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NASA Supply Chain Network Survey Results

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NASA Supply Chain
Quality Assurance Conference
Goddard Space Flight Center

Office of Technology Evaluation (OTE)

MISSION:

OTE is the focal point within BIS for assessing:

- The effectiveness of export controls
- The capabilities of the U.S. industrial base to support the national defense

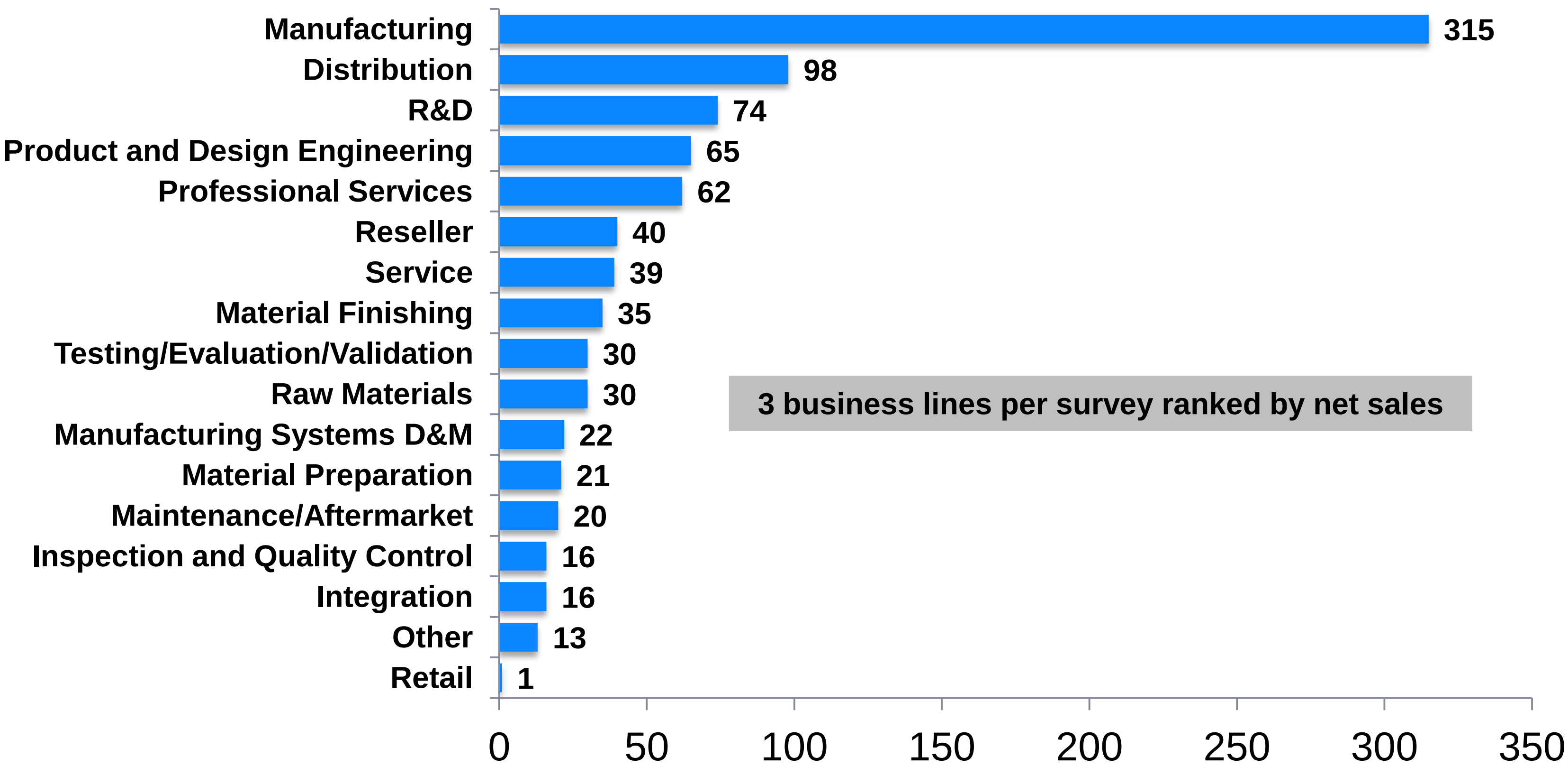
OTE Industry Assessments
- Background

- Defense Production Act of 1950 and Executive Order 12656 provide broad authority to analyze:
  - Economic health and competitiveness
  - Defense capabilities and readiness
- Conduct surveys of industry and organizations
- Enable industry and government agencies to:
  - Monitor trends and benchmark industry performance
  - Raise awareness of diminishing capabilities

NASA Supply Chain Network

- OTE Survey Assessment Aims
  - Determine viability of this supplier segment
  - Measure impact of Shuttle/CxP cancellation on capability
  - Understand what suppliers do for NASA/other agencies

Sample Business Lines



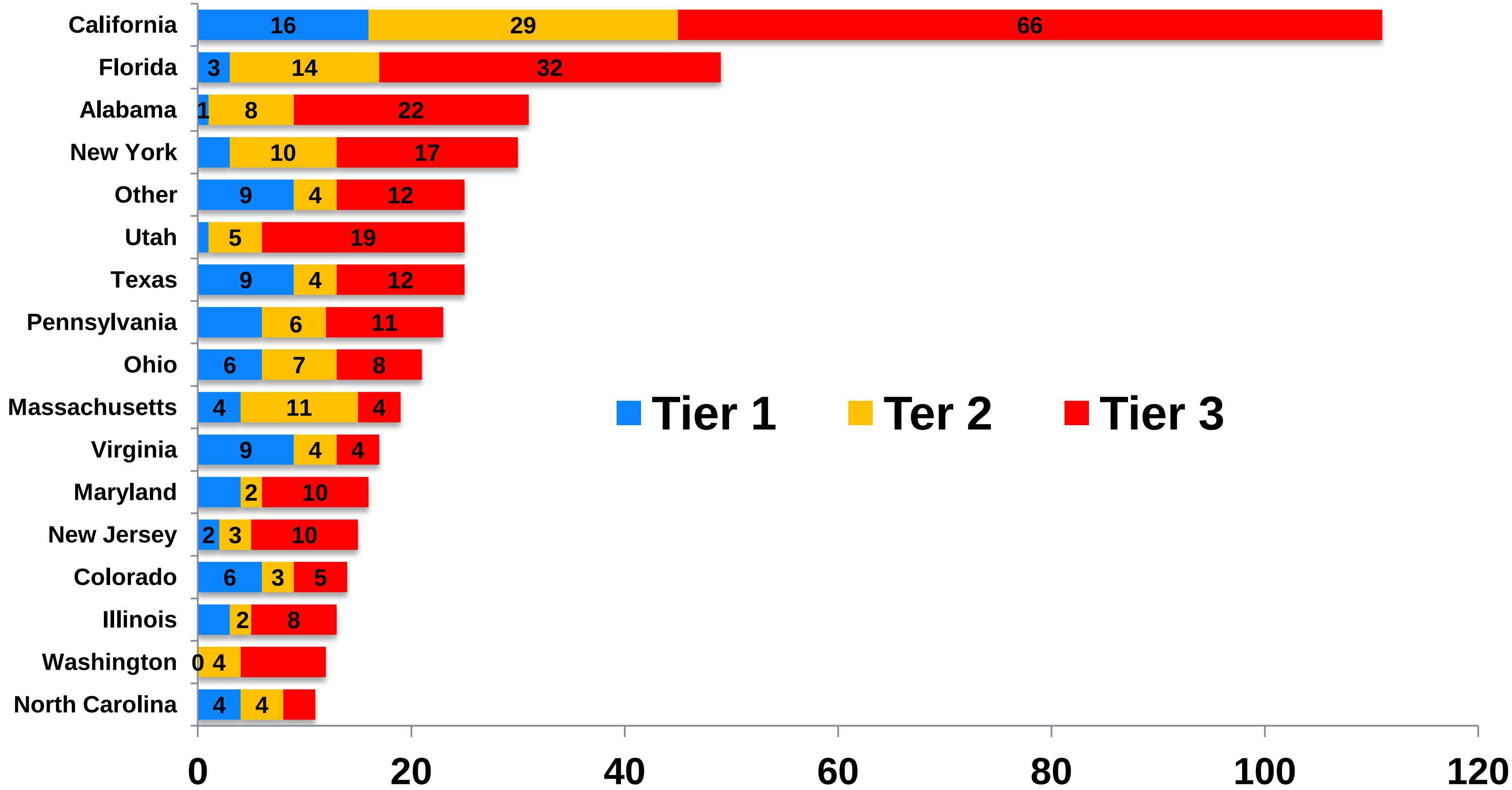
897 business lines identified

Methodology: Tiering

Survey Respondents by Tier		
Tier	**Net Sales (2009)**	**Number of Companies**
1	> $200 Million	101
2	$25 – 200 Million	155
3	< $25 Million	280
	Total	536

