Consumers of U.S. Commercial Electro-Optical (EO) Satellite Imagery

August 2013

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U.S. Department of Commerce
Bureau of Industry and Security
Office of Technology Evaluation

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http://www.bis.doc.gov/

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Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 1: PROJECT OVERVIEW

- PROJECT PARTNERS, GOALS, AND OBJECTIVES
- SELECT FINDINGS

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Project Background

- The Bureau of Industry and Security's (BIS) Office of Technology Evaluation (OTE) partnered with the National Geospatial-Intelligence Agency (NGA) and the National Oceanic and Atmospheric Administration (NOAA) to conduct an assessment of the consumers of U.S. commercial electro-optical (EO) satellite imagery.

- The principal goal of this data collection and assessment was to evaluate the current market behavior of these imagery consumers as well as providers of products, technologies, and services facilitating the usage of that imagery based on a constrained U.S. Defense Department budgetary environment.

- For purposes of this survey U.S. commercial EO satellite imagery was defined as:
  - The portion of imagery collected by NOAA-licensed private remote sensing satellite operators that is universally available to commercial customers with few or no restrictions. This definition applies to "unenhanced data" as defined by statutory law, as well as to products derived from unenhanced data that are intended for unrestricted commercial sale.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Assessment Objectives

- Develop an understanding of the consumer organizations that participate in the U.S. commercial EO satellite imagery industry.
- Document the characteristics, uses of imagery, and practices of users of commercial satellite imagery, as well as of providers of enabling products and services.
- Benchmark trends in business practices and reliance on imagery by type of organization.
- Analyze the impact of proposed Defense Department budget cutbacks and the consolidation of U.S. EO satellite imagery providers on consumers of this imagery and providers of enabling products, technologies, and services.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Select Findings

- The 98 BIS survey respondents represent a broad array of consumers of commercial EO satellite imagery and providers of enabling products, technologies and services. Respondents were grouped into four categories based on their primary area of business in the imagery industry: Imagery Resellers/Providers (14 organizations); Analysis and Related Tools (49); Engineering/Support Services (20); and Universities/Non-Profits (15).

- The majority of respondents did not purchase imagery themselves, but are nonetheless a significant part of the commercial EO satellite imagery industry, using imagery provided by clients or customers, or providing vital support services such as data management and engineering.

- Between 2008 and 2012, respondents reported having purchased $193.1 million worth of EO satellite imagery, a figure that BIS estimates represents up to one-third of the U.S. commercial EO satellite imagery market.

- Satellites being launched by other countries provide a new challenge to U.S. leadership in the commercial EO satellite imagery industry. The recently launched French-based Pléiades satellites, for example, provide imagery with resolutions that approach the current U.S. commercial limits of 0.5 meters.

- Respondents reported their imagery-related sales grew at a rapid pace between 2008 and 2012, rising 74%, to $1.2 billion annually. Total sales reported by respondents in 2012 were $15.9 billion.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Select Findings (continued)

- Imagery-related employment also expanded rapidly, from roughly 4,300 employees in 2008 to 7,600 in 2012, a 76% increase. Even the 23% of respondents reducing their overall employee headcount over the period reported having increased imagery-related employment by 22%.

- When asked about the impact of the 2006 U.S. industry consolidation (from three to two EO satellite operators), 18 respondents provided feedback, many of whom reported a positive effect in areas such as sales revenue and participation in contracts, though often combined with increased costs.

- Respondents were also asked to assess the potential impacts of two possible future scenarios. The first of these—a sudden decrease in the number of U.S.-based commercial EO satellite operators—has since come to pass with DigitalGlobe's purchase of GeoEye.

- Many of the 69 respondents providing feedback were pessimistic about this scenario, predicting decreases in revenue, number of product lines, and contract participation, and increases in costs and lead times.

- Respondents expected even greater impacts from the second scenario, in which they would only be able to purchase imagery from non-U.S.-based providers. 44% of these 67 respondents expected a decrease in Quality of Imagery, and 47% predicted Decreased Sales Revenue.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Select Findings (continued)

- Imagery Resellers/Providers were most pessimistic of the four business categories on the expected impacts of Scenario 2: 78% expected increased Lead Times, 70% expected decreased Sales Revenue, and 67% expected decreased Quality of Imagery.

- Many respondents provided written feedback on the challenges facing consumers of commercial EO satellite imagery, with the bulk of these comments focusing on three areas: a (then potential) DigitalGlobe-GeoEye merger, U.S. government (USG) restrictions on sales, and uncertainty on the role the USG would play in the industry's future.

- Comments on the potential of a DigitalGlobe-GeoEye merger were almost universally negative. Respondents noted such a merger would restrict the supply of imagery, result in decreased R&D investments, and reduce the opportunities for sales.

- Several respondents commented that USG restrictions on sales of high resolution imagery and satellites resulted in significant losses of sales and potential sales.

- Many respondents also expressed concern about the role of the USG in the EO satellite industry, with uncertainty about the future of government financial support being a primary concern.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 2: SURVEY DESIGN AND RESPONDENT PROFILE

- SURVEY AUTHORITY, DEVELOPMENT, AND DESIGN
- CATEGORIZATION OF RESPONDENTS
- PRIMARY METHODS OF ACQUIRING COMMERCIAL SATELLITE IMAGERY

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Department of Commerce Survey and Assessment Authority

- Defense Production Act of 1950, as amended (DPA) and Executive Order 13603 provide broad authority to analyze:
  - Economic health and competitiveness
  - Defense capabilities and readiness
- Conduct surveys and assessments of industry and organizations
  - Data Collection Authority under Section 705 of the DPA
  - Surveys cleared by Office of Management and Budget under the Paperwork Reduction Act
  - Data is exempt from Freedom of Information Act (FOIA) requests
- Enable industry and government agencies to:
  - Monitor trends and benchmark industry performance
  - Raise awareness of diminishing manufacturing and technological capabilities
- Assessments initiated for the Military Services, other Government Agencies, Industry Associations, Congress, and other interested parties.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Survey Development Process

- Upon initiation of the assessment, the Bureau of Industry and Security (BIS) undertook a number of steps to better understand the industry:
  - Held discussions with industry groups—most notably the United States Geospatial Intelligence Foundation (USGIF)—and government organizations (NOAA and NGA) that are familiar with the industry.
  - Conducted field visits with organizations that create and utilize commercial EO satellite imagery. These organizations provided background support and technical guidance to BIS.
  - Additional information to support survey design, including development of an industry mailing list and resolution of technical issues, was garnered from contact with commercial imagery experts via telephone and email.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Survey Design and Data Collection

- Survey questions were designed to capture a snapshot in time of trends in sales, research and development, capital expenditures, and employment for the 2008-2012 period.
- The survey also addressed broader topics such as commercial EO satellite imagery procurement and applications, and the implications of USG programmatic budget scenarios on organizational operations.
- BIS field tested the draft survey for accuracy and usability with a number of USG organizations and commercial imagery users and providers of enabling products, technologies, and services.
- The aggregate data provides an effective tool for performing trend analyses necessary to inform stakeholders on how U.S. commercial EO satellite imagery is being supported and utilized.
- In addition, the data assists our partner agencies in evaluating the size and market behavior of the organizations that consume and enable the use of U.S. commercial EO satellite imagery.
- Data collected through the survey was supplemented with information gathered from site visits, discussions with industry and government experts, participation in related conferences and technical sessions, and analysis of publicly available data.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Consumers of U.S. Commercial Electro-Optical (EO) Satellite Imagery

- Stakeholders in the U.S. commercial EO satellite imagery market were contacted via BIS survey for their input on the state of the industry and their perspective on the impact of potential changes in the structure of the EO satellite imagery industry.

- Ninety-eight organizations responded, representing a broad array of imagery resellers and users, and of providers of enabling products, technologies, and support services.

- Among the products, services, and technologies provided by consumers of EO satellite imagery were:

  - 3D Modeling
  - Analytics Software
  - Cameras
  - Cloud Computing Services & Support
  - Cyber Security/Encryption
  - Data Storage
  - Geographic Information Systems
  - Light Detection and Ranging (LiDAR)
  - Mission Ground Systems
  - Mobile Wireless Networking
  - Network Implementation & Infrastructure
  - Optics
  - Remote Sensing
  - Unmanned Vehicles
  - Visualization Software
  - Many Others

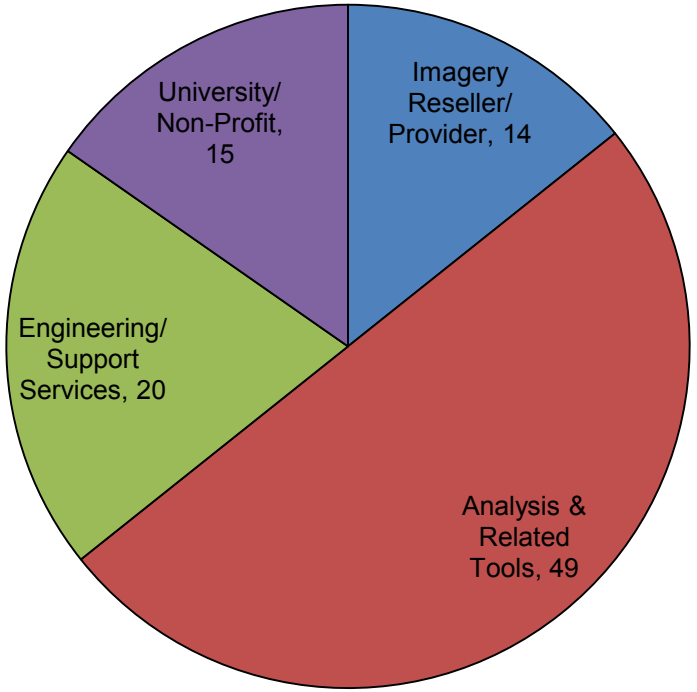
Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Consumers of U.S. Commercial Electro-Optical (EO) Satellite Imagery: Respondent Categorization

- The 98 survey respondents were classified into four business categories based on their primary business in the imagery industry:

- Imagery Reseller/Provider
  - Operators of EO satellites as well as organizations that purchase imagery from these operators and resell it.
- Analysis & Related Tools
  - Organizations providing analysis, modeling, and interpretation of imagery and related data, or software for enabling these services.
- Engineering/Support Services
  - Providers of satellite or ground system components or technical services in support of these operations.
- University/Non-Profit
  - Universities, Government Agencies, and Organizations operating on a not-for-profit basis.

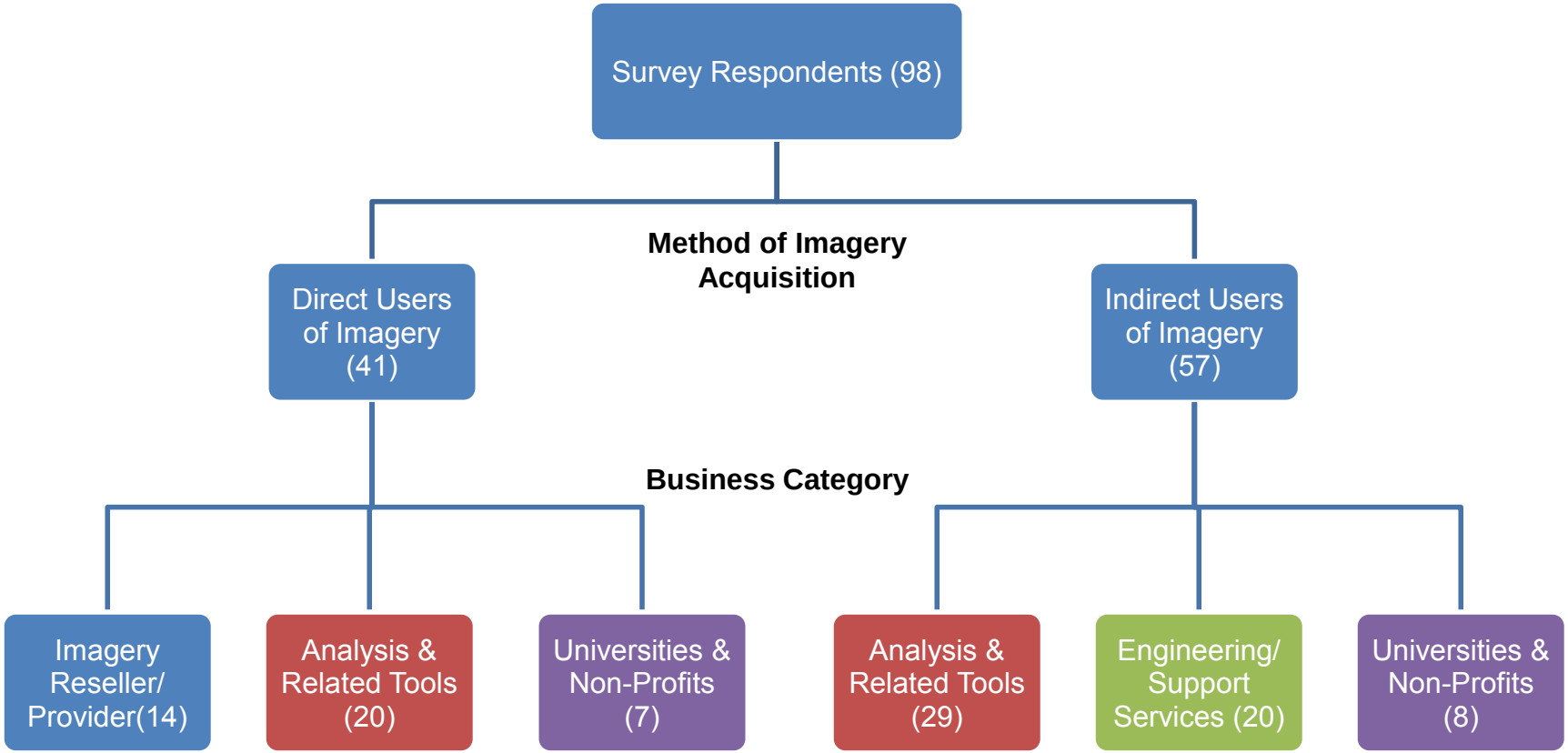
Survey Respondents' Primary Business Categories



98 respondents

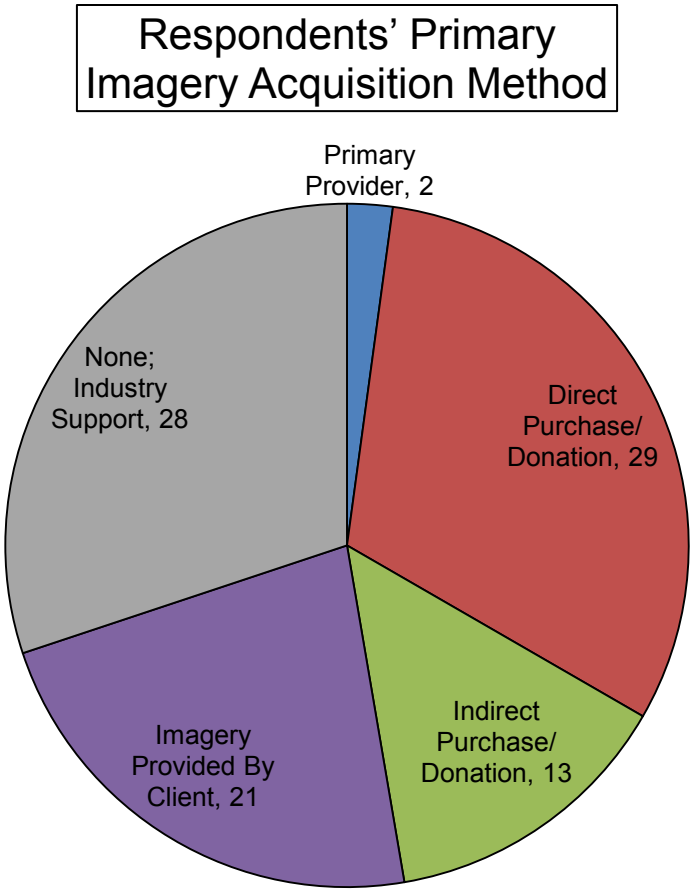
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Overview of Respondent Categorization



Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Primary Acquisition Method of Commercial EO Satellite Imagery 2008-2012



98 respondents; 5 respondents did not identify their method of imagery acquisition.

Respondents were also categorized based on their primary relationship with commercial satellite imagery:

- **Primary Provider**: Commercial EO satellite operators.
- **Direct**: Respondents who generally receive imagery directly from a primary provider.
- **Indirect**: Respondents who generally receive imagery from a reseller of imagery.
- **Provided by Client**: Respondents who do not purchase imagery, but instead use imagery that is provided by their customers as part of their contract.
- **None**: Over a quarter of the respondents do not use imagery themselves, but provide products, technologies, or services that are used in the commercial EO imagery industry.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

CHAPTER 3: PRODUCT & SERVICE AREAS

- TYPES OF PRODUCTS AND SERVICES PROVIDED
- BREAKDOWNS OF TOP AREAS PROVIDED, BY BUSINESS CATEGORY AND CUSTOMER TYPE

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Product and Service Areas

- Respondents were provided with a list of 47 Product and Service Areas (PSAs) related to commercial EO satellite imagery, and asked to select any PSAs in which they participated between 2008 and 2012.

- The list of PSAs included areas directly related to commercial EO satellite imagery, such as Geospatial Software and Image Processing, as well as supporting PSAs, like Cloud Computing Services and Information Management.

- For each PSA, respondents could also indicate the type of customer they served: U.S. Defense, U.S. Non-Defense Government, U.S. Commercial, Foreign Government/Commercial, and Other.

- A full list of the 47 PSAs is provided in Section 3 of the BIS Survey Instrument, found in Appendix A.

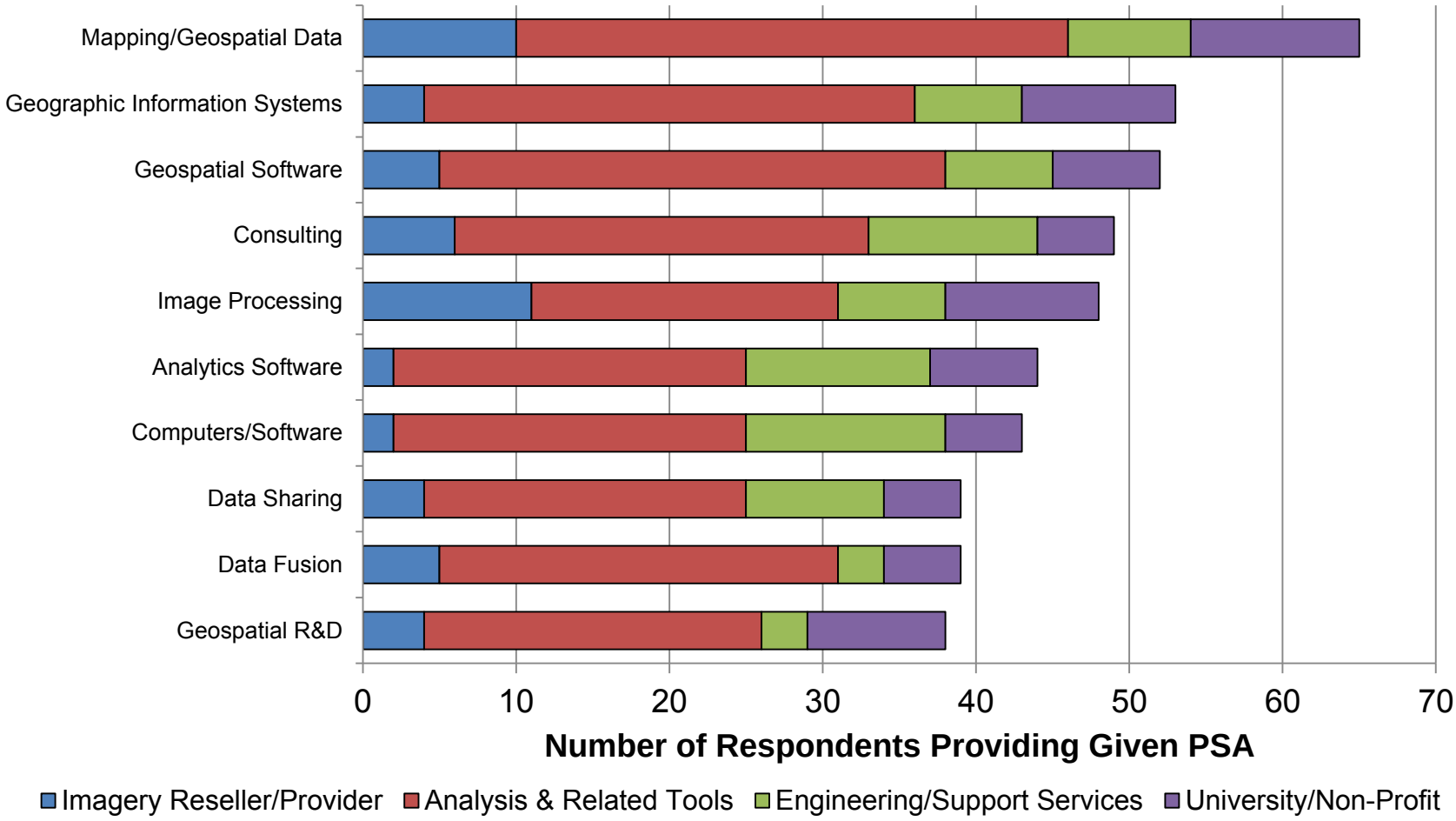
Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Product and Service Areas (continued)

- Respondents participated in an average of 13 PSAs, with some respondents participating in as many as 40.
- Each PSA was identified by at least four respondents, with all but three PSAs having 10 or more respondents indicating participation.
- The PSAs provided by the greatest number of respondents were related to imagery data and analysis, with the top three being:
  - Mapping/Geospatial Data
  - Geographic Information Systems
  - Geospatial Software
- The PSAs provided by the fewest respondents tended to be related to manufactured products:
  - Display Hardware
  - Optics
  - Cameras

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

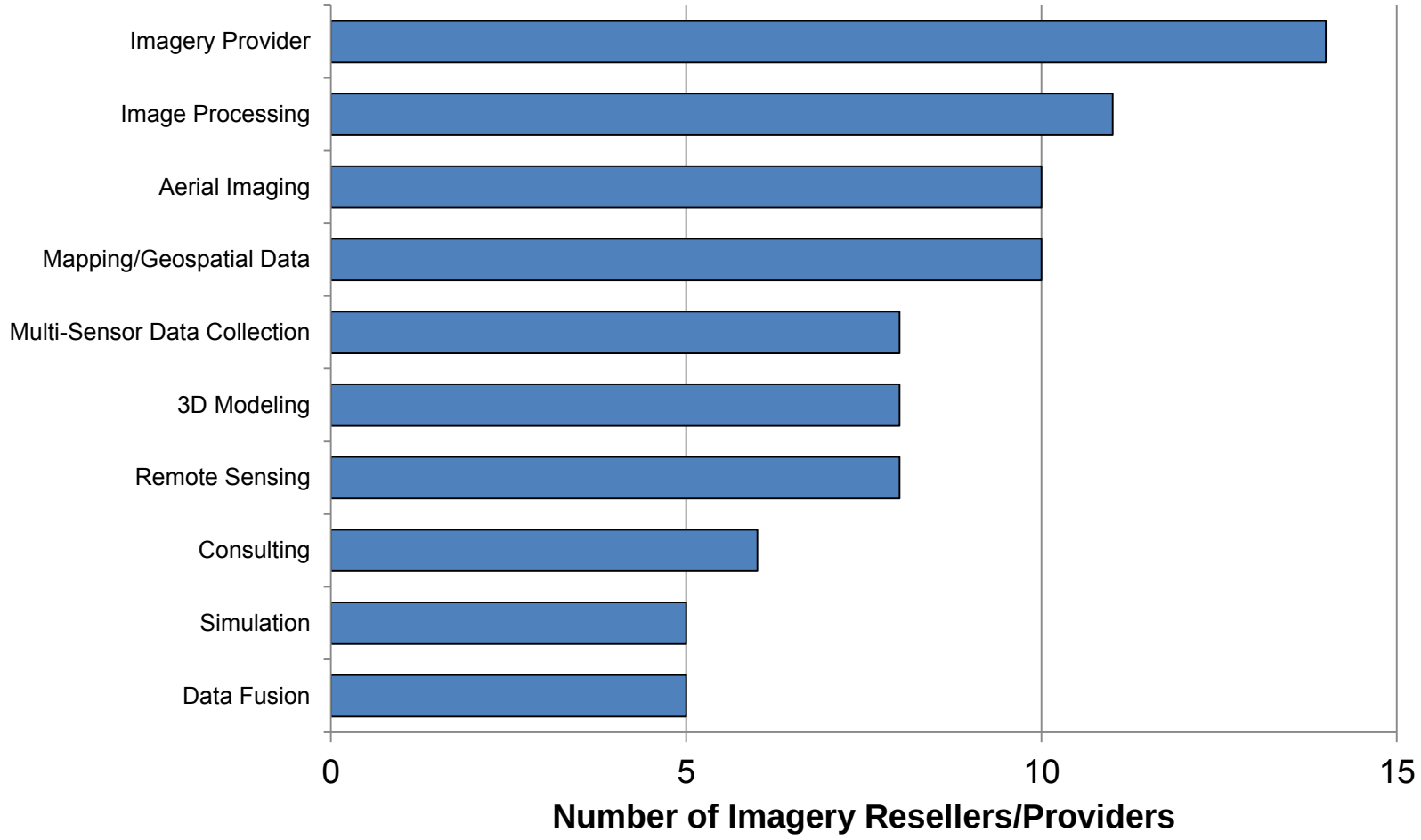
Top 10 Product and Service Areas, by Business Category



98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

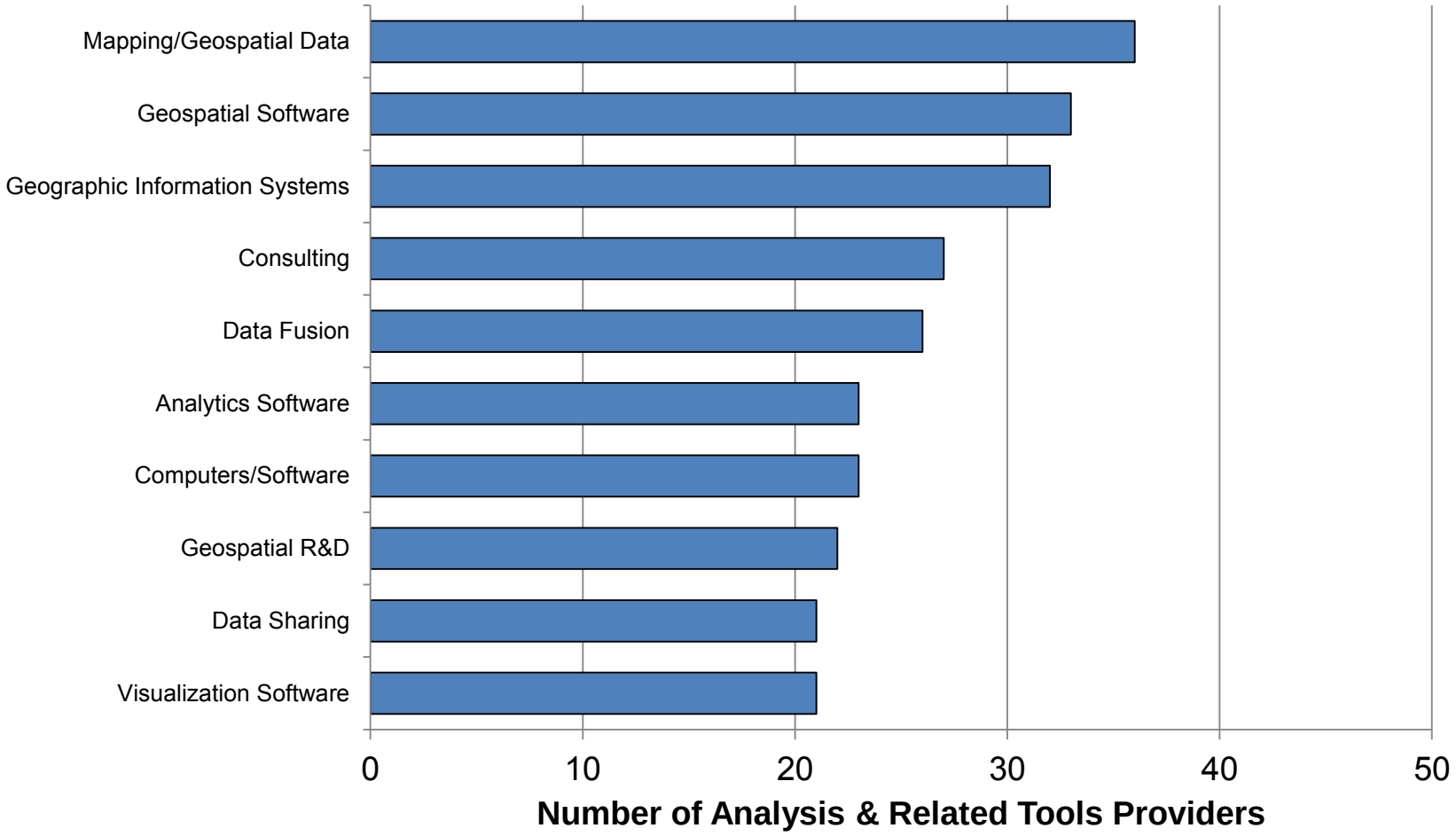
Top 10 PSAs Provided by Imagery Reseller/Provider Respondents



14 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

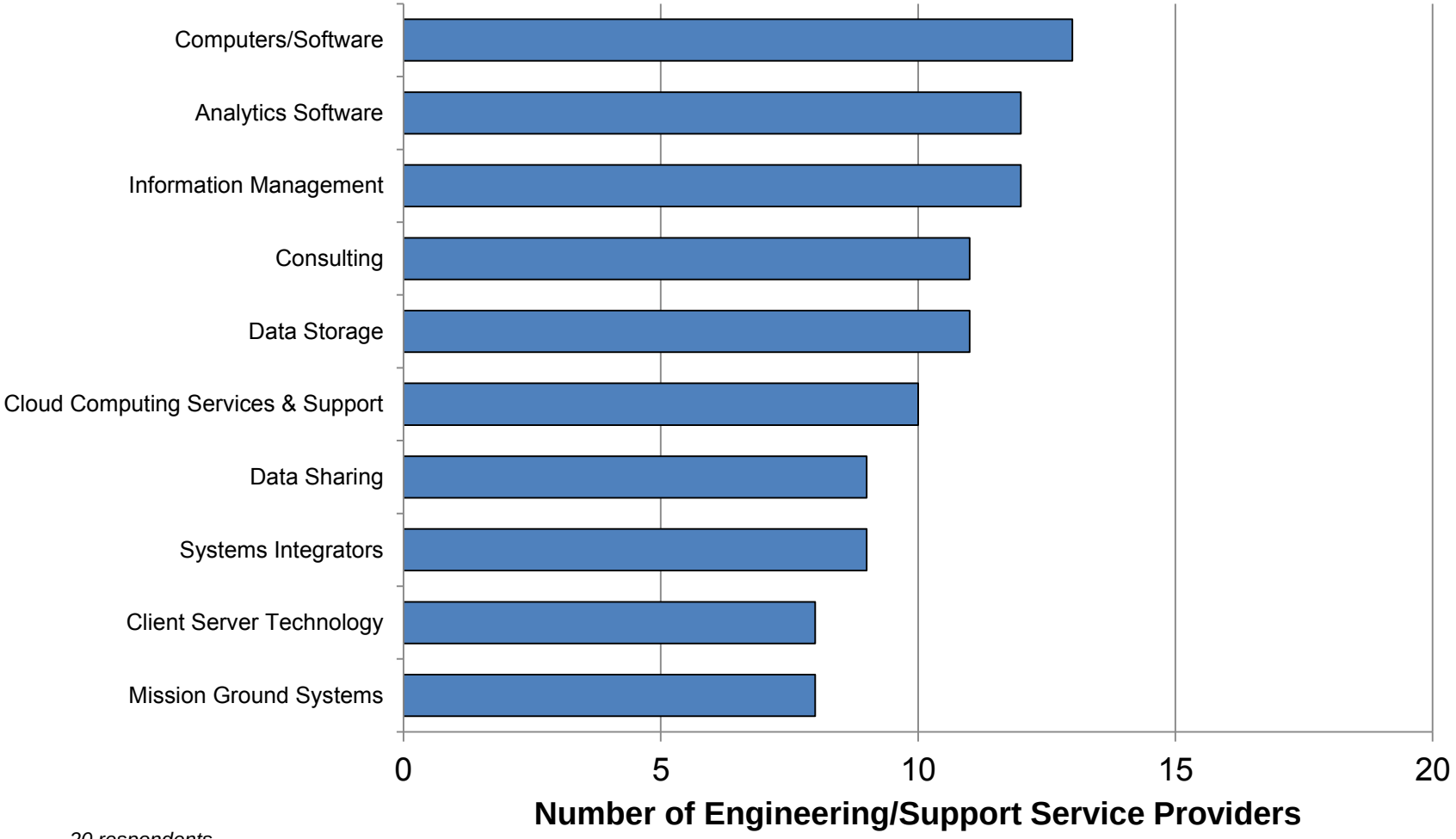
Top 10 PSAs Provided by Analysis & Related Tools Respondents



