



**Dept. of Commerce
Office of Technology Evaluation,
Bureau of Industry and Security**

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USCPrice

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U.S. DEFENSE INDUSTRIAL BASE

Challenges Ahead

U.S. Department of Commerce
Bureau of Industry and Security

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Bureau of Industry and Security (BIS)

- Mission:
 - Advance U.S. national security, foreign policy, and economic objectives by ensuring an effective export control and treaty compliance system and promoting continued U.S. strategic technology leadership
 - BIS also develops and implements policies and programs that ensure a strong, technologically superior defense industrial base
- The Office of Technology Evaluation (OTE) is the focal point within BIS for analyzing the capabilities of the U.S. industrial base to support the national defense

OTE Industry Surveys & Assessments

Objectives

- Bring together industry and government agencies to:
 - Share data and collaborate in order to ensure a healthy and competitive industrial base
 - Monitor trends and benchmark industry performance
 - Raise awareness of diminishing manufacturing, technological, and service capabilities
 - Provide detailed findings, recommendations, and proposed solutions
- OTE Customers:
 - Federal Departments and Agencies
 - Congress, State, and Local Governments
 - Industry Associations

OTE Industry Surveys & Assessments

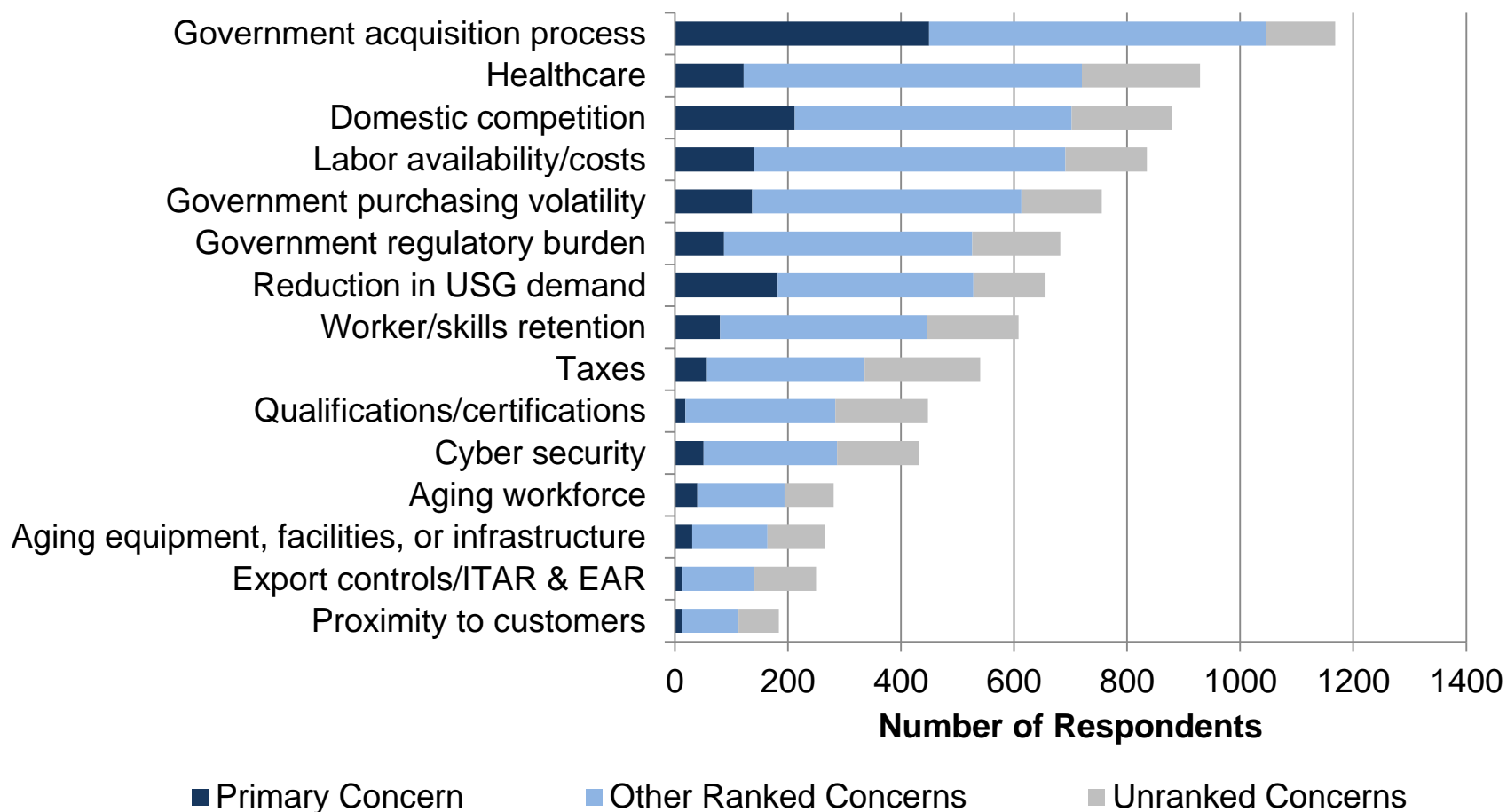
- Over 55 U.S. industry studies and 150+ surveys since 1986, including:
 - Critical Facilities – Cleared/Unclassified Operations (in progress)
 - Bare Printed Circuit Boards (in progress)
 - Titanium, Magnesium, and REEs (in progress)
 - U.S. Rocket Propulsion Industry (in progress)
 - U.S. Strategic Material Supply Chain Assessment: Carbon Fiber Composites
 - U.S. Space Industrial Base “Deep Dive” Assessment
 - U.S. Underwater Acoustics Transducer Industry
 - Consumers of Electro-Optical Satellite Imagery
 - Cartridge and Propellant Actuated Devices (CAD/PADs) – 4th Review
 - Telecommunications Industry Infrastructure
 - NASA Industrial Base – Post-Space Shuttle/Constellation Program
 - Healthcare and Public Health Sector – Foreign Sourcing
 - Cost-Metric Assessment of Diminishing Manufacturing Sources and Material Shortages
 - Counterfeit Electronics
 - Imaging and Sensors Industry
 - U.S. Shipbuilding and Repair Industry
 - U.S. Integrated Circuit Design and Fabrication Capability (update in progress)
 - C-17 Aircraft Supplier Impact Assessment (update in progress)
 - Textiles, Apparel, and Footwear (update in progress)

