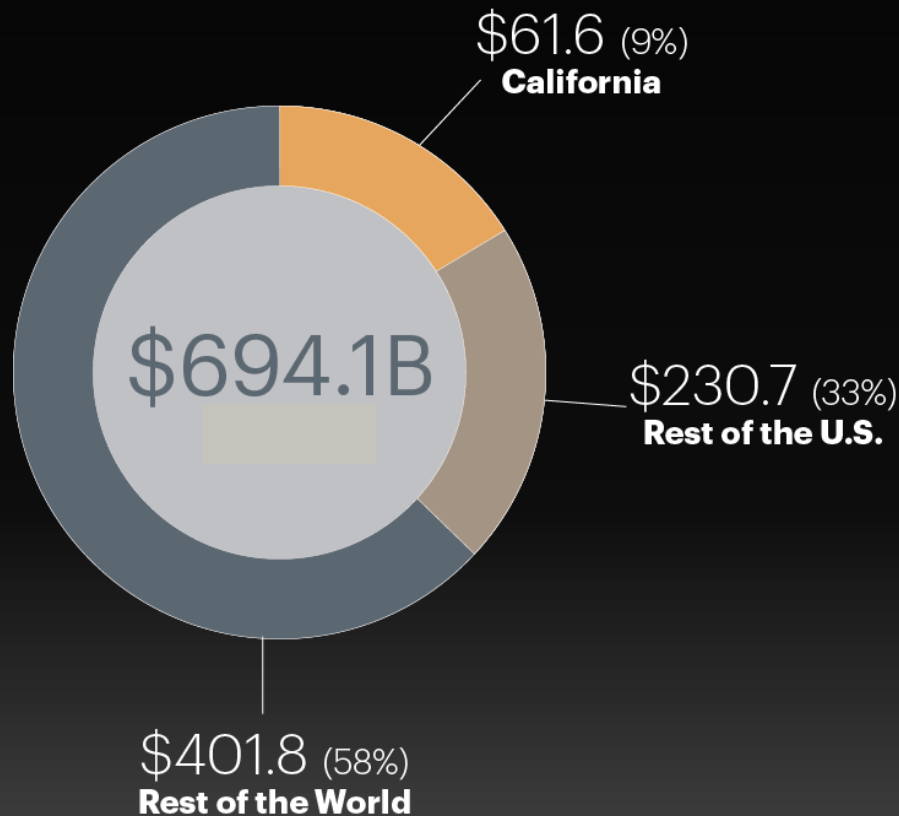


California Aerospace Industry Economic Impact Study

Executive Summary

California is a global Aerospace leader, holding 9% of the combined global Space and Aircraft market

Market Share by Geography (\$B,%)



