



U.S. SPACE INDUSTRY “DEEP DIVE”

A COLLABORATION BETWEEN THE DOC AND THE USAF, NASA, AND NRO

FINAL DATASET FINDINGS

ISPWG
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OTE Industry Assessments – Background

- Under the Defense Production Act of 1950 and Executive Order 13603, ability to survey and assess:
 - Economic health and competitiveness
 - Defense capabilities and readiness
- Mandatory Data Collection Authority under Section 705 of the Defense Production Act.
- Enable 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 and technological capabilities

U.S. Space Industry “Deep Dive” Assessment Background

- Partnership with the U.S. Air Force, National Aeronautics and Space Administration, and the National Reconnaissance Office.
- The principle goal is to gain an understanding of the intricate supply chain network supporting the development, production, and sustainment of products and services across the defense, intelligence, civil, and commercial space sectors.
- Objectives:
 - a) Map the space industrial base supply chain in unprecedented detail;
 - b) Identify interdependencies between respondents, suppliers, customers, and USG agencies;
 - c) Benchmark trends in business practices, competitiveness issues, financial health, etc. across many tiers of the industrial base; and
 - d) Share data with USG stakeholders to better inform strategic planning, targeted outreach, and collaborative problem resolution.

Overview of Respondents

Respondents by Type of Organization	
Commercial Companies	3,585
Universities	125
Non-Profit Organizations	49
U.S. Government Agencies	21
Total	3,780

62% of respondents are small businesses, as defined by the Small Business Administration

Respondents by Average Annual Net Sales (2009-2012)	
Very Small (Less than \$10M)	1,648
Small (\$10 – 50M)	929
Medium (\$50 – 250M)	498
Large (\$250M – 1B)	234
Very Large (Greater than \$1B)	165
No Sales	306

Structure of the DOC Survey

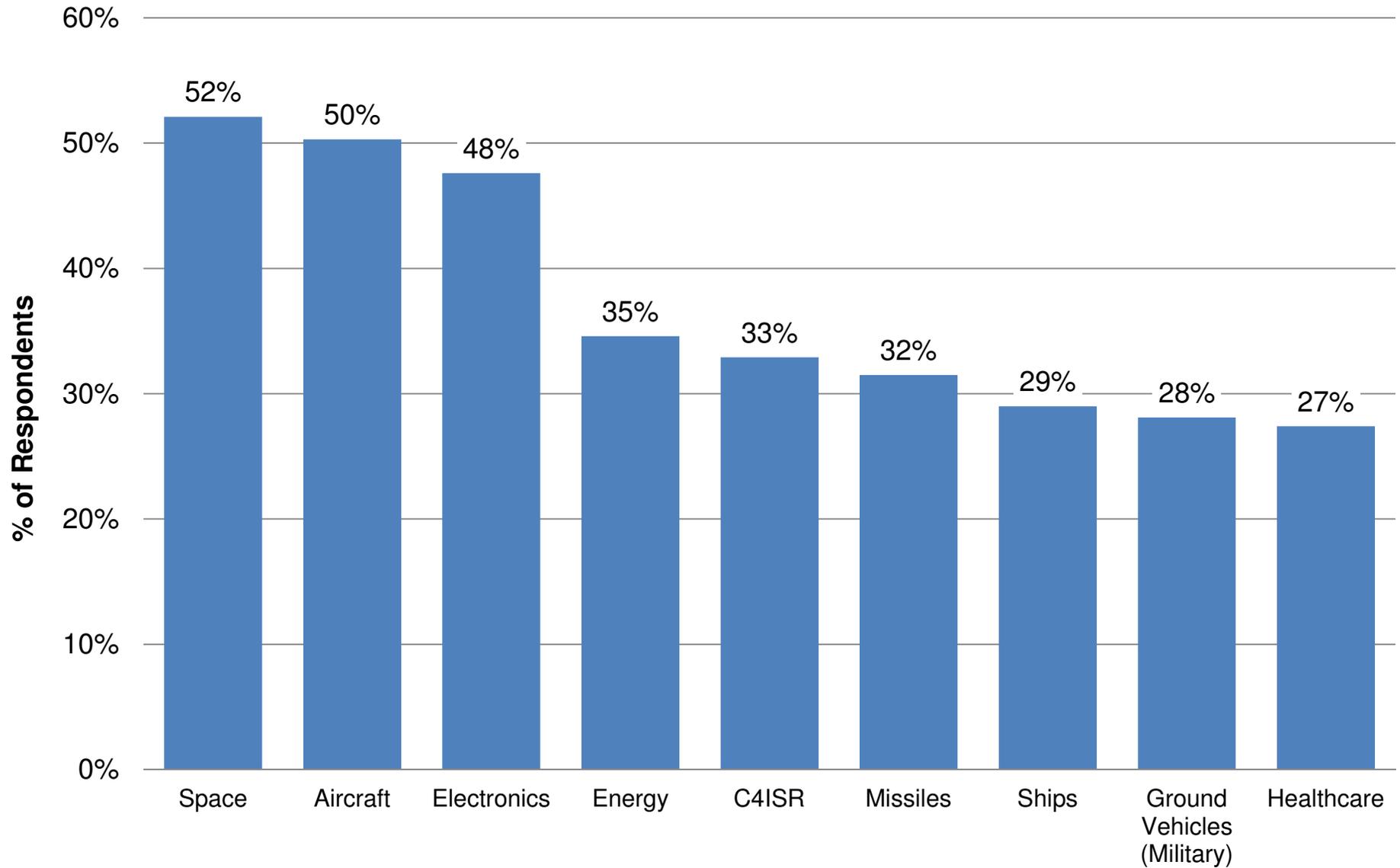
Created 16 general segments comprised of 360 individual products & services.