www.bis.doc.gov/dib

Source: U.S. Department of Commerce,
Bureau of Industry and Security. UNCLASSIFIED

BIS/OTE Critical Facilities Assessment: Top Organizational Challenges

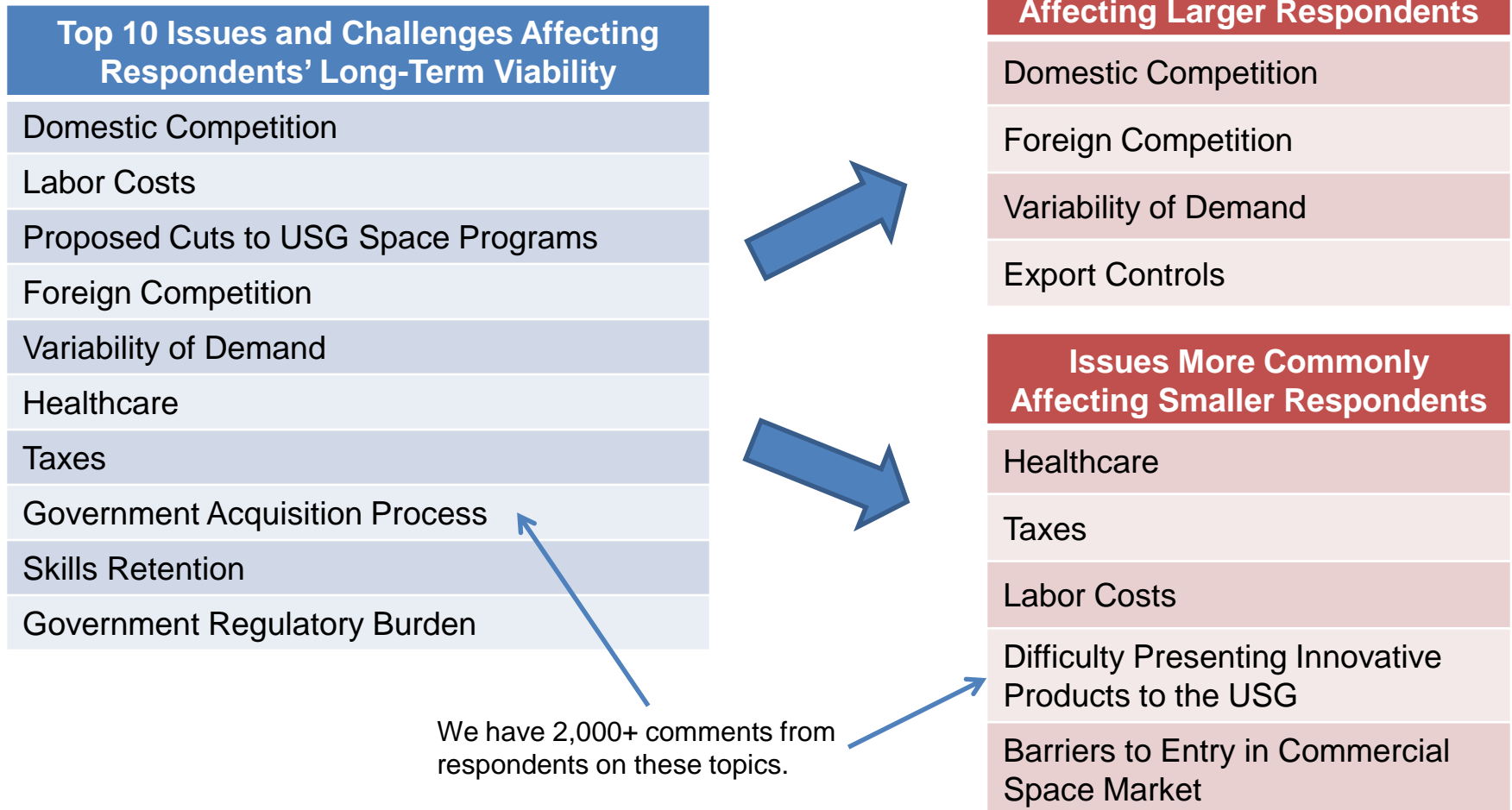
Respondents identified all challenges to operations and ranked their top five challenges