Tiering not based on contractual relationship

Respondent U.S. Location

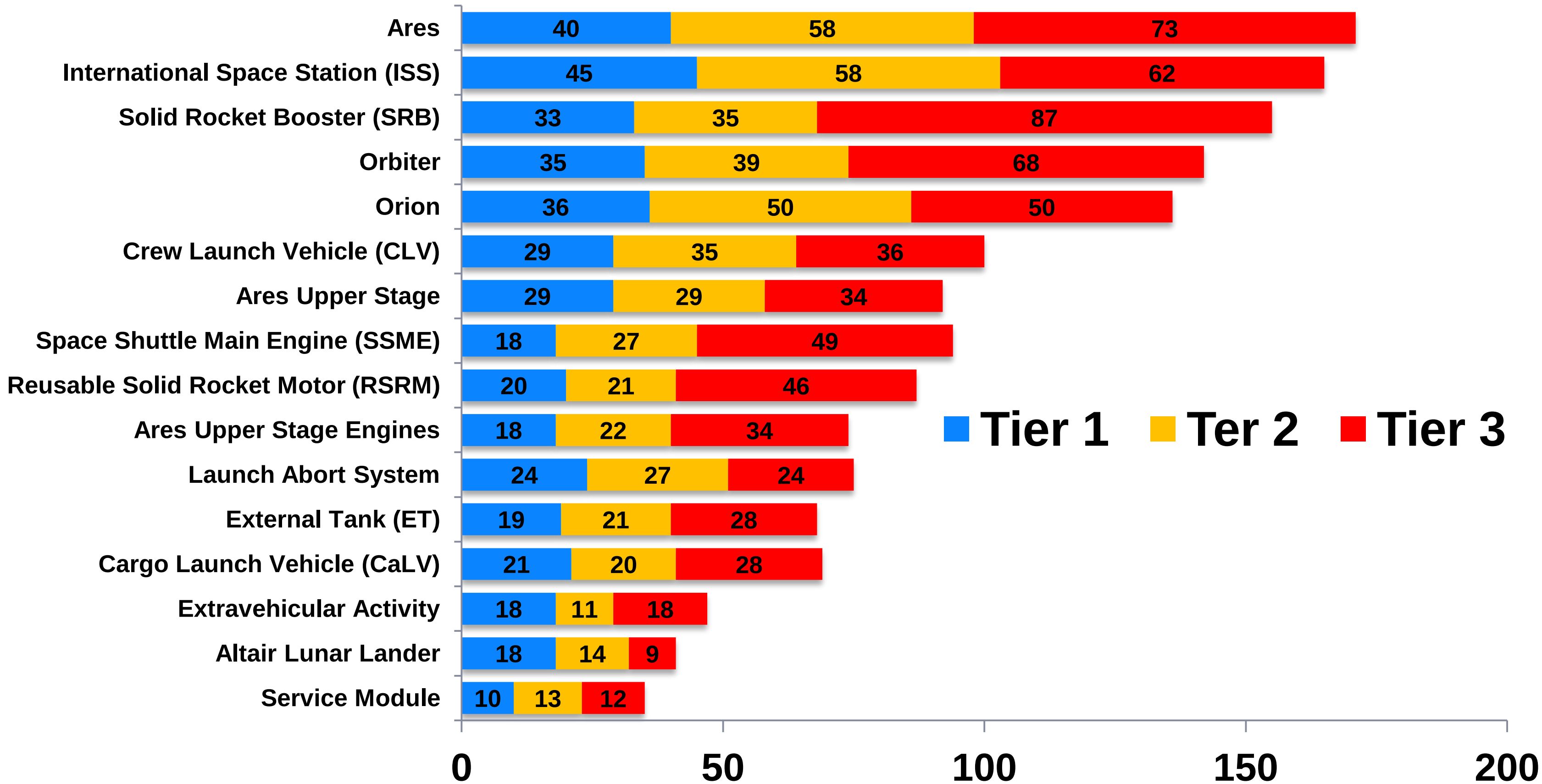


Method of Sale to NASA

Method	Tier 1	Tier 2	Tier 3	All
Direct to NASA	15%	13%	14%	14%
Indirectly/Third-Party	21%	35%	36%	33%
Both Direct and Indirect	52%	42%	40%	43%
Not Sure	12%	10%	10%	10%

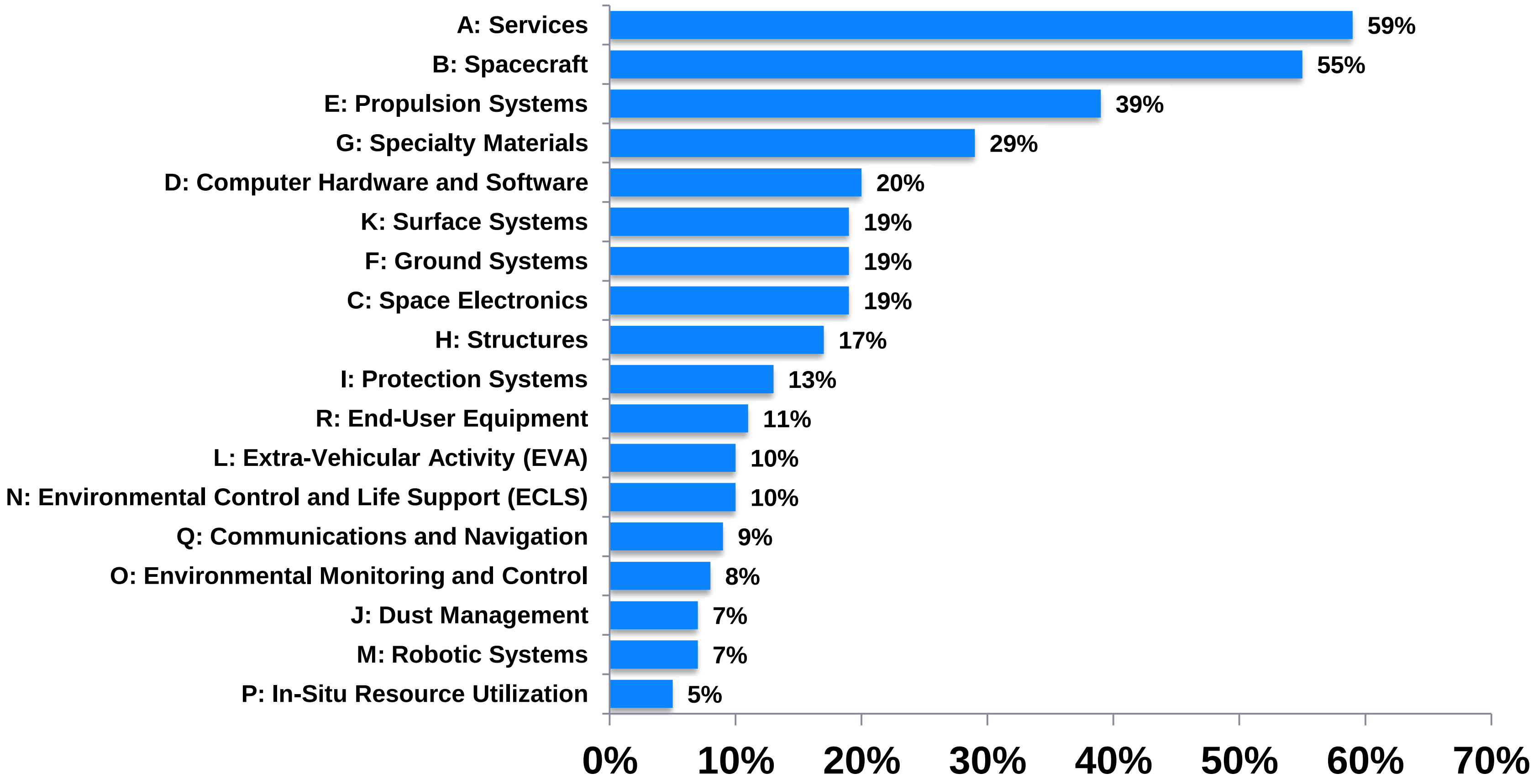
Informs programmatic scope of 2011-2012 “deep dive” collection