Product and Service Segments:

- | | |
|--|--|
| A. Spacecraft & Launch Vehicles | I. Power Sources & Energy Storage |
| B. Propulsion Systems & Fuels | J. Electronic Equipment |
| C. Navigation & Control | K. Computer Hardware & Robotics |
| D. Communications Systems | L. Software |
| E. Space Survivability, Environmental Control/Monitoring, and Life Support | M. Materials, Structures, and Mechanical Systems |
| F. Payload Instruments & Measurement Tools | N. Manufacturing Tools & Specialty Equipment |
| G. Ground Systems | O. Services |
| H. Non-Earth Based Surface Systems | P. Research & Development |

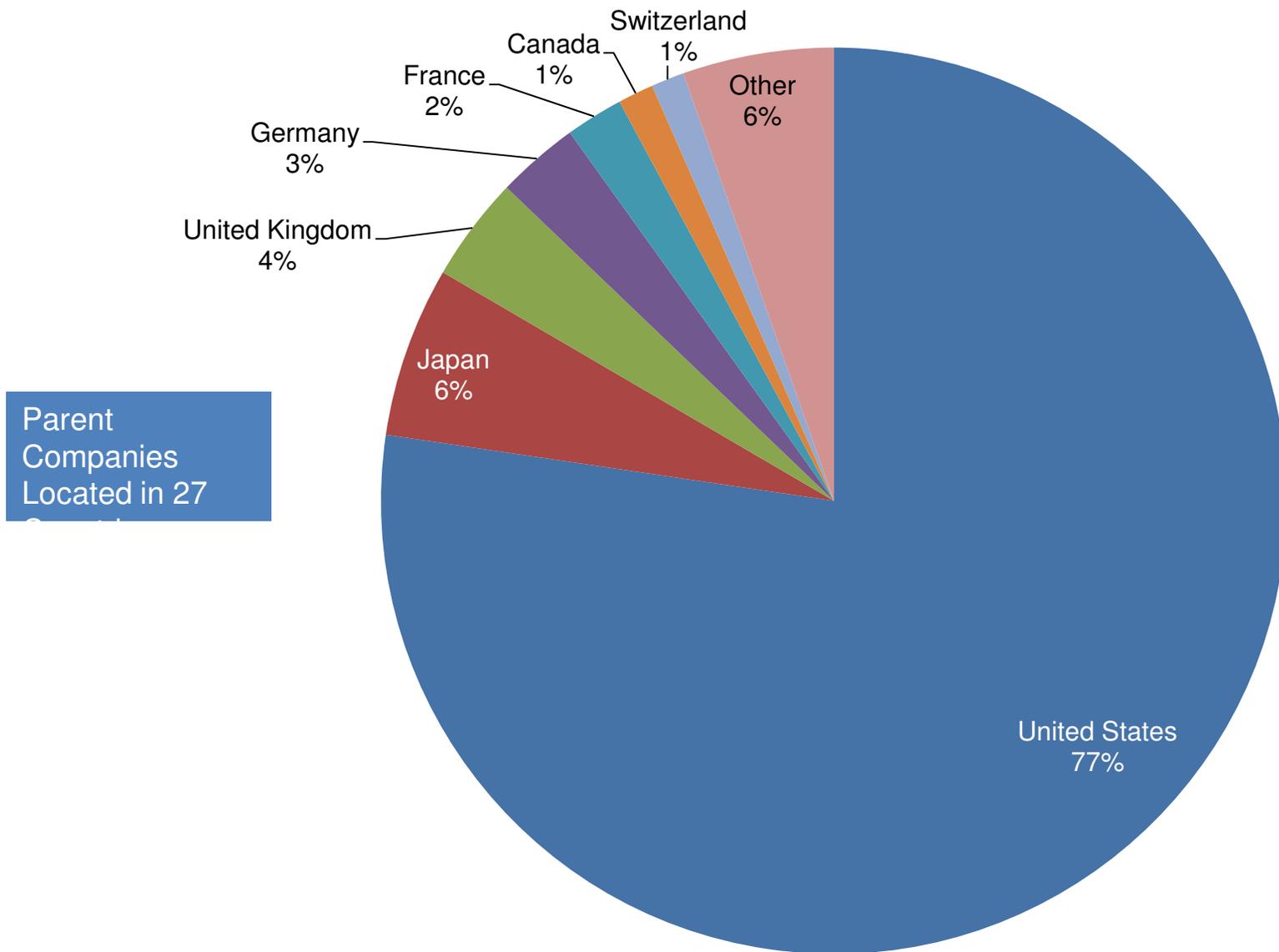
Respondents detail their critical suppliers, customers, and involvement in over 205 USG space programs.