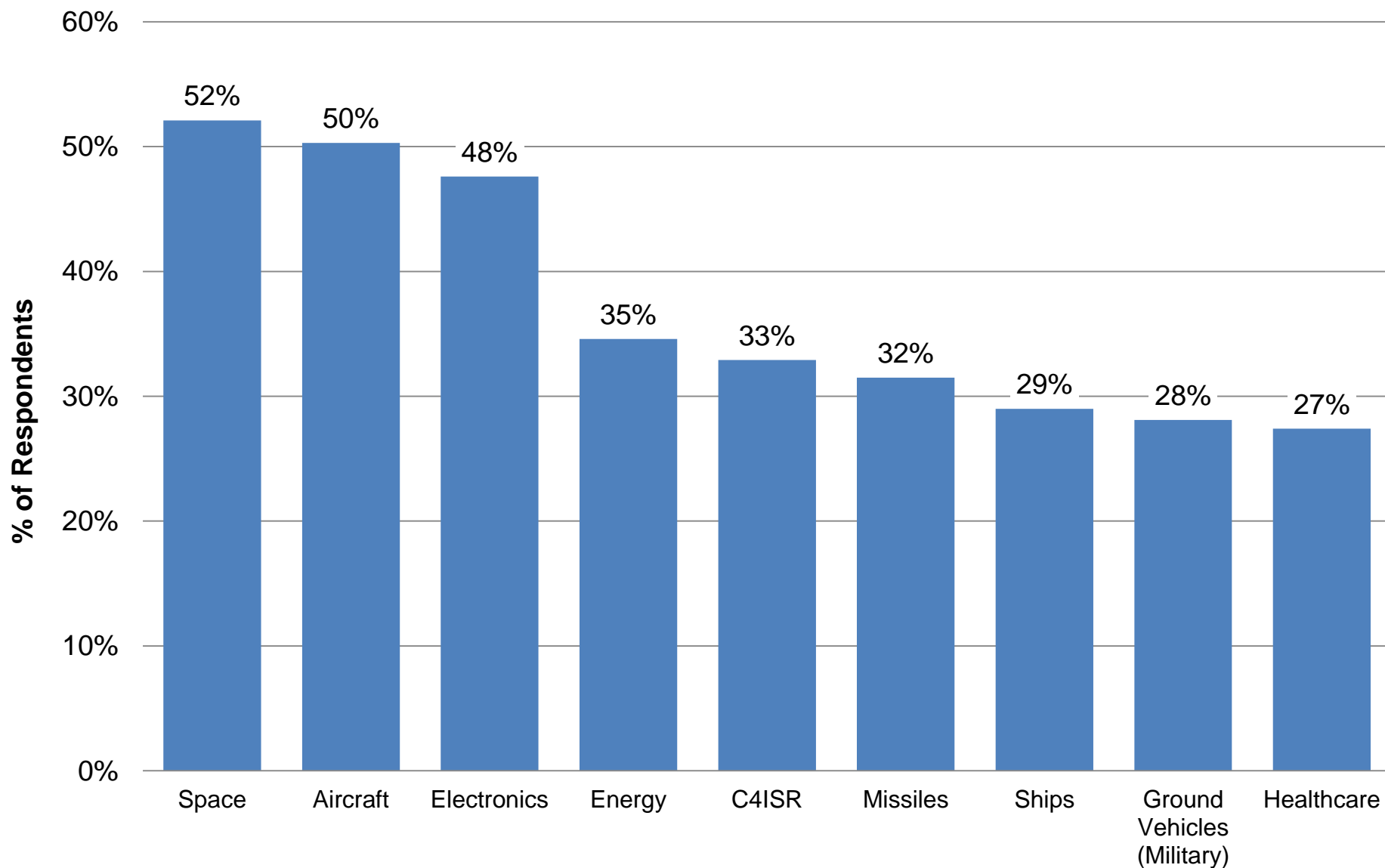
Q13a

2,091 respondents

Strategic Environment: “Understand the Collective Problem” – Space Sector