Human Space Flight Program Participation



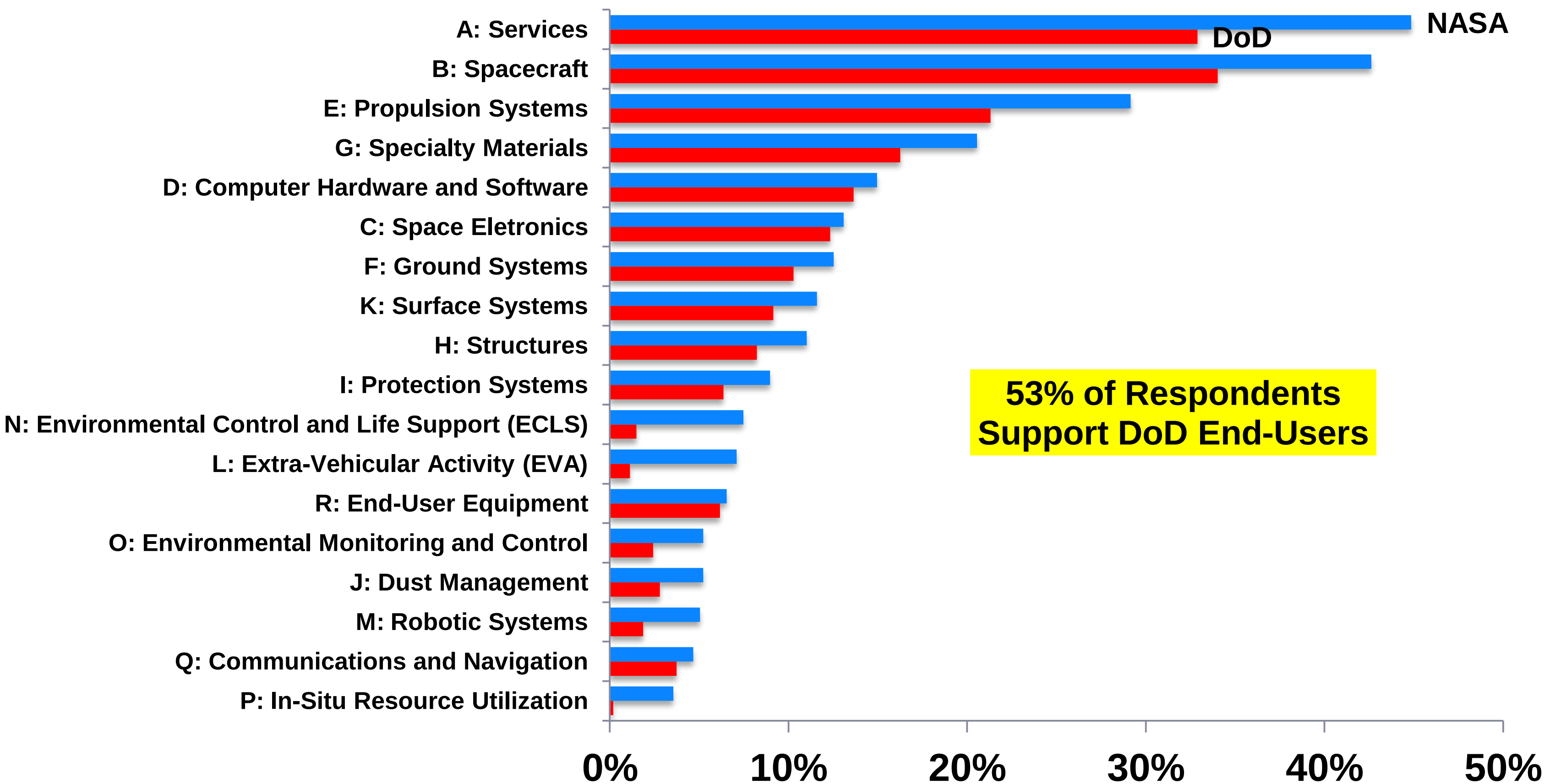
Number of respondents by Tier

Product and Service Category Participation



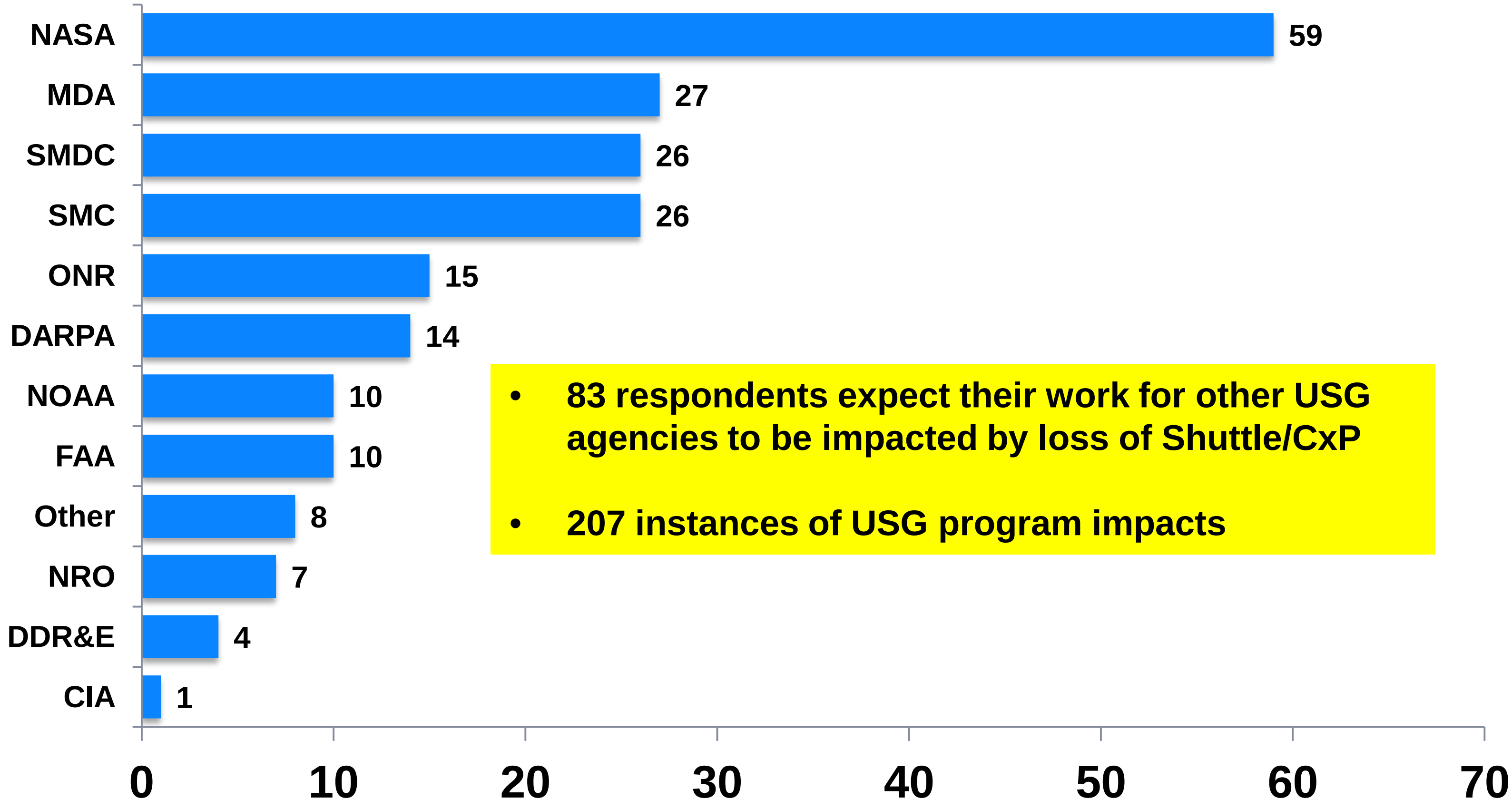
Percent of 536 respondents

Shared Supply Chain



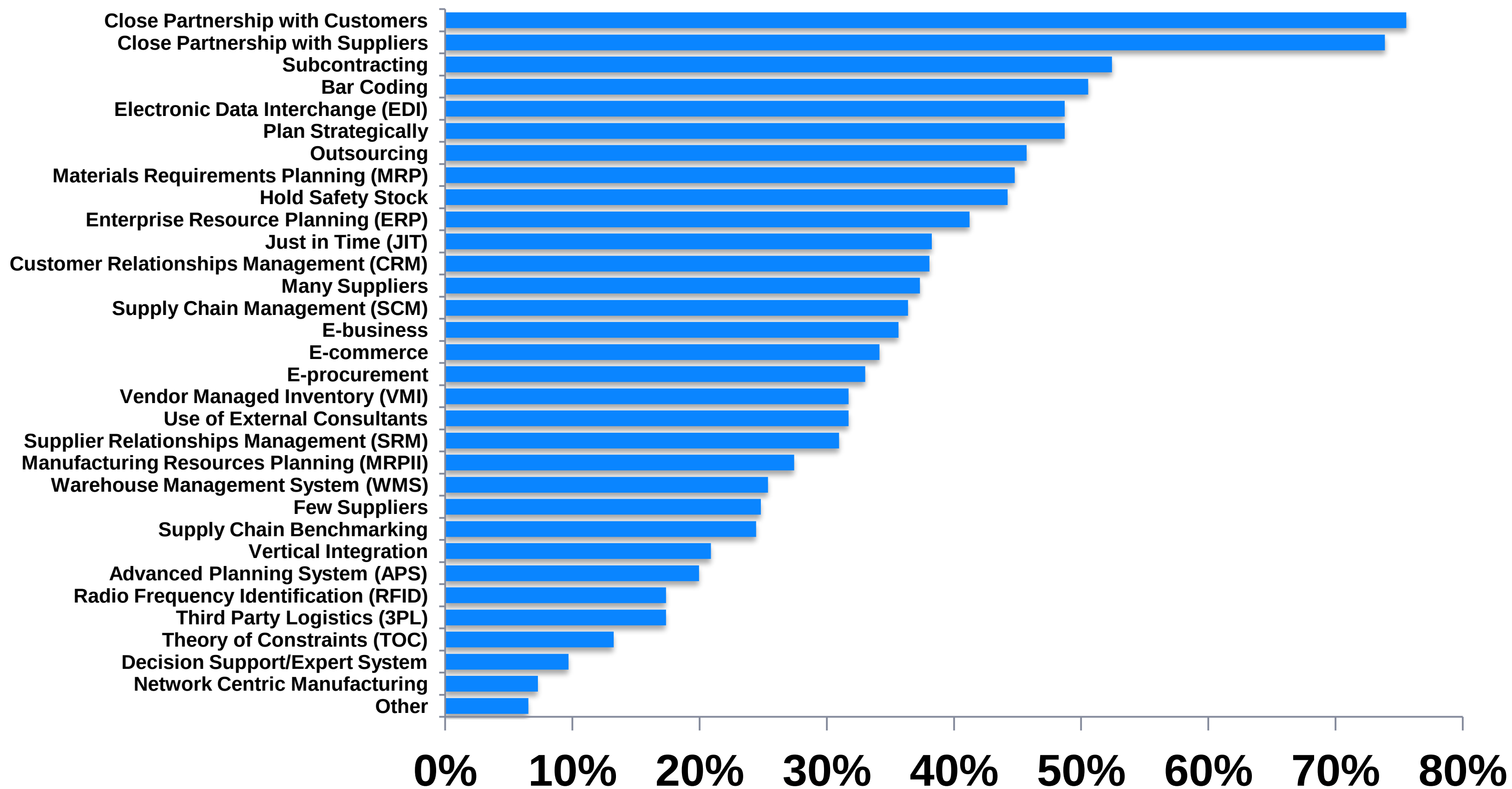
NASA in blue; DoD in red

USG Impacted by Cancellation



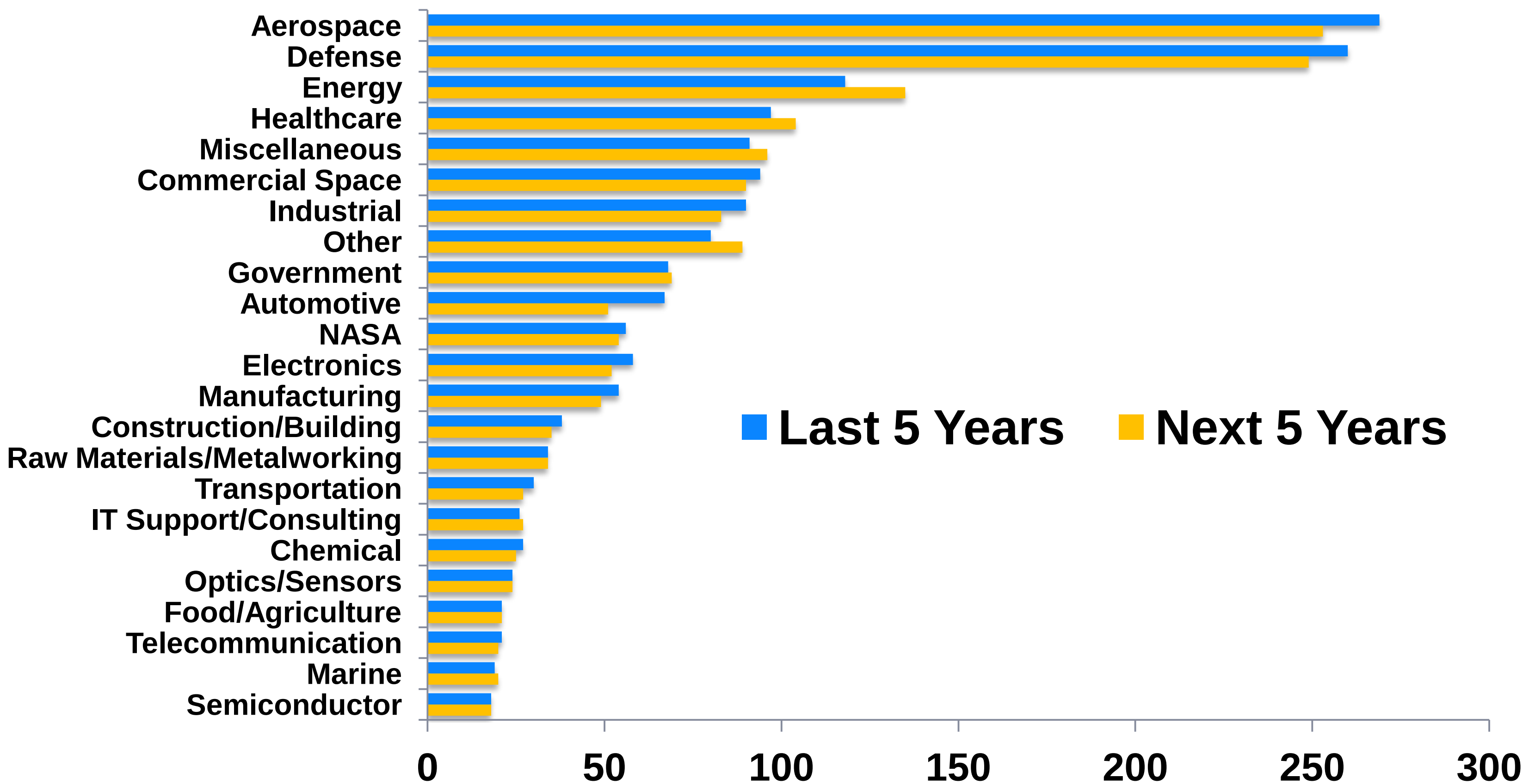
- 83 respondents expect their work for other USG agencies to be impacted by loss of Shuttle/CxP
- 207 instances of USG program impacts