49 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

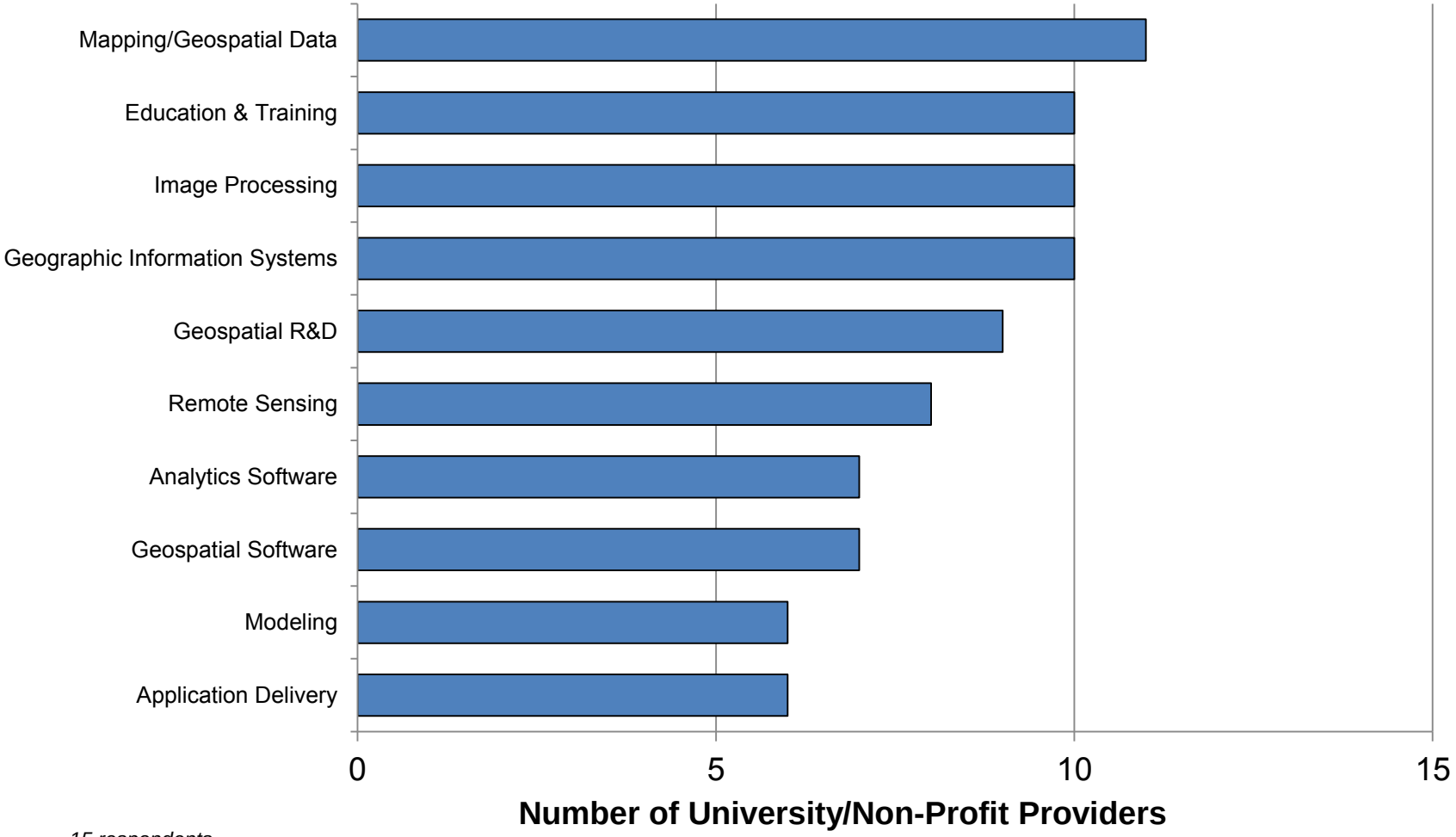
Top 10 PSAs Provided by Engineering/Support Services Respondents



20 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

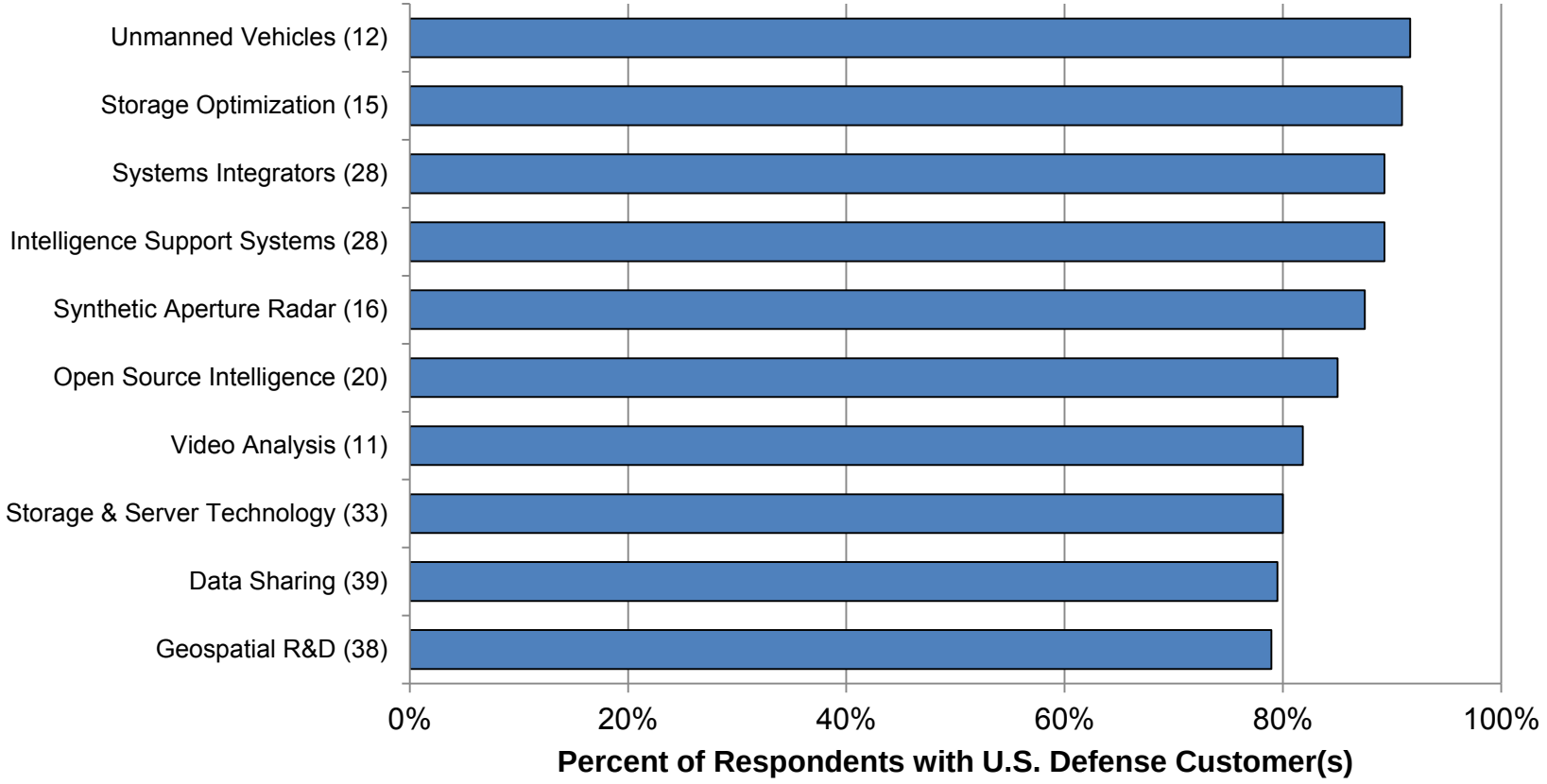
Top 10 PSAs Provided by University/Non-Profit Respondents



15 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Top PSAs Provided to U.S. Government Defense Customers*

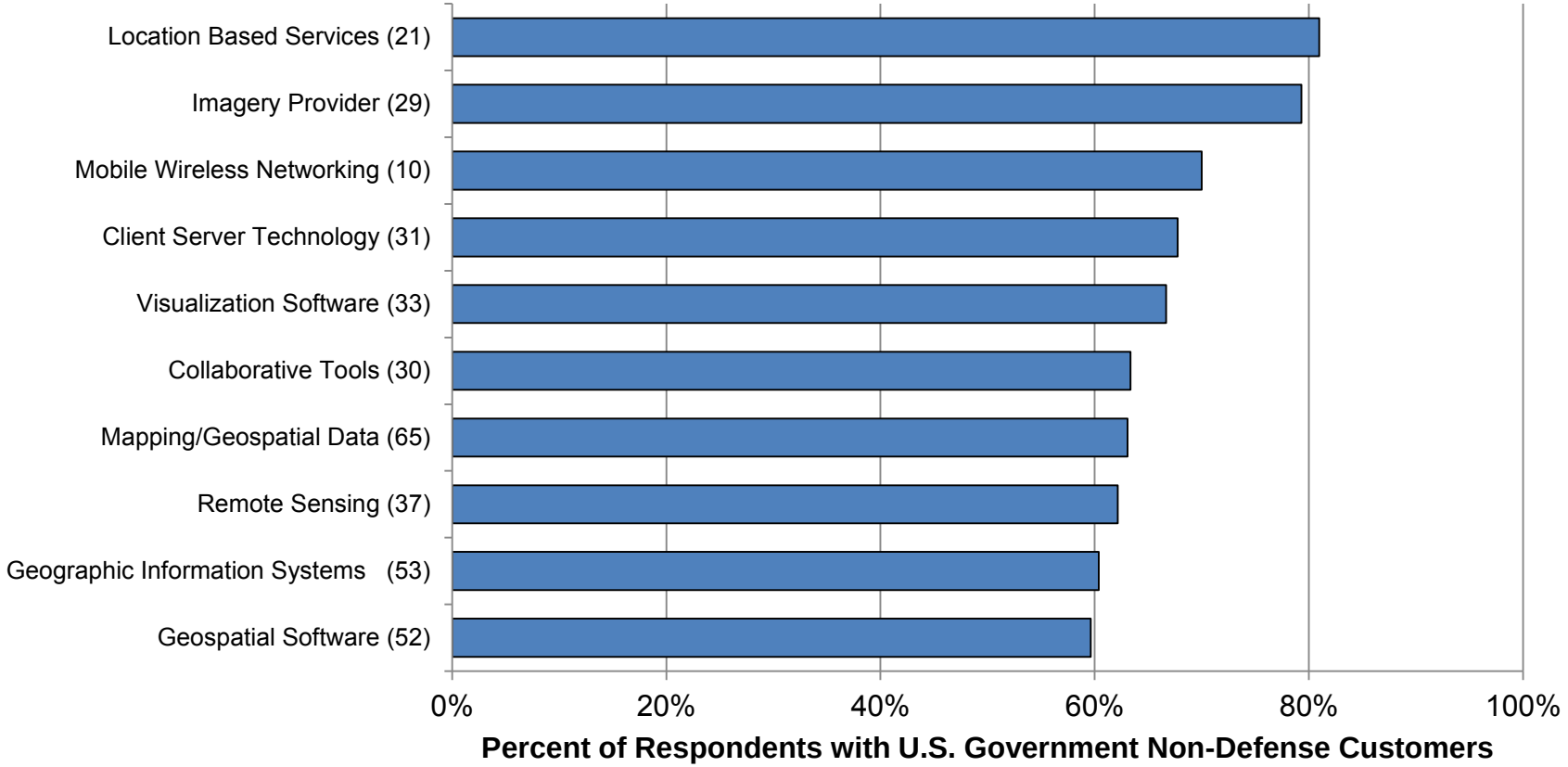


*minimum 10 participants, total respondents participating in each PSA in parentheses

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Top PSAs Provided to U.S. Government Non-Defense Customers*

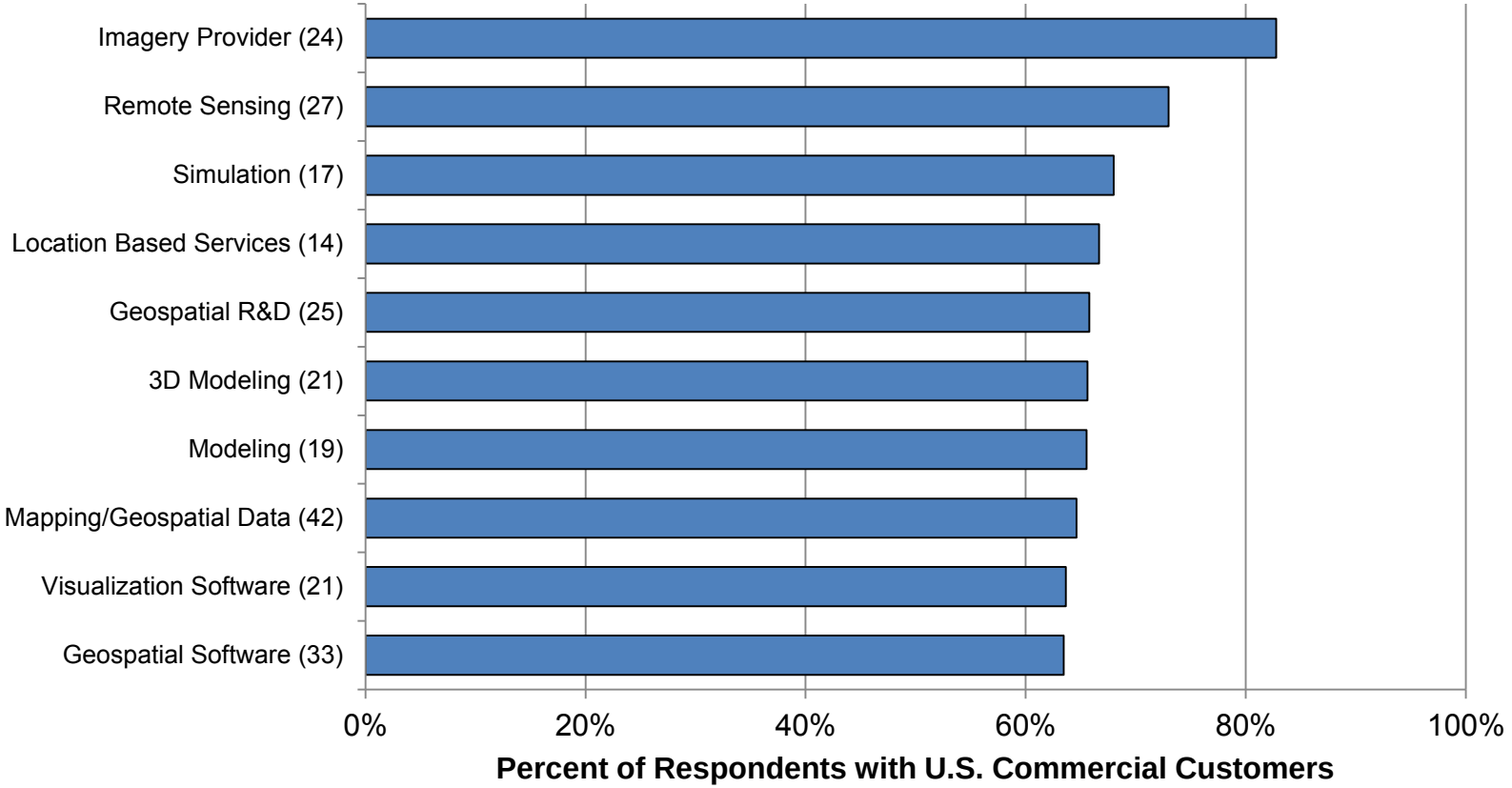


*minimum 10 participants, total respondents participating in each PSA in parentheses

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Top PSAs Provided to U.S. Non-Government Commercial Customers*

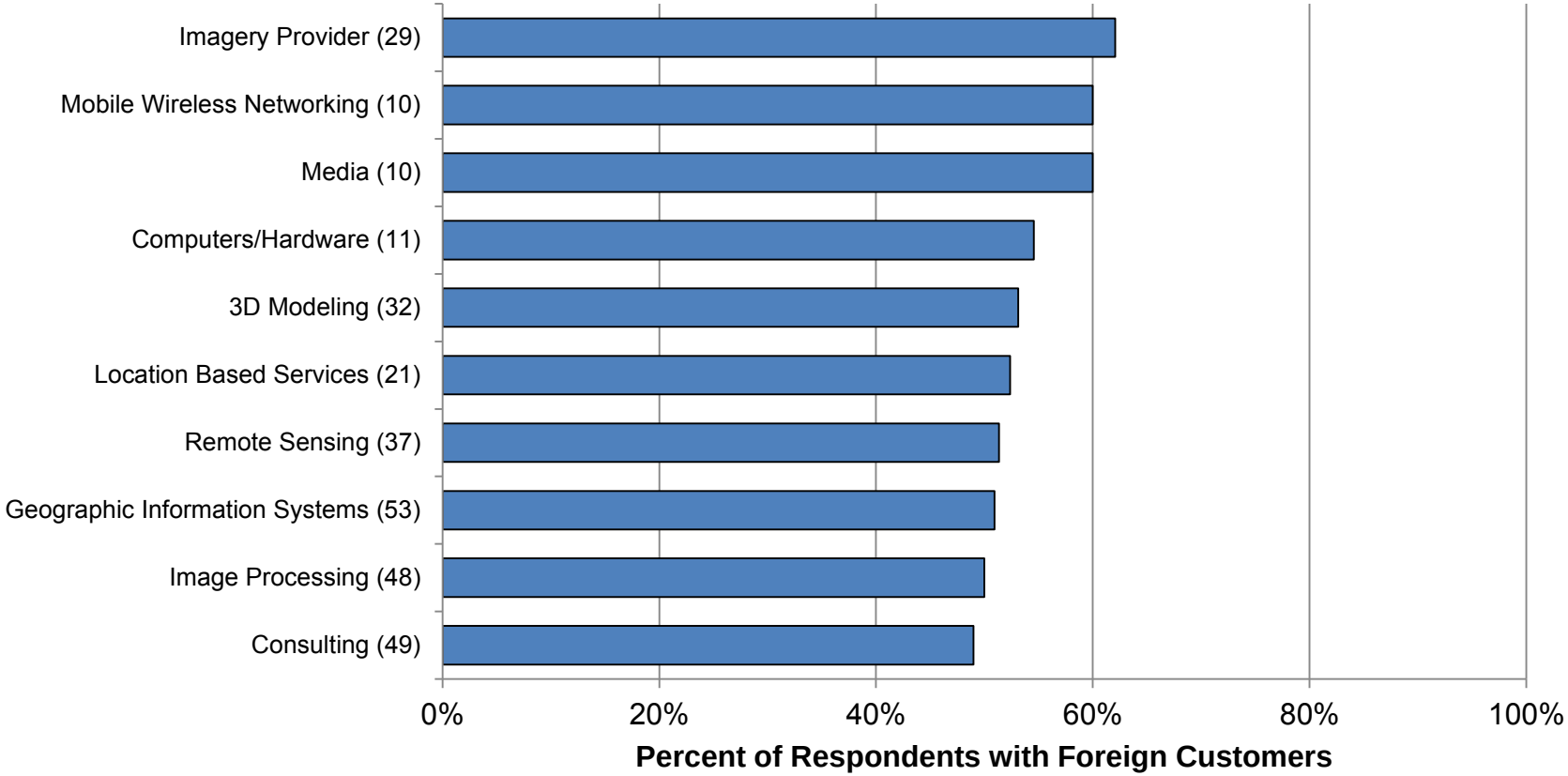


*minimum 10 participants, total respondents participating in each PSA in parentheses

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Top PSAs Provided to Foreign Customers*



*minimum 10 participants, total respondents participating in each PSA in parentheses

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 4: PURCHASES OF IMAGERY AND RELATED PRODUCTS AND SERVICES

- PURCHASES OF COMMERCIAL EO SATELLITE IMAGERY BY VALUE AND BY AREA
- PURCHASES OF PRODUCTS, TECHNOLOGIES, AND SERVICES RELATED TO SATELLITE IMAGERY
- DONATIONS OF IMAGERY

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Commercial Imagery Purchases

- Respondents were asked to identify the value of commercial EO satellite imagery they purchased in each year, both directly and indirectly.
- Thirty-eight respondents identified the value of imagery purchased between 2008 and 2012, 32 of whom purchased imagery directly.
- The remaining 60 indicated that their organization had not purchased satellite imagery during the five year period, or were unable to provide a value.
- Based on publicly available data, respondents to this survey represent an estimated 33% of the commercial EO satellite imagery market.*

*See Appendix C for details

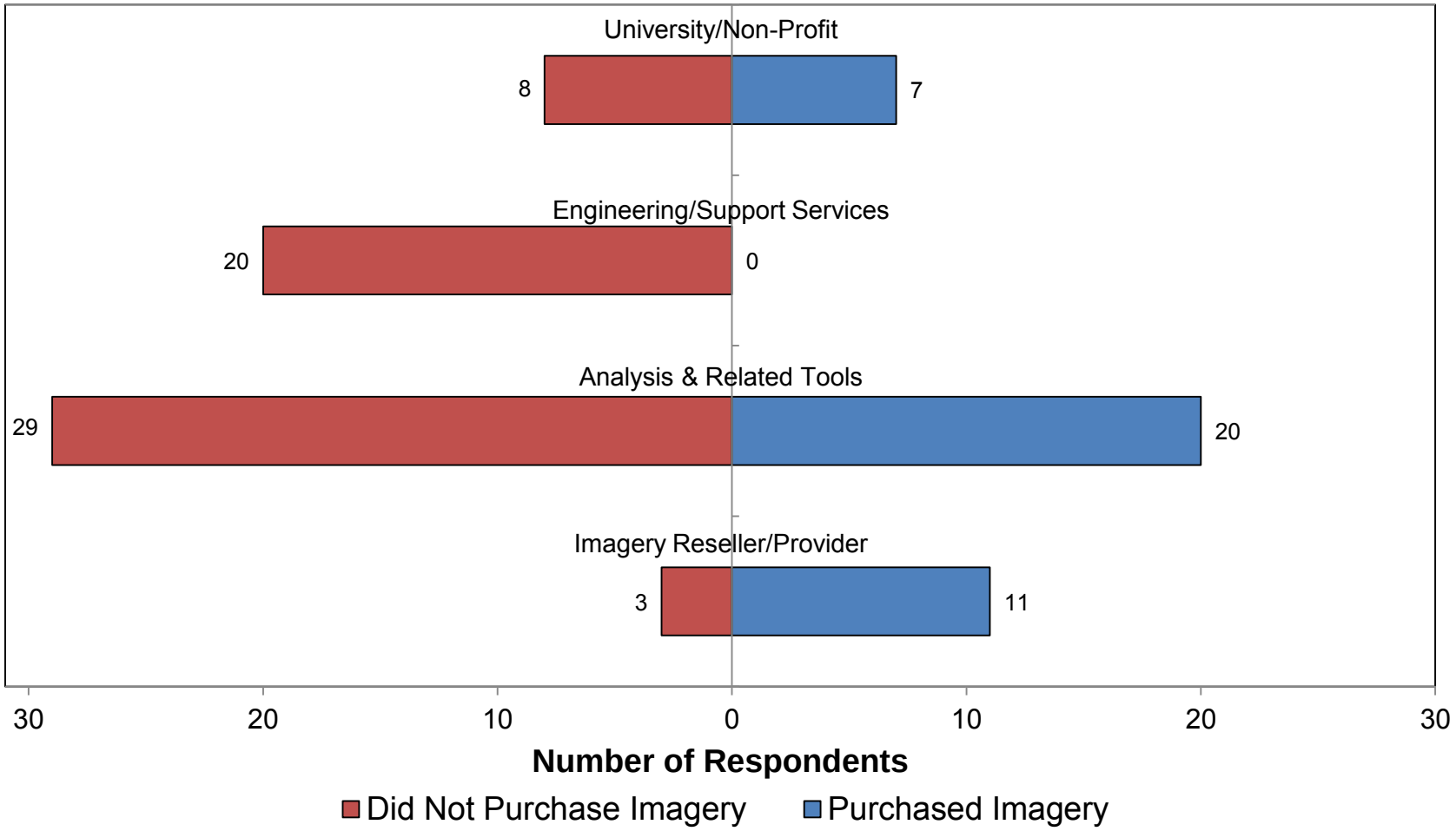
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Commercial Imagery Purchases

- Respondents not purchasing imagery were still participants in the industry, either through their provision of services to others or the use of imagery provided at no direct cost to their organization. Several of these respondents provided comments on their interactions with imagery:
  - "[Imagery] is Government Furnished Information to complete contractual engineering and analysis services." – *Engineering/Support Services, imagery-related products account for 9% of sales*
  - "Imagery … is provided [to us] by NGA under contract to produce products for them." – *Engineering/Support Services, imagery-related products account for 4% of sales*
  - "We provide engineering services … to assist in the development and integration of … satellite ground systems." – *Engineering/Support Services, imagery-related products account for 15% of sales*
  - "[We use] existing imagery and GIS resources our customers acquire to support enhanced visualization and collaboration capabilities." – *Engineering/Support Services, imagery-related products account for 95% of sales*
  - "All our activity using commercial imagery is performed by personnel working at U.S. Government worksites … All of our materials are sourced through the normal U.S. Government process. Therefore our company makes no acquisitions – directly or indirectly – of commercial imagery." – *University/Non-Profit*
  - "DigitalGlobe and GeoEye are primary suppliers to NGA, which in turn utilizes [our] services. [We do not] directly utilize this imagery." – *Analysis & Related Tools, imagery-related products account for 2% of sales*

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Respondent Purchases of Imagery by Business Category 2008-2012



98 respondents

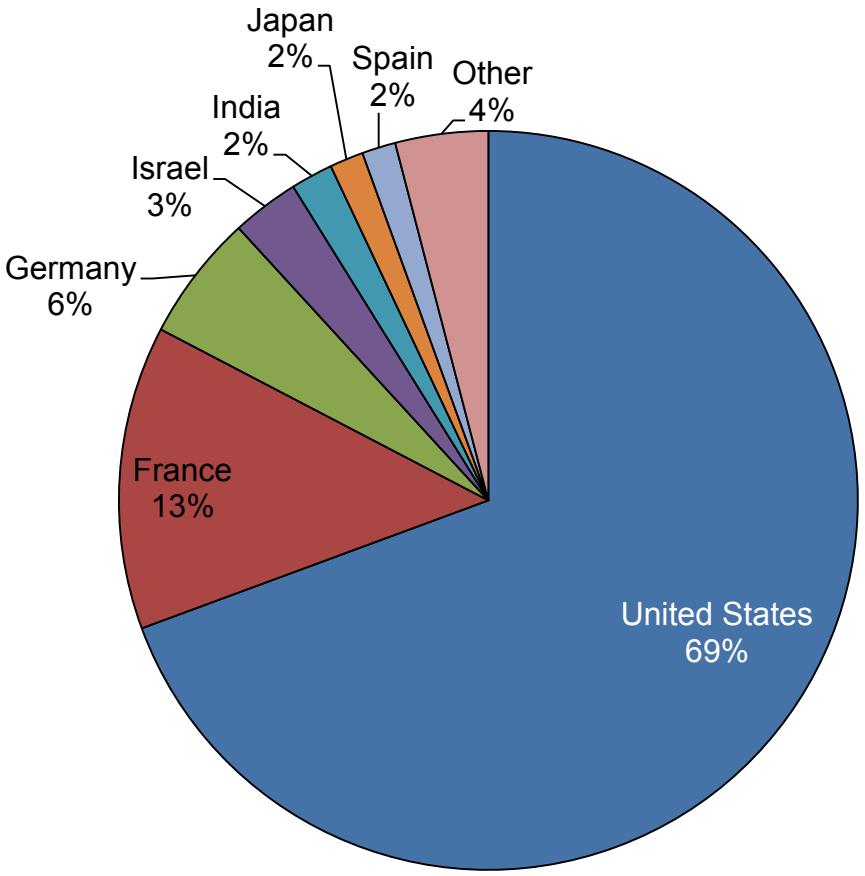
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Origins of Commercial EO Satellite Imagery, 2008-2012

- Roughly half (51) of the respondents were able to identify the names of the satellites or family of satellites from which they received imagery.
- Among those who were able to name satellites, the average number of satellites from which they received imagery was approximately six.
- Respondents identified 25 families of satellites from which they received imagery, several of which were non-commercial and non-optical.
- Imagery from DigitalGlobe and GeoEye accounted for over half of all identifications, followed by Spot Image, a subsidiary of EADS-Astrium and the distributor for imagery from a number of European satellites.
- Fourteen countries of origin were identified, with the U.S., France, and Germany accounting for 88% of identifications.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Country of Origin of Identified Commercial EO Satellite Imagery Sources



51 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

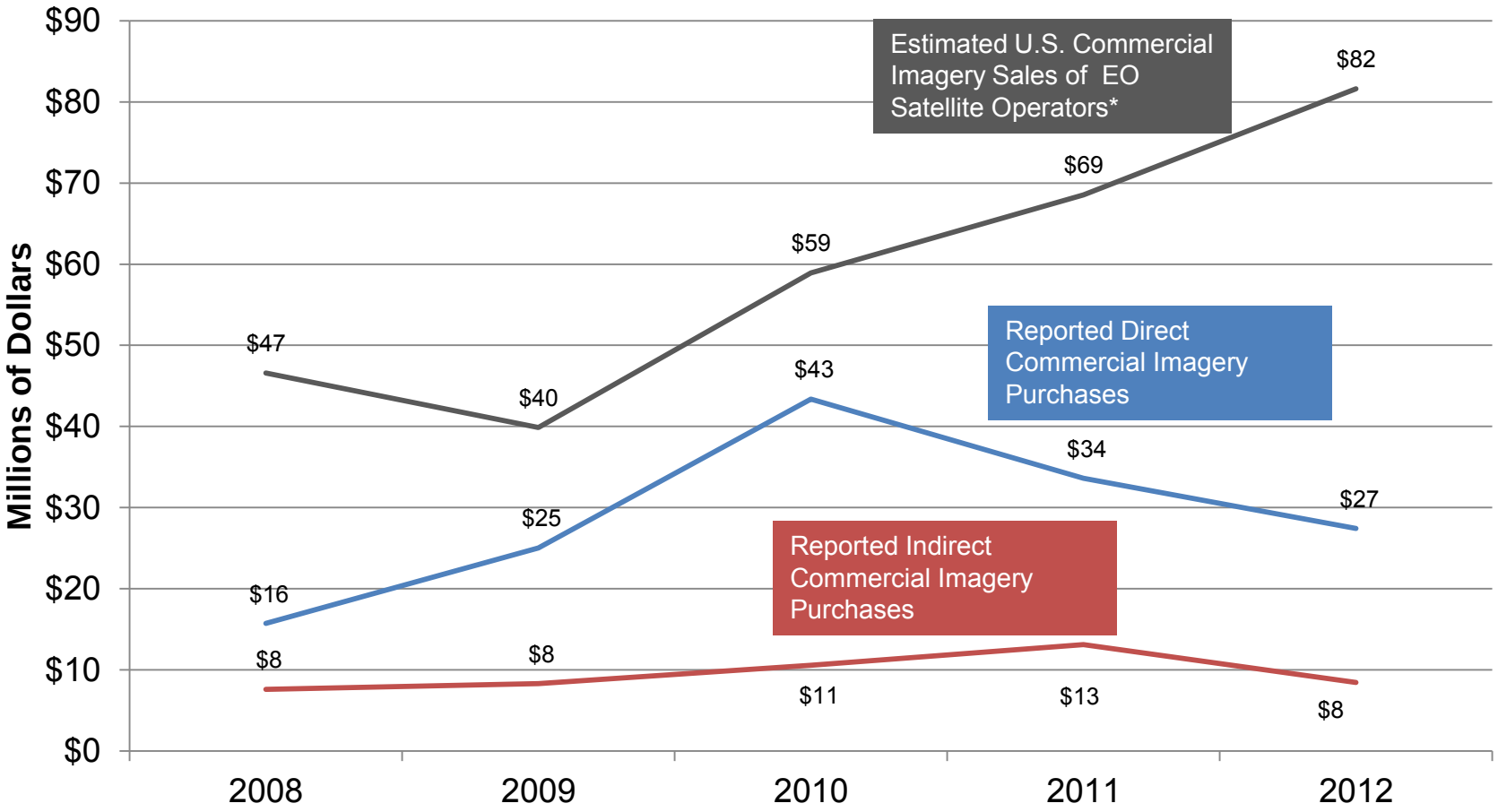
Value of Commercial EO Satellite Imagery Purchased

- Respondents identified a total of $193.1 million in imagery purchases between 2008 and 2012, $145.1 of which was purchased directly from satellite operators.
- Purchases by survey respondents peaked at $53.9 million in 2010, though the estimated size of the U.S. commercial satellite imagery market continued to grow.*
- This difference in trends is likely due in large part to the subset of market participants represented in this survey. Based on publicly reported commercial sales of DigitalGlobe and GeoEye—the dominant U.S. commercial satellite imagery providers—the organizations covered in this study represent approximately 33% of the U.S. commercial EO satellite imagery market.*
- DigitalGlobe and GeoEye provided the vast majority of identified imagery purchases, with Spot Image—a subsidiary of EADS-Astrium and the distributor of imagery for the Pléiades and SPOT 5 satellites—also noted as a provider.
- The two Pléiades satellites were launched in 2011 and 2012, and provide a resolution that approaches that of commercially available U.S. EO satellite imagery.