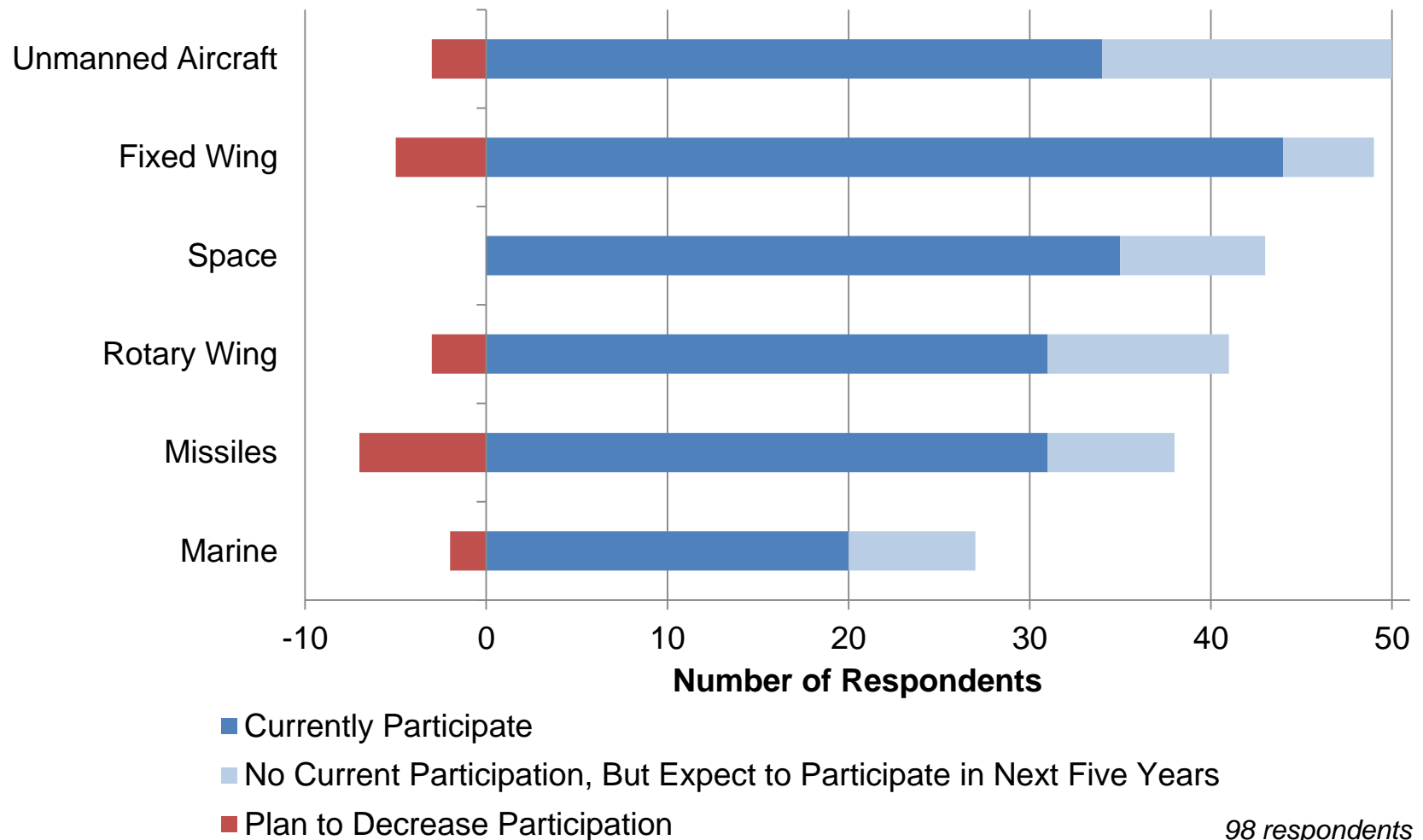
Involvement in Market Segments – Space Sector



Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, December 2014. UNCLASSIFIED.