Supply Chain Management: Practices and Methodologies



Partnership behavior across the ecosystem

Market Segments Served



NAICS 3364 “Aerospace Product and Part Manufacturing” benchmark correlation

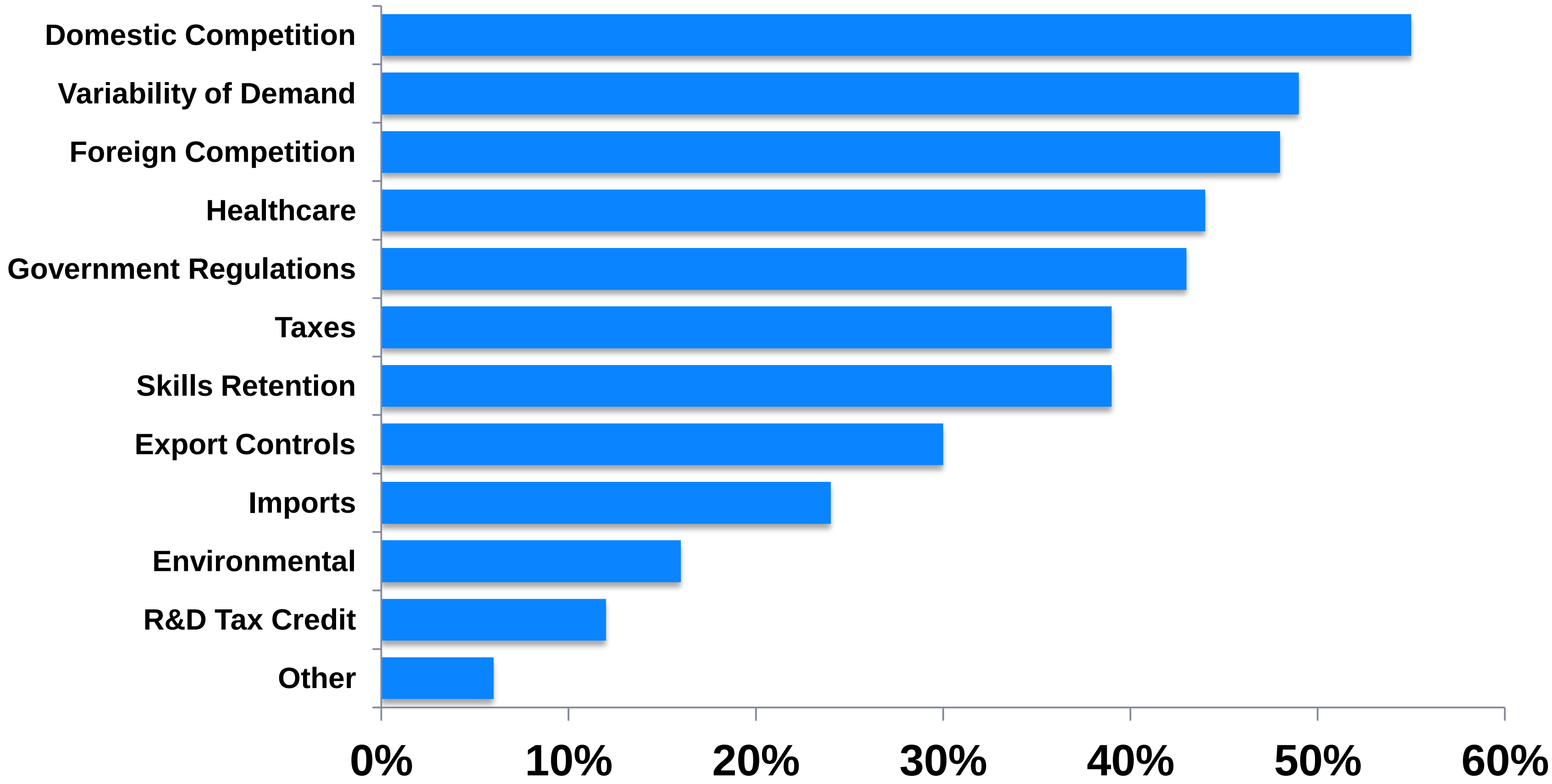
To Improve Competitiveness: Last 5 Years

Category	All	NASA Dependents
Capability, PP&E Investment	21%	18%
Cost Reductions, Efficiency	16%	17%
Automation, Lean Manufacturing	11%	7%
Innovation, R&D, Design	10%	10%
Customer Service, Quality Control	9%	10%
Training, Certifications	8%	11%
Business Restructuring	8%	7%
Staff Adjustments	7%	11%
Marketing Improvements	7%	5%
Status Quo	3%	4%

To Improve Competitiveness: Next 5 Years

Category	All	NASA Dependents
Capability, PP&E Investment	21%	19%
Cost Reductions, Efficiency	16%	20%
Innovation, R&D, Design	11%	9%
Customer Service, Quality Control	10%	10%
Marketing Improvements	8%	9%
Training, Certifications	8%	10%
Business Restructuring	8%	4%
Automation, Lean Manufacturing	7%	4%
Status Quo	6%	5%
Staff Adjustments	5%	10%

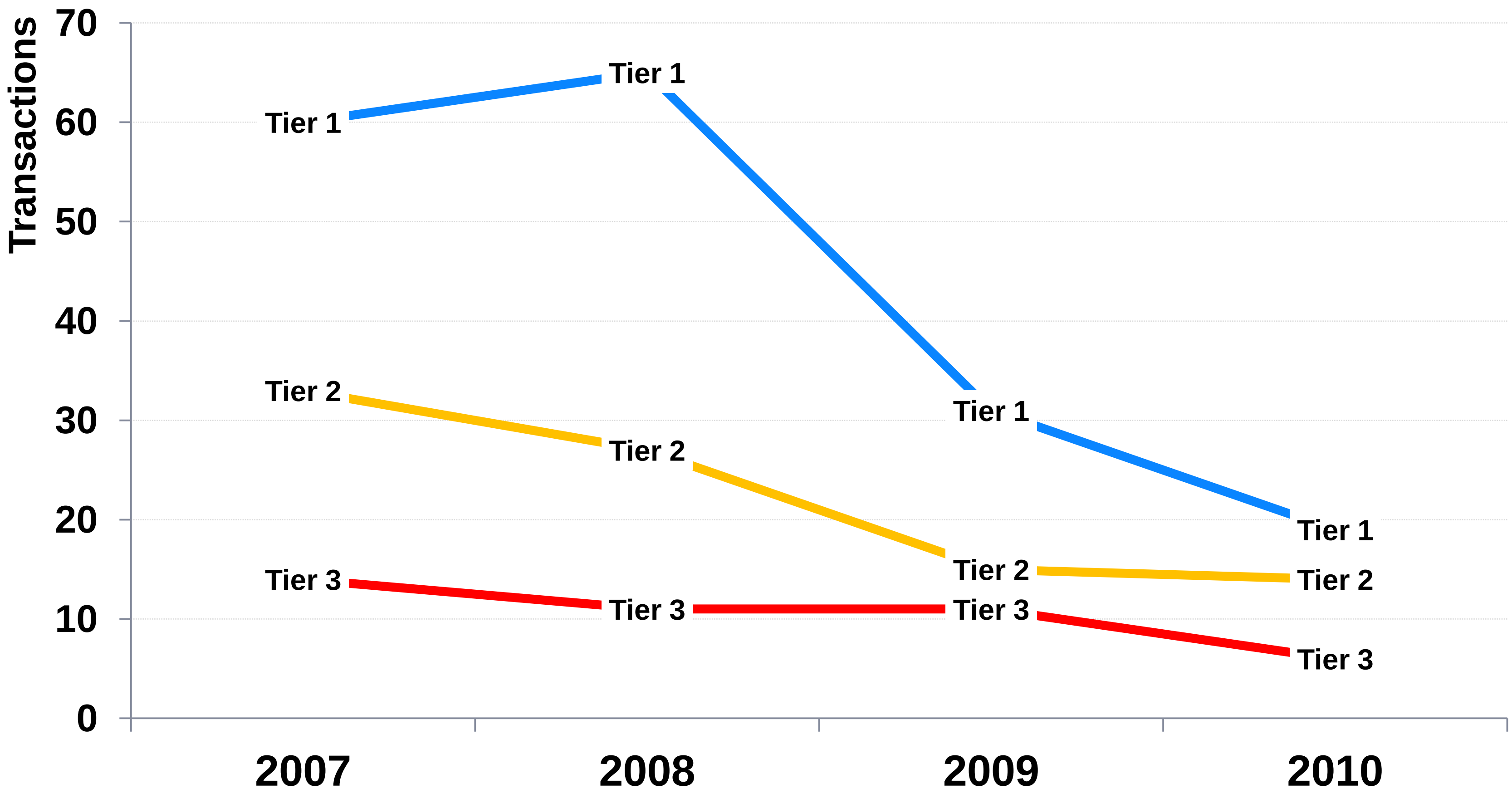
The Main Issues Affecting Respondents' Long-Term Viability



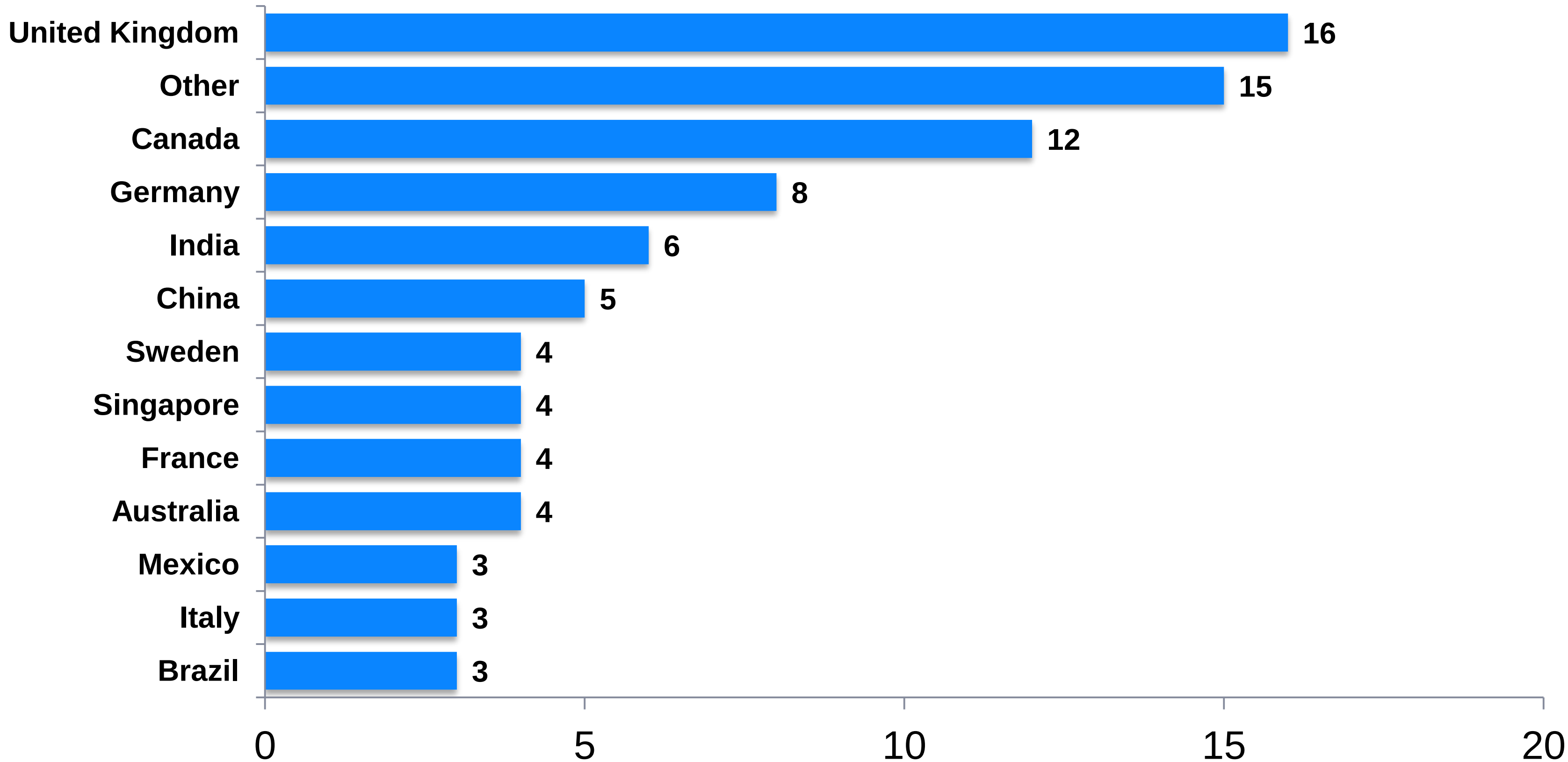
Top Policy Changes/Regulatory Reforms Recommended to the U.S. Government