Key Insights

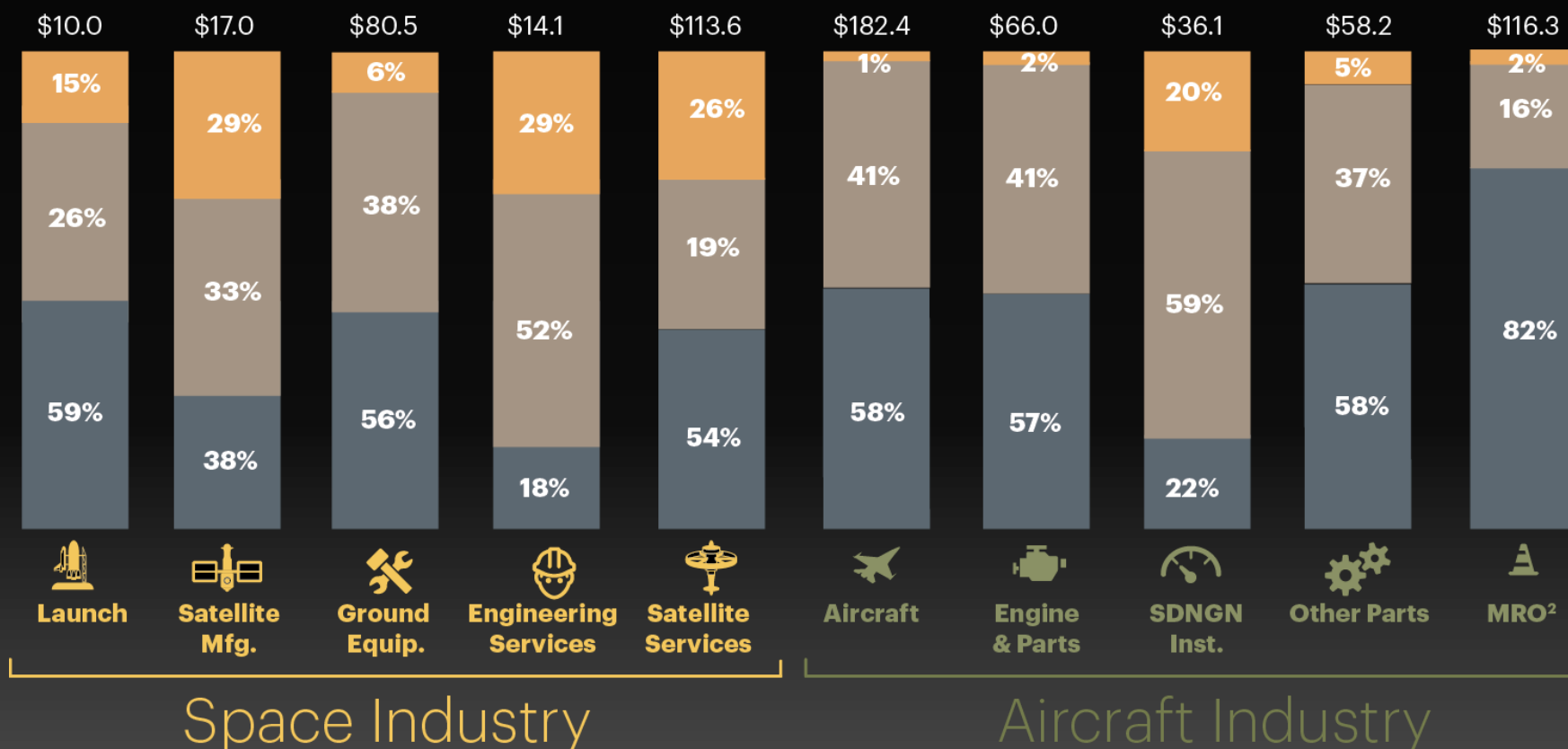
- California generated \$62B aerospace industry revenues, representing 9% of the global Aerospace market and 21% of the U.S. industry
- Aerospace market includes:
 - Space Industry
 - Launch services
 - Satellite Manufacturing
 - Ground Equipment
 - Engineering Services
 - Satellite Services
 - Aircraft Industry
 - Aircraft
 - Engine and parts
 - SDNGN Instruments¹
 - MRO²

1. Search, Detection, Navigation, Guidance, and Nautical (SDNGN) Instruments 2. Maintenance, Repair, and Overhaul

California has leading positions in space instrumentation¹, satellite services & mfg., and engineering services in the global market

Market Share by Aerospace Sector (%)

Rest of U.S. California Rest of the World



1. Search, Detection, Navigation, Guidance, and Nautical (SDNGN) Instruments 2. Maintenance, Repair, and Overhaul

Source: IBIS; AIA Global Aerospace Market Outlook and Forecast; 2012 SIA State of the Satellite Industry; company annual reports; OneSource company data; FAA; European GNSS Agency 2012 & 2013; Department of Defense and NASA contract database; TAG analysis

The Space industry supports a wealth of applications vital to other sectors

Business / Telephony

- Digital voice, fax & paging
- High-speed data transfers
- Satellite internet
- Videoconferencing

Environmental Monitoring

- Reforestation
- Watershed & vegetation management
- River & stream control
- Air pollution management
- Weather / climate

Transportation

- Marine & land navigational services
- Rail management
- Infrastructure planning
- Logistics management
- Freight security

Navigation

- Land, sea, air, and space navigational services

Medicine

- Distance diagnosis
- Rural medicine & telemedicine
- Teaching & professional development