U.S. Strategic Materials – Composites

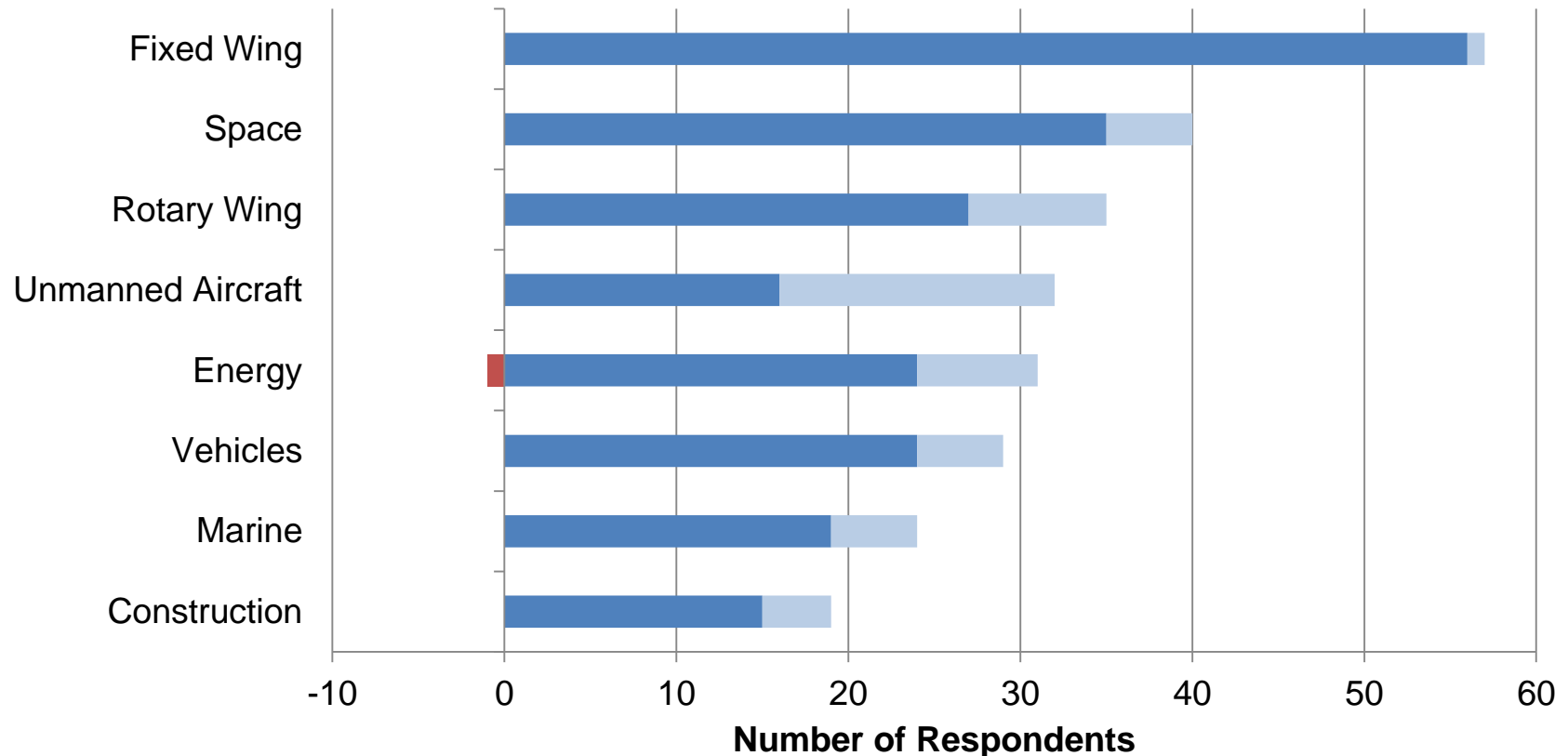
Expected Changes in Defense Sector Participation