*See Appendix C for details

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Sales of Primary Providers of U.S. Commercial EO Satellite Imagery and Reported Imagery Purchases, 2008-2012

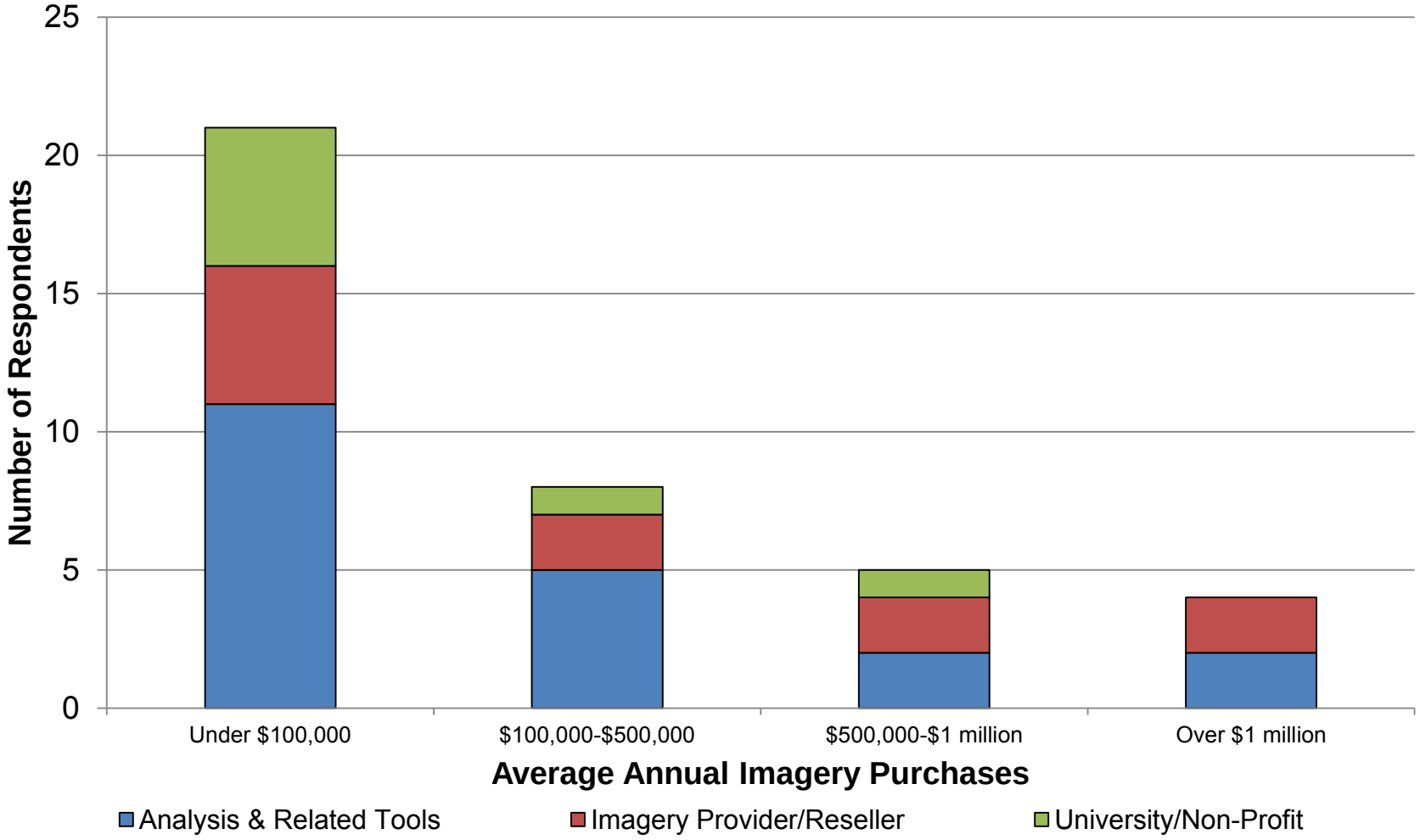


*Based on publicly available SEC Form 10-K disclosures of commercial imagery sales, details in Appendix C.

38 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Average Value of U.S. Commercial EO Satellite Imagery Purchases by Business Category, 2008-2012



38 respondents; Engineering/Support Service providers reported no imagery purchases

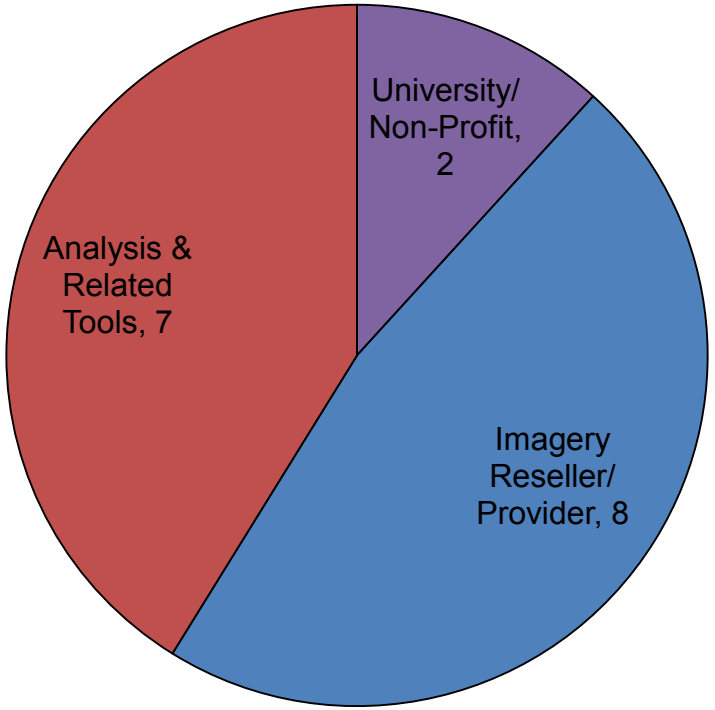
Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Commercial EO Satellite Imagery Purchases Identified by Size

- Respondents were also asked to quantify the amount of imagery they purchased between 2008 and 2012 in square kilometers.

- Seventeen of the 38 respondents with imagery purchases provided the amount of imagery they purchased between 2008 and 2012 in square kilometers (km).
  - The average area purchased by a respondent between 2008 and 2012 was 17.3 million square km
  - The median area purchased was 95.7 thousand square km
  - Five respondents purchased over one million square km, with two purchasing over 10 million square km

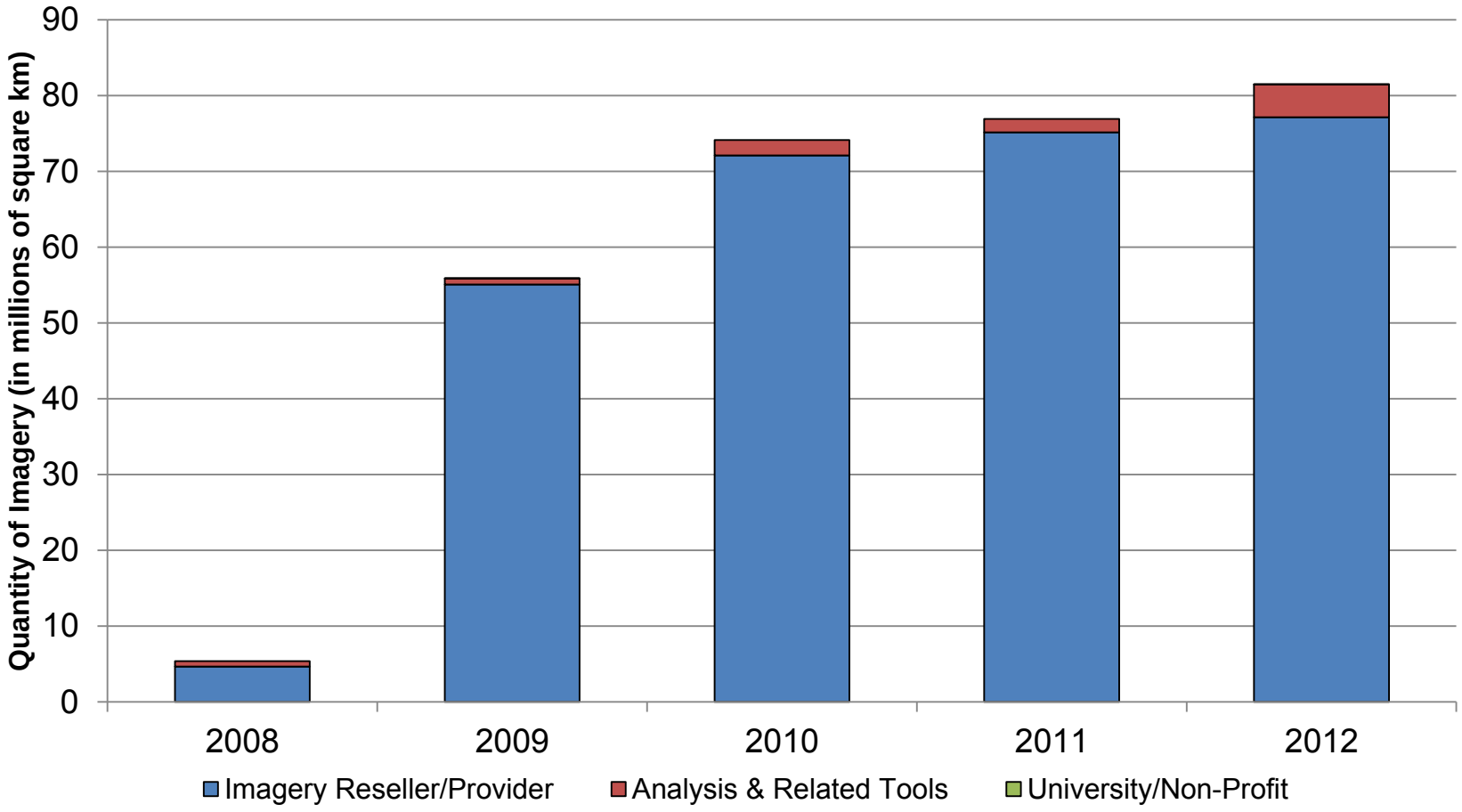
Respondents Purchasing Imagery By Size of Coverage Area, 2008-2012



17 respondents reporting amount of imagery purchased in square kilometers.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Quantity of Commercial EO Satellite Imagery Purchased Identified by Size, 2008-2012*



**Engineering/Support Service providers reported no imagery purchases. Universities/Non-Profits reported purchasing well under 1 million square km.*

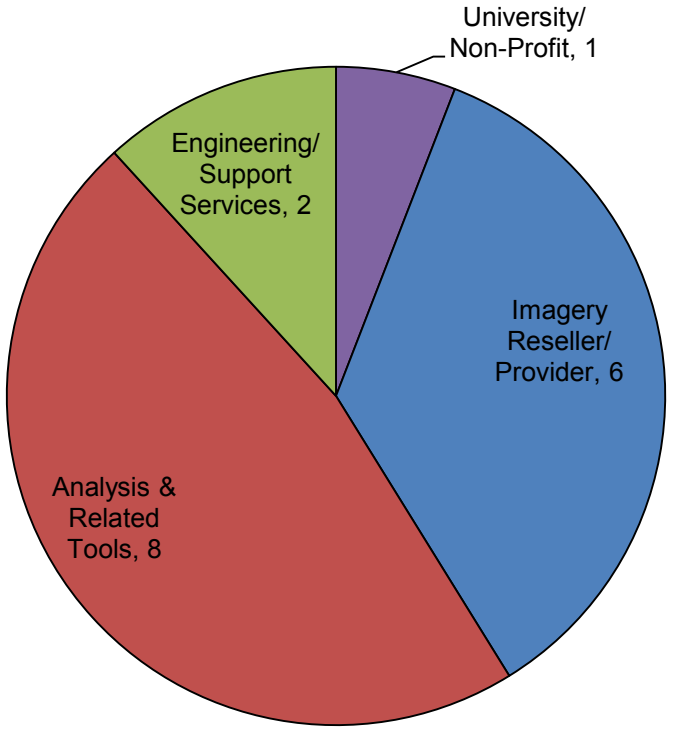
17 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Purchases of Imagery-Related Products, Technologies, and Services

- Seventeen respondents provided the value of commercial EO satellite imagery-related products or services they purchased between 2008 and 2012.
  - The average value purchased by a respondent during this period was $7 million.
  - The median value purchased was $414,000
  - Four respondents accounted for 91.5% of the reported value of imagery-related products and services purchased.

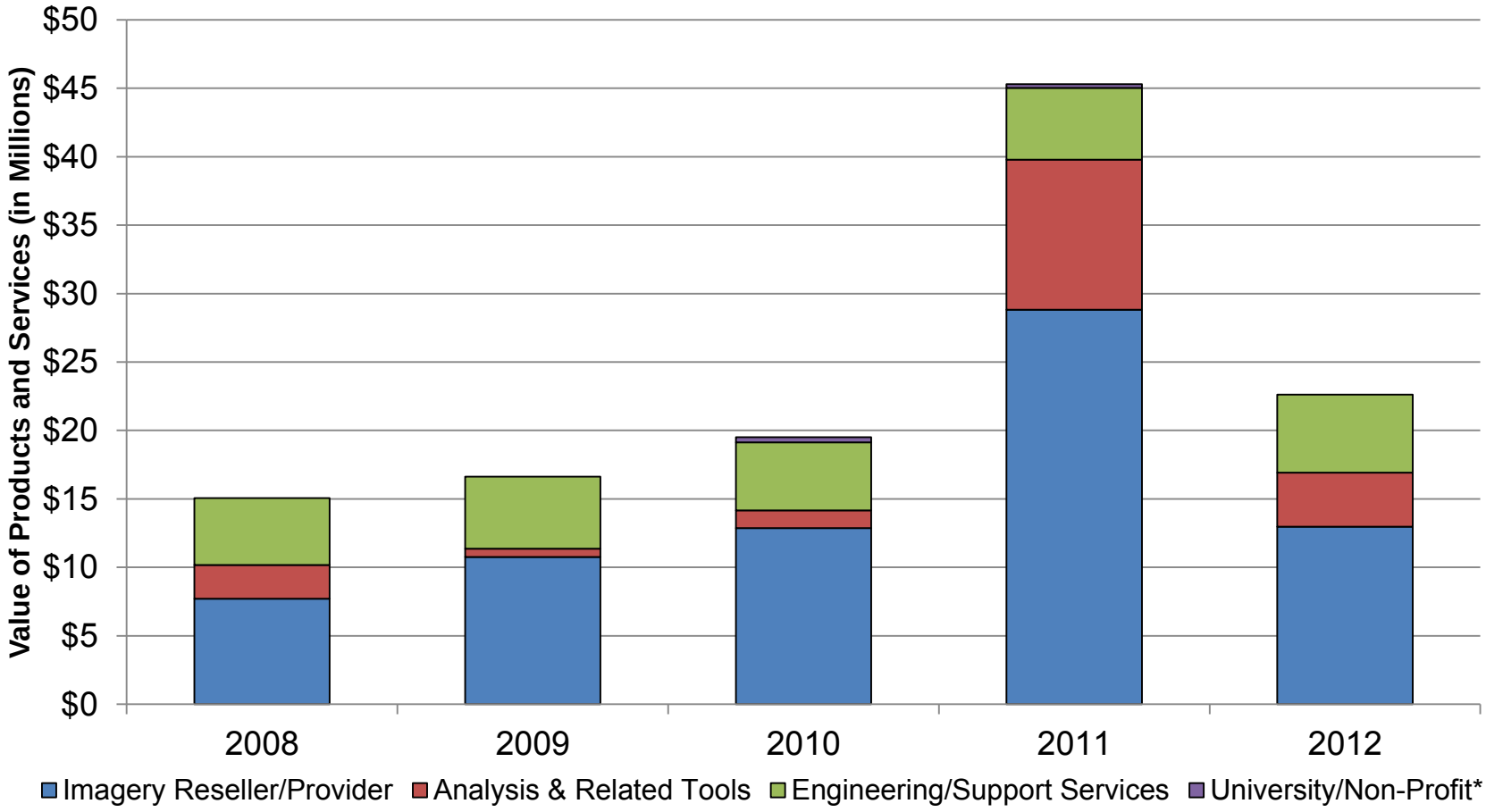
Respondents Purchasing Imagery-Related Products, Technologies, and Services, by Business Category



17 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Value of Imagery-Related Products and Services Purchased by Business Category, 2008-2012



**Universities/Non-Profits reported under $1 million in purchases.*

17 respondents

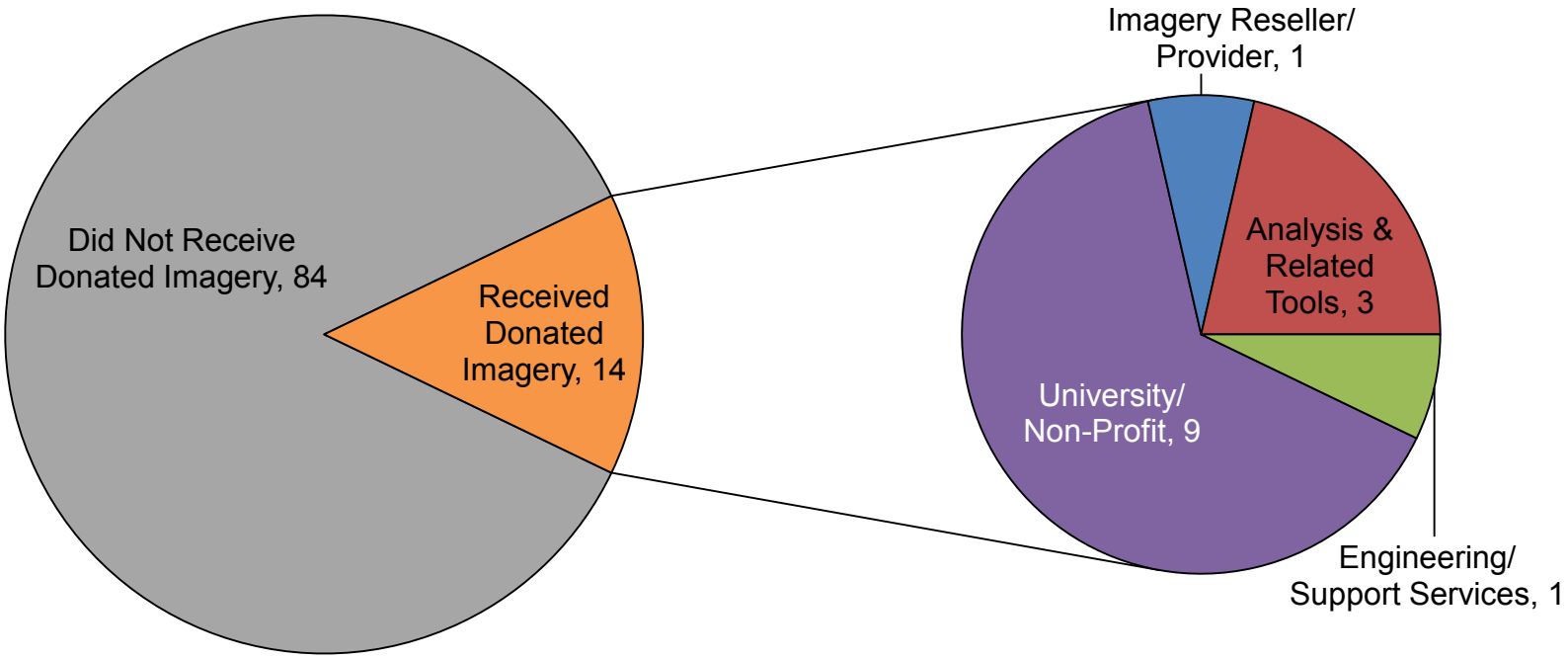
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Donations of Commercial EO Satellite Imagery, 2008-2012

- Respondents were asked if they received any donated U.S. commercial EO satellite imagery between 2008 and 2012.
- Fourteen organizations received donated commercial EO satellite imagery during the period, valued at a total of $10.3 million.
- Most (nine) of these organizations were Universities or Non-Profits, but they accounted for just 30% of the value donated during the period, $3.1 million.
- Donations to for-profit respondents were generally for promotional purposes, with one respondent noting donations were used “to build value-added products in order to promote these products to specific customers and/or to use for tradeshows and evaluation samples.”
- The value of donated imagery received fell sharply between 2010 and 2011, by over 85% (from $4.1 million to $490,000), with donations falling from all sources.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Received Donations of Commercial EO Satellite Imagery by Business Category, 2008-2012



98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

CHAPTER 5: NET AND IMAGERY-RELATED SALES

- NET SALES BY YEAR
- IMAGERY RELATED SALES BY YEAR
- BREAKDOWN OF SALES BY BUSINESS CATEGORY
- PRODUCT AND SERVICE AREAS OF FASTEST AND SLOWEST GROWING RESPONDENTS

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

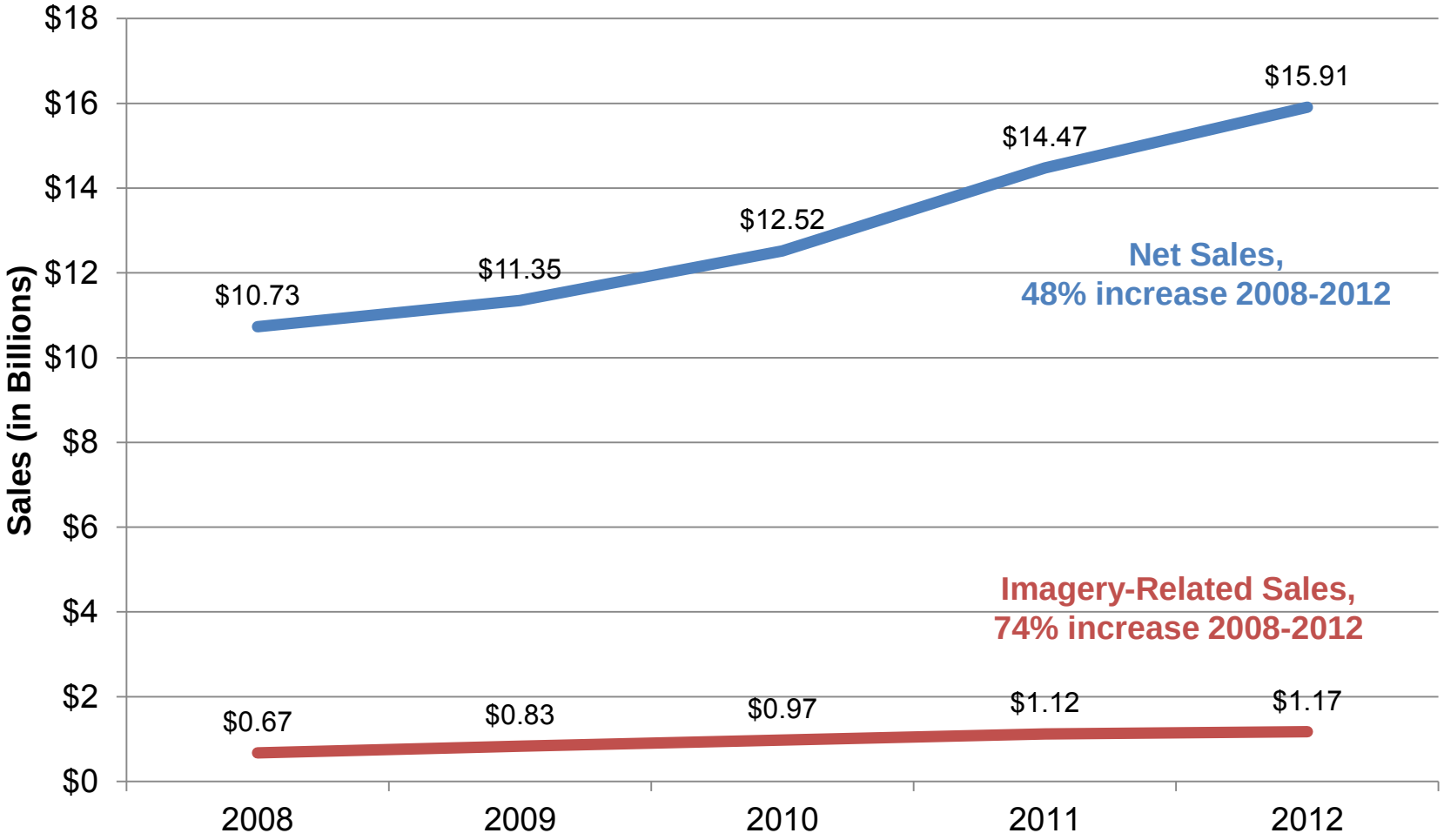
Respondent Net and Imagery-Related Sales

- Respondents reported their net sales by year for the 2008-2012 period, as well as the percent of net sales related to commercial EO satellite imagery.
- Imagery-related sales accounted for roughly 7% of net sales, with both measures rising steadily across the period.*
- Most respondents were not heavily reliant on imagery, with just 14 respondents having imagery-related sales account for over half of total sales, and 21 respondents with imagery-related sales of over one-quarter of total sales.
- Eighteen respondents had no sales between 2008 and 2012 or did not provide sales data, and 34 respondents reported no imagery-related sales in that period.
- Those with no sales were mostly Universities and Non-Profits. Additionally, 10% of Analysis & Related Tools and Engineering/Support Service providers also reported no sales.

*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Net and Imagery-Related Sales, 2008-2012*

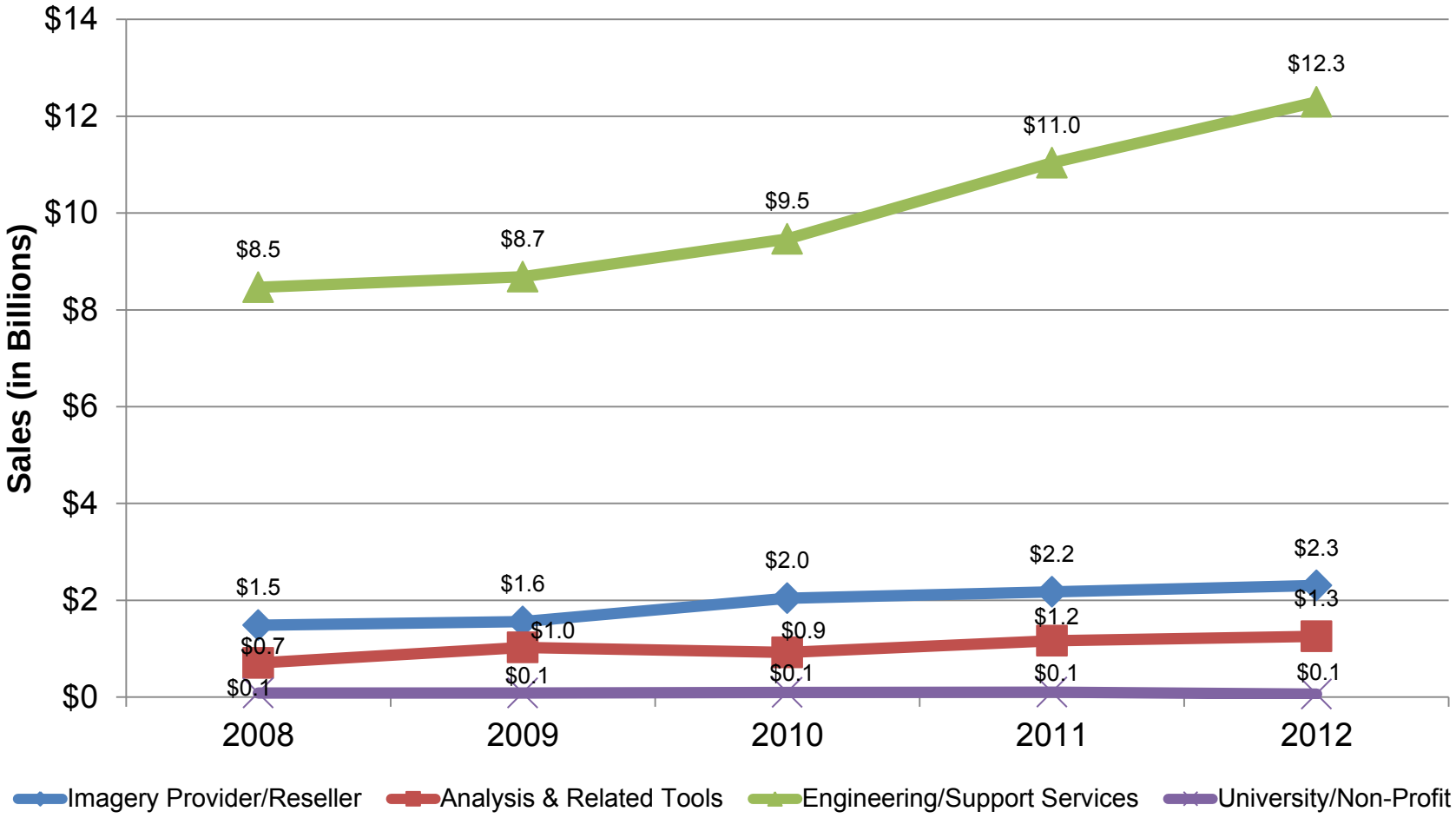


*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

79 respondents reporting net sales; 63 respondents reporting imagery-related sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Net Sales by Business Category, 2008-2012*

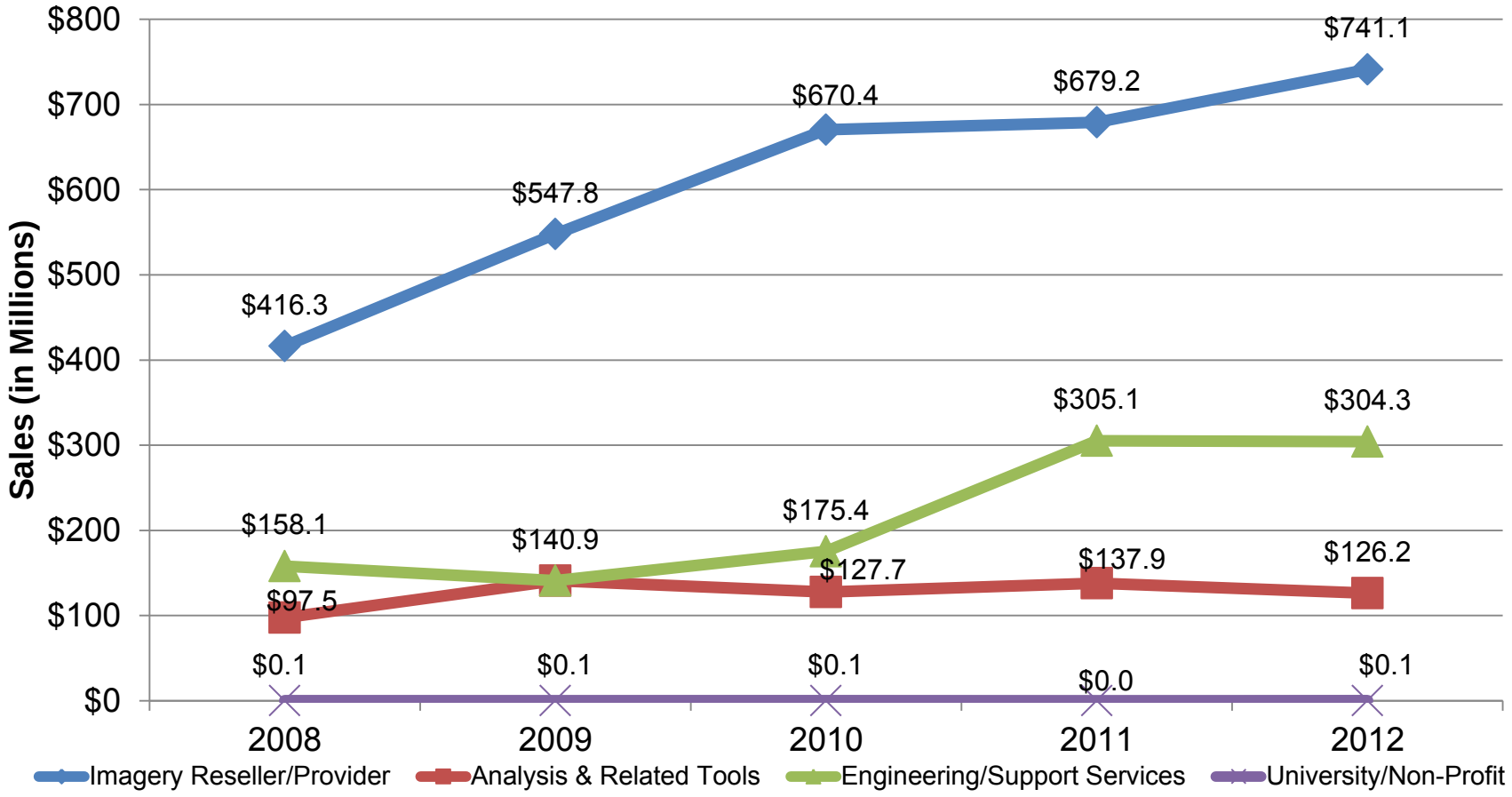


*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

79 respondents reporting net sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Imagery-Related Sales by Business Category 2008-2012*