Entertainment

- Satellite digital audio radio
- Satellite direct-to-home television
- In-flight entertainment
- News & sports

Agriculture

- Soil analysis
- Crop moisture sensing
- Pest infestation monitoring
- Herd management

Energy Management

- Oil pipeline monitoring
- Remote meter reading
- Infrastructure management
- Resource prospecting

Education

- Distance learning
- Satellite-lined classroom and schools
- Participatory “real-time science”

Local Government

- Flood & storm watches
- Forest fire prevention
- Disaster management
- Public safety
- Crime control
- Urban planning

National / Homeland Security

- Intelligence data delivery & collection systems
- Diverse database linkage

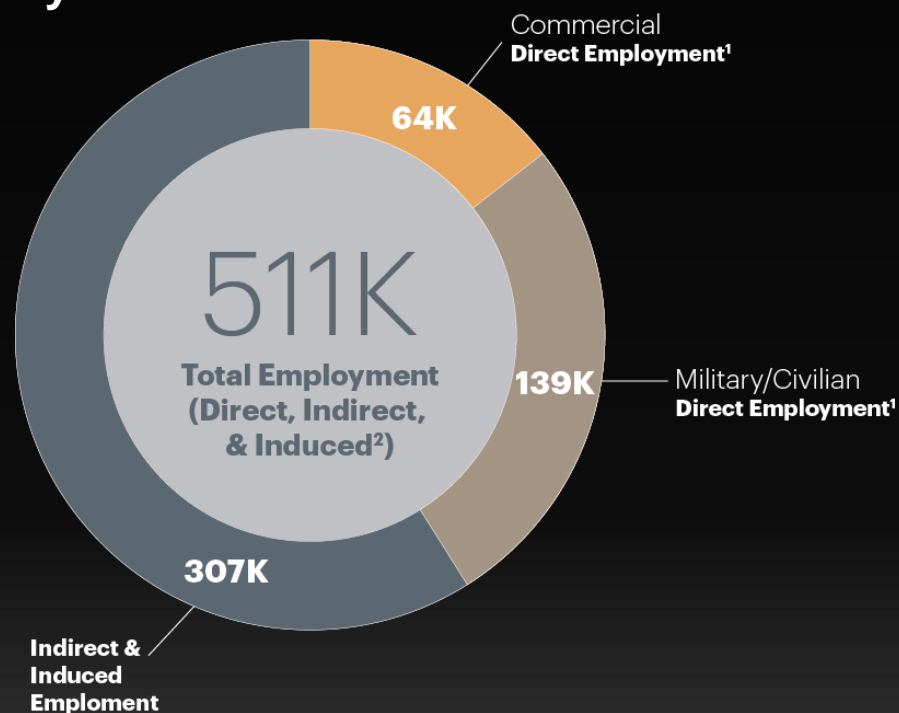
Space Exploration

- Robotic missions
- Planetary missions
- Future manned missions
- Astrobiology
- Flight testing



The California Aerospace industry has 203K direct employees, creating a total of 511K jobs across industries