U.S. Strategic Materials – Composites

Expected Changes in Civilian Sector Participation, 2014-2018

Respondents providing carbon fiber-based products or services

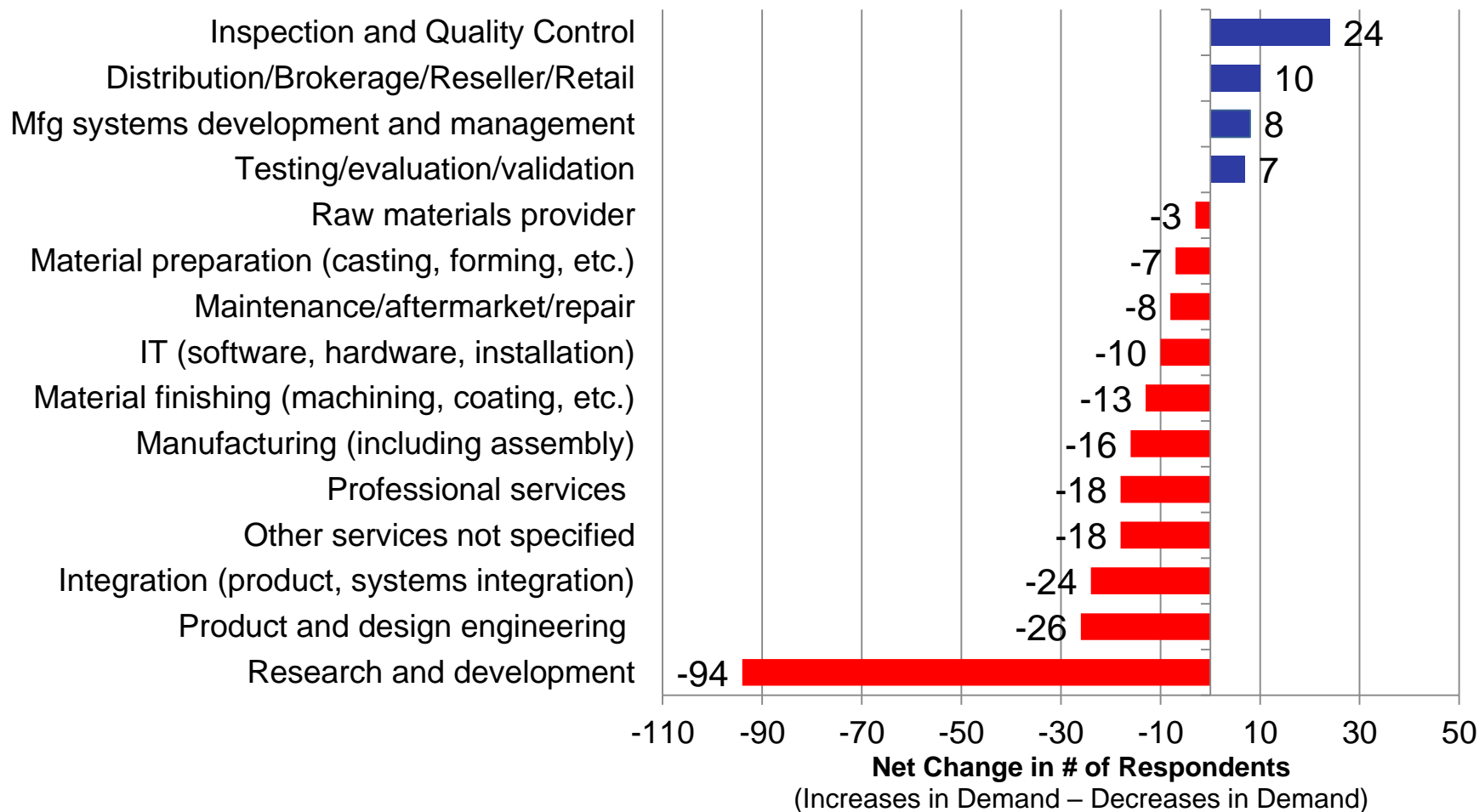


- Currently Participate
- No Current Participation, But Expect to Participate in Next Five Years
- Plan to Decrease Participation