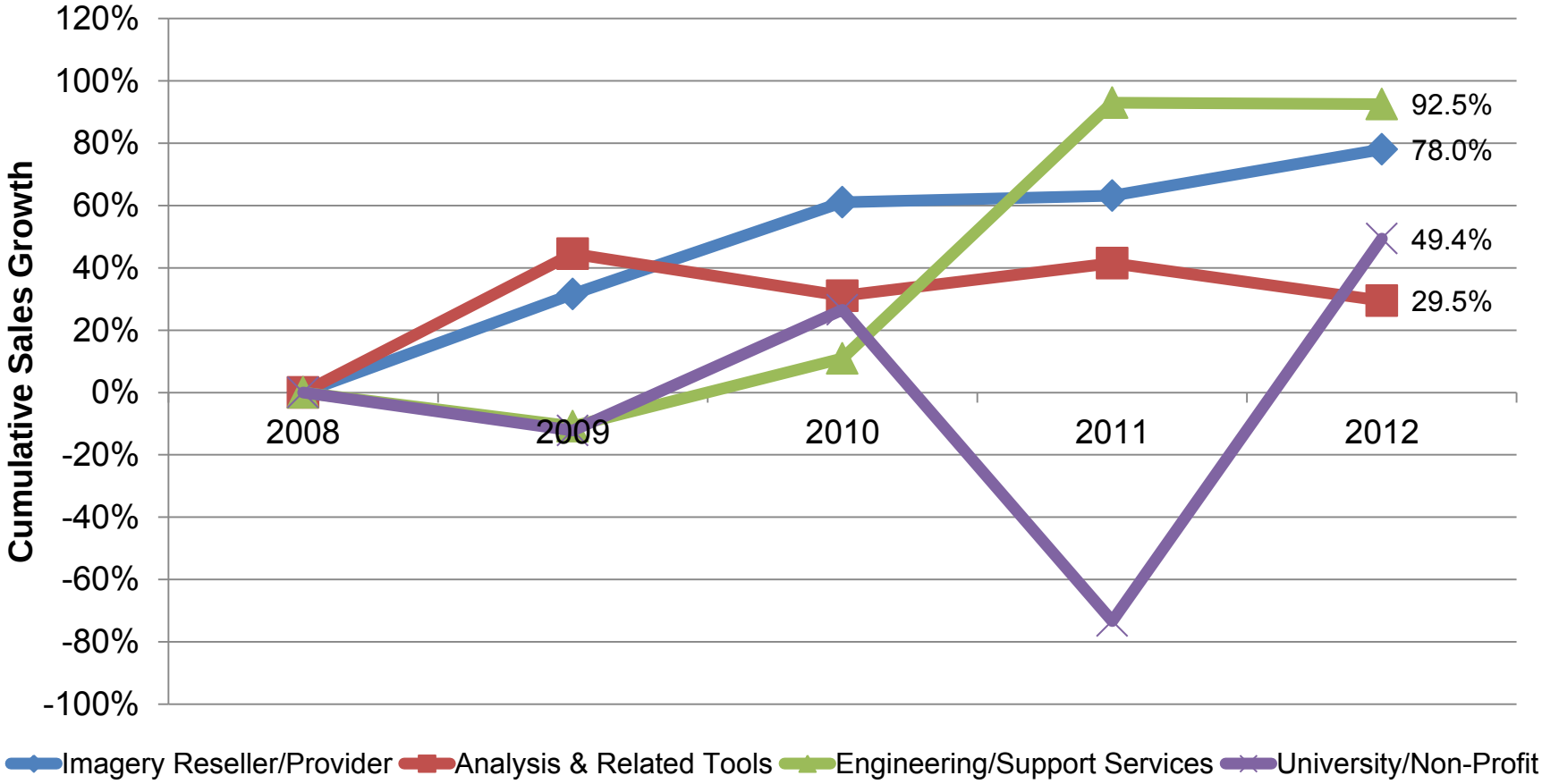


*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

63 respondents reporting imagery-related sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Imagery-Related Sales Growth by Business Category, 2008-2012*

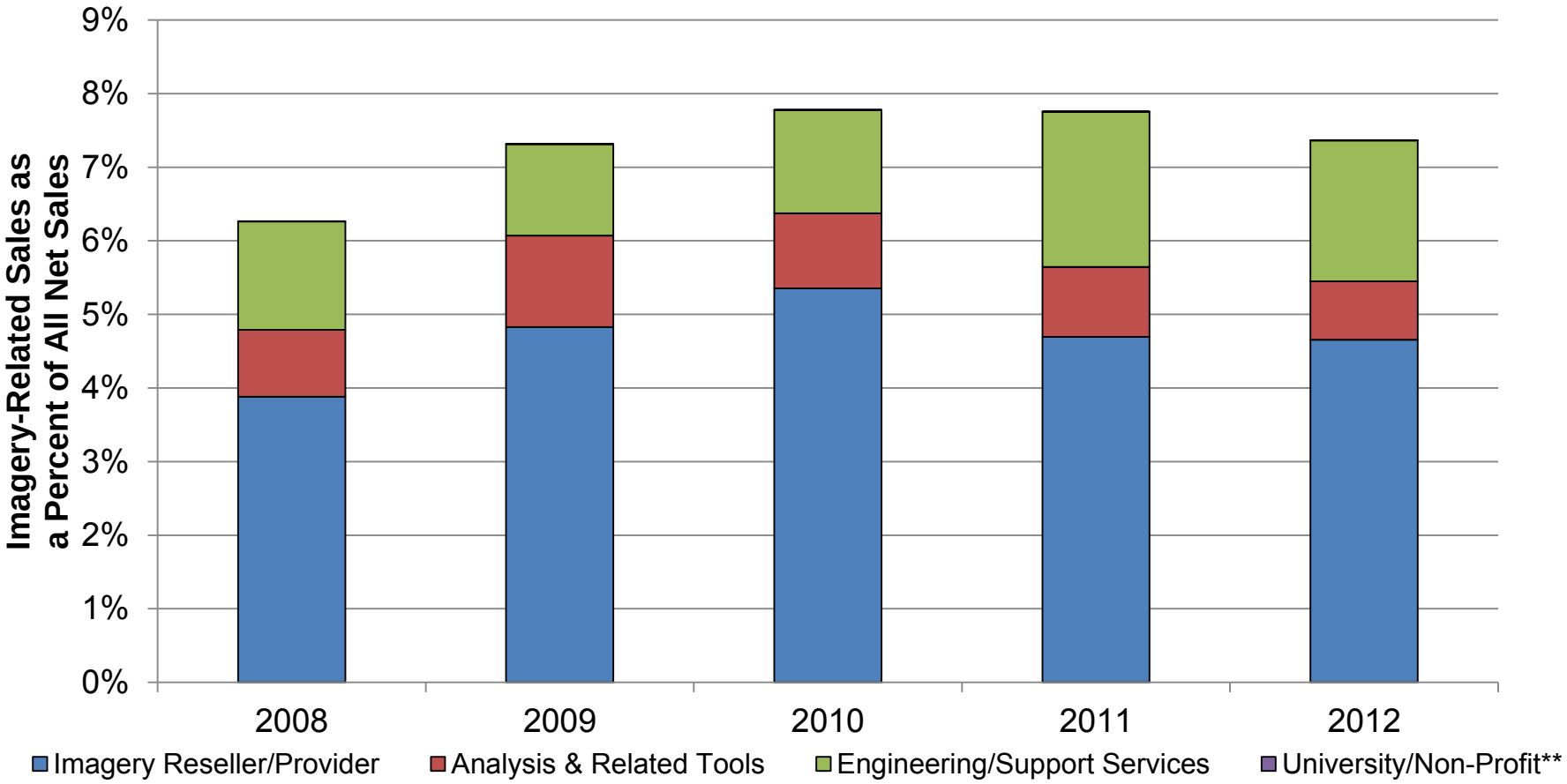


*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

63 respondents reporting imagery-related sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Imagery-Related Sales as Percent of All Net Sales 2008-2012*



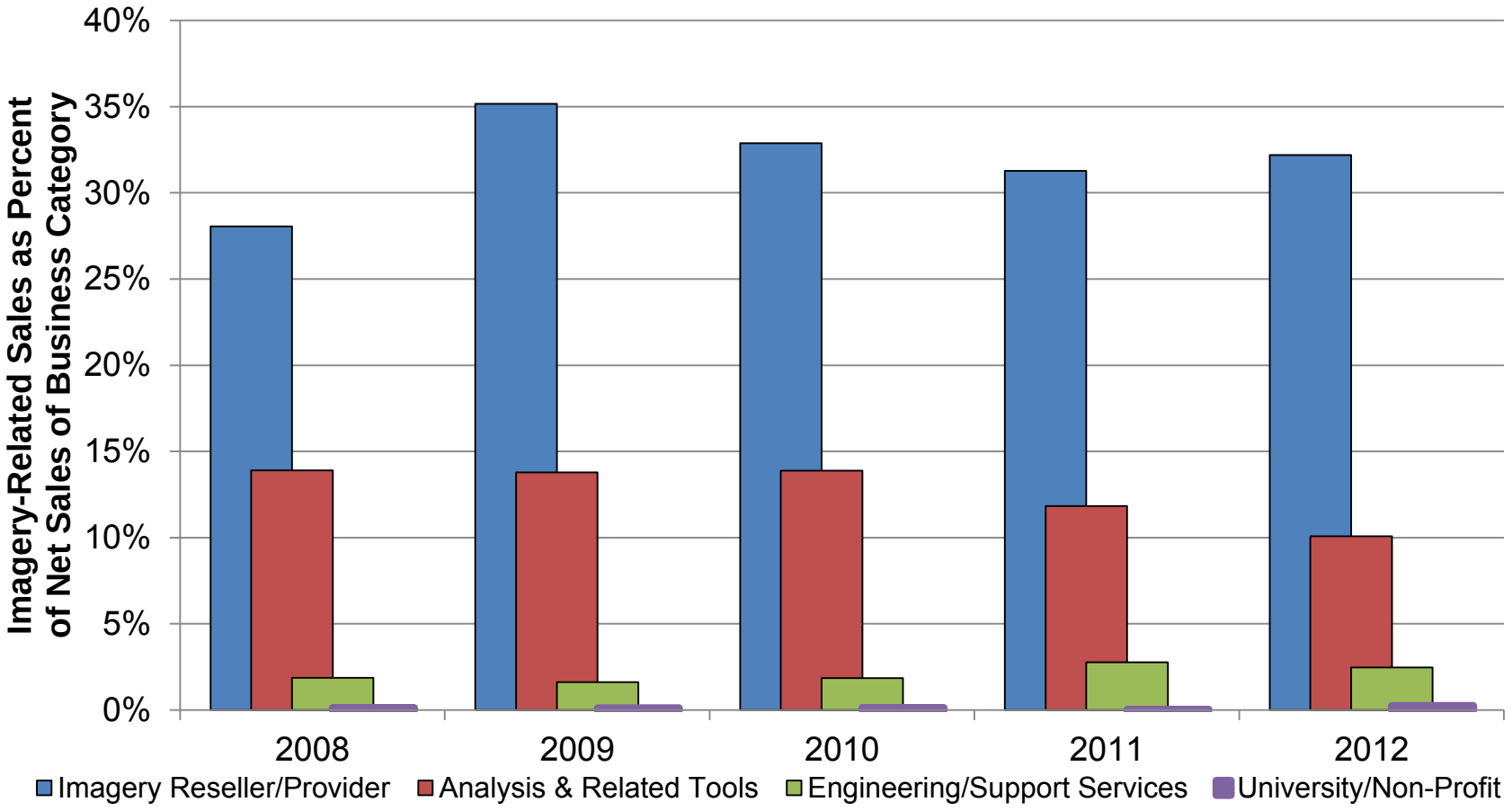
*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

**University/Non-Profit imagery-related sales are below 0.1% of total net sales.

79 respondents reporting net sales; 63 respondents reporting imagery-related sales

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Imagery-Related Sales as a Percent of Net Sales of Business Category, 2008-2012

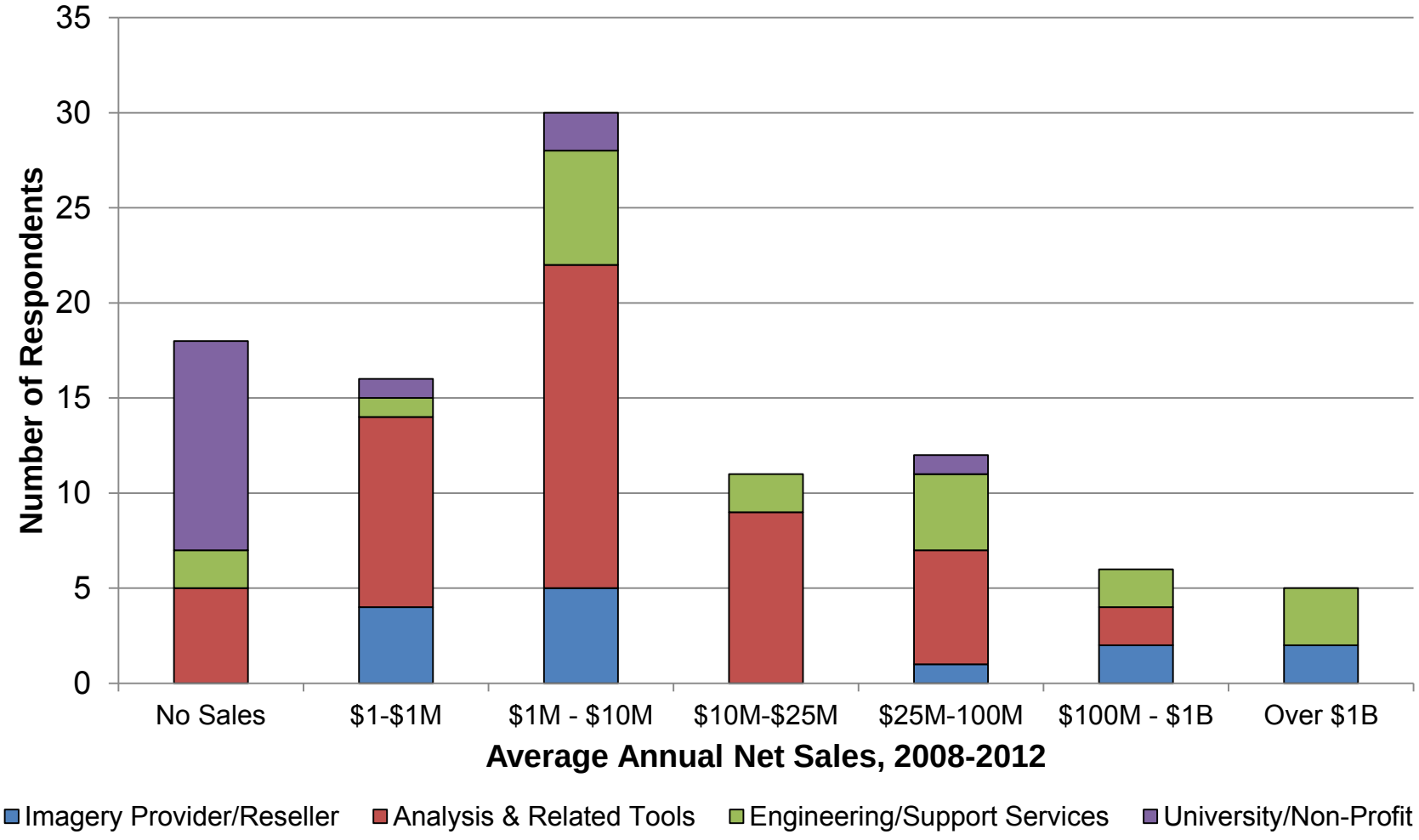


*Excludes one very large respondent whose sales data would have skewed results due to their size. The vast majority of this respondent's sales were not imagery-related.

79 respondents reporting net sales; 63 respondents reporting imagery-related sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

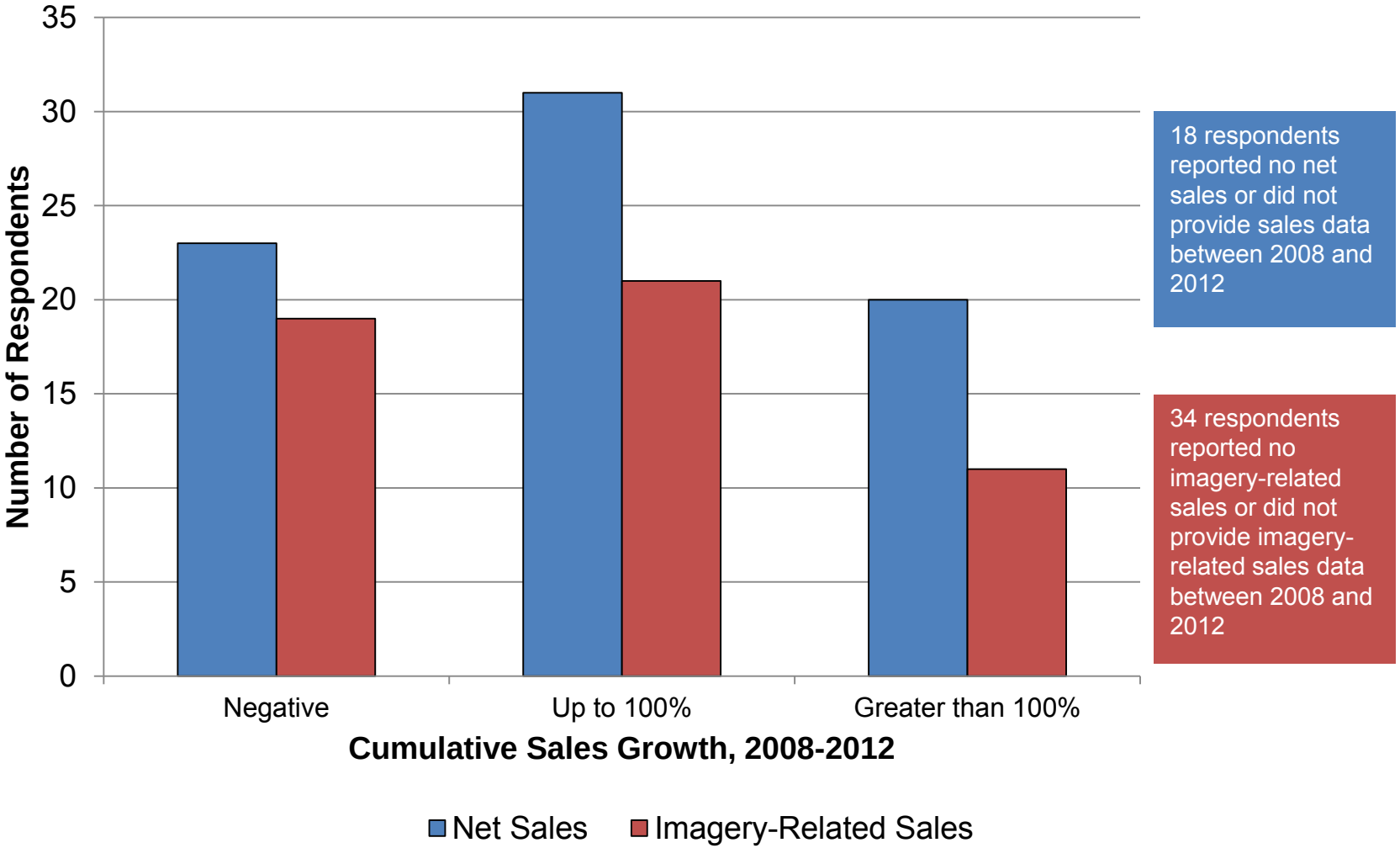
Distribution of Average Annual Net Sales, by Business Category, 2008-2012



80 respondents reporting net sales

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

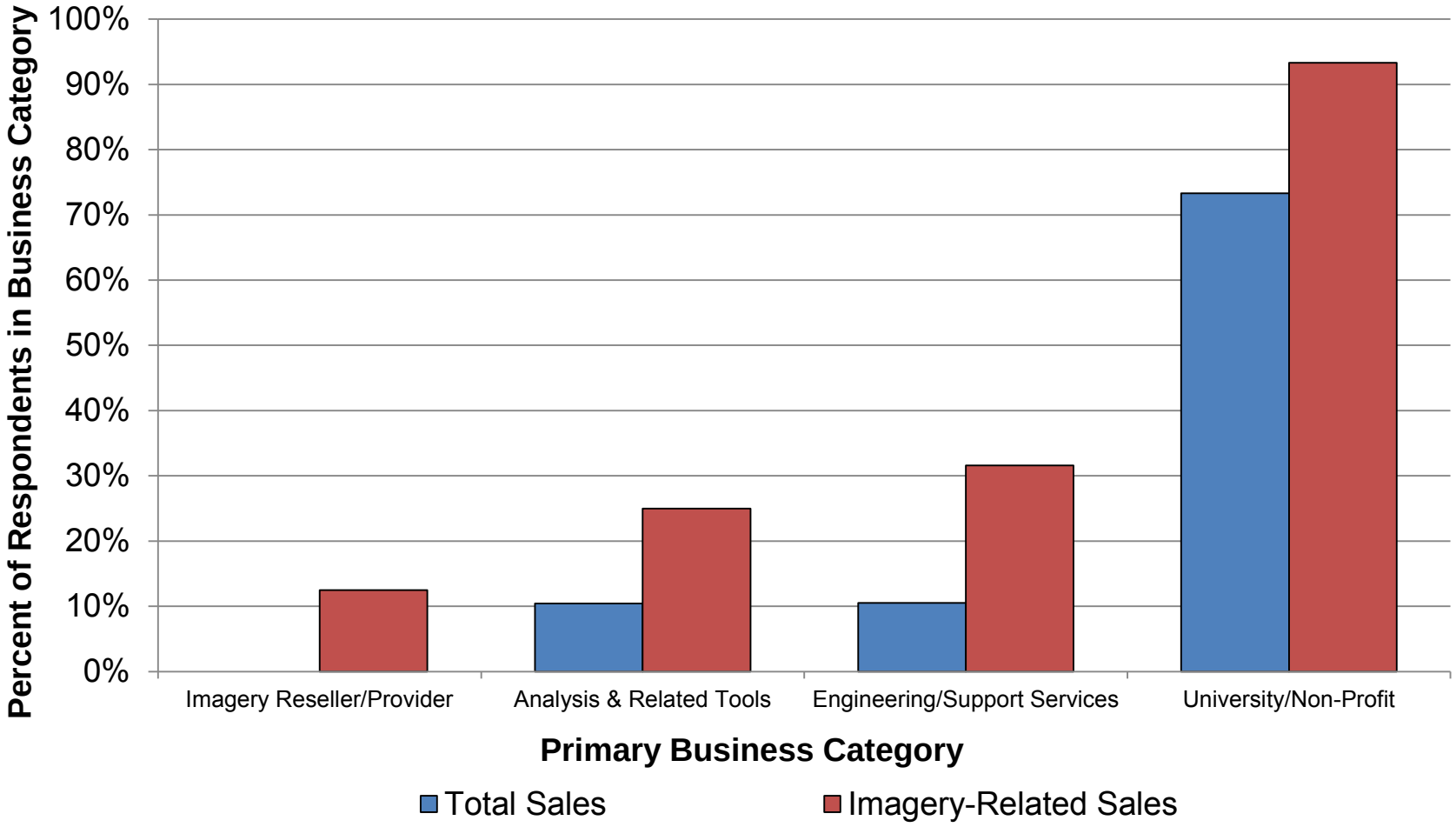
Respondents' Sales Growth, 2008-2012



80 respondents reporting net sales

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Respondents Reporting No Sales or No Imagery-Related Sales, 2008-2012*



*18 respondents reported no net sales for the 2008-2012 period or did not provide sales data, and 34 respondents reported no imagery-related sales.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

PSAs of Fastest Growing Respondents, 2008-2012*

Product and Service Area	Cumulative Net Sales Growth of Participants	Total Respondents in Product and Service Area
Mobile Wireless Networking	112%	10
Imagery Provider (Primary or Secondary)	96%	29
Intelligence Support Systems	86%	28
Synthetic Aperture Radar	81%	16
Geospatial Software	79%	52
Geographic Information Systems	79%	53
Mapping/Geospatial Data	79%	65
Storage & Server Technology	78%	15
Consulting	61%	49
Information Management	61%	31

*Growth is based on sales of all respondents participating in the given product/service area, NOT sales growth only in that area.

80 respondents reporting net sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

PSAs of Slowest Growing Respondents, 2008-2012*

Product and Service Area	Cumulative Net Sales Growth of Participants	Total Respondents in Product and Service Area
Display Hardware	-19%	4
Optics	6%	5
Collaborative Tools	13%	30
Remote Sensing	13%	37
Analytics Software	13%	44
Storage Optimization	16%	11
Client Server Technology	17%	31
Aerial Imaging	18%	37
Image Processing	18%	48
Data Sharing	19%	39

*Growth is based on sales of all respondents participating in the given product/service area, NOT sales growth only in that area.

80 respondents reporting net sales

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 6: RESEARCH & DEVELOPMENT

- TOTAL R&D BY YEAR
- IMAGERY-RELATED R&D BY YEAR
- PRODUCT AND SERVICE AREAS WITH THE MOST AND FEWEST RESPONDENTS PERFORMING R&D

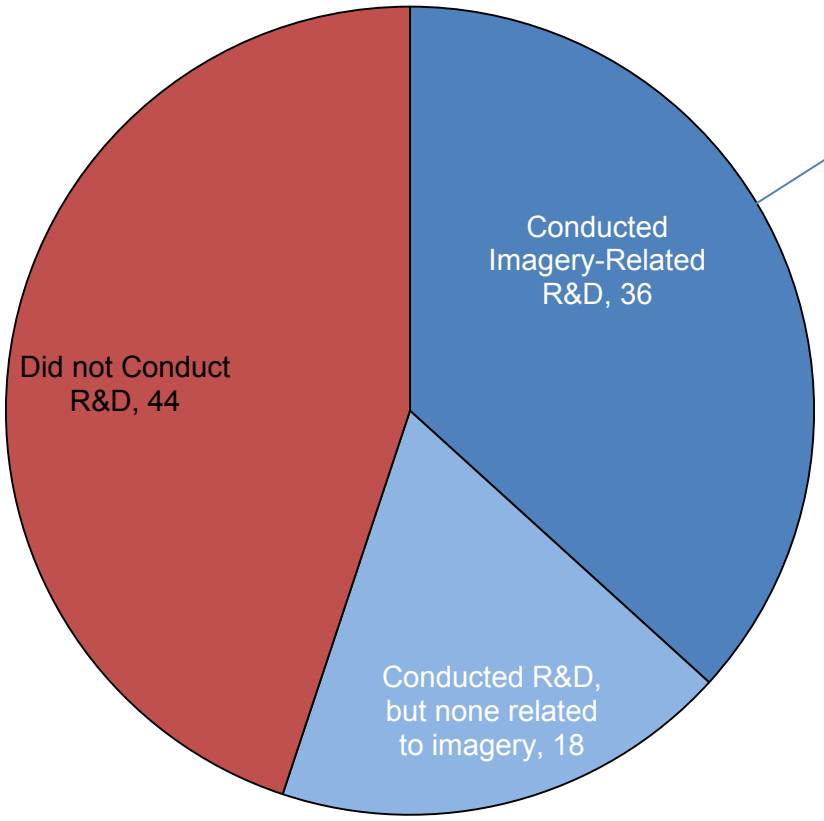
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Research & Development (R&D)

- Respondents reported their total R&D expenditures by year for the 2008-2012 period, as well as the percent of R&D related to commercial EO satellite imagery each year.
- Fifty-five percent of respondents had R&D expenditures between 2008 and 2012, and 37% reported imagery-related R&D expenditures.
- Universities and Non-Profits reported the highest dollar expenditures on imagery-related R&D, though it was a small share of their overall R&D expenditures.
- Ten percent of respondents devoted more than half of their total R&D expenditures to imagery-related R&D.
- The percent of respondents performing R&D rose steadily across the period for both total and imagery-related R&D, and rose among all business categories.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Respondents Performing R&D, 2008-2012



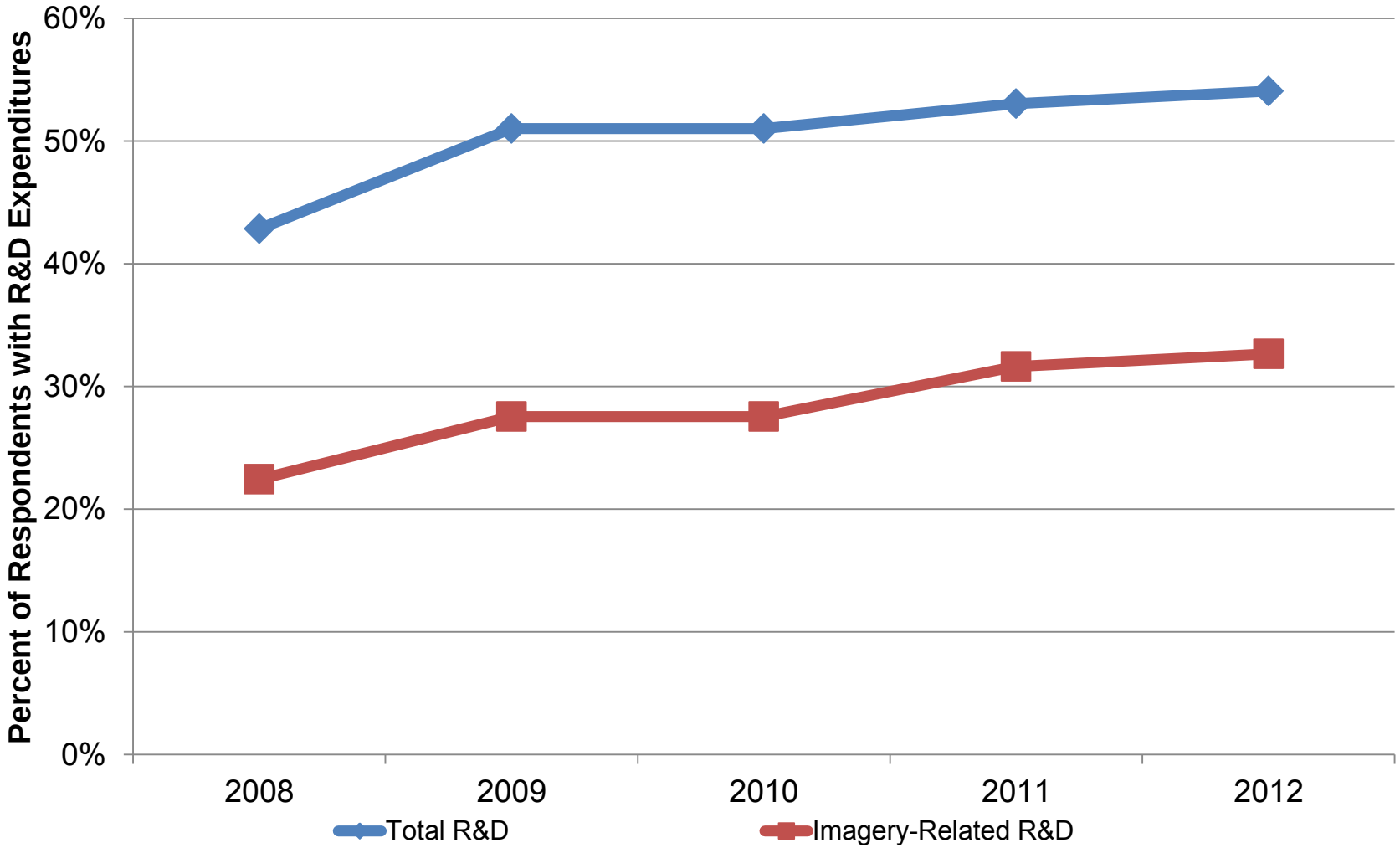
Most of the R&D expenditures of these 36 respondents were focused on R&D not directly related to imagery.