Involvement in Market Segments



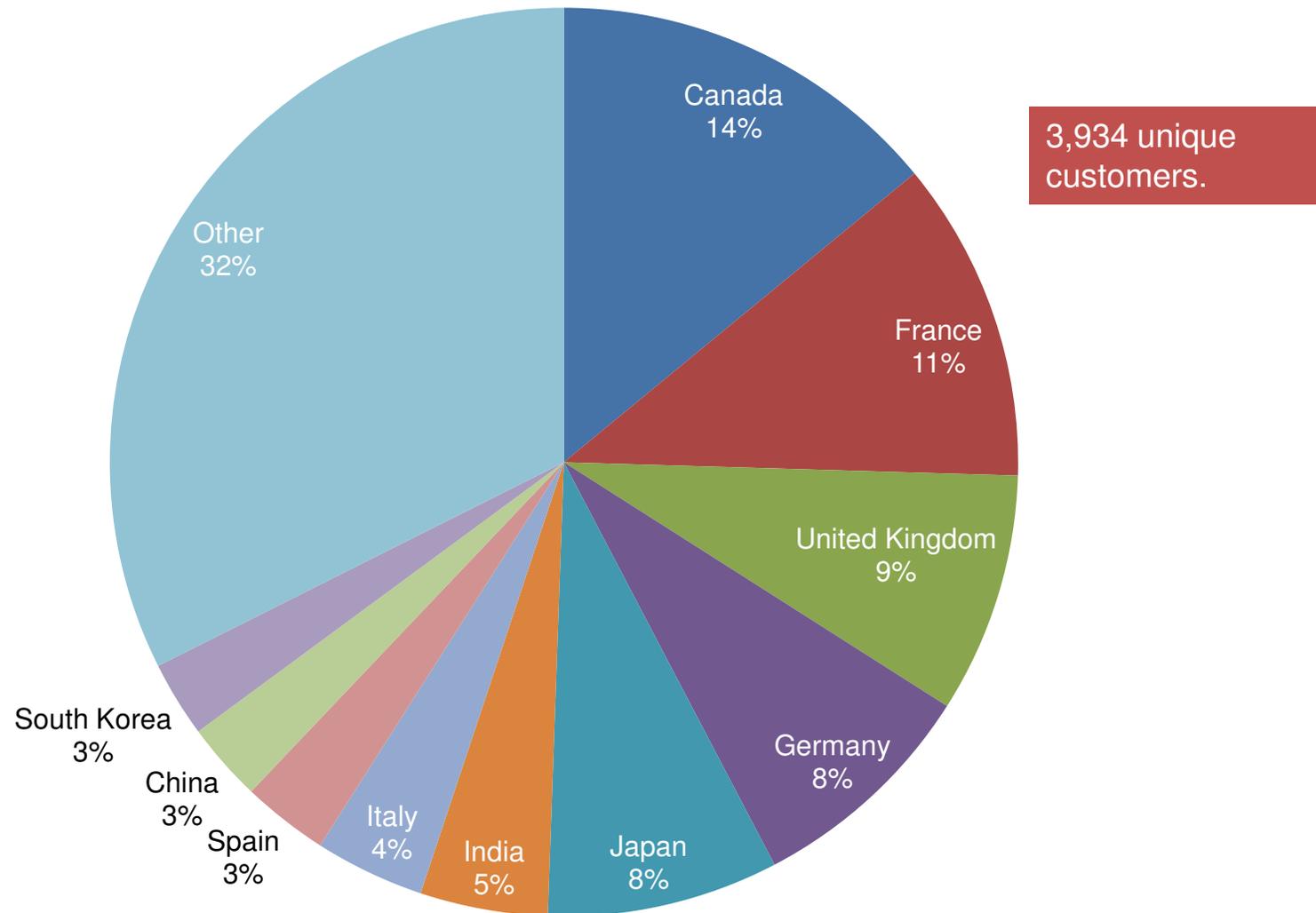
Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, September 2014.