Q5C

98 respondents

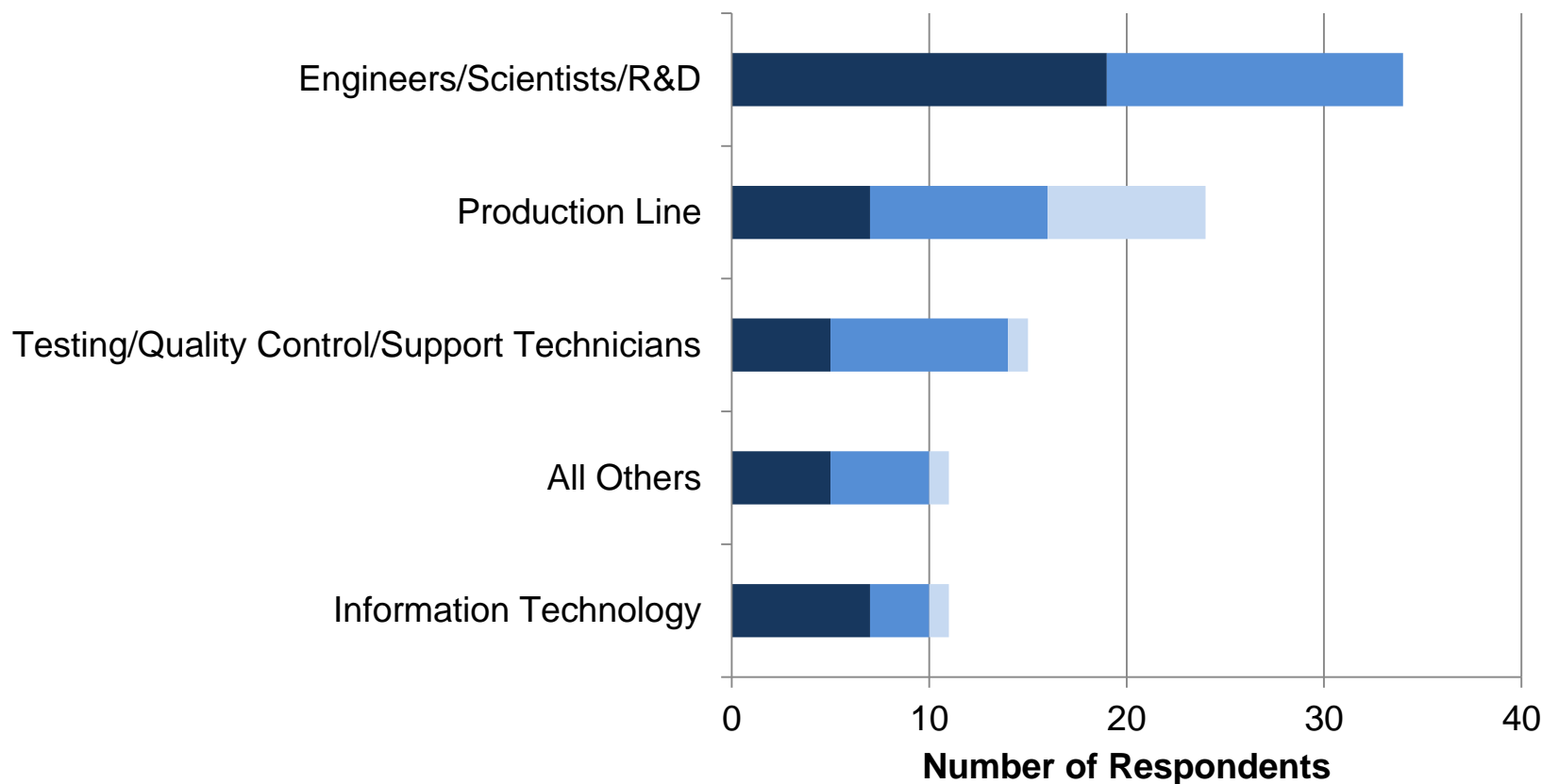
Net Change in Space-Related Customer Demand for Respondents' Business Lines – Space Sector



Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, December 2014. UNCLASSIFIED.