Overall, imagery-related R&D expenditures accounted for approximately 1% of total R&D expenditures.

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

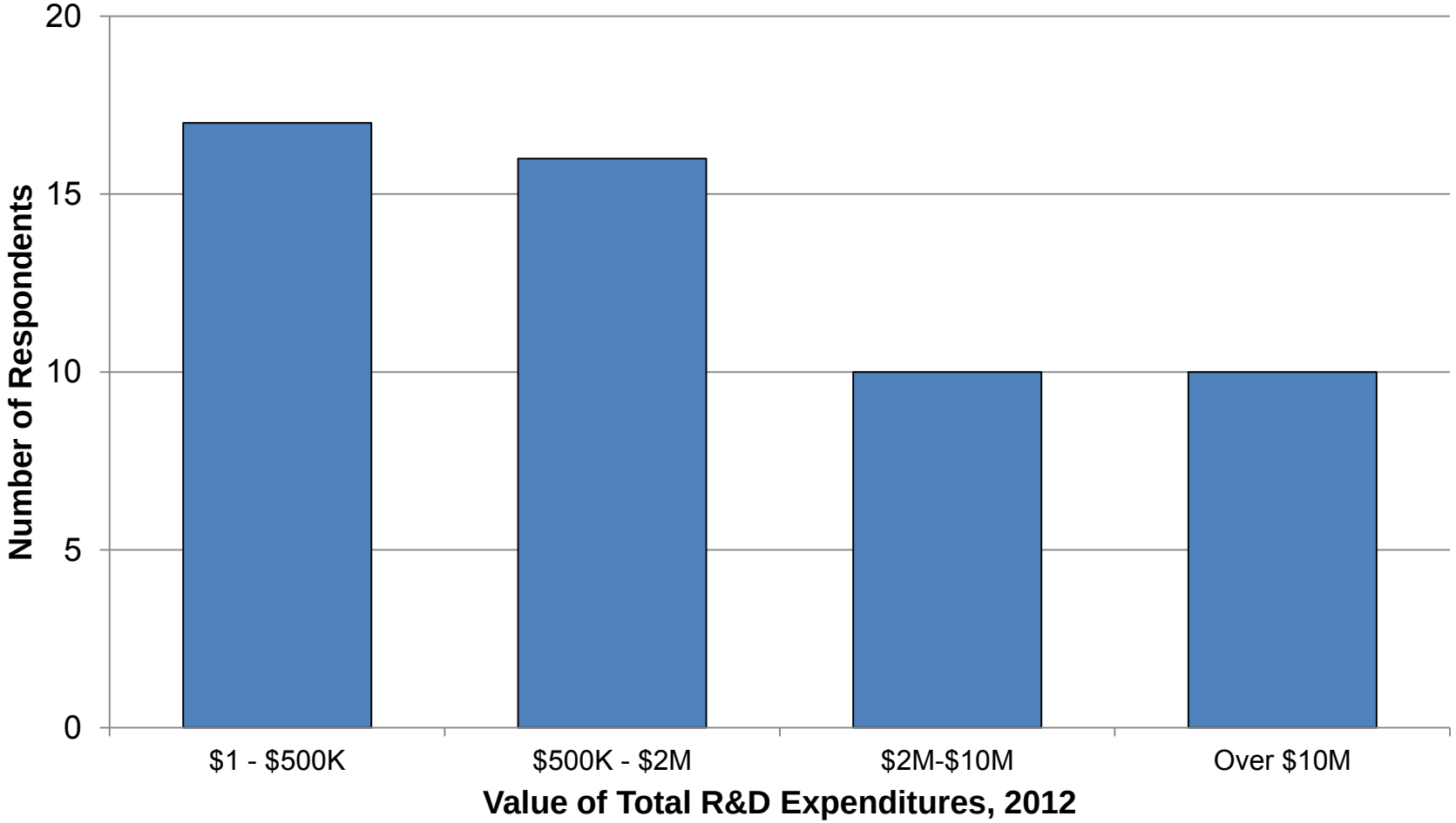
Percent of Respondents With R&D Expenditures, 2008-2012



98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

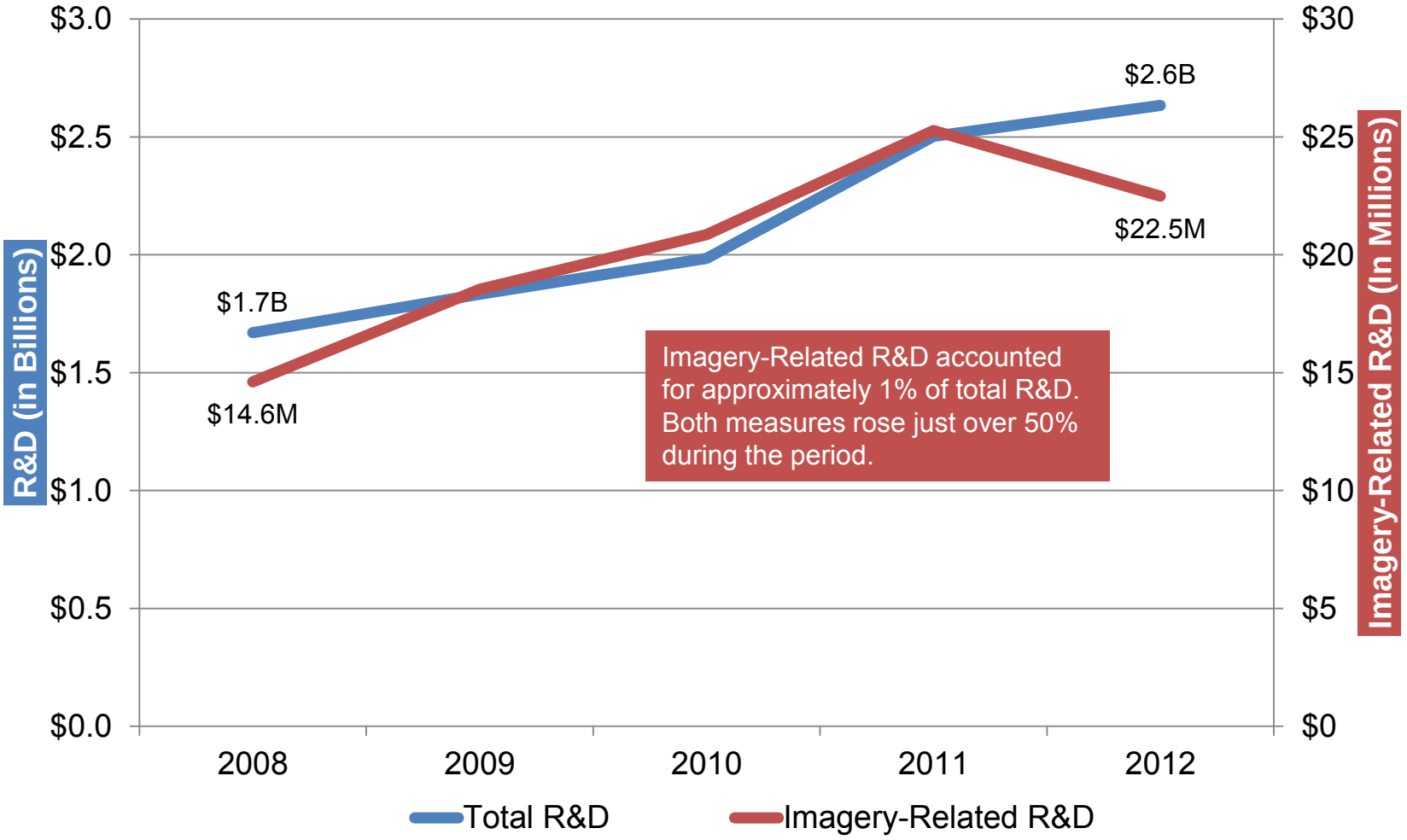
Total R&D Expenditures in 2012



54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Total and Imagery-Related R&D, 2008-2012

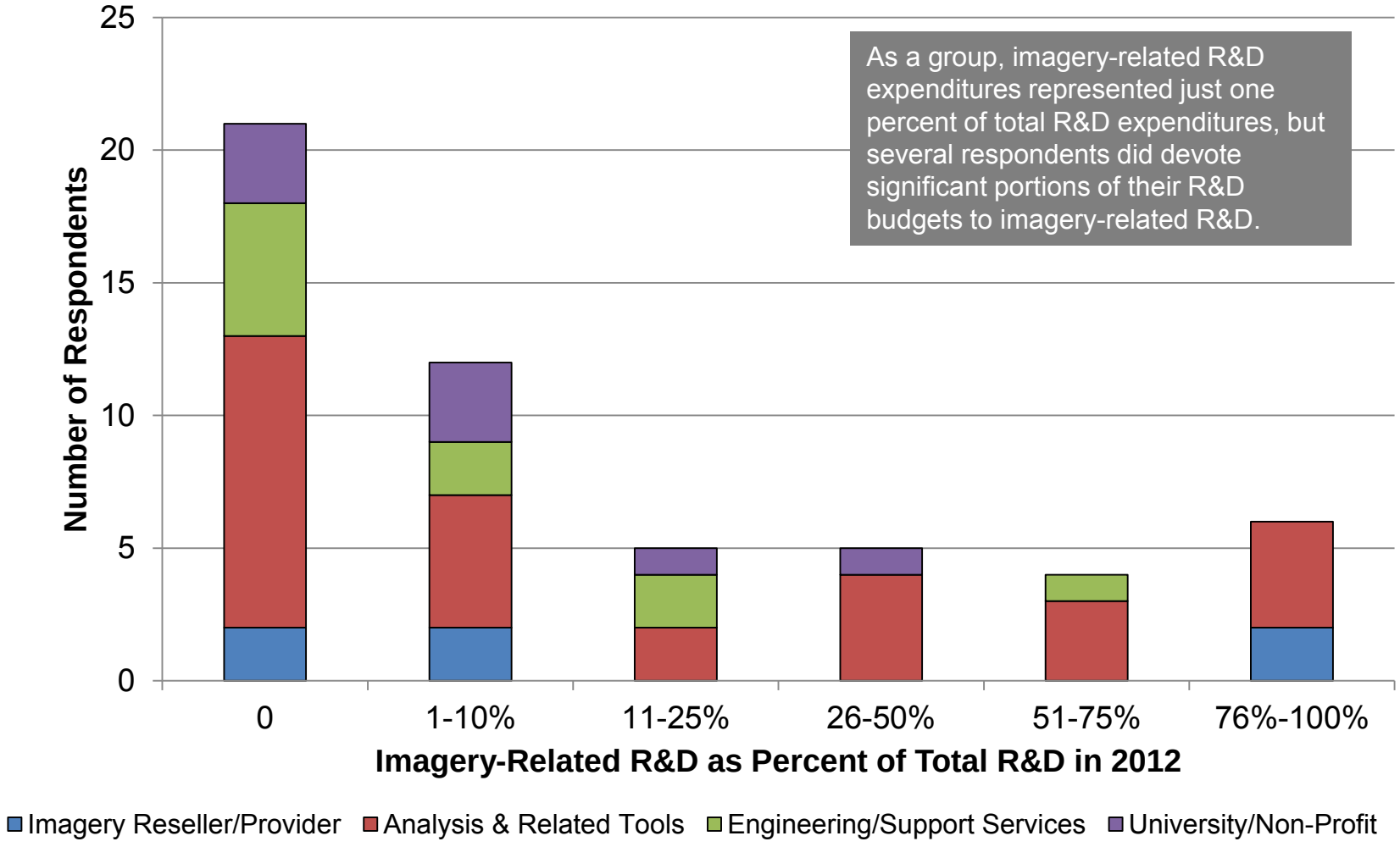


*Excludes one very large respondent whose R&D data would have skewed results due to their size. The vast majority of this respondent's R&D were not imagery-related.

53 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

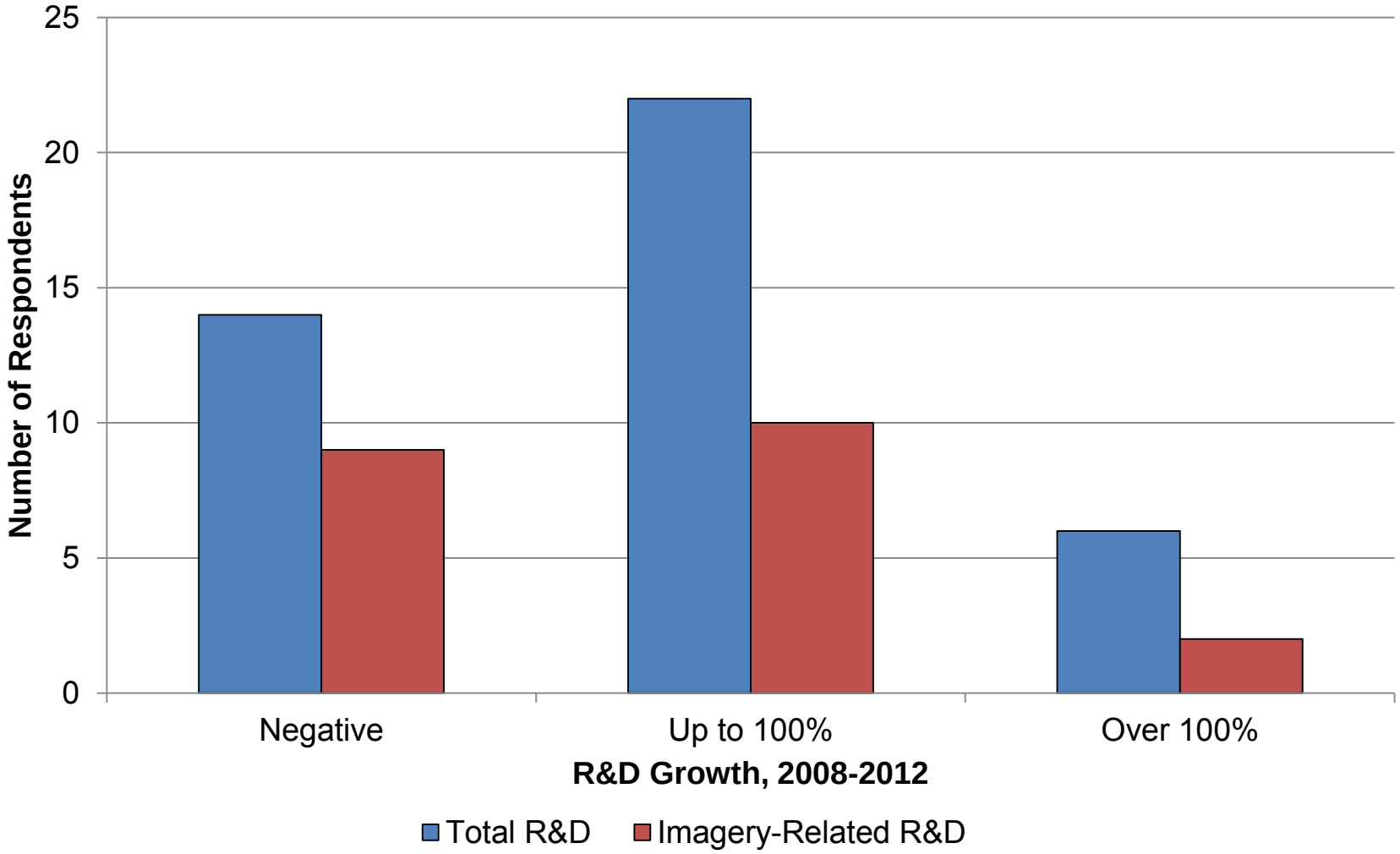
Imagery-Related R&D Expenditures as a Percent of Total R&D Expenditures, 2012



54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Total and Imagery-Related R&D Growth, 2008-2012



54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

PSAs With the Highest Percentage of Respondents Carrying out R&D (in 2012)

Product and Service Area	Percent with R&D Expenditures	Total Respondents in Product and Service Area
Video Analysis	82%	11
Geospatial R&D	82%	38
Optics	80%	5
Location Based Services	76%	21
Collaborative Tools	73%	30
Modeling	72%	29
Data Fusion	72%	39
Mobile Wireless Networking	70%	10
Synthetic Aperture Radar	69%	16
Mission Ground Systems	68%	22

*Figures are based on number of all respondents in the given product/service area that perform R&D, NOT R&D done solely in that product/service area.

54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

PSAs With the Highest Percentage of Respondents Carrying out Imagery-Related R&D (in 2012)

Product and Service Area	Percent with Imagery-Related R&D Expenditures	Total Respondents in Product and Service Area
Optics	60%	5
Location Based Services	57%	21
Geospatial R&D	55%	38
Collaborative Tools	53%	30
Modeling	52%	29
Intelligence Support Systems	50%	28
Mission Ground Systems	50%	22
Open Source Intelligence	50%	20
Data Fusion	49%	39
3D Modeling	47%	32

*Figures are based on number of all respondents in the given product/service area that perform R&D, NOT R&D done solely in that product/service area.

54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

PSAs With the Lowest Percentage of Respondents Carrying out R&D (in 2012)

Product and Service Area	Percent with R&D Expenditures	Total Respondents in Product and Service Area
Storage Optimization	45%	11
Storage & Server Technology	47%	15
Media	50%	10
Aerial Imaging	51%	37
Imagery Reseller/Provider	52%	29
Document & Media Exploitation	53%	17
Systems Integrators	54%	28
Data Storage	55%	33
Computers/Hardware	55%	11
Information Management	55%	31

†Figures are based on number of all respondents in the given product/service area that perform R&D, NOT R&D done solely in that product/service area.

54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

PSAs With the Lowest Percentage of Respondents Carrying out Imagery-Related R&D (in 2012)

Product and Service Area	Percent with Imagery-Related R&D Expenditures	Total Respondents in Product and Service Area
Computers/Hardware	27%	11
Cloud Computing Services	29%	31
Consulting	31%	49
Aerial Imaging	32%	37
Storage & Server Technology	33%	15
Data Storage	33%	33
Full Motion Video	33%	18
Information Management	35%	31
Cyber Security/Secure Communications	36%	14
Systems Integrators	36%	28

*Figures are based on number of all respondents in the given product/service area that perform R&D, NOT R&D done solely in that product/service area.

54 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

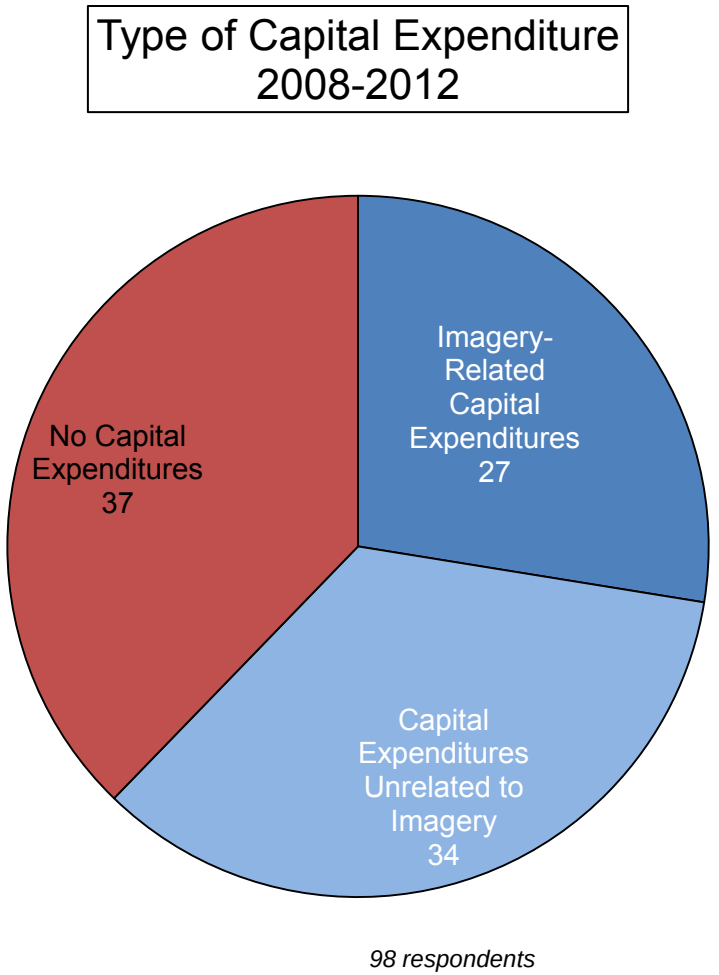
CHAPTER 7: CAPITAL EXPENDITURES

- TOTAL CAPITAL EXPENDITURES
- IMAGERY-RELATED CAPITAL EXPENDITURES

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

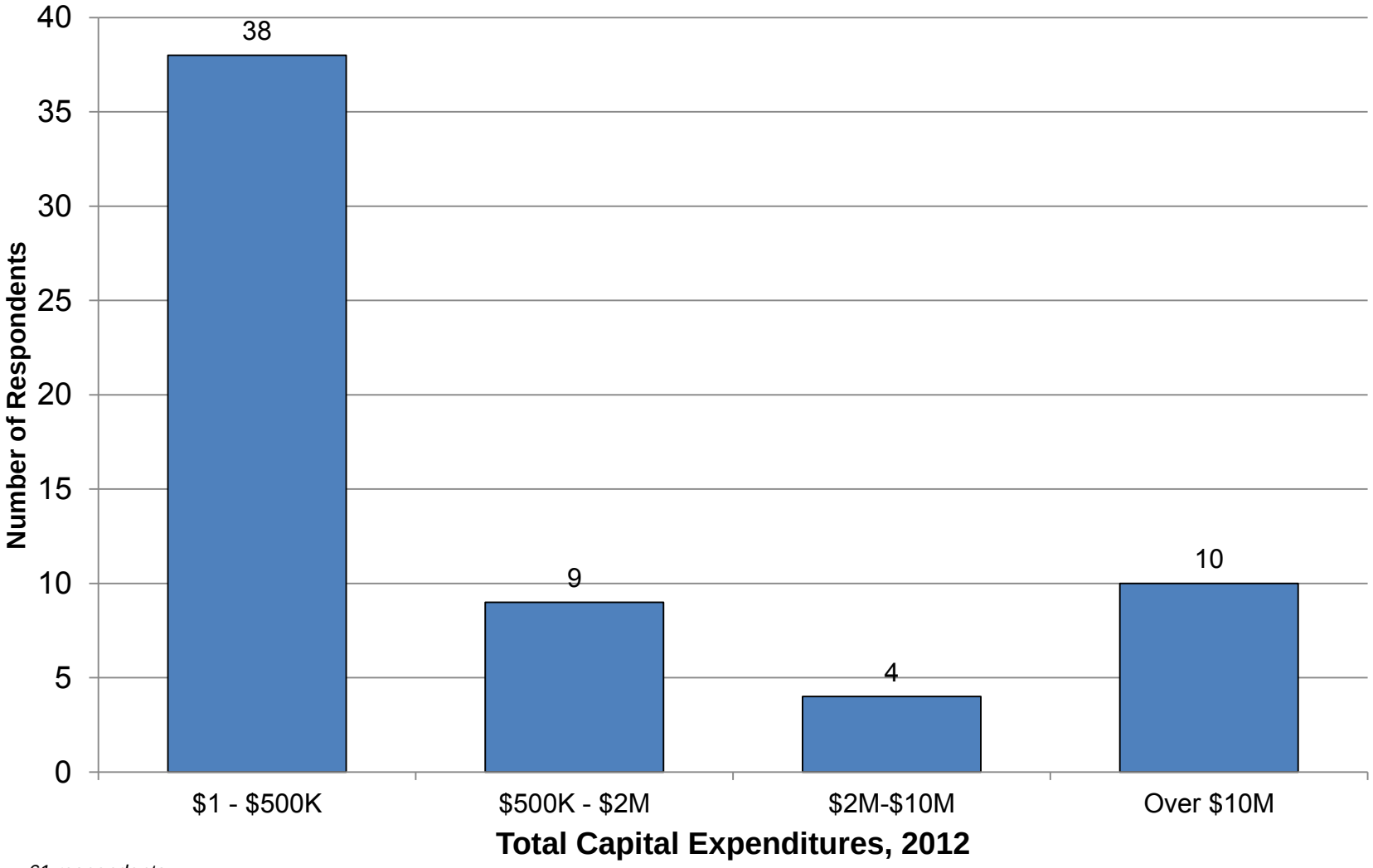
Capital Expenditures, 2008-2012

- Respondents reported their capital expenditures and percent of capital expenditures related to commercial EO satellite imagery by year for the 2008-2012 period.
- 62% of respondents had capital expenditures over the 2008-2012 period, while 28% had imagery-related capital expenditures.
- The percentage of respondents with capital expenditures was stable throughout the period, both as a total and within each of the four business categories.
- Imagery Resellers/Providers accounted for virtually all of the imagery-related capital expenditures.



Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

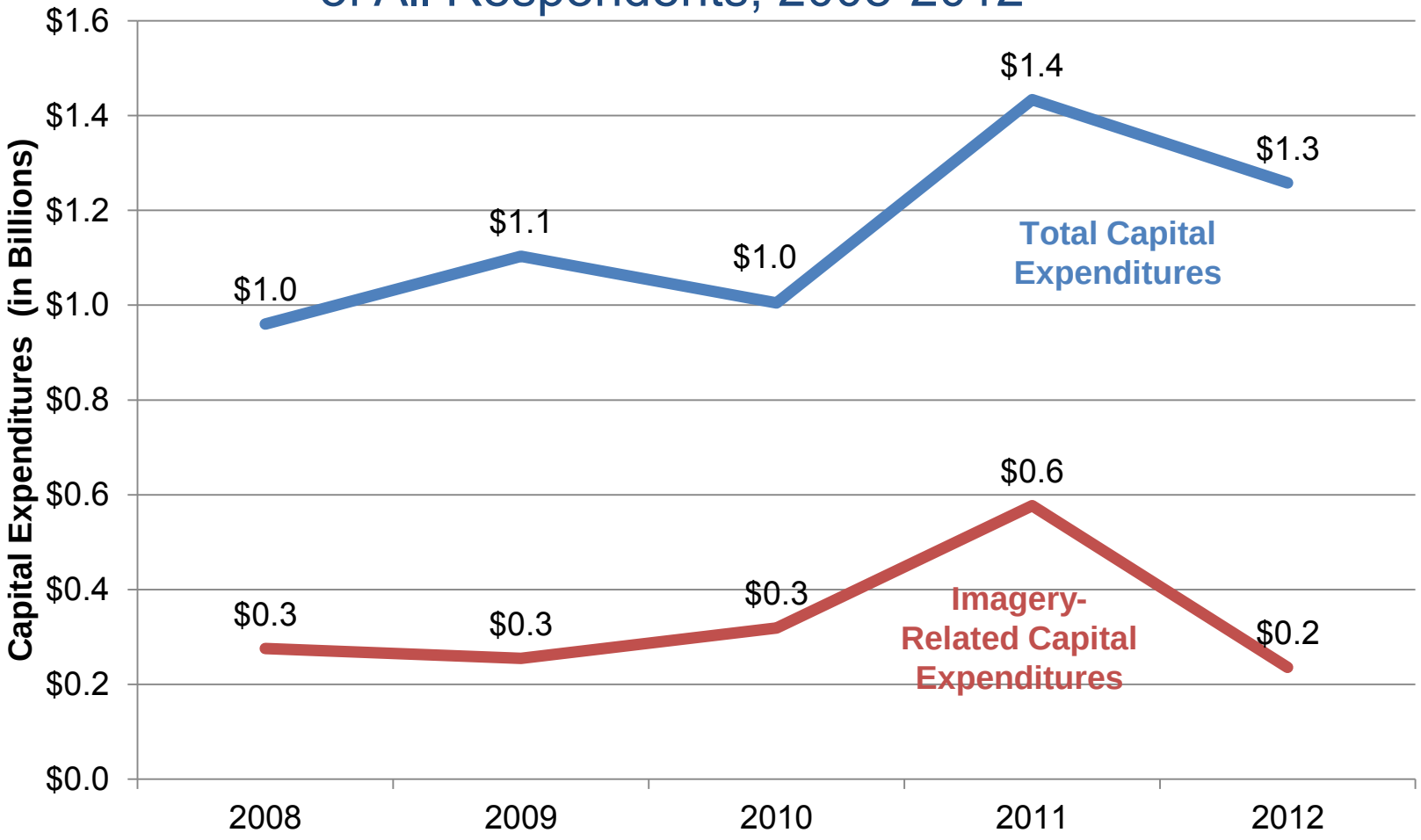
Value of Total Capital Expenditures, 2012



61 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Total and Imagery-Related Capital Expenditures of All Respondents, 2008-2012*

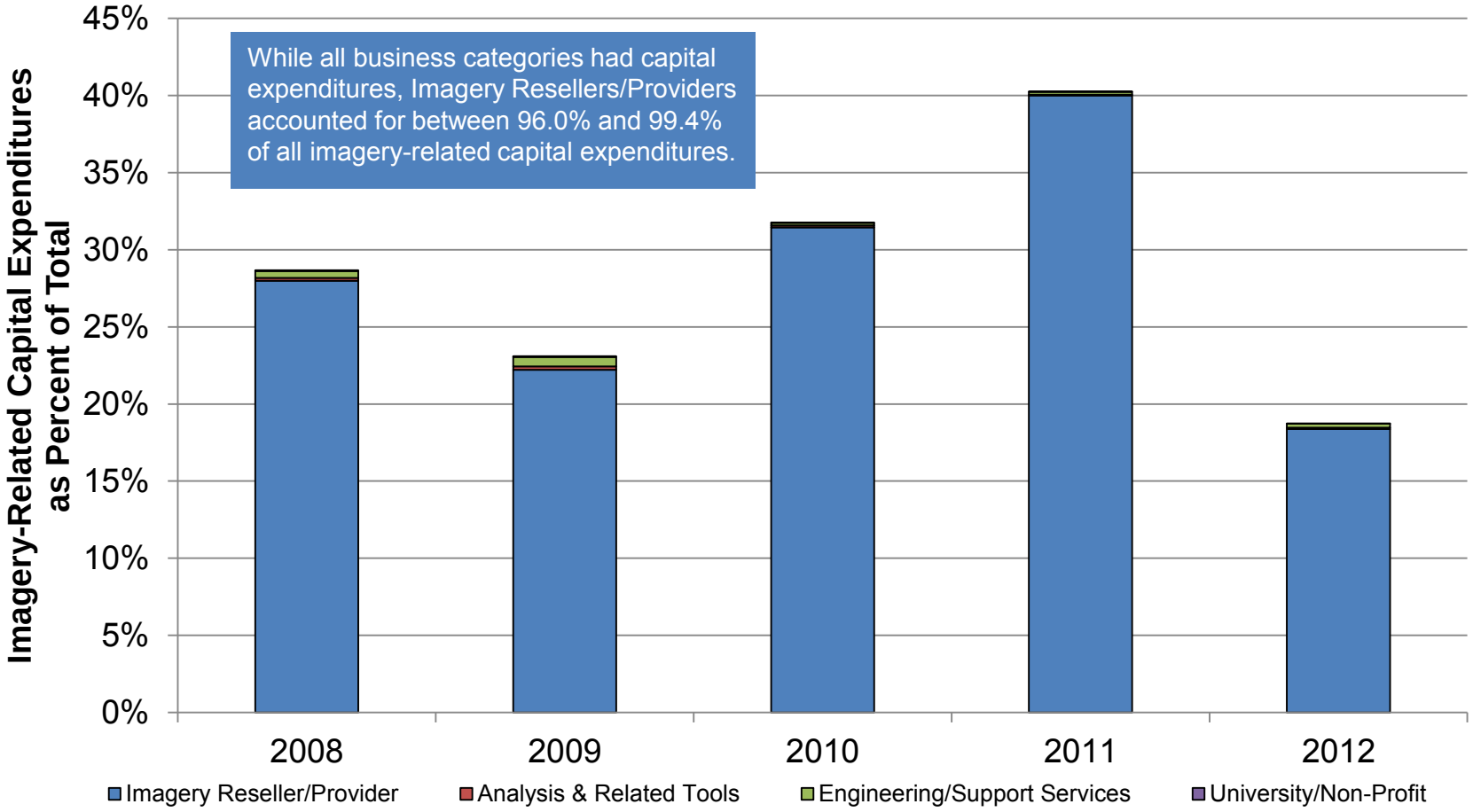


*Excludes one very large respondent whose capital expenditure data would have skewed results due to their size. The vast majority of this respondent's capital expenditures were not imagery-related.