Location of Respondents' Parent Companies



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

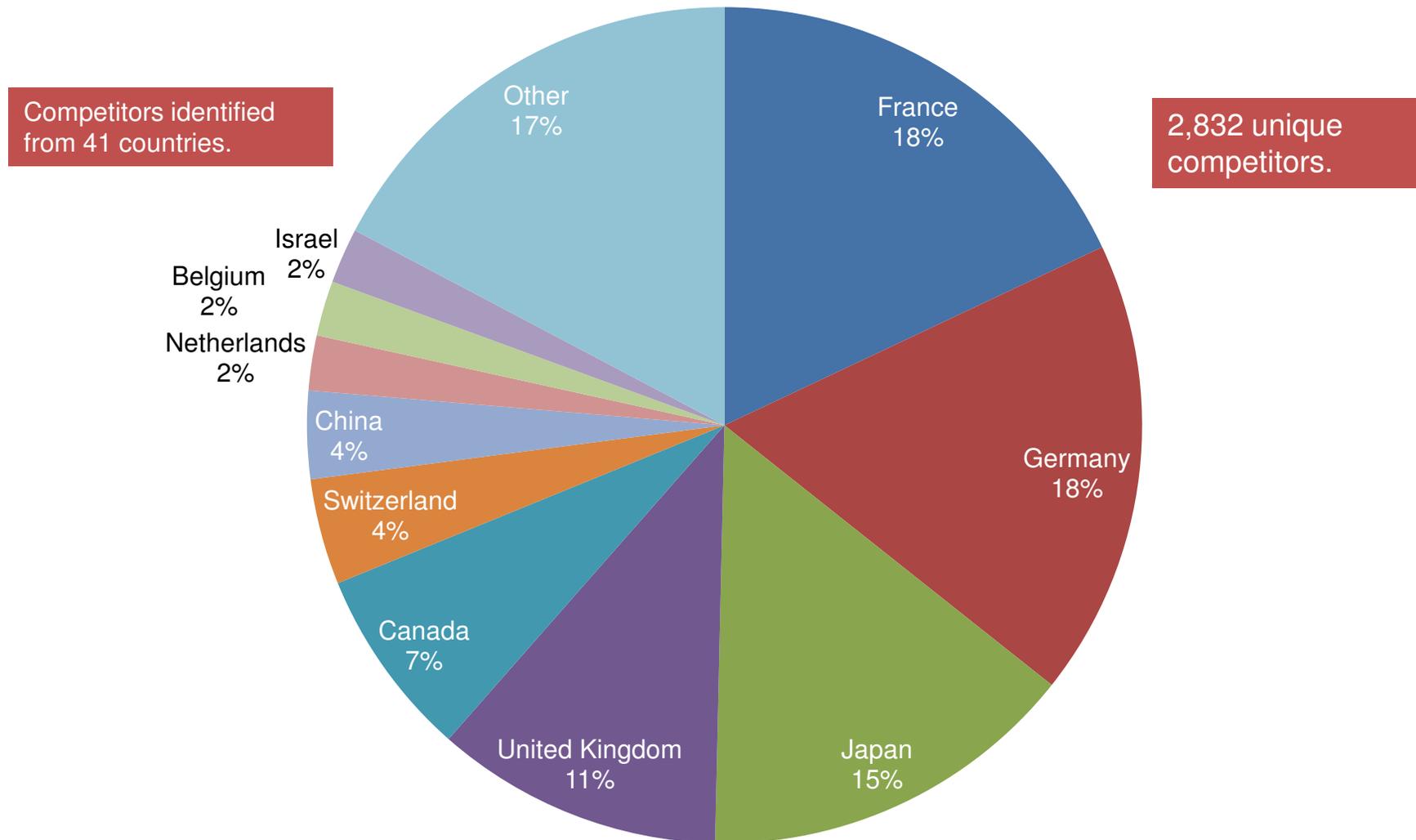
Location of Non-U.S. Based Space-Related Customers*