U.S. Strategic Materials – Composites

Difficulty Hiring and Retaining Workers



*98 Respondents

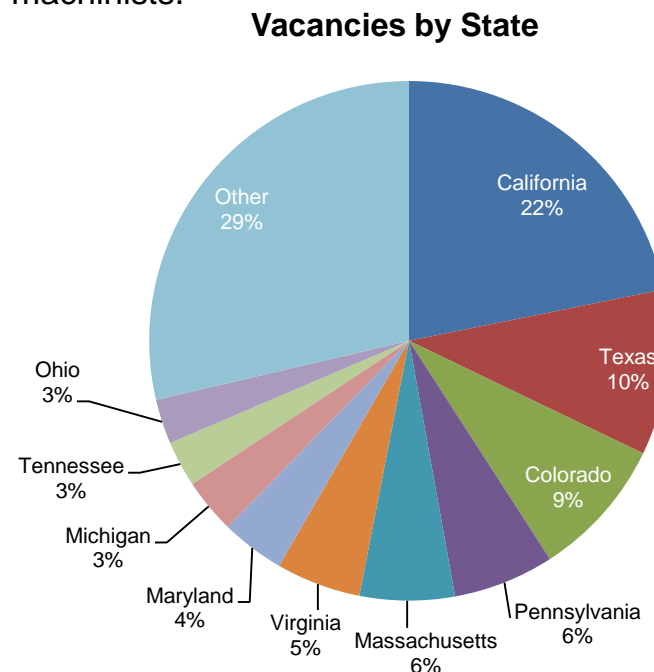
■ Difficulty Hiring Only ■ Difficulty Hiring & Retaining ■ Difficulty Retaining Only

Unfilled Vacancies for Skilled Positions – Space Sector

- Respondents identified how many **unfilled vacancies** they currently have for the following positions:
 - Engineers, Scientists, and R&D Staff
 - Production Line Workers
 - Testing Operators, Quality Control, & Support Technicians
- 1,234 respondents (33 percent) **currently have 24,836 vacancies** for these positions.
- These unfilled vacancies are primarily for engineers and machinists.

Why are these vacancies unfilled?

1. Lack of proper skills
2. Difficulty attracting workers to manufacturing
3. Geographic difficulties
4. Instability of demand



Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, December 2014. UNCLASSIFIED.

Uncertainty About USG Strategic Direction

- 666 respondents indicated that “Variability in Space Demand” has adversely impacted their desire to continue to work with the USG.

% Space-Related Sales	% With Lower Desire to Work With USG
No Space Sales	7.2%
Less than 1% (\$1+)	9.9%
1-25%	27.4%
25%+	45.0%

- 565 respondents have had or anticipate having their R&D expenditures “moderately” or “significantly” adversely impacted by changes in USG space-related spending.
 - Commercial companies in this group represented 67% of space-related R&D expenditures in 2012.
 - Comments:
 - “Significant uncertainty in government requirements and objectives has made the business proposition for investment more difficult to justify as well as made unclear where targeted investment should be made” – Large company.
 - “Expenditures continue to be limited due to uncertainty in Return on Investment (ROI) based on the government's volatile R&D appropriations” – Very large company.

Government Acquisition Process

Percent of respondents citing 'Government Acquisition Process' as one of the top five challenges to their long-term viability:

% Space-Related Sales	% of Respondents
No Space Sales	16%
Less than 1% (\$1+)	20%
1-25%	28%
25%+	43%

% USG Sales*	% of Respondents
No Sales	10%
Less than 1% (\$1+)	9%
1-25%	16%
25%+	37%
* Respondents with no space-related sales, but had USG sales	

Sub-Issues:

1. **Insufficient upfront information and timelines on contract requirements**
 - 125 respondents called for increased USG transparency on requirements, program application, qualification requirements, volume projections, and timing.
2. **Cost of bid process is prohibitive for many small companies**
 - 201 respondents commented on a need for reduced regulatory and administrative requirements in government contracts (despite no question specifically addressing this issue). Three quarters of these companies were medium sized or smaller.
3. **Government contracts are seen less attractive than commercial**
 - 49 respondents called for USG contracts to be more consistent across agencies and closer to commercial standards.
4. **Difficulty presenting the Government with new and innovative products**
 - 597 respondents cited this issue as a top challenge to their long-term viability. Smaller respondents, more directly involved in space.

Leveraging Outside Resources

Percent of Respondents Interested in Available USG Assistance Programs and Services

Assistance Type	Space Deep Dive Study (3,780 respondents)	Strategic Materials Study (269 respondents)	Critical Facilities Study (2,091 respondents)
Cyber security	---	---	26%
Business development / Market expansion	19%	26%	24%
SBIR and STTR contracts	13%	17%	20%
R&D programs / Technology acceleration	14%	26%	12%
Export licensing (ITAR/EAR)	11%	23%	9%
Global export opportunities	12%	26%	5%
Government procurement guidelines	9%	16%	16%

Have you considered working with these and other agencies to address IB concerns?

- **NIST's Manufacturing Extension Partnership**
- **Federal Laboratory Consortium**
- **State Economic Development Agencies**
- **Small Business Administration**
- **DOC International Trade Administration**
- **U.S. Department of Labor**

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