60 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Imagery-Related Capital Expenditures as Percent of Total, by Business Category, 2008-2012*



*Excludes one very large respondent whose capital expenditure data would have skewed results due to their size. The vast majority of this respondent's capital expenditures were not imagery-related.

60 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 8: EMPLOYMENT

- TOTAL AND IMAGERY-RELATED EMPLOYMENT BY YEAR
- DIFFERENCES IN EMPLOYMENT TRENDS BASED ON RESPONDENTS' PERCENTAGE OF IMAGERY-RELATED SALES
- CHANGES IN TOTAL EMPLOYMENT COMPARED TO CHANGES IN IMAGERY-RELATED EMPLOYMENT

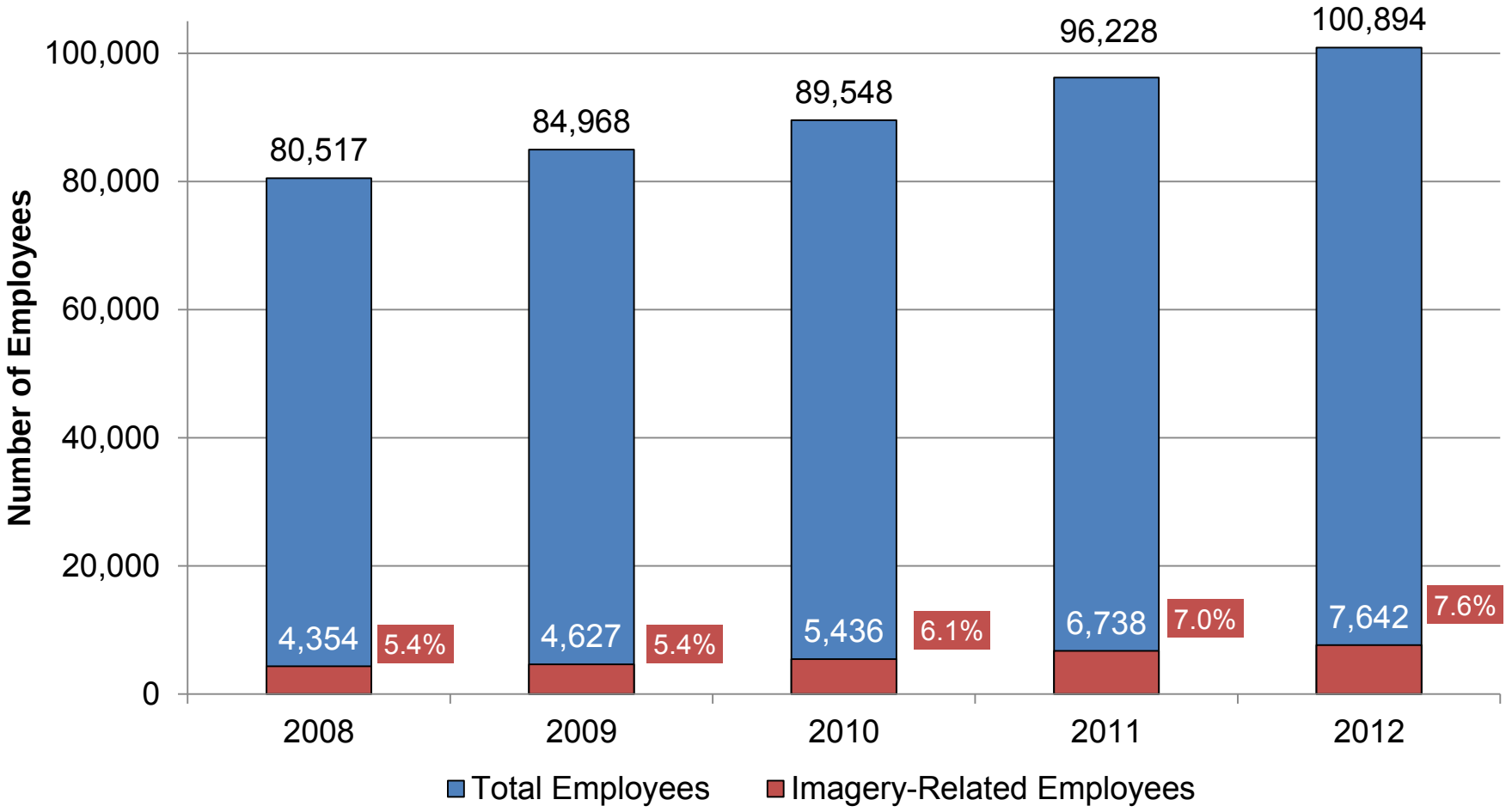
Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Employment, 2008-2012

- Respondents provided their number of full time employees for each year between 2008 and 2012, as well as the percent of total employees who support imagery-related products and services.
- Both total employment and imagery-related employment rose, with imagery-related employment accounting for an increasing percentage of overall employment.
- Imagery-related employment rose in every year over the period, both in absolute terms and as a share of total employment, rising from 5.4% of total employment in 2008 to 7.6% in 2012.
- Employment growth was strongest among respondents with higher percentages of imagery-related sales. Organizations with at least one-quarter of their sales related to imagery increased employment 44% between 2008 and 2012, compared to 19% employment growth at organizations with a lesser percentage of imagery-related sales.
- Even among the 21 respondents who reduced their overall employment level between 2008 and 2012, imagery-related employment grew by 22%. In addition, 18 respondents had no imagery-related employees in 2008 but added some by 2012.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Total and Imagery-Related Employment, 2008-2012*

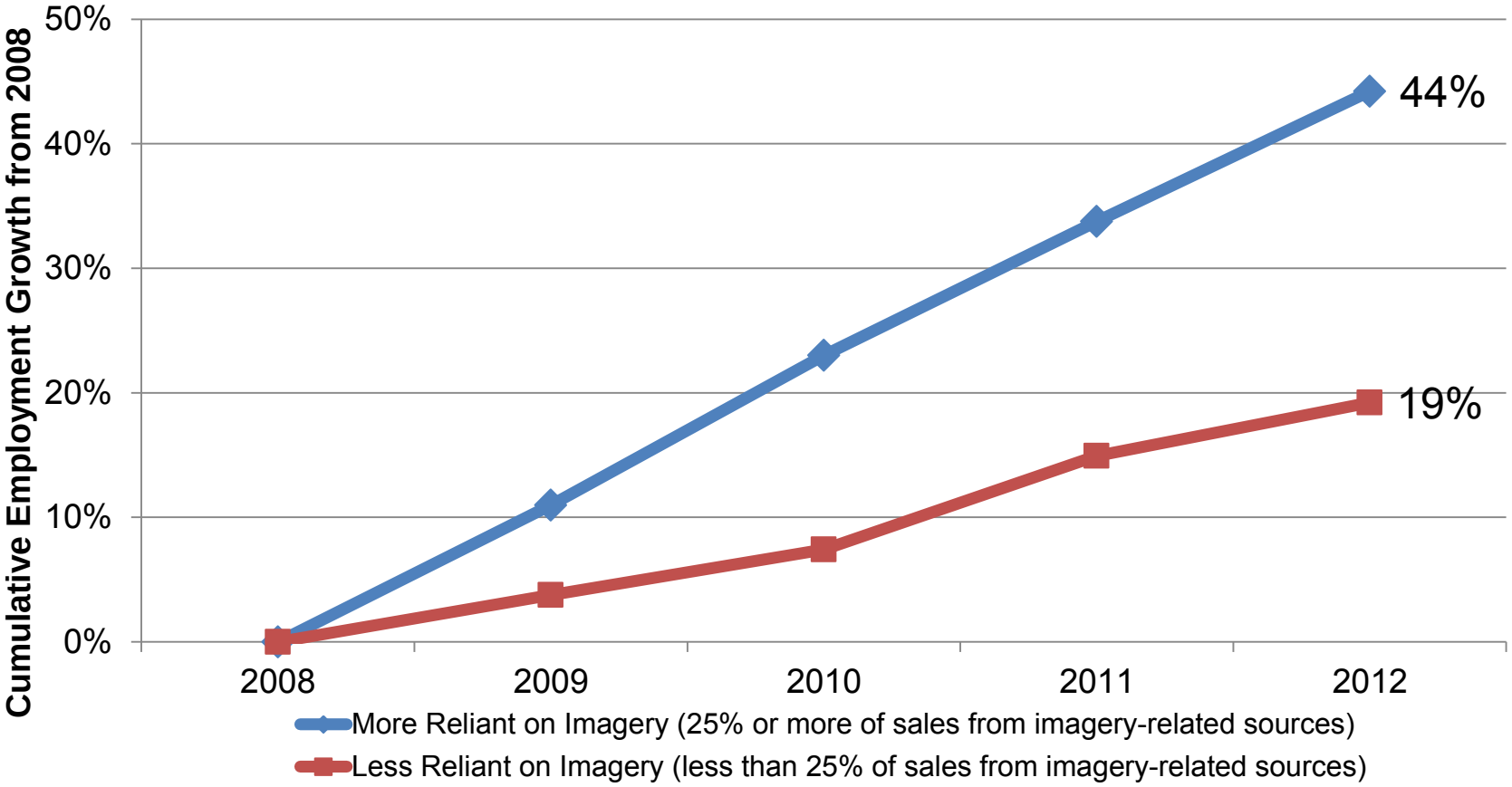


*Excludes one very large respondent whose employment data would have skewed results due to their size. The vast majority of this respondent's employees were not imagery-related.

91 respondents reporting employment data

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Change in Employment by Respondents' Level of Imagery-Related Sales, 2008-2012*

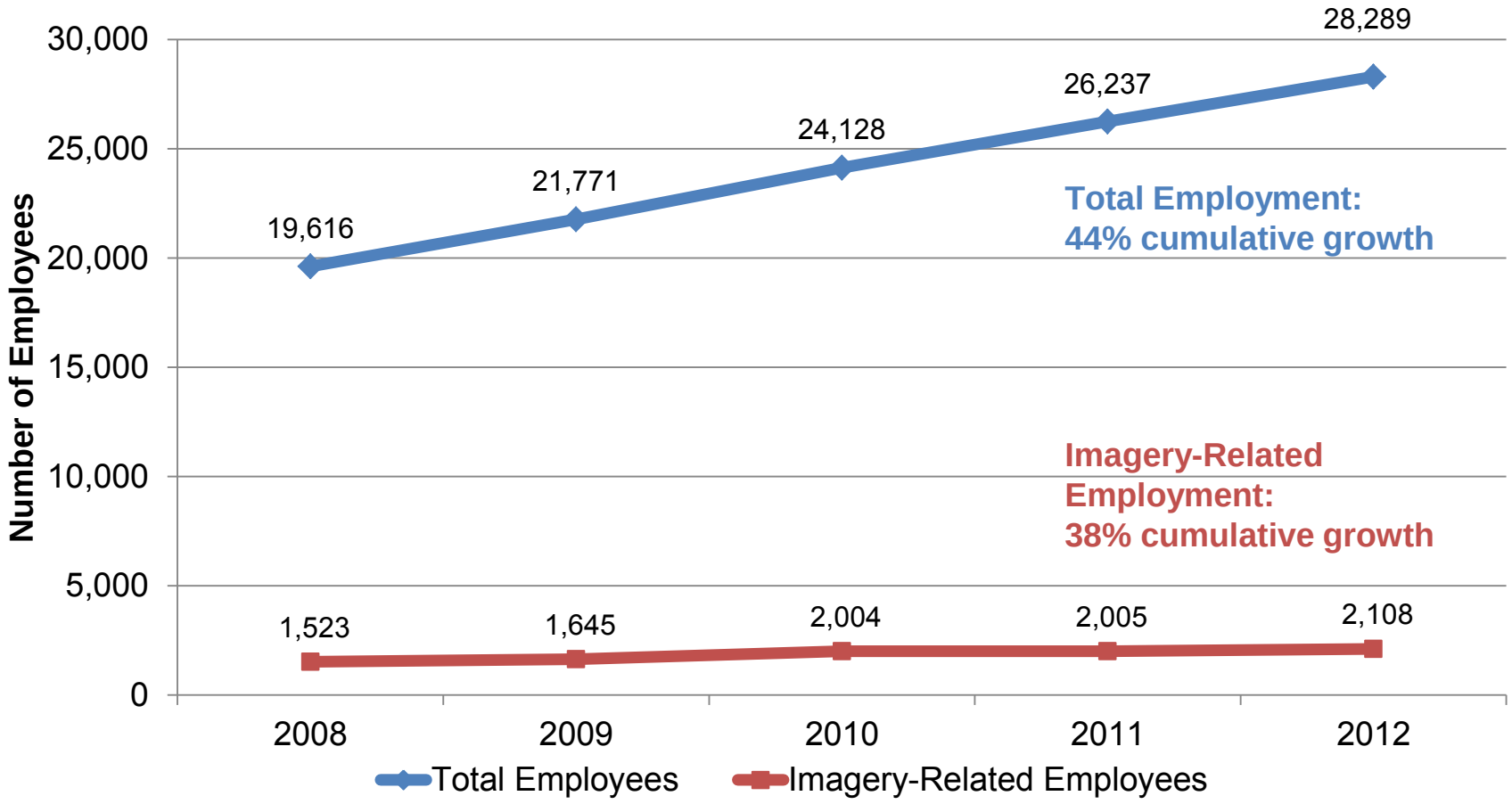


*Excludes one very large respondent whose employment data would have skewed results due to their size. The vast majority of this respondent's employees were not imagery-related.

91 respondents reporting employment data

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

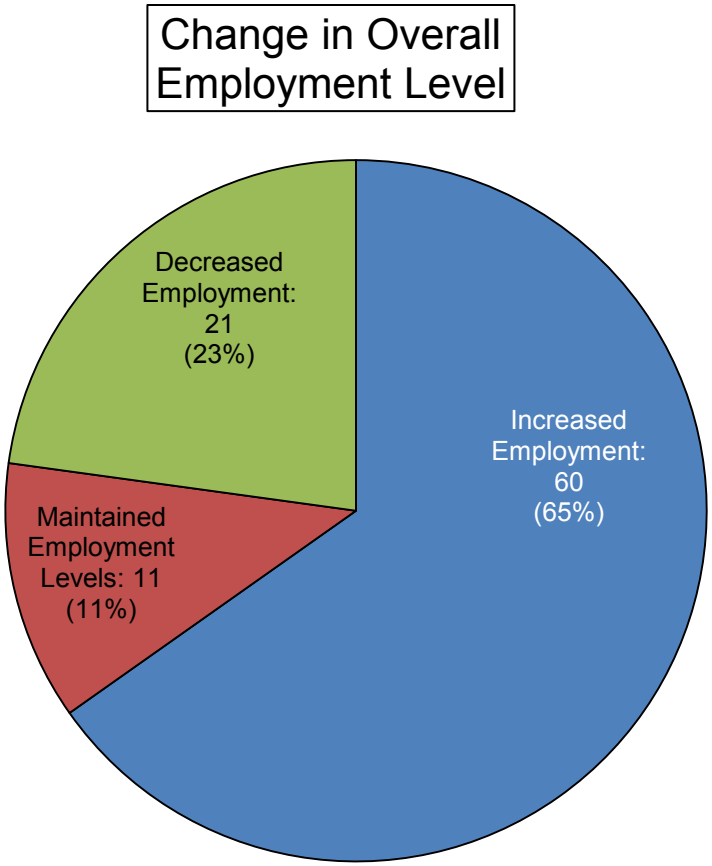
Employment by Respondents With Over 25% of Sales Related to Imagery, 2008-2012



21 respondents with over 25% of net sales related to commercial EO satellite imagery.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Changes in Employment Levels, 2008-2012



92 respondents

- Among the 65% of respondents adding employees between 2008 and 2012, overall employment levels rose 38%.
- Total employment by respondents that cut employees over the period was 14% lower in 2012 than in 2008.
- Imagery-related employment grew in all three categories:

Type of Change in Total Employment	Percent Change in Total Employment	Percent Change in Imagery-Related Employment
Reduced Employment	-13.8%	+22.3%
Maintained Employment	0%	+10.8%
Increased Employment	+38.5%	+89.3%

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

CHAPTER 9: RESPONDENT OPERATIONS & REACTIONS TO INDUSTRY CHANGES

- RESPONDENT PRICING CHANGES IN RESPONSE TO CHANGES IN COST OF IMAGERY
- IMPACTS EXPERIENCED AS A RESULT OF THE 2006 CONSOLIDATION OF U.S. COMMERCIAL EO SATELLITE OPERATORS (FROM THREE TO TWO)
- EXPECTED IMPACTS FROM AN ADDITIONAL CONSOLIDATION OF U.S. COMMERCIAL EO SATELLITE OPERATORS, REDUCING U.S. PROVIDERS FROM TWO TO ONE (SCENARIO 1)
- EXPECTED IMPACTS IF RESPONDENTS WERE ONLY ABLE TO PURCHASE IMAGERY FROM NON-U.S.-BASED PROVIDERS (SCENARIO 2)

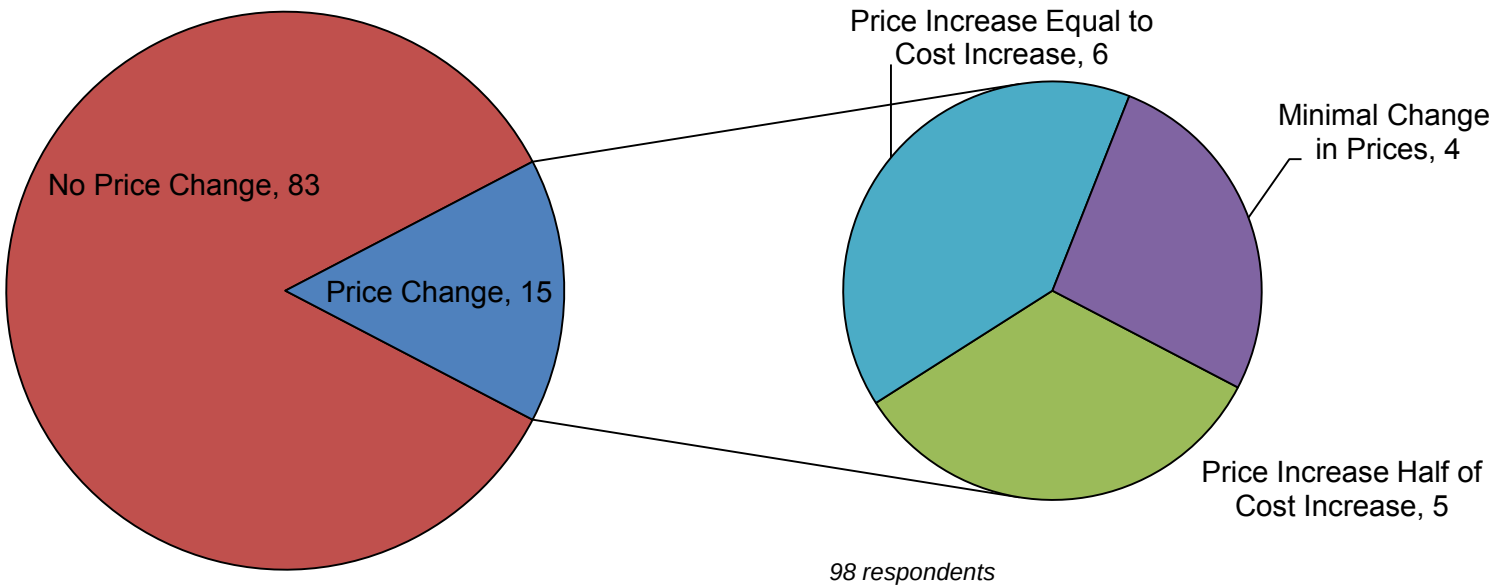
Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts of Changes to the Structure of the U.S. Commercial EO Satellite Imagery Industry

- As consumers of EO satellite imagery or providers of enabling products, technologies, or services, respondents were asked to assess the impacts on their organizations of four events:
  - If the cost of acquiring U.S. commercial EO satellite imagery increased, how the prices of their products, technologies, and services would change;
  - Whether their organization was impacted by the 2006 consolidation of U.S. commercial EO satellite imagery providers (a reduction from three U.S. commercial EO satellite operators to two);
  - How their organization would be impacted by an additional consolidation in the number of U.S. commercial EO satellite imagery providers (Scenario 1);
  - How their organization would be impacted if they were only able to purchase imagery from providers based outside the United States (Scenario 2)
- Summaries of the results are presented here, with complete tabulations available in Appendix B.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Impact of Increased Imagery Costs on Respondent Pricing



- Fifteen respondents indicated that a change in the cost of imagery would result in a change in the price of their products or services:
  - Six expected to pass along the full cost of the increase to their customers;
  - Five expected to pass along half the cost of the increase;
  - Four expected a minimal change in their prices or could not predict how their prices would change.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impact of Increased Imagery Costs on Respondent Pricing

Top PSAs Impacted by Imagery Cost Increases*	Number of Respondents
Mapping/Geospatial Data	13
Image Processing	11
Imagery Reseller/Provider	11
Geospatial Software	10
Geographic Information Systems	10
Consulting	9
Remote Sensing	9
Multi-Sensor Data Collection	9
Data Fusion	9
Geospatial R&D	8

*Respondents can participate in multiple Product/Service Areas.

- Comments from respondents:
  - "We resell [at prices] according to the commercial list price; if that goes up, our price goes up accordingly." – *Imagery Reseller/Provider; imagery-related products account for 90% of sales*
  - "For Products containing commercial imagery, the data cost averages about 50%. Therefore a 50% increase, increases price by about 25%." – *Analysis & Related Tools; imagery-related products account for 1% of sales*
  - "A 25% or 50% increase in satellite imagery costs would not increase our prices as much as it would decrease our revenue from fewer sales." – *Imagery Reseller/Provider; imagery-related products account for 1% of sales*
  - "An increase will have a significant negative impact on the use of imagery in education." – *University/Non-Profit*

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Impacts from Past and Potential Changes in the Structure of the U.S. Commercial EO Satellite Imagery Industry

- Respondents were asked to consider the 2006 industry consolidation, two potential future scenarios, and to assess their impacts on a number of organizational factors:

  - Quality of Imagery
  - Capital Expenditures
  - R&D Expenditures
  - Technology/Products/Services Costs
  - Technology/Products/Services Prices
  - Personnel with Key Skills
  - Lead Times
  - New Product Lines
  - Participation in U.S. Government Contracts
  - Participation in Commercial Contracts
  - Existing Product Lines
  - Ability to Meet U.S. Government Contract Obligations
  - Sales Revenue
  - Foreign Sourcing Purchasing
  - No Impact
  - Not Sure
  - Other (specify)

- Respondents were able to indicate if they experienced or expected: (a) a decrease, (b) no change, or (c) an increase for each area of impact.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

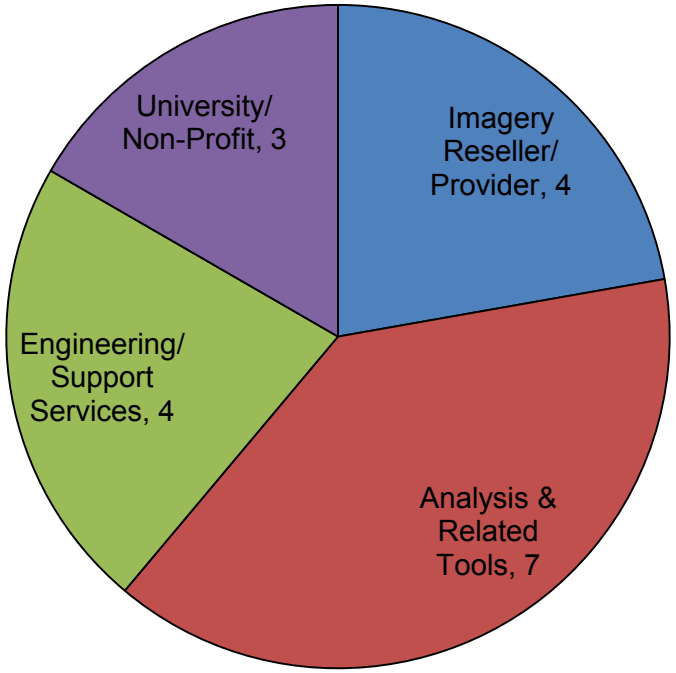
Analytical Groupings of Factors

- For analysis, BIS grouped the areas of impact listed in the survey into three broad categories. These groupings enabled easier interpretation of the net effects of industry changes and potential changes:
  - **Beneficial Factors**—the areas for which an increase is *beneficial* to an organization:
    - Sales Revenue
    - Quality of Imagery
    - Participation in Commercial Contracts
    - Participation in U.S. Government Contracts
    - Ability to Meet U.S. Government Contract Obligations
    - New Product Lines
    - Existing Product Lines
  - **Costly Factors**—the areas for which an increase is *costly* to an organization:
    - Technology/Product/Service Costs
    - Lead Times
    - Capital Expenditures
    - R&D Expenditures
  - **Other Factors**—the areas for which an increase has *no clearly positive or negative effect*
    - Personnel With Key Skills
    - Technology/Product/Service Prices
    - Foreign Sourcing Purchasing
    - Availability of Imagery (Scenario 2 only)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Prior Case: Impacts of the 2006 Consolidation of U.S. Commercial EO Satellite Imagery Providers

Eighteen respondents indicated that the 2006 imagery provider consolidation*, which reduced the number of primary providers from three to two, affected their organization in some way. The remaining 80 provided no feedback on the impact of this event.



Top PSAs of Respondents Affected by 2006 Consolidation**	Number of Respondents Impacted
Education & Training	12
Analytics Software	12
Mapping/Geospatial Data	11
Multi-Sensor Data Collection	11
Image Processing	11
Consulting	11

**Respondents participate in multiple PSAs.

18 respondents

*ORBIMAGE acquired Space Imaging to form GeoEye in 2006

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Prior Case: Impacts of the 2006 Consolidation of U.S. Commercial EO Satellite Imagery Providers (continued)

- Most of the 18 respondents impacted indicated that the merger resulted in increases in their Beneficial Factors, but also increases in their Costly Factors:
  - Engineering/Support Service providers reported the most positive impacts, with 47% reporting increases in Beneficial Factors, though 20% reported increases in Costly Factors.
  - Universities/Non-Profits reported the most negative impacts, with 29% reporting decreases in Beneficial Factors and 44% reporting increases in Costly Factors.

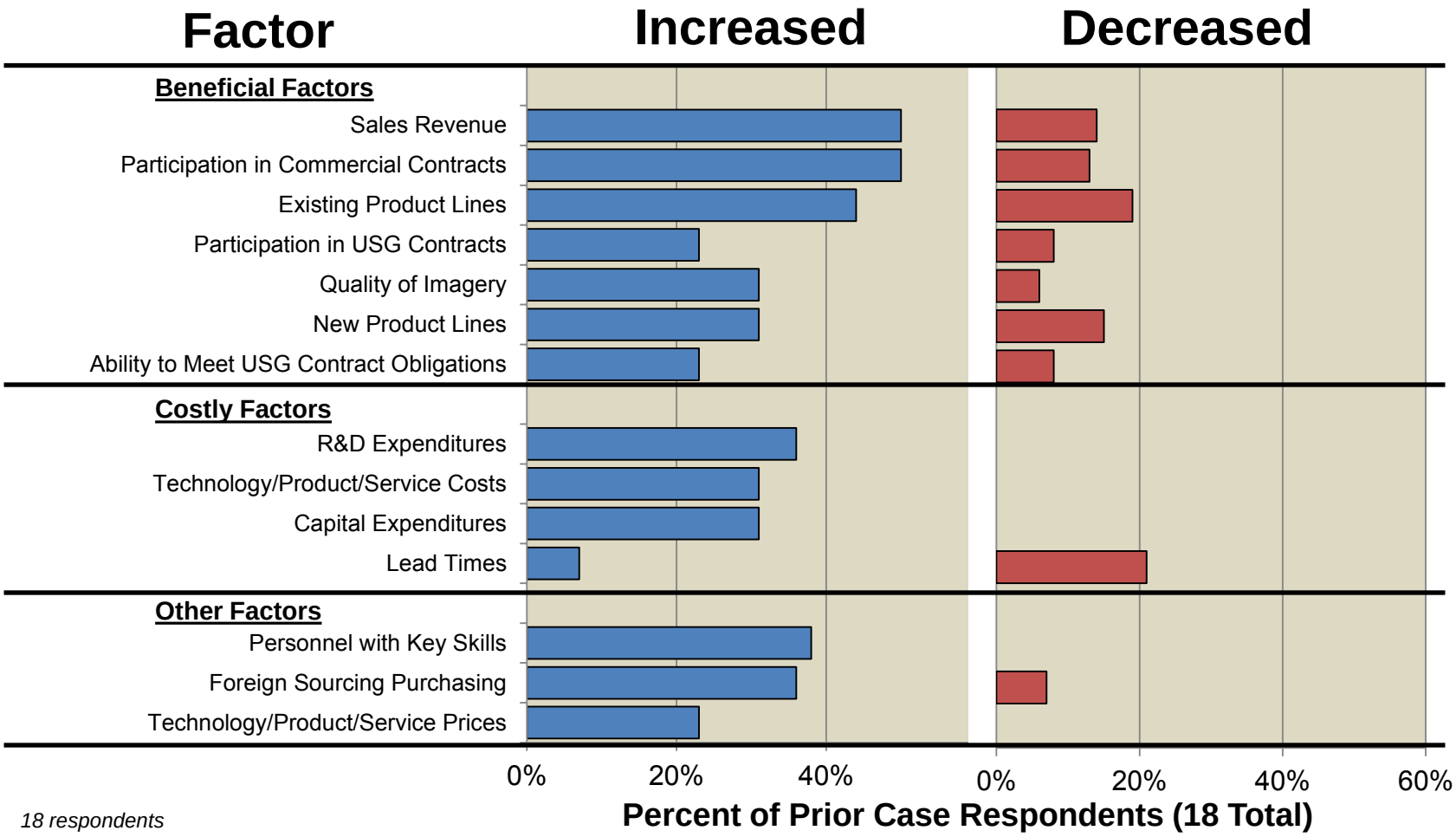
- The most identified increases in Beneficial Factors were in:
  - Participation in commercial contracts
  - Sales revenue
  - Existing product lines

- The most identified increases in Costly Factors were in:
  - R&D expenditures
  - Capital expenditures
  - Product costs

- Other Factors: six respondents indicated they increased their personnel with key skills, and five increased their foreign sourcing of EO satellite imagery.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts of the 2006 Consolidation of U.S. Commercial EO Satellite Imagery Providers (continued)



18 respondents

** "No Change" and "Not Sure" answers omitted; full tabulation of results is available in Appendix B*

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Impacts of the 2006 Consolidation by Business Category

Percent of 18 Respondents Providing Feedback

	Business Category	Increased	No Change	Decreased	Not Sure
Beneficial Factors • Sales Revenue • Quality of Imagery • Participation in Commercial Contracts • Participation in USG Contracts • Ability to Meet USG Contract Obligations • New Product Lines • Existing Product Lines	**Imagery Resellers/Providers**	**43%**	**32%**	**7%**	**18%**
	Analysis & Related Tools	**38%**	**48%**	**14%**	**0%**
	Engineering/Support Services	**47%**	**53%**	**0%**	**0%**
	Universities/Non-Profits	**24%**	**18%**	**29%**	**29%**
Costly Factors • Technology/Product/ Service Costs • Lead Times • Capital Expenditures • R&D Expenditures	**Imagery Resellers/Providers**	**19%**	**38%**	**6%**	**38%**
	Analysis & Related Tools	**25%**	**67%**	**4%**	**4%**
	Engineering/Support Services	**20%**	**80%**	**0%**	**0%**
	Universities/Non-Profits	**44%**	**11%**	**11%**	**33%**

18 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: A Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers

- In Scenario 1, respondents were asked how each factor listed might be impacted by a future sudden decrease in the number of U.S.-based commercial EO satellite operators, which would leave only one remaining primary imagery provider in the U.S.