* As a percentage of the total number products and services provided,

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

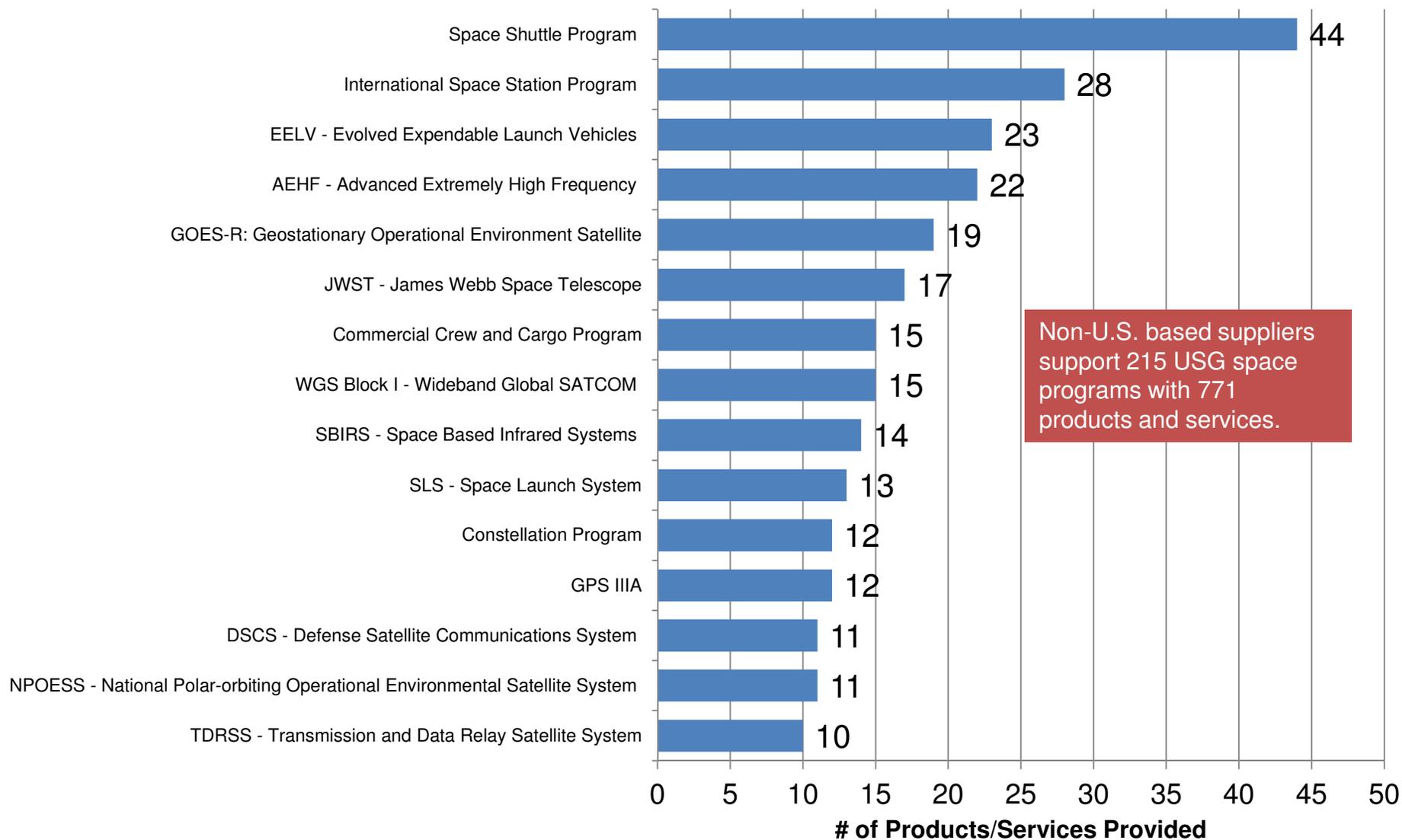
Location of Non-U.S. Based Competitors*



* As a percentage of the total number of mentions.