Reform Area	% of 429 Comments
Export Control Reform	17%
Taxes	15%
Protectionism	15%
General Regulation	12%
Small-Medium Enterprise (SME) Concerns	10%
Other	7%
Contracting/Procurement	7%
Healthcare	6%
R&D (Tax Credits, etc.)	3%
Space Policy, Including NASA	3%

Mergers and Acquisitions Activity

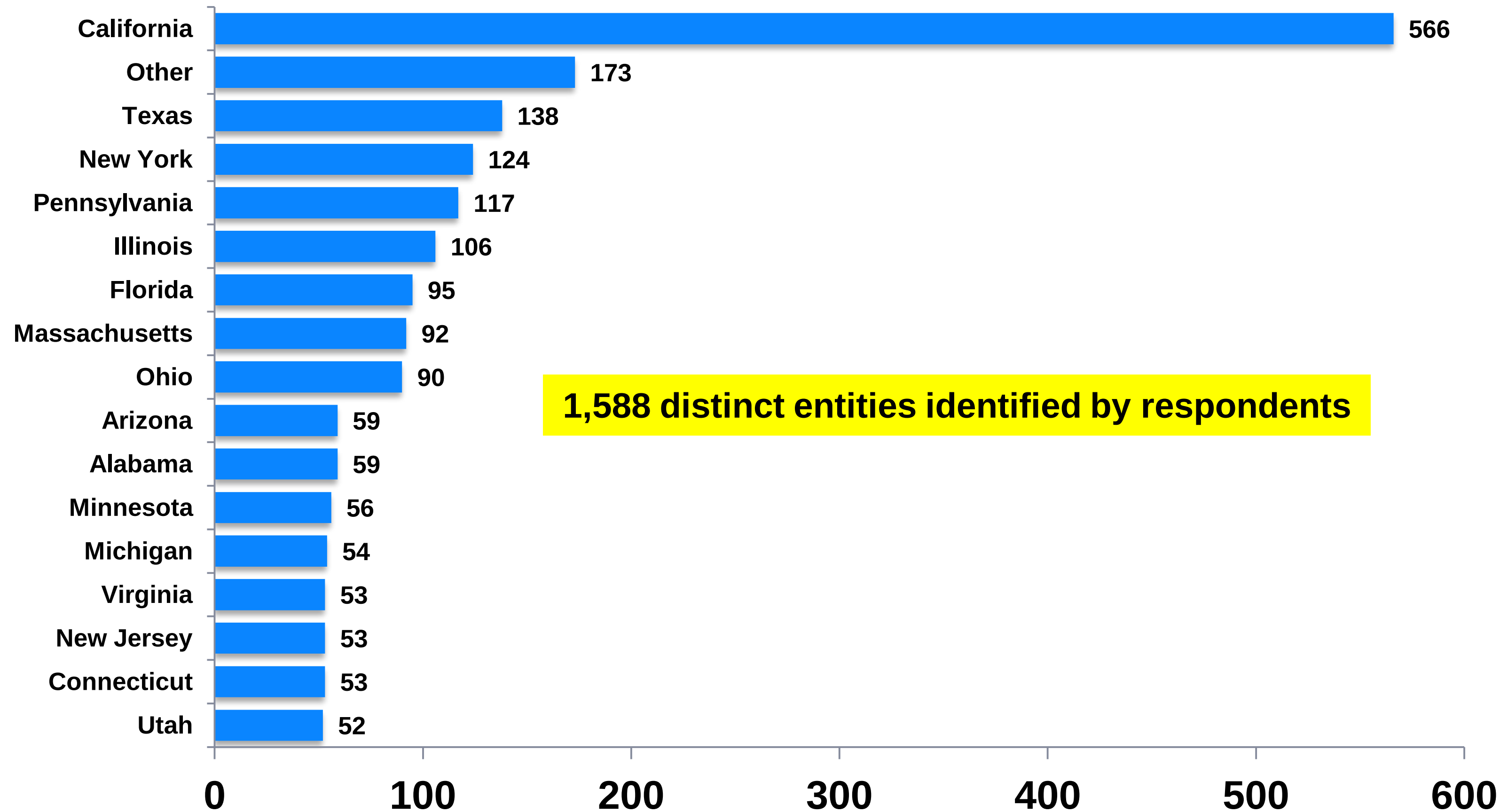


Non-U.S. Mergers and Acquisitions



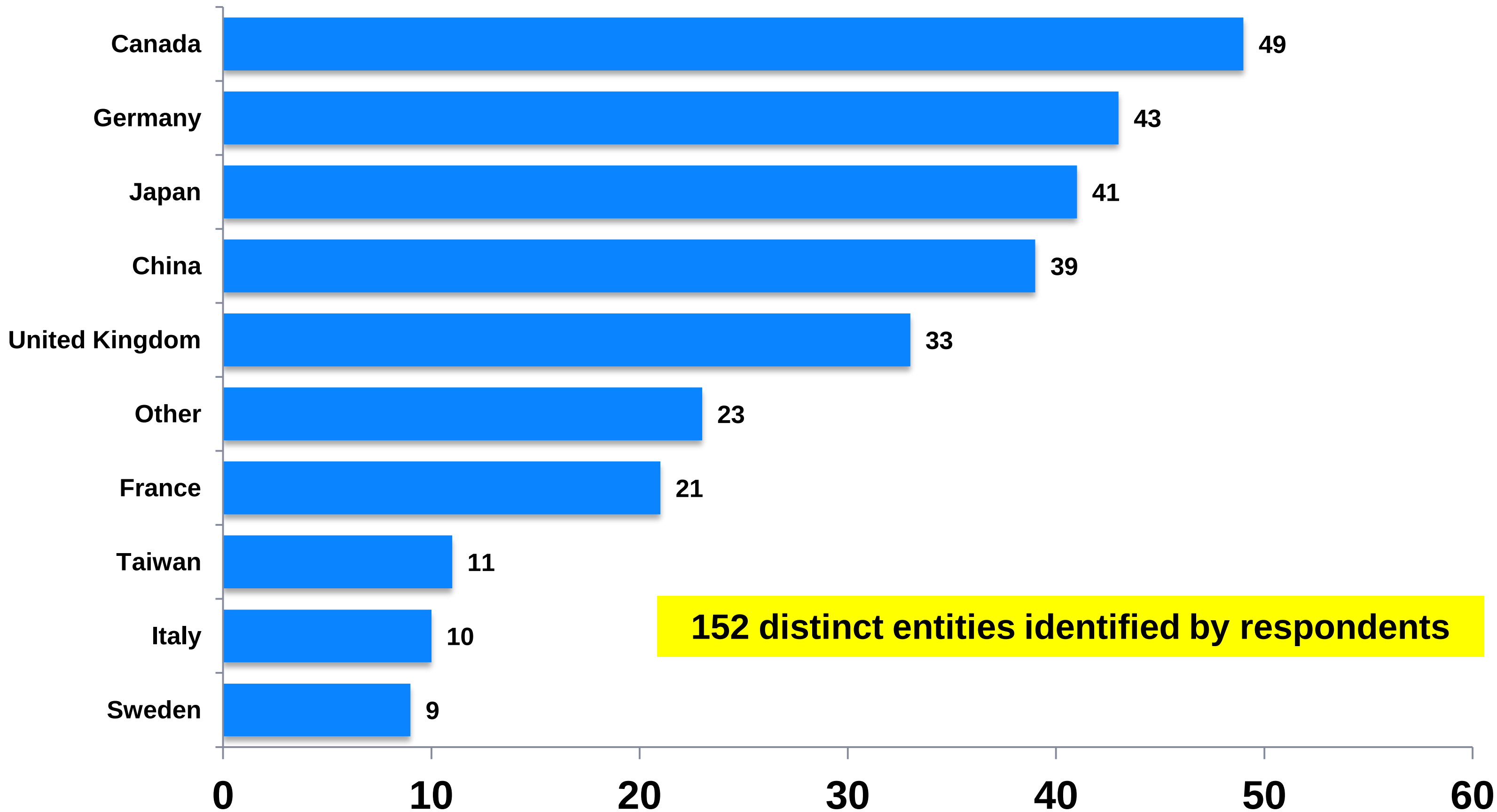
"Other" includes multiple single country mentions