Aerospace Industry Employment Contribution to California Economy



Key Insights

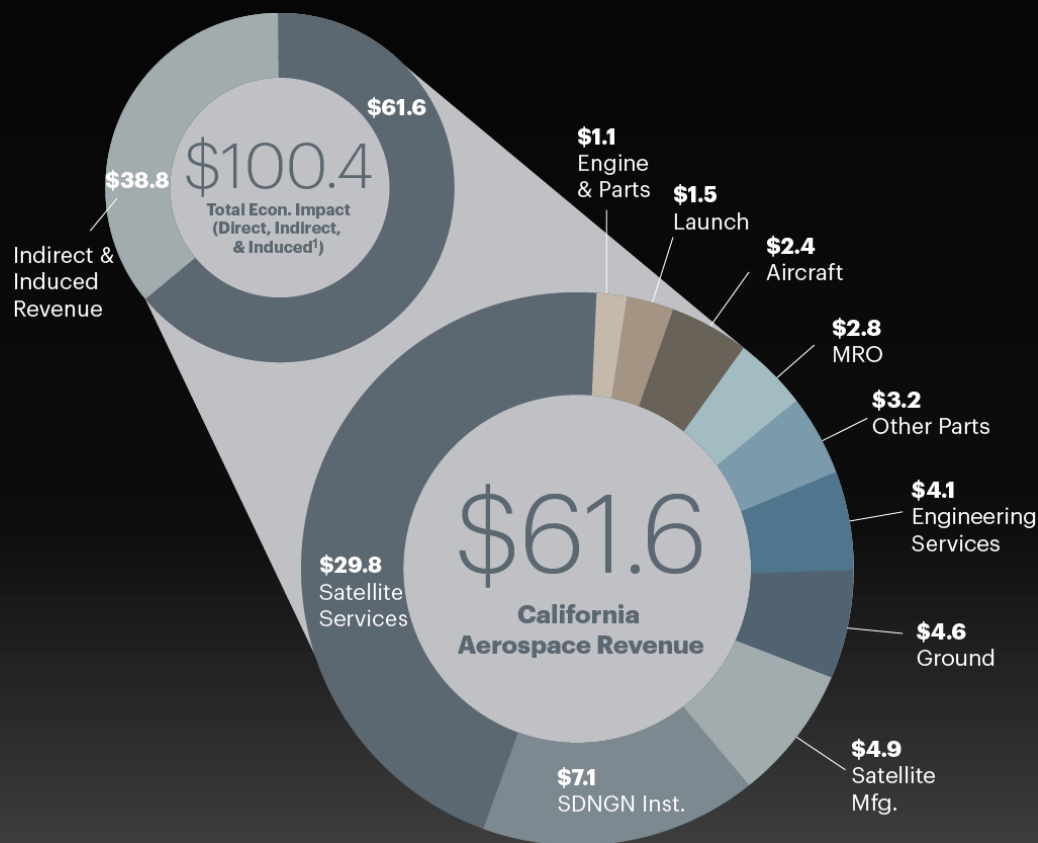
- Total of 203,000 direct jobs created by the California Aerospace market (includes Commercial, Military, and Civilian employment)
- Total of 511,000 direct, induced, and indirect employment created by the California Aerospace market
- Other industries impacted include: Finance, Real Estate, Construction, and Transportation/ Warehousing, and others

Total employment of 511K generates \$2.9B of California personal income tax revenue

1. Military employment includes uniformed personnel only; Civilian includes aerospace employment at military installations NASA centers and JPL; average revenue per commercial employee is \$386K, excluding DirectTV 2. Induced and indirect wages and employment derived by using RIMS II multipliers from U.S. Bureau of Economic Analysis
Source: US Bureau of Economic Analysis; Bureau of Labor Statistics; navair.mil; uscg.mil; af.mil; TAG analysis

The California Aerospace industry revenue is equivalent to the Agriculture and Arts & Entertainment industry combined

Aerospace Industry Economic Contribution to the California Economy (\$B)



	\$69.2B Bioscience
	\$61.6B Aerospace
	\$34.8B Agriculture
	\$27.0B Arts, Entertainment, and Recreation