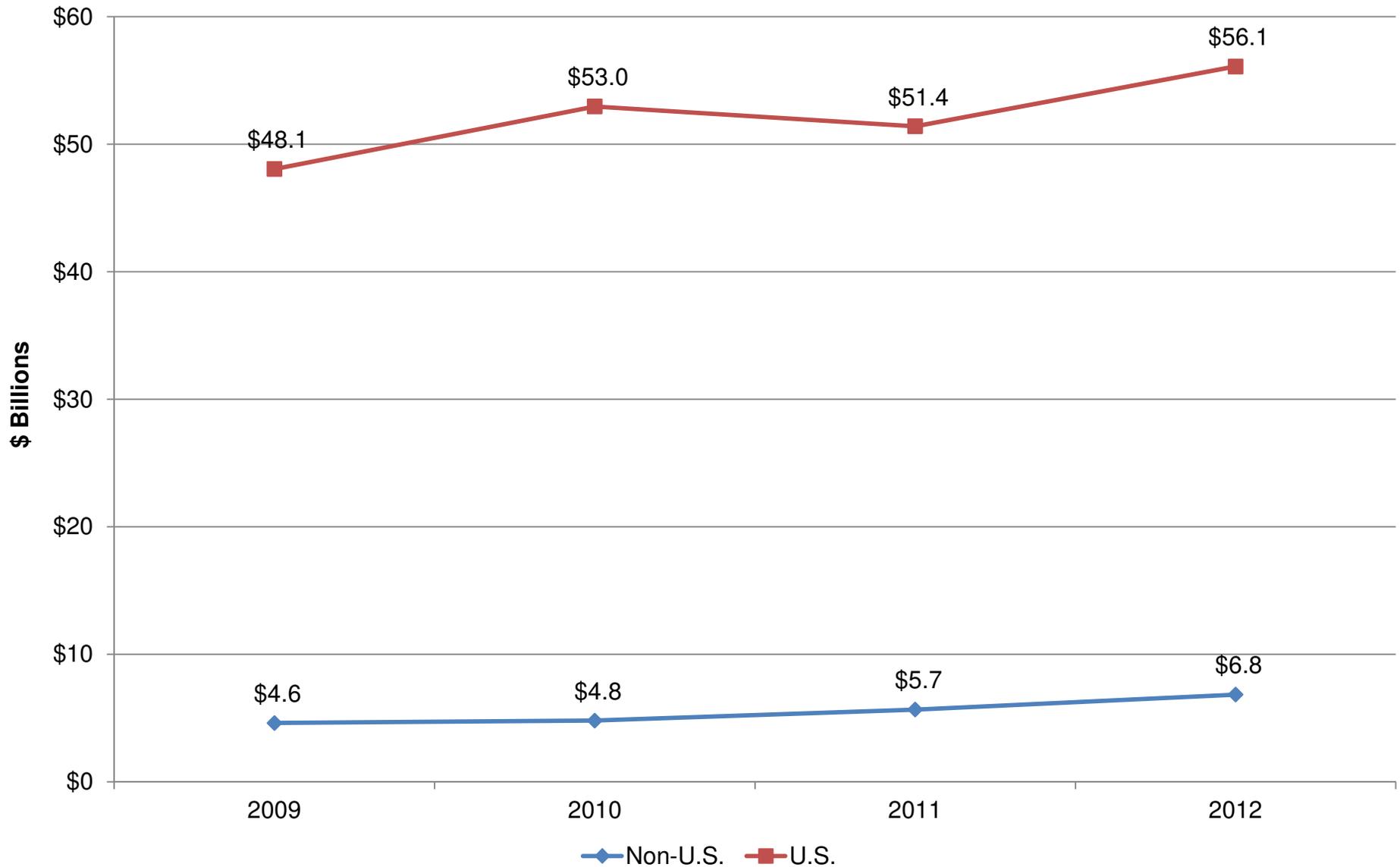
Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, September 2014.