Leading U.S. Suppliers by State



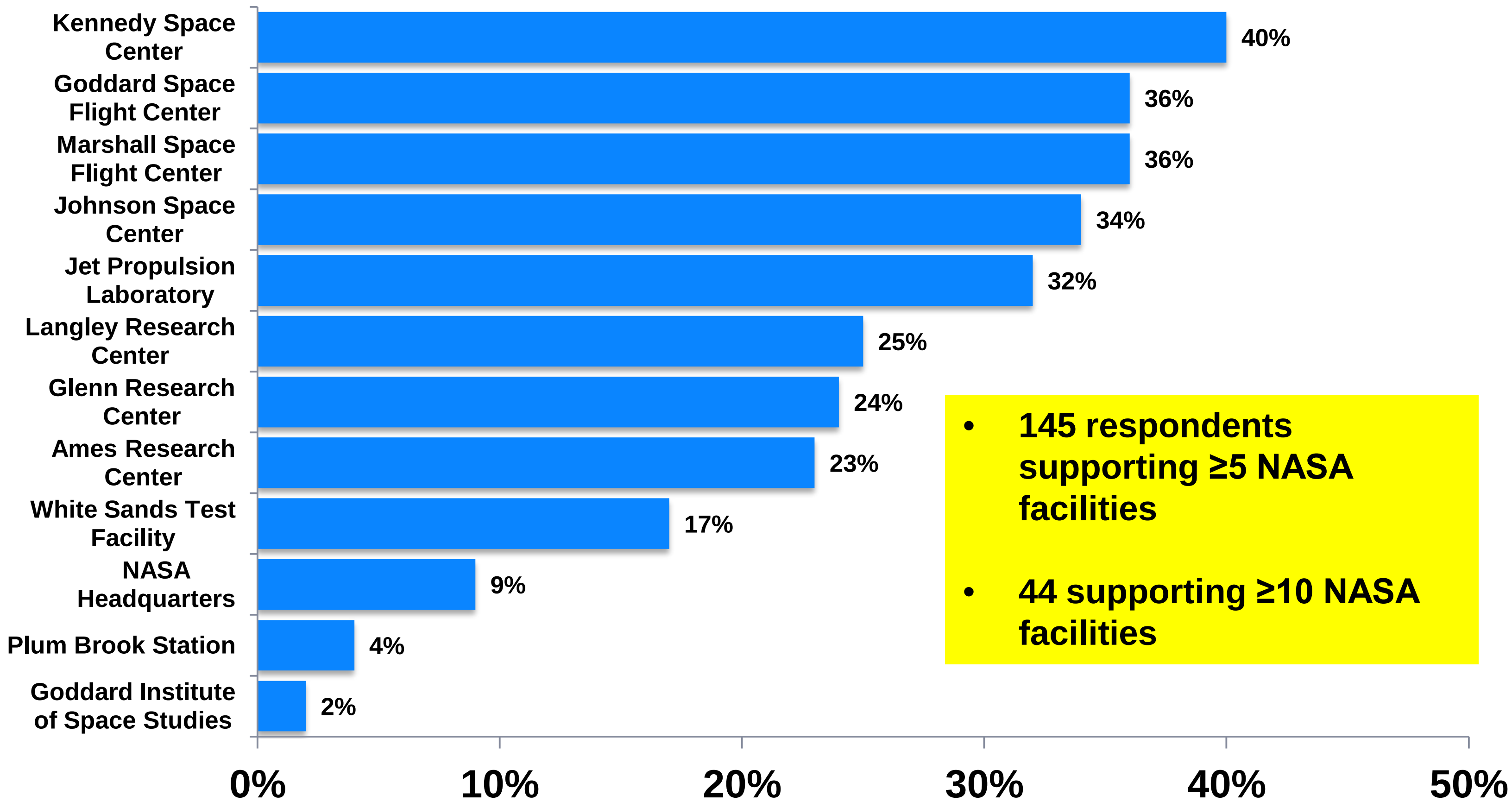
2,190 mentions

Leading Non-U.S. Suppliers by Country



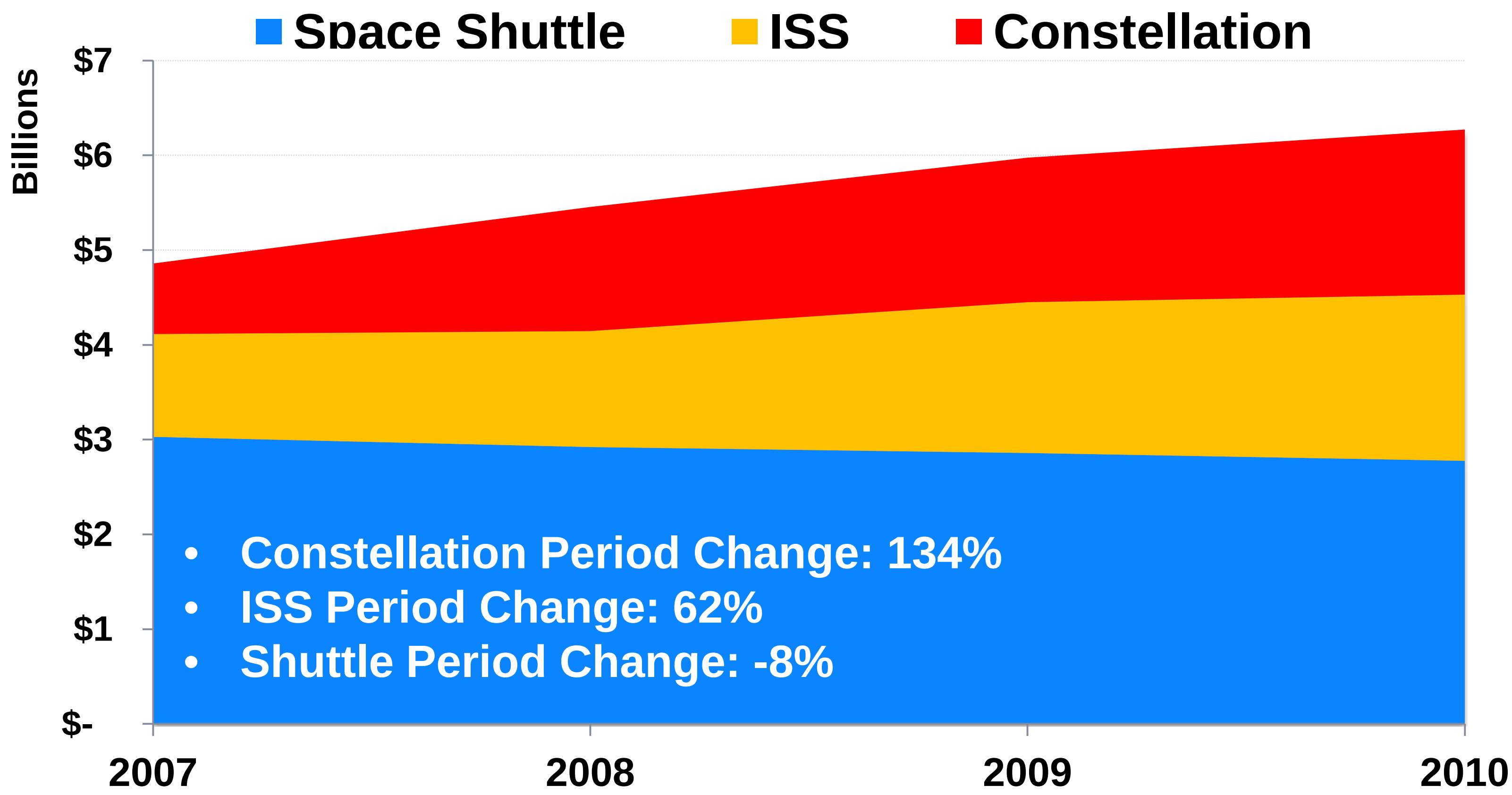
340 mentions

NASA Customers Supported

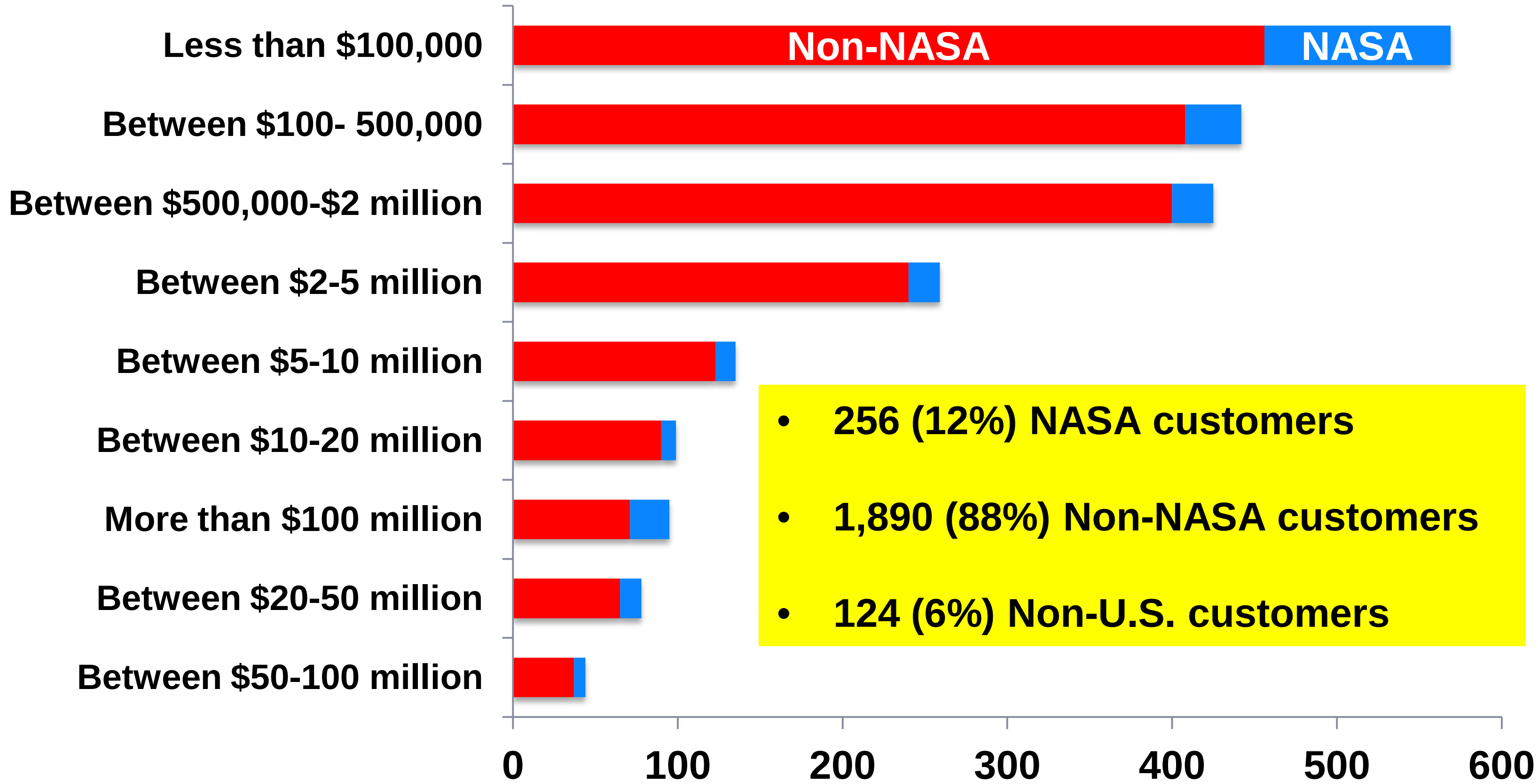


- **145 respondents supporting ≥5 NASA facilities**
- **44 supporting ≥10 NASA facilities**

Space Shuttle, ISS, and Constellation Sales



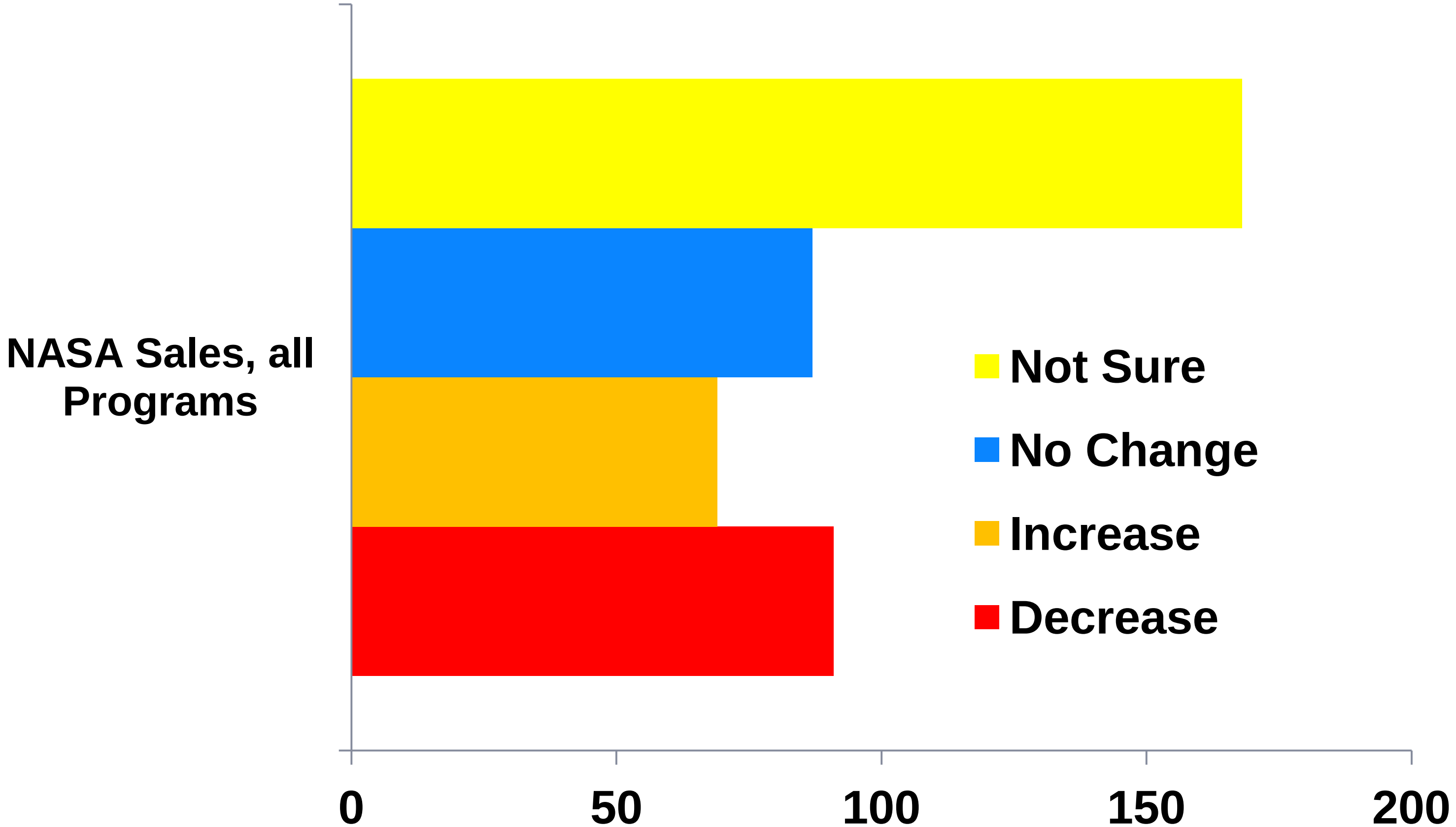
Space-Related Customer Sales (2007-2010)