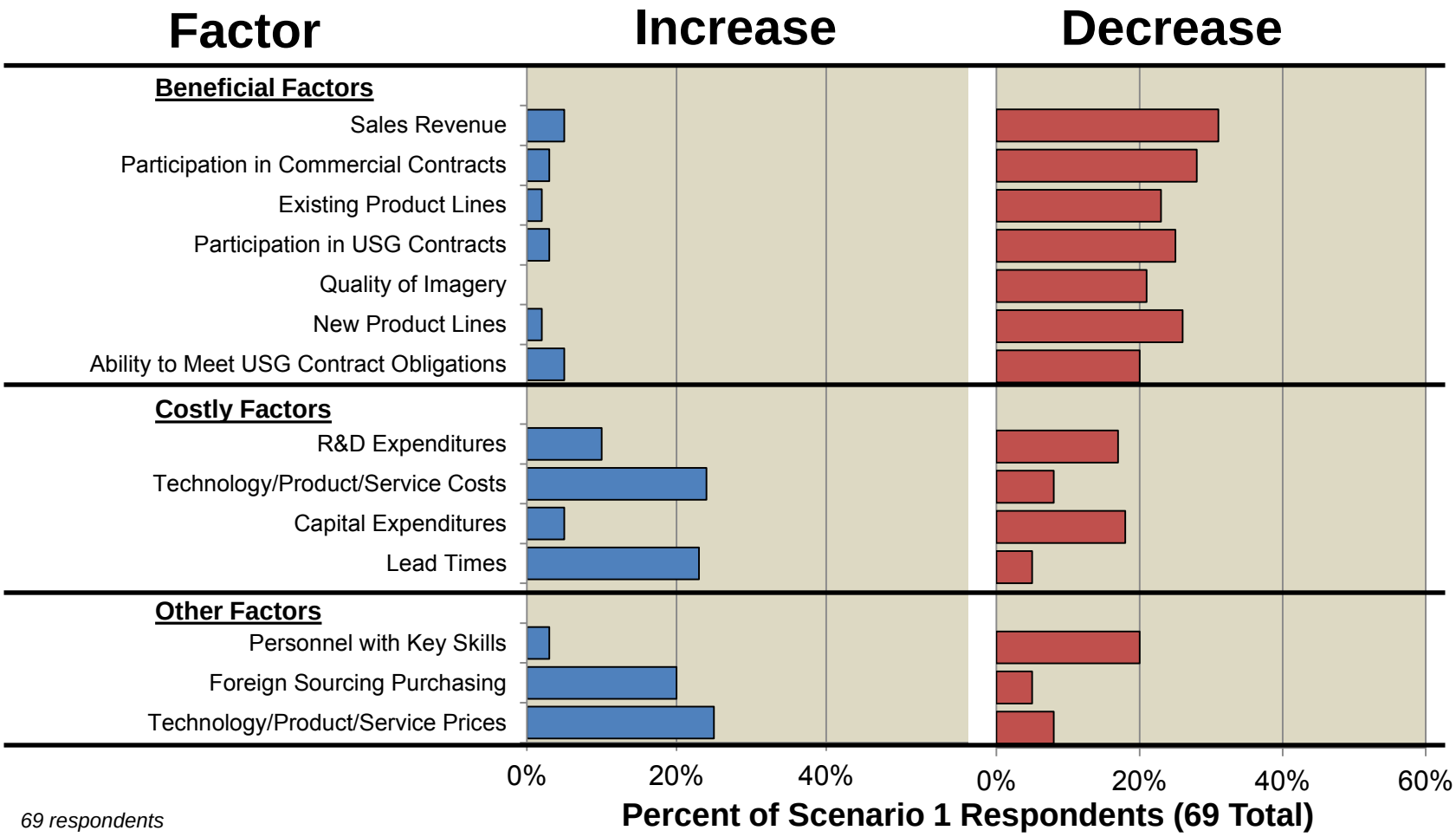
- While most of the 69 respondents providing feedback expected no change or were unsure of the type of change they expected for any given factor, those foreseeing impacts expected mostly detrimental changes:
  - Imagery Resellers/Providers expected the most harm, with 28% expecting decreases in Beneficial Factors (just 1% expected increases in these factors), and 25% expecting increases in Costly Factors.
  - Engineering/Support Service providers foresaw the least impact, with 16% expecting decreases in Beneficial Factors, but slightly more expecting decreases in Costly Factors than increases (13% and 10%, respectively).

- Many respondents expected decreases in Beneficial Factors, with as many as 20 respondents predicting decreases, while no more than three respondents expected a Beneficial Factor to increase.
  - Sales Revenue was most identified as being expected to decrease, by 31% of respondents
  - This was followed by Participation in Commercial Contracts (28%) and New Product Lines (26%)

- Respondents expected both increases and decreases in Costly Factors:
  - Costs of Technology/Products/Services were expected to increase by 24% of respondents, and 23% expected increases in Lead Times.
  - 18% of respondents expected Capital Expenditures to decrease, and 17% expected decreased R&D.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Expected Impacts of a Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers (Scenario 1)*



69 respondents

** "No Change" and "Not Sure" answers omitted; full tabulation of results is available in Appendix B*

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Expected Impacts of Scenario 1 by Business Category

Percent of 69 Respondents Providing Feedback

	Business Category	Increase	No Change	Decrease	Not Sure
Beneficial Factors • Sales Revenue • Quality of Imagery • Participation in Commercial Contracts • Participation in USG Contracts • Ability to Meet USG Contract Obligations • New Product Lines • Existing Product Lines	**Imagery Resellers/Providers**	**1%**	**25%**	**28%**	**46%**
	Analysis & Related Tools	**1%**	**45%**	**29%**	**24%**
	Engineering/Support Services	**4%**	**58%**	**16%**	**22%**
	Universities/Non-Profits	**9%**	**42%**	**17%**	**32%**
Costly Factors • Technology/Product/ Service Costs • Lead Times • Capital Expenditures • R&D Expenditures	**Imagery Resellers/Providers**	**25%**	**25%**	**12%**	**38%**
	Analysis & Related Tools	**14%**	**52%**	**12%**	**21%**
	Engineering/Support Services	**10%**	**69%**	**13%**	**8%**
	Universities/Non-Profits	**17%**	**43%**	**10%**	**30%**

69 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Scenario 2: Respondents Can Only Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers

- In Scenario 2, respondents were asked how each factor listed might be impacted if they were only able to purchase imagery from non-U.S.-based commercial EO satellite imagery providers.

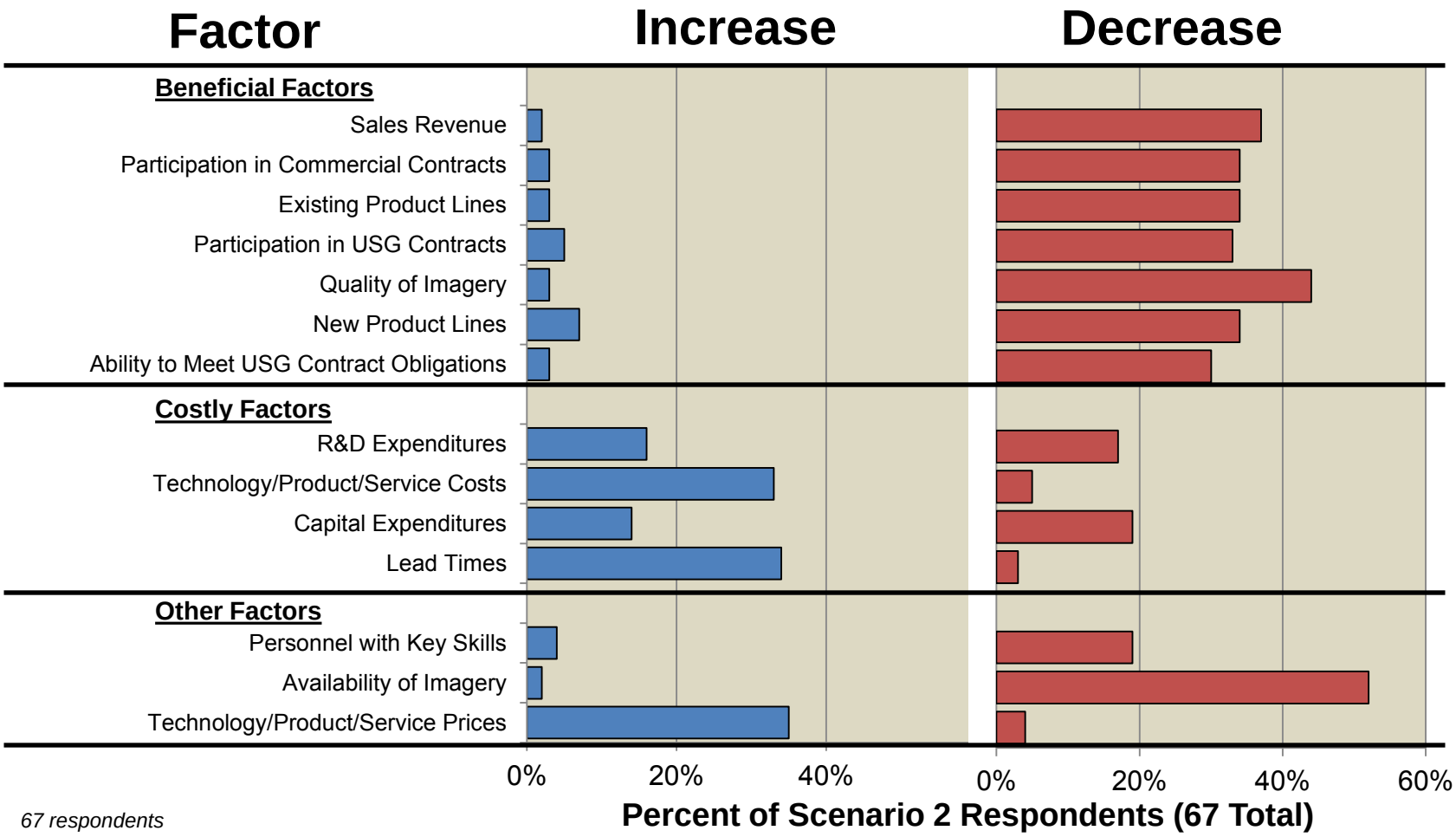
- While most of the 67 respondents providing feedback expected no change or were unsure of the type of change they expected for any given factor, those foreseeing impacts expected mostly detrimental changes.
  - Imagery Resellers/Providers expected the most harm, with 52% expecting decreases in Beneficial Factors (just 6% expected increases in these factors), and 44% expecting increases in Costly Factors.
  - Engineering/Support Service providers foresaw the least impact, with 14% expecting decreases in Beneficial Factors, and very few expecting any change at all in Costly Factors.

- Many respondents expected decreases in Beneficial Factors, with over one-third predicting decreases, while no more than four respondents expected any Beneficial Factor to increase.
  - Quality of Imagery was most identified as being expected to decrease, by 44% of respondents
  - This was followed by Sales Revenue (37%) and Participation in Commercial Contracts (34%)

- Respondents expected both increases and decreases in Costly Factors:
  - Lead Times were expected to increase by 34% of respondents, and 33% expected increases in Costs of Technology/Products/Services.
  - 19% of respondents expected Capital Expenditures to decrease, and 17% expected decreased R&D.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Expected Impacts if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers (Scenario 2)*



67 respondents

** "No Change" and "Not Sure" answers omitted; full tabulation of results is available in Appendix B*

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Expected Impacts of Scenario 2 by Business Category

Percent of 67 Respondents Providing Feedback

	Business Category	Increase	No Change	Decrease	Not Sure
Beneficial Factors • Sales Revenue • Quality of Imagery • Participation in Commercial Contracts • Participation in USG Contracts • Ability to Meet USG Contract Obligations • New Product Lines • Existing Product Lines	**Imagery Resellers/Providers**	**6%**	**5%**	**52%**	**38%**
	Analysis & Related Tools	**1%**	**35%**	**39%**	**25%**
	Engineering/Support Services	**4%**	**67%**	**14%**	**15%**
	Universities/Non-Profits	**11%**	**36%**	**28%**	**25%**
Costly Factors • Technology/Product/ Service Costs • Lead Times • Capital Expenditures • R&D Expenditures	**Imagery Resellers/Providers**	**44%**	**14%**	**19%**	**22%**
	Analysis & Related Tools	**22%**	**41%**	**12%**	**26%**
	Engineering/Support Services	**3%**	**84%**	**5%**	**8%**
	Universities/Non-Profits	**37%**	**43%**	**7%**	**13%**

67 total respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Comparisons of Expected Impacts of Scenarios 1 and 2

- Respondents were more apprehensive about the potential impacts of Scenario 2 (only able to purchase EO satellite imagery from non-U.S.-based providers) than Scenario 1 (a sudden decrease in the number of U.S.-based commercial EO satellite imagery providers). For nearly every factor, respondents expected the impacts of Scenario 2 to be more significant, though the trends of responses were similar for both scenarios.

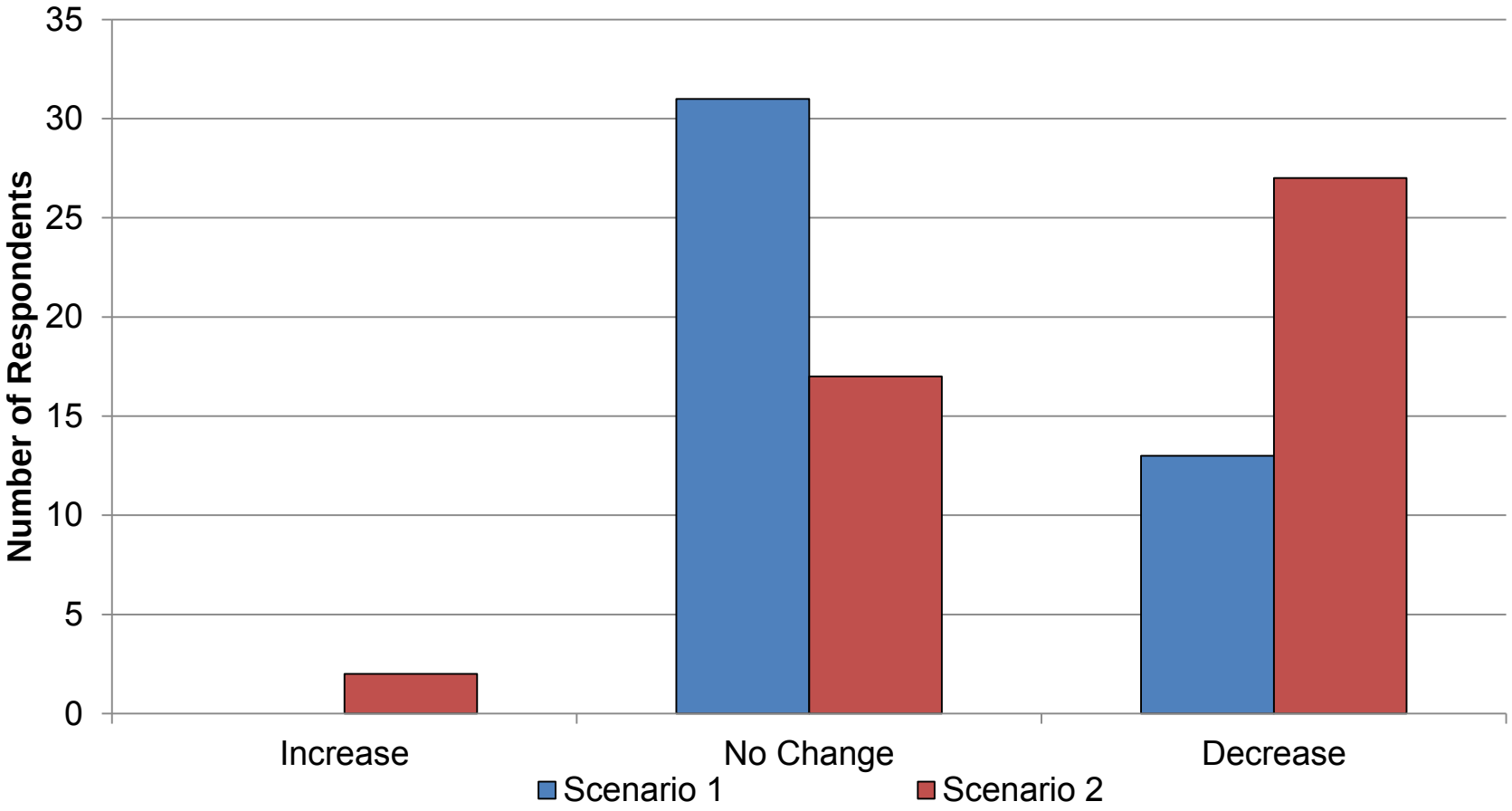
- The biggest differences in expectations for Beneficial Factors were:
  - Quality of Imagery, which 44% of respondents expected to decrease in Scenario 2, compared to 21% of respondents in Scenario 1;
  - Ability to Meet USG Contract Obligations, which 30% of respondents expected to decrease in Scenario 2, compared to 20% of respondents in Scenario 1.

- The biggest difference in expectations for Costly Factors was:
  - Lead Times, which 34% of respondents expected to increase in Scenario 2, compared to 23% of respondents in Scenario 1.

- The biggest difference in expectations for Other Factors was:
  - Technology/Product/Service Prices, which 35% of respondents expected to increase in Scenario 2, compared to 25% of respondents in Scenario 1.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

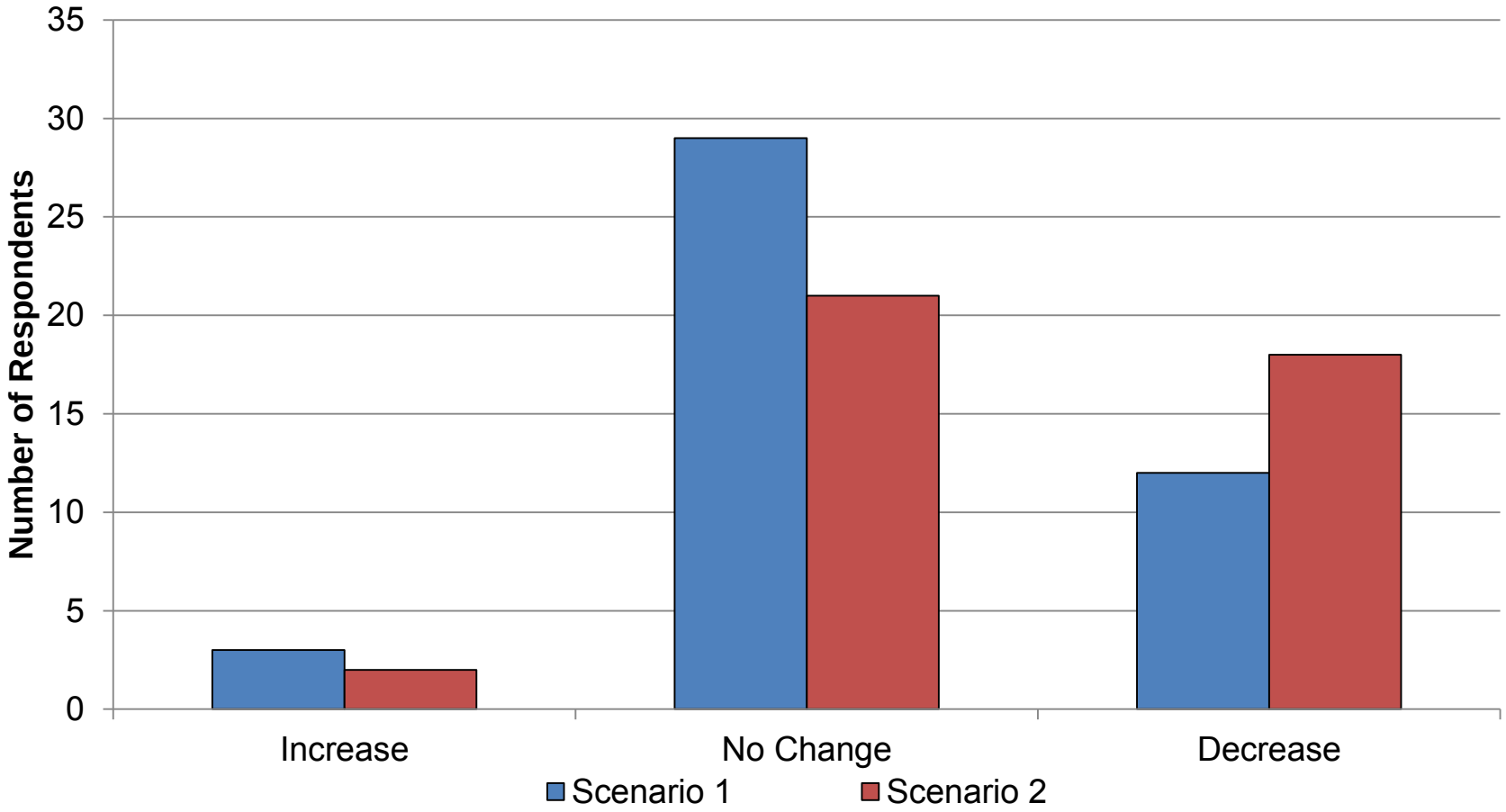
Impacts on Quality of Imagery by Scenario 1 & 2



Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts on Ability to Meet U.S. Government Contract Obligations by Scenario 1 & 2



Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Scenarios 1 & 2: Comparison of Impacts on Beneficial Factors

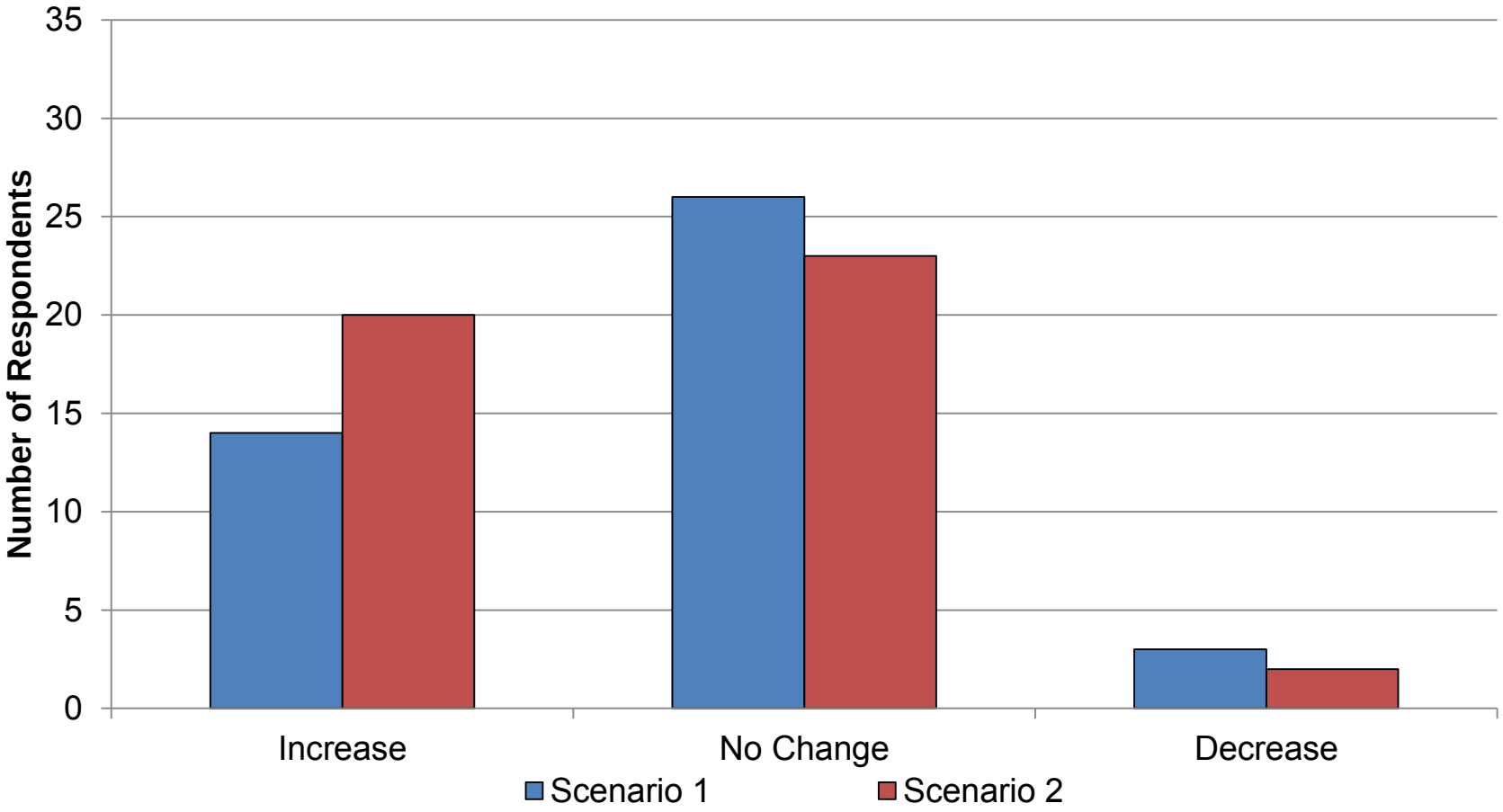
Percent of Respondents Providing Feedback

	Scenario (respondents)	Increase	No Change	Decrease	Not Sure
Sales Revenue	Scenario 1 (64 respondents)	5%	36%	31%	28%
	Scenario 2 (60 respondents)	2%	33%	37%	28%
Quality of Imagery	Scenario 1 (63 respondents)	0%	49%	21%	30%
	Scenario 2 (62 respondents)	3%	27%	44%	26%
Existing Product Lines	Scenario 1 (64 respondents)	2%	50%	23%	25%
	Scenario 2 (59 respondents)	3%	41%	34%	22%
New Product Lines	Scenario 1 (61 respondents)	2%	43%	26%	30%
	Scenario 2 (58 respondents)	7%	38%	34%	21%
Participation in Commercial Contracts	Scenario 1 (61 respondents)	3%	39%	28%	30%
	Scenario 2 (59 respondents)	3%	41%	34%	22%
Participation in USG Contracts	Scenario 1 (60 respondents)	3%	42%	25%	30%
	Scenario 2 (60 respondents)	5%	37%	33%	25%
Ability to Meet USG Contract Obligations	Scenario 1 (60 respondents)	5%	48%	20%	27%
	Scenario 2 (60 respondents)	3%	35%	30%	32%

Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts on Lead Times by Scenario 1 & 2



Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Scenarios 1 & 2: Comparison of Impacts on Costly Factors

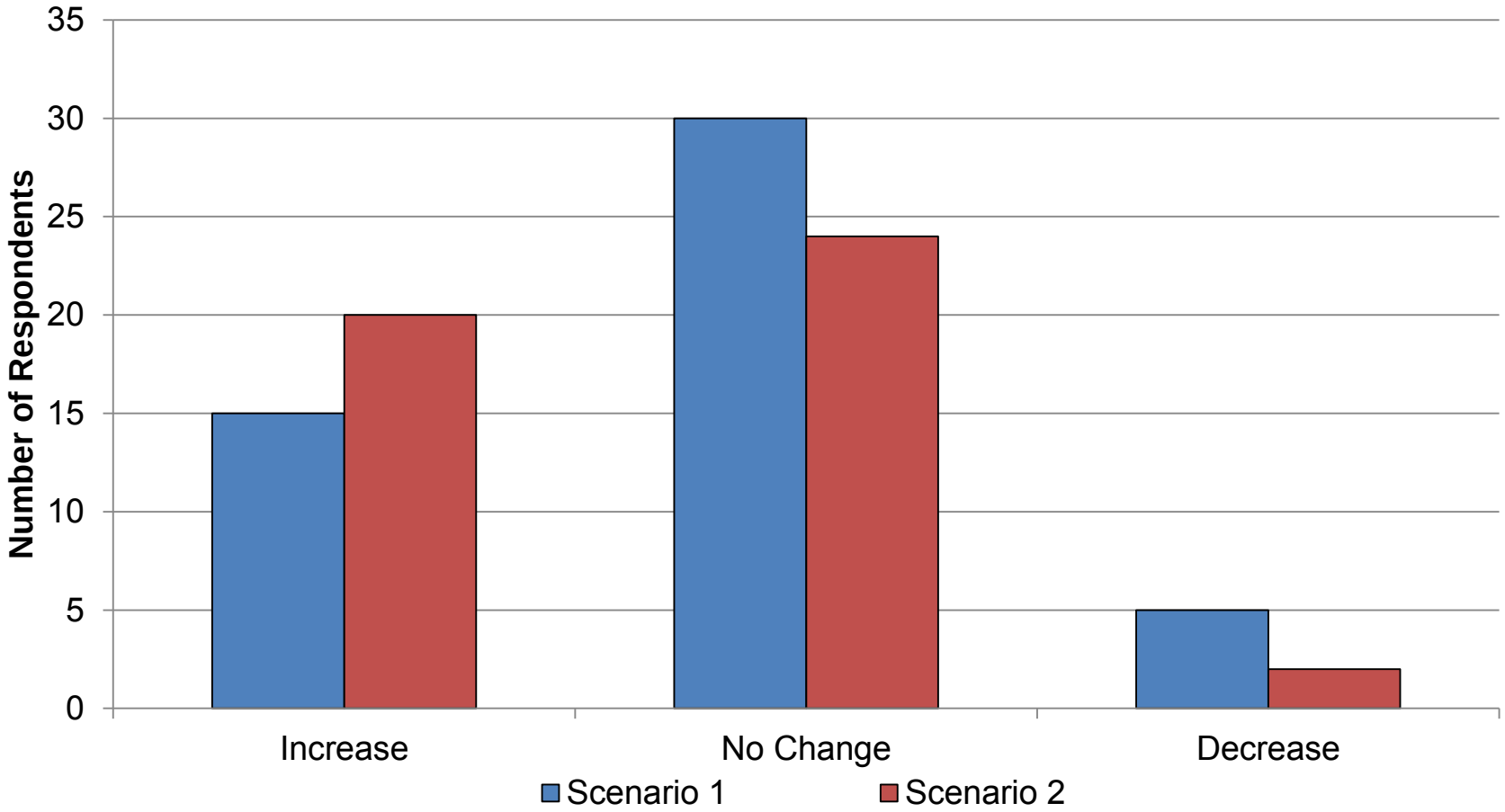
Percent of Respondents Providing Feedback

	Scenario (respondents)	Increase	No Change	Decrease	Not Sure
R&D Expenditures	Scenario 1 (60 respondents)	10%	53%	17%	20%
	Scenario 2 (58 respondents)	16%	50%	17%	17%
Capital Expenditures	Scenario 1 (62 respondents)	5%	56%	18%	21%
	Scenario 2 (58 respondents)	14%	48%	19%	19%
Lead Times	Scenario 1 (60 respondents)	23%	43%	5%	28%
	Scenario 2 (59 respondents)	34%	39%	3%	24%
Technology/Product/Service Costs	Scenario 1 (62 respondents)	24%	47%	8%	21%
	Scenario 2 (58 respondents)	33%	40%	5%	22%

Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts on Technology/Product/Service Prices by Scenario 1 & 2



Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Scenarios 1 & 2: Comparison of Impacts on Other Factors

Percent of Respondents Providing Feedback

	Scenario (respondents)	Increase	No Change	Decrease	Not Sure
Personnel With Key Skills	Scenario 1 (59 respondents)	3%	54%	20%	23%
	Scenario 2 (57 respondents)	4%	56%	19%	21%
Technology/Product/Service Prices	Scenario 1 (61 respondents)	25%	49%	8%	18%
	Scenario 2 (57 respondents)	35%	42%	4%	19%
Foreign Sourcing Purchasing	Scenario 1 (61 respondents)	20%	41%	5%	34%
	Scenario 2 (NA)	NA	NA	NA	NA
Availability of Imagery	Scenario 1 (NA)	NA	NA	NA	NA
	Scenario 2 (62 respondents)	2%	23%	52%	24%

Scenario 1: Sudden Decrease in the Number of U.S.-Based Commercial EO Satellite Imagery Providers. (69 respondents)
Scenario 2: Only Able To Purchase from Non-U.S.-Based Commercial EO Satellite Imagery Providers. (67 respondents)

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 10: ADDITIONAL INDUSTRY COMMENTS

- FEEDBACK ON FACTORS CURRENTLY AFFECTING THE COMMERCIAL EO SATELLITE IMAGERY INDUSTRY, OR THAT MIGHT AFFECT IT IN THE FUTURE.
- MOST COMMENTS DIVIDED INTO THREE MAIN AREAS:
  - A POTENTIAL DIGITALGLOBE-GEOEYE MERGER
  - USG RESTRICTIONS ON THE SALES OF SATELLITE IMAGERY
  - THE USG's ROLE IN THE COMMERCIAL EO SATELLITE IMAGERY INDUSTRY