USG Space Programs with the Greatest Non-U.S. Based Supplier Support



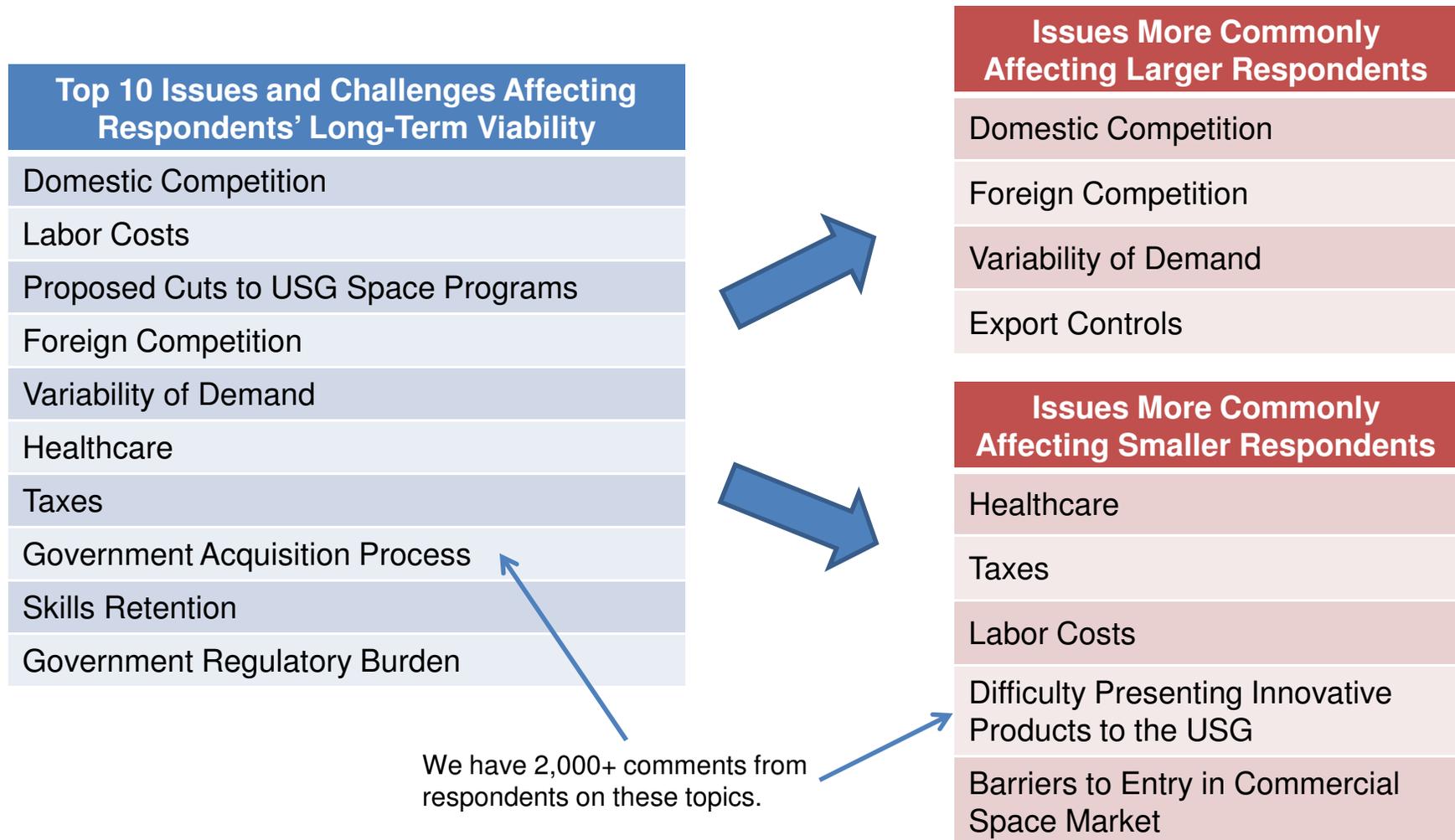
Source: U.S. Department of Commerce, Bureau of Industry and Security,
U.S. Space Industry Deep Dive Assessment, September 2014.

Total Space-Related Sales by Location (2009-2012)



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

Strategic Environment: “Understand the Collective Problem”