- 256 (12%) NASA customers
- 1,890 (88%) Non-NASA customers
- 124 (6%) Non-U.S. customers

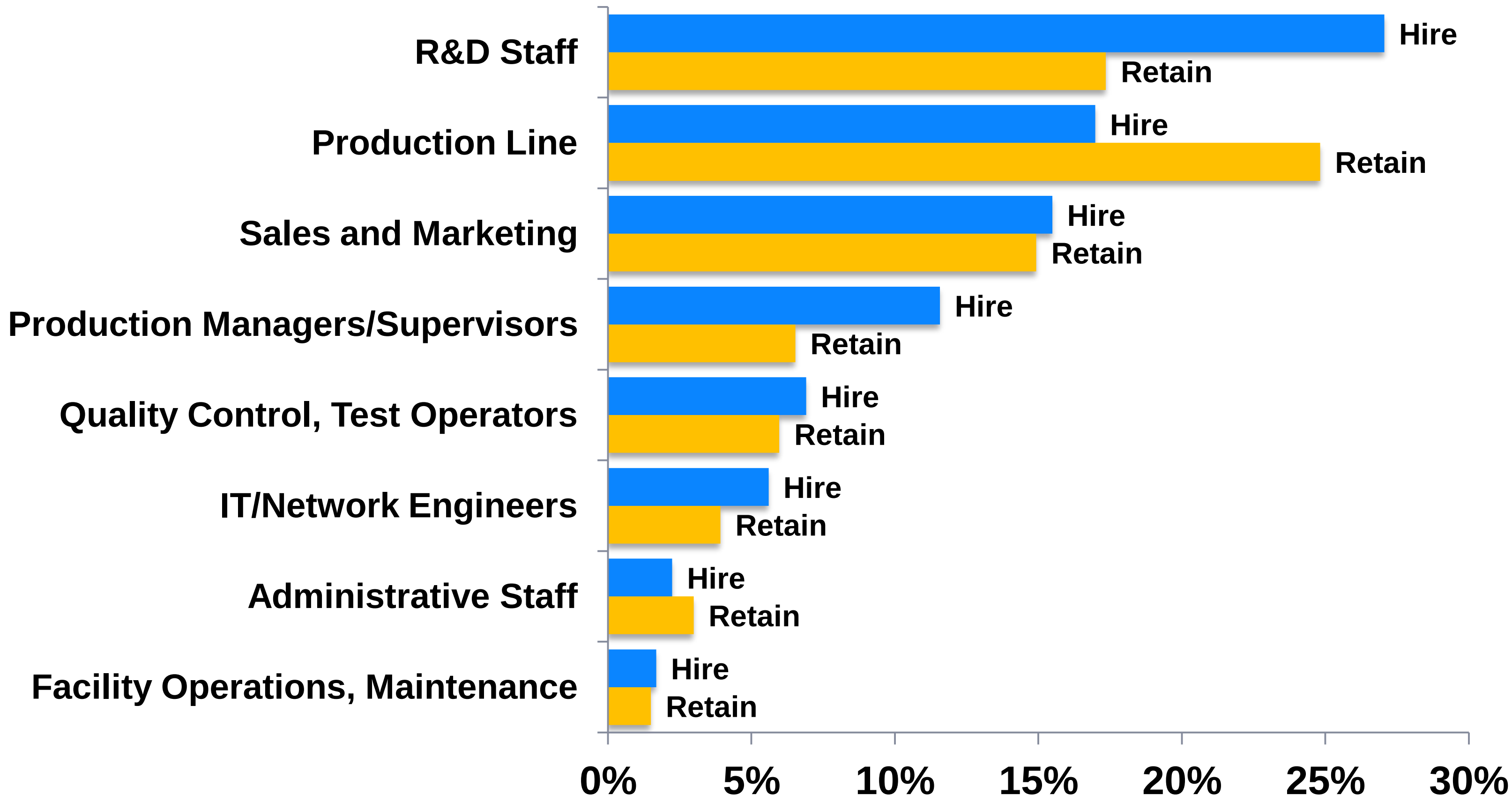
Internal customers not included; Top ten space-related customers solicited by dollar amount for 2007-2010

Future NASA Sales Projection (2011-2015)