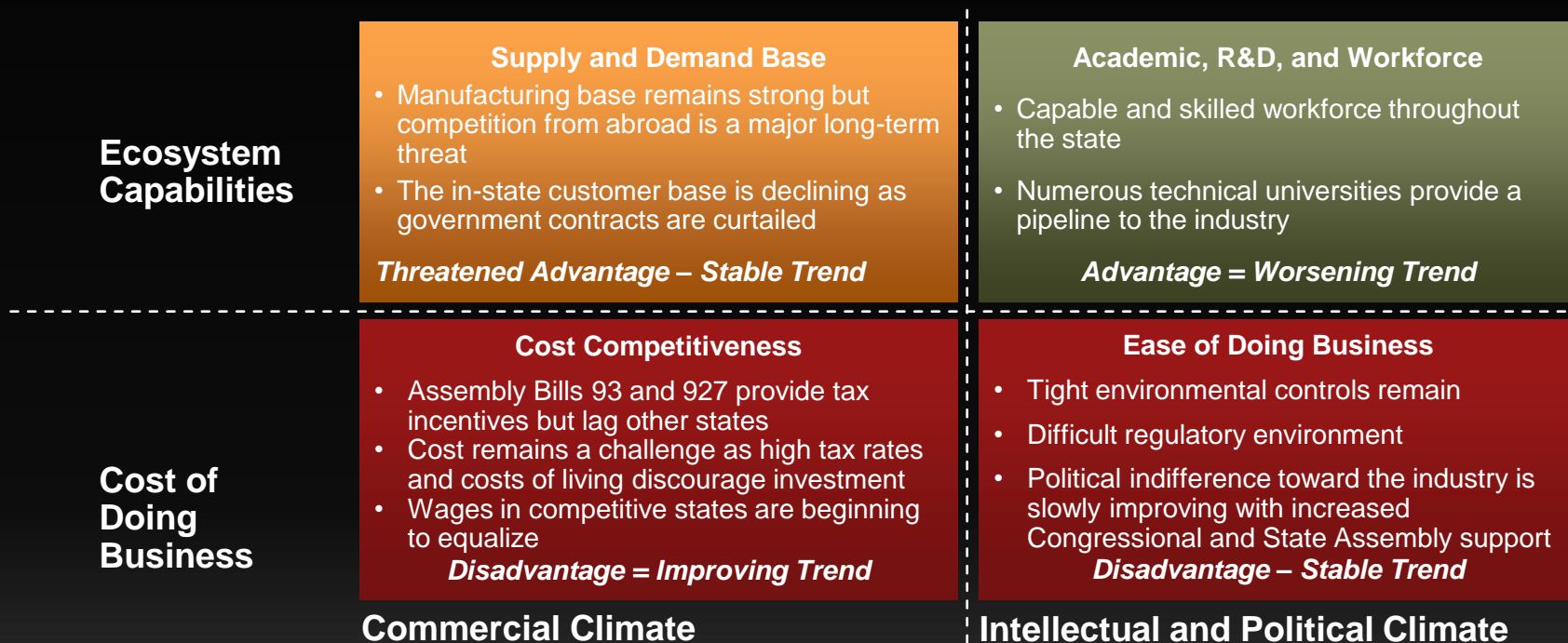
1. Total economic impact is defined as all output/ activity generated by space industry across relevant industries' products and services. Total impact based on RIMS II multipliers from U.S. Bureau of Economic Analysis. Total Impact excludes revenues earned by California companies for work performed outside the state (primarily in the Satellite Services markets)

2. CA Gov. Office; Biotech Industry Organization: Bioscience Economic Development

Source: US Bureau of Economic Analysis; TAG analysis

California continues to enjoy several sources of competitive advantage; however, the industry faces competitive challenges

California Aerospace Industry Competitiveness Framework



- **California continues to enjoy several sources of competitive advantage:** companies with a strong global position, a highly skilled workforce, leadership of major segments, and a concentrated ecosystem of companies that enable opportunities for innovative collaboration
- **However, the industry also faces some competitive challenges and weaknesses:** anticipated decrease in government spending, tax and regulatory constraints, a rising cost of living for the workforce, and a high real estate cost that deters commercial investment

Other states have used aggressive tax incentives and marketing approaches to attract the Aerospace industry

State Comparison – Taxes and Wages

● Strong ○ Weak

State	Corporate Income Tax ¹	Personal Income Tax ¹	State Business Tax Climate Ranking	Aerospace Average Annual Wage	Cost Competitiveness	Ease of Doing Business
Texas	1%	None	9	\$90,247	●	●
Washington	3.3%	None	6	\$97,040	●	●
S. Carolina	5%	7%	36	\$76,887	●	●
Florida	5.5%	None	5	\$78,344	●	●
Kansas	7%	6.45%	26	\$72,705	●	●
Georgia	6%	6%	34	\$79,647	●	●
Alabama	6.5%	5%	21	\$78,402	●	●
California	8.84%	12.3%	48	\$101,192	○	●

California is one of the most expensive states for Aerospace firms to conduct business

1. Represents statutory tax rates