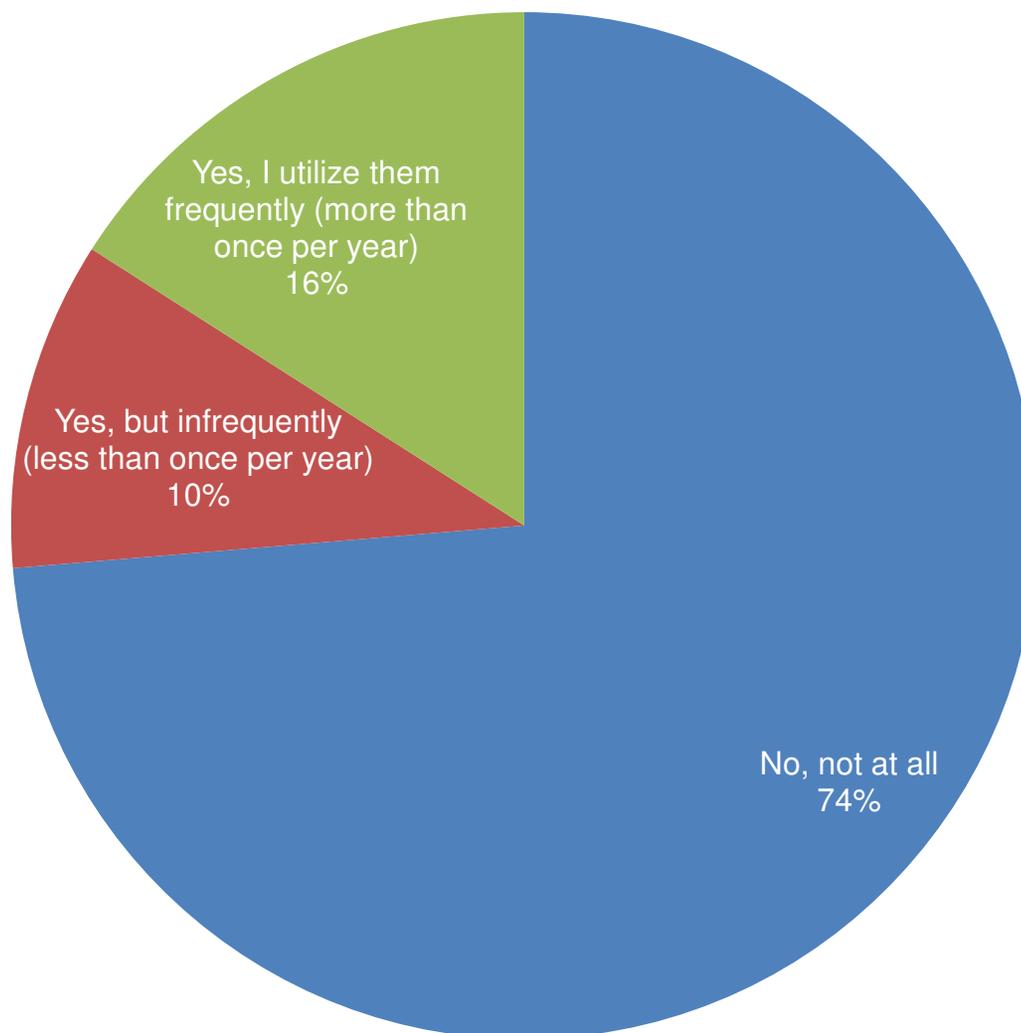


Source: U.S. Department of Commerce, Bureau of Industry and Security, *U.S. Space Industry Deep Dive Assessment*, September 2014.

Use of U.S. Export Control System (ITAR/EAR) for Space-Related Products/Services

995 respondents utilized the export control system in some form

519 of those respondents are self-identified small businesses



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

Impacts of U.S. Export Regulations on Space-Related Products and Services

Impact	% of Respondents*
Avoided the export of space-related products or services subject to ITAR-related controls	25.7%
Incentivized non-U.S. organizations to “design-out” or avoid buying U.S. origin space-related products or services	22.5%
Incentivized non-U.S. organizations to offer “ITAR-free” space-related products or services	19.7%
Avoided the export of space-related products or services subject to EAR-related controls	15.2%
Contributed to the creation of non-U.S. companies/business lines in direct competition with the organization’s space-related products or services	12.9%
Altered space-related R&D expenditures	10.1%
Caused the abandonment or alteration of space-related business lines	8.3%
Caused re-location of space-related production/R&D facilities outside the United States due to regulatory burdens	1.9%

* Based on 995 respondents that utilize the U.S. export control system for space-related products.

Location of Top Space-Related Customers*

Canada
France
United Kingdom
Germany
Japan
India
Italy
Spain
China
South Korea
Russia
Israel
The Netherlands
Australia
Sweden
Mexico
Brazil
Singapore
Turkey
Norway
* Based on total number of products/services sent to customers in each country.

Space-related exports to highlighted country destinations may be eligible for Strategic Trade Authorization (STA) license exception.**

754 non-U.S. customers identified in the 13 highlighted countries.

** Only includes countries in Country Group A:5

Potential Impact of Export Control Reform

- Based on proposed regulations, OTE identified 155 product/service areas in the survey that *may* move to the CCL under Export Control Reform
- 1,941 respondents provide at least one of these 155 product/service areas
 - 1,288 of these respondents do not currently utilize the U.S. export control system for space-related products/services
 - 865 of those 1,288 respondents are small businesses

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- **For further results from this assessment, see:**
www.bis.doc.gov/SpaceDeepDiveResults