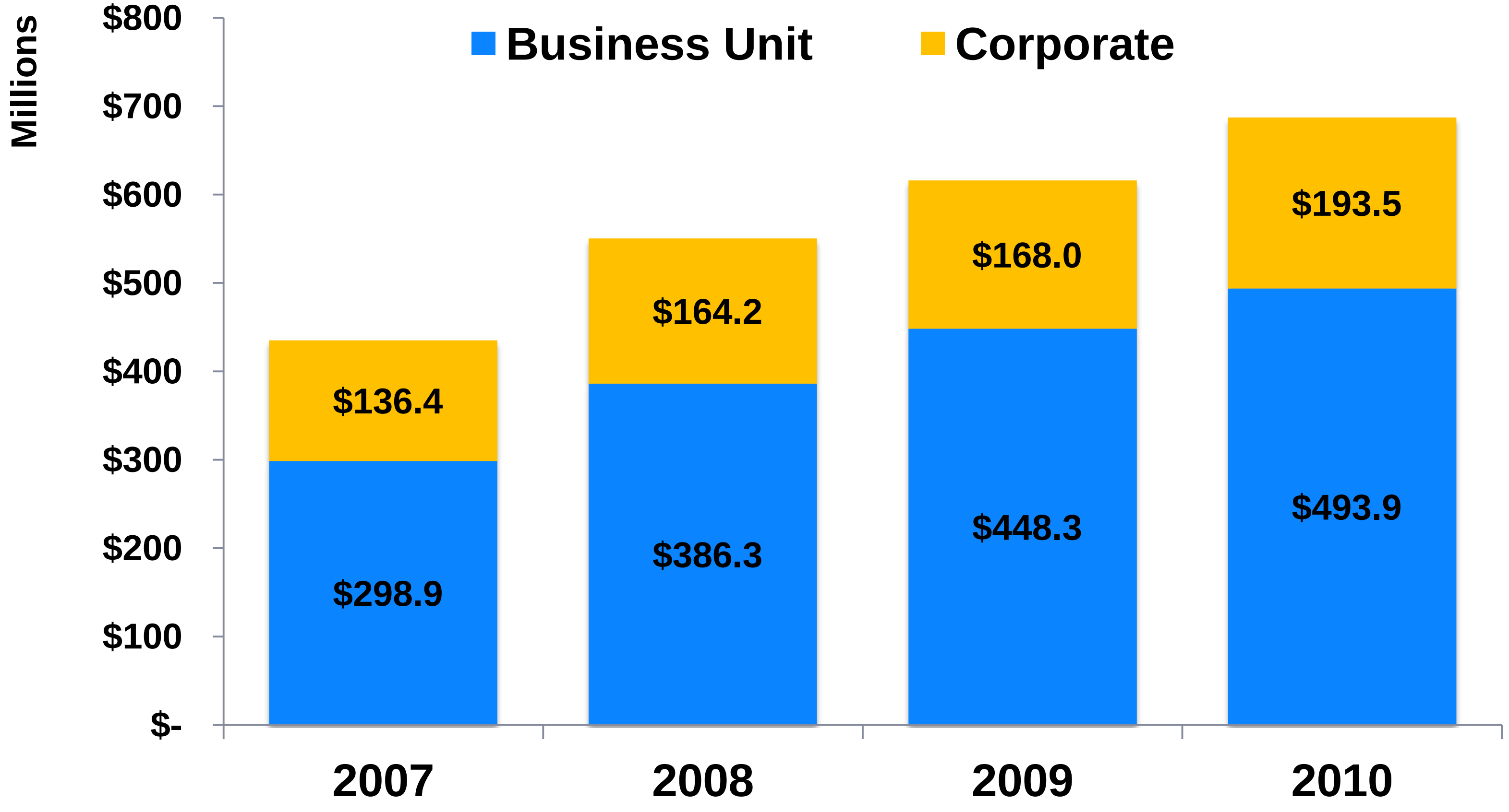


415 responses

Professional Occupations: Difficult to Hire/Retain

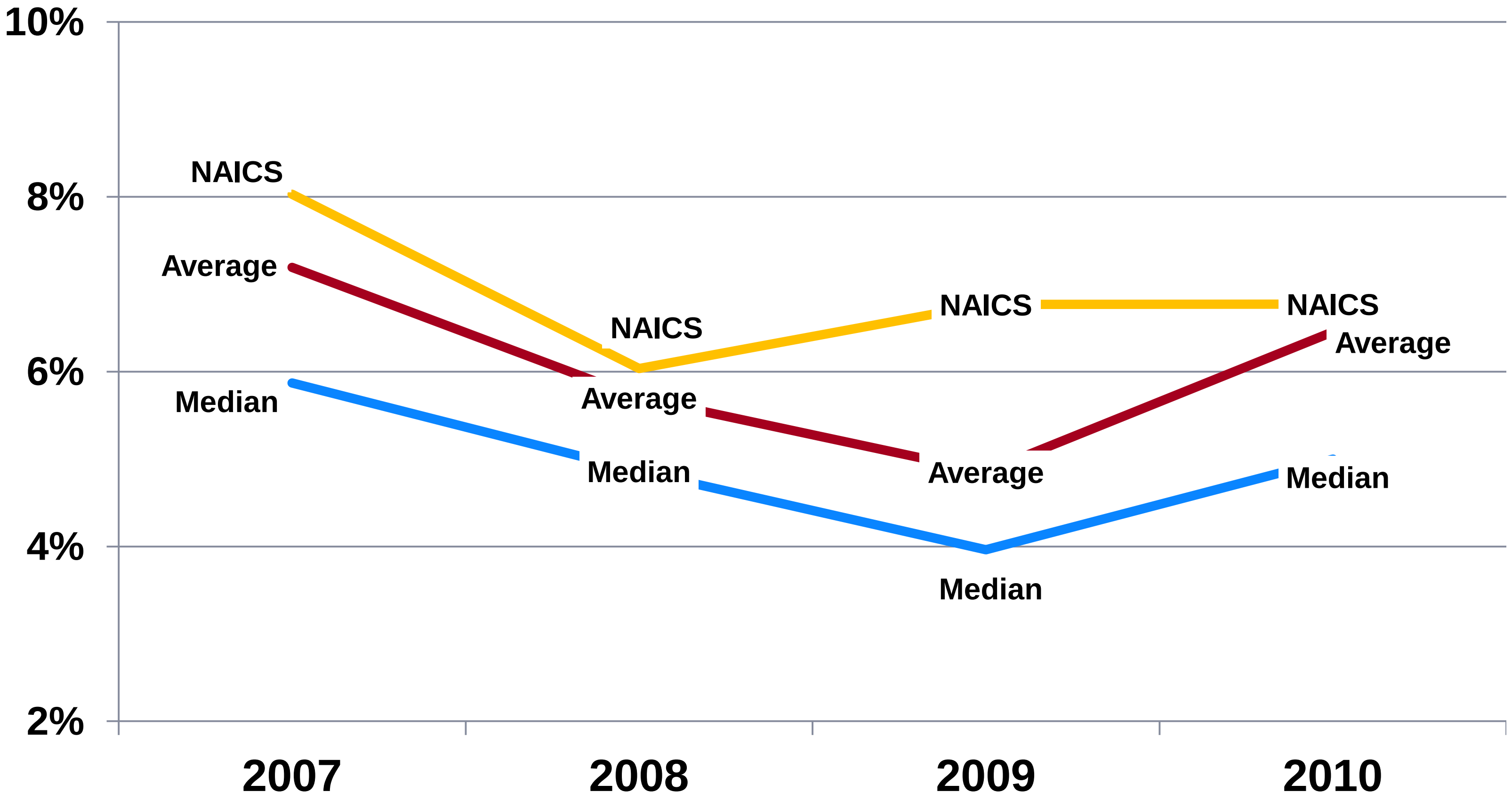


Research and Development: NASA-related Expenditures



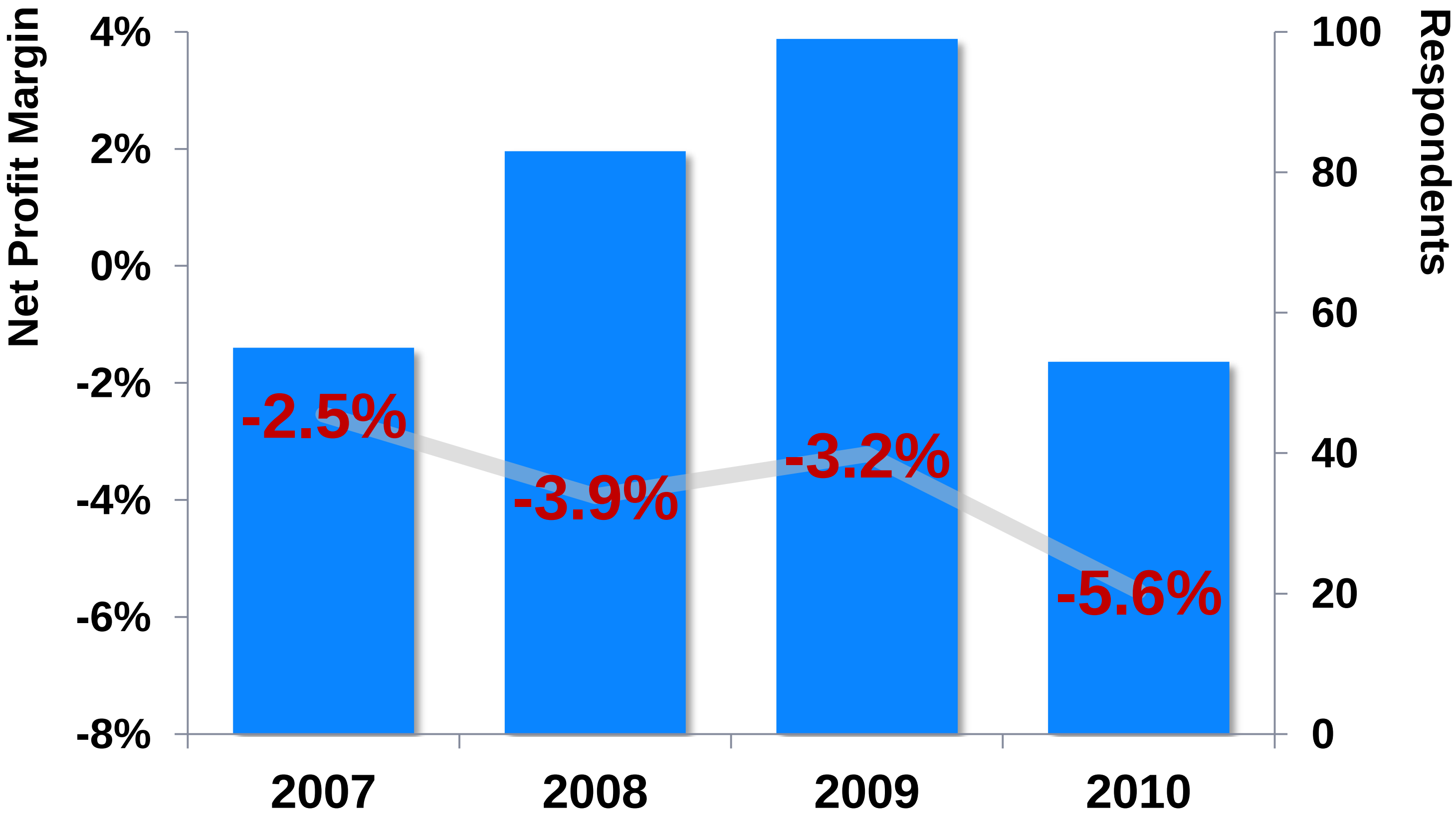
NASA-related R&D on average 30% of respondent R&D expenditures (10% median measure)

Financial Performance: Profitability
Net Profit Margin



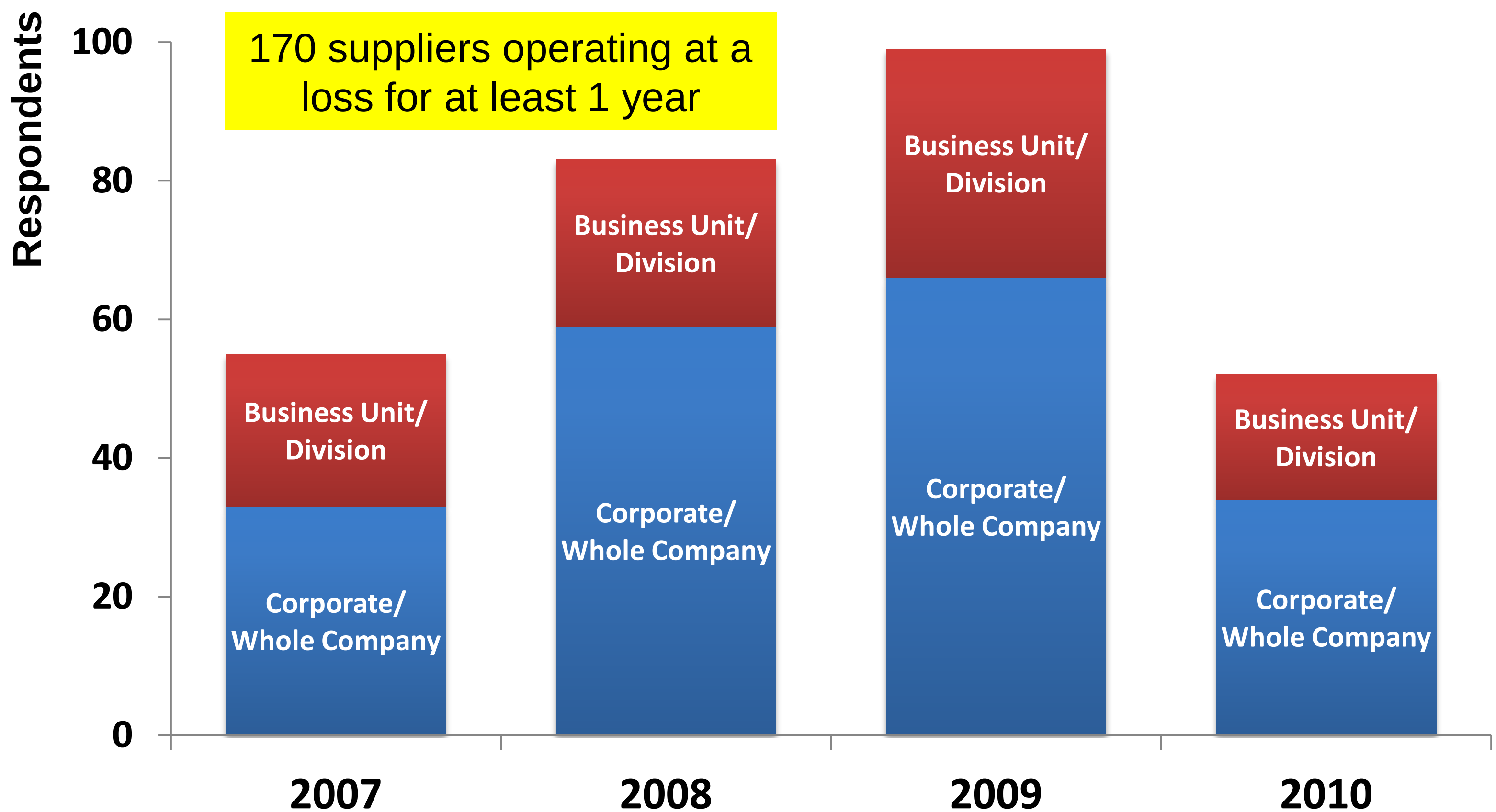
HSF Respondents and NAICS 3364 (Aerospace Product and Part Manufacturing)

Financial Performance: Profitability
Respondents Operating at a Loss



Median Measure

Financial Performance: Profitability Respondents Operating at a Loss



150 suppliers dependent on NASA; 46 suppliers exhibited both dependency and operational loss

Future Outlook

- 273 respondents (51%) do not have a plan in place to preserve their capabilities or workforce post-Shuttle/Constellation
- 161 respondents (30%) have modified their business/product lines in response to Shuttle retirement and CxP cancellation
- 289 respondents (54%) want to participate in Commercial Human Space Flight
- 461 respondents (86%) are willing to support future NASA Human Space Flight programs

U.S. Space Industrial Base "Deep Dive"

- Survey of multiple tiers of the U.S. space industrial base—defense, intelligence community, civil and commercial sectors
  - Partnership with USAF, NRO and NASA—other agencies with space activities will be brought in
  - Covers prime contractors, sub-tier suppliers, USG laboratories and facilities and universities
  - Information collected will include USG/Commercial revenue, financial and operational health, production capacity, unique capabilities and technologies, customers and suppliers and more
  - Develop accurate picture of space base, identify supplier dependencies and interdependencies and evaluate needs for USG planning and possible action
  - Late fall 2011 survey dissemination

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