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Industry Comments Related to a Potential DigitalGlobe - GeoEye Merger

- "A merger between DigitalGlobe and GeoEye would create a situation where supply of quality satellite imagery is restricted to us. We would likely either need to launch our own satellites (which is cost prohibitive) or use sub-standard imagery thereby degrading our product and reducing revenue." – *Imagery Reseller/Provider, 1% of sales are imagery-related*

- "We predict that the [DigitalGlobe - GeoEye merger] would substantially decrease its R&D investments in the absence of domestic competition, resulting in reduced capabilities for the U.S. Government and significant financial impact to each company's technology suppliers." – *Engineering/Support Services, 15% of sales are imagery related*

- "Reduction of the sources of commercial E/O products from 2 to 1 would proportionally reduce the revenue, personnel, IR&D, and capital related to that product line." – *Analysis & Related Tools, 1% of sales are imagery-related*

- "Despite having two commercial satellite providers in the US, there is still lack of data." – *Analysis & Related Tools, 1% of sales are imagery related*

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Industry Comments Related to Restrictions on Sales of U.S. Commercial EO Satellite Imagery

- "If the U.S. providers are able to sell imagery with better resolution, they will be able to better differentiate their products from the foreign competition's. Additionally, because the planned resolution of future US commercial remote sensing systems is beginning to approach that of aerial imagery, it is likely that relaxing the current resolution limits will allow these U.S. companies to address a larger market with their products and services." – *Engineering/Support Services, 12% of sales are imagery-related*

- "Allowing satellite imagery to be released commercially at the 0.25 meter or 0.33 meter resolution levels would greatly benefit rural U.S. as well as international users of satellite imagery and increase our revenue." – *Imagery Reseller/Provider, 44% of sales are imagery-related*

- "Our ability to sell commercial imaging satellites internationally is currently severely impacted by existing ITAR regulations and restrictions." – *Engineering/Support Services, 9% of sales are imagery-related*

- "The impact of ITAR on commercial EO imagery is huge. We have lost significant foreign sales opportunities due to ITAR." – *Analysis & Related Tools, 80% of sales are imagery-related*

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Industry Comments on the U.S. Government's Role in the Commercial EO Satellite Industry

- "Unstable demand from U.S. Government for commercial imagery is making it difficult to determine appropriate amount of on-orbit resources. This makes it hard to justify new expenditures in R&D, Capital and new product development." – *Engineering/Support Services, imagery-related products account for 9% of sales*

- "There is no doubt that the community would greatly benefit from a more heavily government subsidized imagery acquisition program to make commercial imagery more widely available for R&D." – *University/Non-Profit*

- "U.S. Government subsidy of two domestic commercial EO satellite providers has created a profit-driven industry with little competition and little incentive for improvement and innovation. This results in higher prices and lower quality of service for the Government, limits access to other available commercial EO sources that can be competitively leveraged, and diminishes interest in University and research partnerships that would have promoted advances in the industry U.S. commercial EO satellite industry." – *University/Non-Profit*

- "The U.S. Government needs to overcome their skepticism of smaller satellites since that will put them behind Europe in their technology advancement." – *Engineering/Support Services, imagery-related products account for 7% of sales*

- "There is a concern that if a significant drop in government sponsorship or support of US based commercial imagery companies occurs, only non-US based commercial or government satellite platforms will remain." – *Analysis & Related Tools, imagery-related products account for 40% of sales*

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

CHAPTER 11: REPORT FINDINGS

- FINDINGS FROM EACH CHAPTER

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Report Findings

- Chapter 2: Survey Design and Respondent Profile

  - The 98 survey respondents were grouped based on their primary area of business in the imagery industry: Imagery Resellers/Providers (14 organizations); Analysis & Related Tools (49); Engineering/Support Services (20); and Universities/Non-Profits (15)

  - The majority of respondents did not purchase imagery themselves but are nonetheless a significant part of the industry, using imagery provided by clients or customers, or providing key support services such as data management and engineering capabilities.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 3: Product and Service Areas (PSAs)
  - Respondents participated in all of the 47 Product and Service Areas listed, with no PSA having fewer than four participating respondents, and the average respondent participating in 13 PSAs.
  - The most-provided PSAs were:
    - Mapping/Geospatial Data
    - Geographic Information Systems
    - Geospatial Software
  - Two PSAs—Cyber Security/Secure Communications and Intelligence Support Systems—had minimal commercial involvement, with fewer than 25% of participating respondents having commercial customers.
  - Engineering/Support Service providers, none of whom reported having purchased imagery themselves, were mainly providers of key infrastructure enabling the use of imagery, especially computers/software, information management, and data storage/sharing.
  - Respondents have international growth opportunities, as only three PSAs have over 60% of respondents with foreign customers.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 4: Purchases of Imagery and Related Products and Services
  - Between 2008 and 2012, respondents reported having purchased $193 million worth of imagery, a figure that represents just a portion of the total size of the U.S. commercial EO satellite imagery market.
  - Sixty respondents did not purchase imagery themselves but are still key participants in the industry, either through the provision of services or the use of imagery provided at no direct cost to their organization.
  - Roughly half of respondents knew the satellite or family of satellites from which they received imagery, identifying a total of 14 countries of origin. The U.S., France, and Germany accounted for 88% of identifications.
  - The French-operated Pléiades satellites, launched in 2011 and 2012, introduce a challenge to U.S. leadership in the commercial EO satellite imagery industry, as Pléiades provides resolutions close to the 0.5 meter resolution DigitalGlobe is licensed to sell commerically.
  - Other countries have also made advances in EO satellite technology, and the number of satellites providing commercial EO imagery below one meter of resolution is likely to increase in the near future.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 5: Net and Imagery-Related Sales

  - Net sales reported by survey respondents totaled nearly $65 billion, with imagery-related sales accounting for roughly 7% of this amount, or $4.77 billion. Based on BIS estimates, the net sales of all organizations involved in the U.S. commercial EO satellite imagery industry are now over $50 billion per year.
  - Imagery-related sales have grown at a rapid pace, rising 74% between 2008 and 2012.
  - Engineering/Support Service providers reported the strongest imagery-related sales growth, rising 92% between 2008 and 2012, to $304 million, followed by Imagery Resellers/Providers, whose sales rose 78%, to $741 million.
  - Imagery Resellers/Providers had the highest percentage of sales related to imagery, at roughly 30%, followed by Analysis & Related Tools providers, at roughly 12%. The remaining two business categories reported imagery-related sales of less than 3% of net sales.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 6: Research & Development (R&D)

  - Slightly over half of all respondents reported performing some R&D between 2008 and 2012, with about one-third of the total also reporting imagery-related R&D expenditures.
  - The total value of imagery-related R&D expenditures was roughly 1% of the total level of R&D expenditures, which amounted to over $10 billion between 2008 and 2012.
  - The Product and Service Areas with the most respondents performing R&D were:
    - Optics
    - Location Based Services
    - Geospatial R&D
  - The Product and Service Areas with the fewest respondents performing R&D were:
    - Computers/Hardware
    - Cloud Computing Services
    - Consulting

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 7: Capital Expenditures

  - 61% of respondents reported having capital expenditures between 2008 and 2012, though only 27% had imagery-related capital expenditures.
  - Most expenditures were relatively small, with 38 respondents, or 62% of those with capital expenditures, spending under $500,000 in 2012. 10 respondents had significant expenditures of over $10 million.
  - Imagery Resellers/Providers accounted for virtually all imagery-related capital expenditures, though all categories had some level of capital expenditures.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 8: Employment

  - Total reported employment rose 25% between 2008 and 2012, to approximately 100,000, while imagery-related employment increased by 76% to 7,600 in 2012.

  - Respondents with a higher percentage of imagery-related sales exhibited greater employment growth:
    - Organizations having over 25% of their sales related to imagery increased employment by 44% from 2008 to 2012
    - Organizations with fewer imagery-related sales increased employment by 19%.

  - Although 23% of respondents reported a lower level of total employment in 2012 than in 2008, they increased their levels of imagery-related employment by 22%.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 9: Industry Changes – Prior Case (number of U.S. commercial EO satellite operators fell from three to two)
  - Eighteen respondents indicated they were affected by the 2006 industry consolidation, when ORBIMAGE acquired Space Imaging to form GeoEye. Many of these respondents found the consolidation had positive effects on factors like their sales revenue and participation in contracts, but also resulted in increased costs.
    - Half of the respondents reported their Sales Revenue and Participation in Commercial Contracts increased as a result of the formation of GeoEye, while under 15% reported decreases in either factor.
  - Two-thirds of the affected respondents participated in the Product and Service Areas of Education & Training and Analytics Software.
  - Providers of Engineering/Support Services were most positive about the 2006 industry consolidation, while Universities/Non-Profits reported seeing more cost increases than benefits.
    - 47% of Engineering/Support Service providers reported increases in Beneficial Factors, while 0% reported decreases.
    - Slightly more Universities/Non-Profits reported decreases in Beneficial Factors than increases (29% vs. 24%), but four times as many reported increases in Costly Factors as decreases in these factors (44% vs. 11%).

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 9: Industry Changes – Scenario 1 (sudden decrease in the number of U.S.-based commercial EO satellite operators)
  - Sixty-nine respondents provided feedback on how they would be affected by Scenario 1. Many expected decreases in factors such as Sales Revenue, Number of Product Lines, and Participation in Contracts, along with increases in Costs and Lead Times.
    - 31% of respondents expected decreased Sales Revenue, while just 5% expected increased Sales Revenue
    - 25% of respondents expected increased Technology/Product/Service prices, with 8% expecting decreased prices.
  - Imagery Resellers/Providers were most pessimistic about this scenario, with 28% expecting decreases in Beneficial Factors, and 25% expecting increases in Costly Factors.
    - 50% expected decreases in Sales Revenue, and 40% expected increases in Lead Times
  - Engineering/Support Service providers expected the least impact, with 58% expecting no change in Beneficial Factors and 69% expecting no change in Costly Factors.
    - The largest impact on Engineering/Support Service providers was in Capital Expenditures, where 33% expected a decrease as a result of Scenario 1.
    - Additionally, 29% expected decreases in Existing Product Lines, and 25% expected increased Technology/Product/Service Prices.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 9: Industry Changes – Scenario 2 (only able to purchase imagery from non-U.S.-based providers)
  - Sixty-seven respondents provided feedback on how they expected to be impacted by Scenario 2. Over one-third of these respondents expected decreases in Beneficial Factors.
    - 44% predicted a decline in the Quality of Imagery
    - 37% expected decreased Sales Revenue
  - Over half of the Imagery Resellers/Providers predicted decreases in Beneficial Factors, with 44% also expecting increases in Costly Factors.
    - 78% expected increased Lead Times
    - 70% expected decreased Sales Revenue
    - 67% expected decreased Quality of Imagery
  - Engineering/Support Service providers expected to be least affected, with 14% foreseeing decreases in Beneficial Factors, and just 3% predicting increases in Costly Factors.
    - The greatest impact was foreseen on Technology/Product/Service Prices, with 22% expecting increases.
    - 20% expected decreases in New Product Line
  - Overall, significantly more respondents expected the quality of imagery would decrease under Scenario 2 as under Scenario 1, and several more also expected a decreased ability to meet U.S. Government contract obligations. Scenario 2 also resulted in more respondents expecting longer lead times and higher technology/product/service prices.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Report Findings

- Chapter 10: Additional Industry Comments

  - A number of respondents commented on the potential of a DigitalGlobe - GeoEye merger, with almost universally negative assessments. Respondents noted such a merger would restrict the supply of imagery, result in decreased R&D investments, and reduce the opportunities for sales.

  - Several respondents commented that restrictions on sales of high resolution imagery and satellites themselves resulted in significant losses of sales and potential sales.

  - Many respondents also provided comments on the role of the U.S. Government in the satellite industry, with uncertainty about the future of government support being a primary concern.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

APPENDIX A: SURVEY INSTRUMENT

- THE SURVEY DISTRIBUTED TO STAKEHOLDERS IN THE U.S. COMMERCIAL EO SATELLITE IMAGERY INDUSTRY.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

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OMB Control Number: 0694-0119
Expiration Date: December 31, 2012

INDUSTRIAL BASE ASSESSMENT:
Consumers of U.S. Commercial Electro-Optical (EO) Satellite Imagery

SCOPE OF ASSESSMENT

The U.S. Department of Commerce, Bureau of Industry and Security (BIS), Office of Technology Evaluation (OTE), in coordination with the National Geospatial-Intelligence Agency (NGA) and the National Oceanic and Atmospheric Administration (NOAA), is conducting an industrial base assessment of the consumers of and organizations supporting U.S. commercial electro-optical (EO) satellite imagery. The principal goal of this data collection is to evaluate the current market behavior of both consumers of commercial EO satellite imagery, and providers of enabling technologies/products/services in a constrained U.S. Defense Department budgetary environment.

RESPONSE TO THIS SURVEY IS REQUIRED BY LAW

A response to this survey is required by law (50 U.S.C. app. Sec. 2155). Failure to respond can result in a maximum fine of $10,000, imprisonment of up to one year, or both. Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C App. Sec. 2155). Section 705 prohibits the publication or disclosure of this information unless the President determines that its withholding is contrary to the national defense. Information will not be shared with any non-government entity, other than in aggregate form. The information will be protected pursuant to the appropriate exemptions from disclosure under the Freedom of Information Act (FOIA), should it be the subject of a FOIA request.

Not withstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number.

BURDEN ESTIMATE AND REQUEST FOR COMMENT

Public reporting burden for this collection of information is estimated to average 6 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information to BIS Information Collection Officer, Room 6883, Bureau of Industry and Security, U.S. Department of Commerce, Washington, D.C. 20230, and to the Office of Management and Budget, Paperwork Reduction Project (OMB Control No. 0694-0119), Washington, D.C. 20503.

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Section I	GENERAL INSTRUCTIONS
A.	Your organization is required to complete this survey using an Excel template, which can be downloaded from the U.S. Department of Commerce, Bureau of Industry and Security (BIS) website at **www.bis.doc.gov/EOsurvey**. At your request, BIS staff will e-mail the Excel survey template directly to your organization. For your convenience, a PDF version of the survey is also available on the BIS website to aid internal data collection. DO NOT submit the PDF version of your organization's response to BIS. BIS will only accept the Excel version.
B.	Respond to every question. Surveys that are not fully completed will be returned for completion. Use comment boxes to provide any information to supplement responses provided in the survey form. Make sure to record a complete answer in the cell provided, even if the cell does not appear to expand to fit all the information. **DO NOT COPY AND PASTE RESPONSES WITHIN THIS SURVEY.** Survey inputs should be made manually, by typing in responses or by use of a drop-down menu. The use of copy and paste can disrupt the data collection process. If your survey response is corrupted as a result of copy and paste responses, a new survey will be sent to you for immediate completion.
C.	If information is not available from your organization's records in the form requested, you may furnish informed estimates.
D.	Specific questions or assistance with the Excel survey should be directed to **EOSurvey@bis.doc.gov** E-mail is the preferred method of contact. For further assistance, call one of the analysts listed below. Anna Bruse, Trade and Industry Analyst, U.S. Department of Commerce, (202) 482-7418 Erika Maynard, Trade and Industry Analyst, U.S. Department of Commerce, (202) 482-5572 Alex Whitaker, Trade and Industry Analyst, U.S. Department of Commerce, (202) 482-3893 Matt Sigmund, Trade and Industry Analyst, U.S. Department of Commerce, (202) 482-0634
E.	Upon completion, review, and certification of the Excel survey, transmit the survey via e-mail attachment to: **EOSurvey@bis.doc.gov**
F.	For questions related to the overall scope of this industrial base assessment, contact: Brad Botwin, Director, Industrial Studies Office of Technology Evaluation, Room 1093 U.S. Department of Commerce 1401 Constitution Avenue, NW Washington, DC 20230 DO NOT submit completed surveys to Brad Botwin's postal or personal e-mail address; all surveys must be submitted electronically to **EOSurvey@bis.doc.gov**

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Section II	DEFINITIONS
Term	Definition
Full-Time Equivalent (FTE) Employees	Employees who work for 40 hours in a normal work week. Convert part-time employees into "full-time equivalents" by taking their work hours as a fraction of 40 hours.
Provider of Enabling Technology/Product/Service	An organization that provides value-added technologies, products, and/or services related to commercial electro-optical (EO) satellite imagery. Examples: A software application for geospatial data, packaging commercial EO satellite images for mapping purposes, or using the Global Positioning System (GPS) to provide navigational services to a customer.
Research and Development (R&D)	Includes basic and applied research and product development in the fields of science and engineering, and also includes design and development of prototype products and processes.
Reseller	An intermediary that disseminates commercial satellite imagery and/or enabling technologies/products/services to the broader market.
Service	An intangible product (contrasted to a good, which is a tangible product). Services typically cannot be stored or transported, are instantly perishable, and come into existence at the time they are bought and consumed.
Supplier	An entity from which your facility obtains inputs. A supplier may be another firm with which you have a contractual relationship, or it may be another facility owned by the same parent company. The inputs may be goods or services.
United States Commercial Electro-Optical (EO) Satellite Imagery	The portion of imagery collected by NOAA-licensed private remote sensing satellite operators that is universally available to commercial customers with few or no restrictions. This definition applies to "unenhanced data" as defined by statutory law, as well as to products derived from unenhanced data that are intended for unrestricted commercial sale.
United States	The "United States" or "U.S." includes the 50 states, Puerto Rico, the District of Columbia, the island of Guam, the Trust Territories, and the U.S. Virgin Islands.

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Section III	WHO MUST RESPOND TO THIS SURVEY	
Your organization has been identified by the U.S. Government as a consumer of U.S. commercial electro-optical (EO) satellite imagery and/or a provider of enabling technology/products/services. Select from the drop-down menus all that apply.		
	Is your organization a:	
A.	Direct consumer of commercial EO satellite imagery?	
	Indirect consumer of commercial EO satellite imagery?	
	Reseller of commercial EO satellite imagery and/or enabling technologies/products and/or services?	
	Provider of enabling technology/product/service that supports geospatial activity based on commercial EO satellite imagery?	
	EXEMPTION	
If you selected "No" to all of the statements above, your organization may be exempt from completing this U.S. Department of Commerce survey. If you think your organization is exempt, call the contacts listed in the General Instructions section of this survey to verify your status.		

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Section 1	ORGANIZATION INFORMATION	
A.	Organization Name	
	Business Unit/Division Name *(if applicable)*	
	Respondent Street Address	
	Respondent City	
	Respondent State	
	Respondent Zip Code	
	Respondent Website	
	Respondent Phone Number	
B.	In the box to the right, indicate whether this survey represents a response for your whole organization or a business unit/division of your organization. *Note: The entire survey document should be completed at the same level, as indicated by your response to this question.*	
C.	My organization is a:	

D.	Points of Contact regarding this survey:				
	Name	Title	Phone Number	E-mail Address	State

E.	Indicate if your organization qualifies as any of the following types of small or disadvantaged business.	Type of Small or Disadvantaged Business		Yes/No
		A small business enterprise (as defined by the Small Business Administration)		
		8(a) Firm (as defined by the Small Business Administration)		
		A historically underutilized business zone (HUBZone)		
		A minority-owned business		
		A woman-owned business		
		A veteran-owned or service-disabled veteran-owned business		
		Other Type of Small or Disadvantaged Business (specify)		

Comments	

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Section 2 Satellites

A.	Does your organization know the name and/or country of origin of the satellite from which your organization receives commercial EO satellite imagery directly or indirectly?	

B. If you answered "Yes" to Question A, identify each satellite by name from which your organization currently receives commercial EO satellite imagery directly or indirectly, and/or indicate the country of origin from the drop-down, if known.

Note: For satellites owned by a joint-venture, select one country to represent the satellite in the country of origin box.

	Satellite Name	Country of Origin
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Comments:	

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Section 3.a **PRODUCTS AND SERVICES**

Sections 3.a and 3.b include a list of 50 product and service areas. Identify which of the following product and service areas your organization participates in. Next, identify you**U.S. and Non-U.S.** commercial EO satellite imagery suppliers that support each product/service area selected using the 1-10 options below. Finally, for each product/service area selected, indicate whether the customer is U.S. Defense, U.S. Non-Defense Government (e.g. NASA, NOAA, etc.), U.S. Commercial, Foreign Government/Commercial and/or Other (specify in box provided). Select all that apply.

Commercial Imagery Supplier Options:

1: DigitalGlobe
2: GeoEye
3: Both DigitalGlobe and GeoEye
4: Other U.S. Supplier (specify in box to right)
5: Non-U.S. Supplier (specify) and DigitalGlobe
6: Non-U.S. Supplier (specify) and GeoEye
7: Non-U.S. Supplier (specify) and both DigitalGlobe and GeoEye
8: Non-U.S. Supplier (specify) and other U.S. Supplier (specify)
9: Only Non-U.S. Suppliers (specify)
10: Not Sure

Note: Commercial imagery suppliers can include resellers.

Product or Service Area	Participate in Product/Service Area?	Commercial Imagery Supplier	Specify Name of Commercial Imagery Supplier	Customer Type				
				U.S. Defense	U.S. Non-Defense Government	U.S. Commercial	Foreign Government/ Commercial	Other (specify)
1. 3D Modeling								
2. Aerial Imaging								
3. Analytics Software								
4. Application Delivery								
5. Cameras								
6. Client Server Technology								
7. Cloud Computing Services & Support								
8. Collaborative Tools								
9. Computers/Hardware								
10. Computers/Software								
11. Consulting								
12. Cyber Security/Encryption/Secure								
13. Data Fusion								
14. Data Sharing								
15. Data Storage								
16. Display Hardware								
17. Document & Media Exploitation								
18. Education & Training								
19. Full Motion Video								
20. Geographic Information Systems								
21. Geospatial R&D								
22. Geospatial Software								
23. Global Positioning								
24. Image Processing								
25. Imagery Provider								
Comments:								

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Section 3.b PRODUCTS AND SERVICES (cont.)

Sections 3.a and 3.b include a list of 50 product and service areas. Identify which of the following product and service areas your organization participates in. Next, identify your **U.S. and Non-U.S.** commercial EO satellite imagery suppliers that support each product/service area selected using the 1-10 options below. Finally, for each product/service area selected, indicate whether the customer is U.S. Defense, U.S. Non-Defense Government (e.g. NASA, NOAA, etc.), U.S. Commercial, Foreign Government/Commercial and/or Other (specify in box provided). Select all that apply.

Commercial Imagery Supplier Options:

1: DigitalGlobe
2: GeoEye
3: Both DigitalGlobe and GeoEye
4: Other U.S. Supplier (specify in box to right)
5: Non-U.S. Supplier (specify) and DigitalGlobe
6: Non-U.S. Supplier (specify) and GeoEye
7: Non-U.S. Supplier (specify) and both DigitalGlobe and GeoEye
8: Non-U.S. Supplier (specify) and other U.S. Supplier (specify)
9: Only Non-U.S. Suppliers (specify)
10: Not Sure

Note: Commercial imagery suppliers can include resellers.

Product or Service Area		Participate in Product/Service Area?	Commercial Imagery Supplier	Specify Name of Commercial Imagery Supplier	Customer Type				
					U.S. Defense	U.S. Non-Defense Government	U.S. Commercial	Foreign Government/ Commercial	Other (specify)
26.	Information Management								
27.	Intelligence Support Systems								
28.	Light Detection And Ranging (LiDAR)								
29.	Location Based Services								
30.	Mapping/Geospatial Data								
31.	Media								
32.	Mission Ground Systems								
33.	Mobile Wireless Networking								
34.	Modeling								
35.	Multi-Sensor Data Collection								
36.	Network Implementation & Infrastructure								
37.	Open Source Intelligence								
38.	Optics								
39.	Remote Sensing								
40.	Simulation								
41.	Storage Optimization								
42.	Storage & Server Technology								
43.	Synthetic Aperture Radar								
44.	Systems Integrators								
45.	Unmanned Vehicles								
46.	Visualization Software								
47.	Video Analysis								
48.	Other (Specify)								
49.	Other (Specify)								
50.	Other (Specify)								
Comments:									

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Section 4.a **PURCHASE OF COMMERCIAL EO SATELLITE IMAGERY**

A. Does your organization purchase **U.S. commercial EO satellite imagery directly or indirectly**?

Note: For imagery donated to your organization, include in Section 4.d.

If "Yes", record the total amount of U.S. commercial EO satellite imagery **directly and indirectly purchased**, **in dollars**, from each of the providers below between 2008 and 2012. If you have purchased commercial EO satellite imagery from other providers, provide this information in the text boxes below. Full-year estimates should be provided for 2012.

Note: If your organization has sourced commercial EO satellite imagery from vendors other than DigitalGlobe and GeoEye, provide up to 3 of the most significant additional vendors by total dollars.
Note: Calendar year data preferred.

Source of Revenue Data:	
Reporting Schedule:	

B.

DIRECT PROVIDERS

Direct Providers	Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
	2008	2009	2010	2011	2012
DigitalGlobe					
GeoEye					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

INDIRECT PROVIDERS

Indirect Providers	Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
	2008	2009	2010	2011	2012
DigitalGlobe					
GeoEye					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

Comments:	

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Section 4.b **PURCHASE OF COMMERCIAL EO SATELLITE IMAGERY (cont.)**

A. Does your organization purchase U.S. commercial EO satellite imagery **by area** (e.g. kilometers or square nautical miles)?

Note: For imagery donated to your organization, include in Section 4.d.

B. If "Yes", record the total amount of U.S. commercial EO satellite imagery purchased, **in square kilometers***, from each of the providers below between 2008 and 2012. If you have purchased commercial EO satellite imagery from other providers, record this information in the boxes below. Full-year estimates should be provided for 2012.

Note: If your organization has sourced commercial EO satellite imagery from providers other than DigitalGlobe and GeoEye, provide up to 3 of the most significant additional providers by total number of square kilometers sourced.
Note: Calendar year data preferred.

**Please convert any other unit of area into square kilometers.*

Source of Data:

Reporting Schedule:

Provider	Record in Square Kilometers				
	2008	2009	2010	2011	2012
DigitalGlobe					
GeoEye					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

Comments:

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Section 4.c PURCHASE OF COMMERCIAL EO SATELLITE IMAGERY RELATED SERVICES (cont.)

A. Does your organization purchase **commercial EO satellite imagery-related products and/or services**?

Note: For imagery donated to your organization, include in Section 4.d.

Between 2008 and 2012, estimate the amount, **in dollars**, of commercial EO satellite imagery-related **products and/or services** that your organization has purchased from the following providers of commercial EO satellite imagery. If you have purchased commercial EO satellite imagery-related products and/or services from other **U.S. and Non-U.S**. vendors, record this information in the boxes below. Full-year estimates should be provided for 2012.

Note: If your organization has sourced commercial EO satellite imagery-related products and/or services from vendors other than DigitalGlobe and GeoEye, provide the 10 most significant U.S. and Non-U.S. vendors by total dollars.
Note: Calendar year data preferred.

Source of Revenue Data:	
Reporting Schedule:	

B.

Vendor		Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
		2008	2009	2010	2011	2012
DigitalGlobe -- *Value Added Products/Services*						
GeoEye -- *Value Added Products/Services*						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						
Other Vendor (specify)						

Comments:

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Section 4.d DONATION OF COMMERCIAL EO SATELLITE IMAGERY AND RELATED SERVICES

A. Has your organization **received donated U.S. commercial EO satellite imagery since 2008**?

B. If "Yes", record the total value of donated U.S. commercial EO satellite imagery **received, in dollars,** from each of the providers below between 2008 and 2012. If you have received commercial EO satellite imagery from other sources, provide this information in the boxes below. Full-year estimates should be provided for 2012.

Note: Calendar year data preferred.

Source of Revenue Data:

Reporting Schedule:

Provider	Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
	2008	2009	2010	2011	2012
DigitalGlobe					
GeoEye					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

Comments:

C. Does your organization receive **donated commercial EO satellite imagery by area** (e.g. square nautical miles or kilometers)?

D. Record the total amount of donated U.S. commercial EO satellite imagery **received, in square kilometers*,** from each of the providers below between 2008 and 2012. If you have received commercial EO satellite imagery from other sources, provide this information in the boxes below. Full-year estimates should be provided for 2012.

Note: Calendar year data preferred.

**Please convert any other unit of area into square kilometers.*

Source of Data:

Reporting Schedule:

Provider	Record in Square Kilometers				
	2008	2009	2010	2011	2012
DigitalGlobe					
GeoEye					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

Comments:

E. Does your organization receive **donated commercial EO satellite imagery-related products and/or services**?

F. Between 2008 and 2012, estimate the value, in dollars, of **commercial EO satellite imagery-related products and/or services** that your organization has received from the following providers of commercial EO satellite imagery. If you have received commercial EO satellite imagery-related products and/or services from other U.S. and Non-U.S. providers, record this information in the boxes below. Full-year estimates should be provided for 2012.

Note: If your organization has received commercial EO satellite imagery-related products and/or services from providers other than DigitalGlobe and GeoEye, provide the 10 most significant U.S. and Non-U.S. providers by total dollars.
Note: Calendar year data preferred.

Source of Revenue Data:

Reporting Schedule:

Provider	Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
	2008	2009	2010	2011	2012
DigitalGlobe -- *Value Added Products/Services*					
GeoEye -- *Value Added Products/Services*					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					
Other Provider (specify)					

Comments:

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Section 5 SALES RELATED TO COMMERCIAL EO SATELLITE IMAGER

Record your annual net sales (and other revenue) as indicated on the top line of your income statement (profit and loss statement) for years 2008-2012. Then, as a percentage of annual net sales (and other revenue), estimate the revenue related to commercial EO satellite imagery. Full-year estimates should be provided for 2012.

Note: Universities and NGO's do not fill out this section. Indicate your type of organization in the Source of Data drop-down and continue to Section 6.
Note: Calendar year data preferred.

A.

Source of Data:	
Reporting Schedule:	

Record in $ Thousands, e.g. $12,000.00 = survey input of $12

		2008	2009	2010	2011	2012
a.	Net Sales (and other revenue)					
b.	Revenue related to commercial EO satellite imagery *[as a percent of a.]*					

Comments:	

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Section 6 RESEARCH AND DEVELOPMENT (R&D) RELATED TO COMMERCIAL EO SATELLITE IMAGER'

A.	Did your organization conduct R&D between 2008 and 2012?	

B. Record your annual R&D expenditures for years 2008-2012 below. Then, as a percentage of total R&D spending, estimate the R&D expenditures related to commercial EO satellite imagery. Full-year estimates should be provided for 2012.

Note: Calendar year data preferred.

Source of R&D Data:	
Reporting Schedule:	

Record in $ Thousands, e.g. $12,000.00 = survey input of $12

		2008	2009	2010	2011	2012
a.	Total R&D Expenditures					
b.	R&D expenditures related to commercial EO satellite imagery *[as a percent of a.]*					

Comments:	

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Section 7 CAPITAL EXPENDITURES RELATED TO COMMERCIAL EO SATELLITE IMAGERY

A.	Did your organization have capital expenditures between 2008 and 2012?					
B.	If "Yes", record your annual capital expenditures for years 2008 to 2012 below. Then, as a percentage of total capital expenditures, estimate the capital expenditures related to commercial EO satellite imagery. Full-year estimates should be provided for 2012. *Note: Calendar year data preferred.*					
	Source of Capital Expenditure Data:					
	Reporting Schedule:					
		Record in $ Thousands, e.g. $12,000.00 = survey input of $12				
		2008	2009	2010	2011	2012
	a. Total Capital Expenditures					
	b. Capital Expenditures related to commercial EO satellite imagery *[as a percent of a.]*					
	Comments:					

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Section 8 EMPLOYMENT RELATED TO COMMERCIAL EO SATELLITE IMAGERY

Record your total annual full-time employment for years 2008 to 2012. Then, as a percentage of total annual full-time employment, estimate the percent of employees **supporting your organization's** commercial EO satellite imagery product and services areas. Full-year estimates should be provided for 2012.

Note: Calendar year data preferred.

	Source of Employment Data:					
	Reporting Schedule:					
A.		2008	2009	2010	2011	2012
	a. Total Number of Full-Time Employees					
	b. Full-Time Employees supporting your organization's commercial EO satellite imagery product and service areas *[as a percent of a.]*					
	Comments:					

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Section 9.a	OPERATIONS		
A.	Does the price of your organization's products, technologies, and/or services fluctuate in response to increases in the cost of **purchasing/acquiring U.S.** commercial EO satellite imagery? If "Yes", **estimate** the percent change in price for your organization's product/technology/services for the following increases in U.S. commercial imagery costs and explain your answer.		
	U.S. Commercial EO Satellite Imagery Cost Increase Percentage	% Change in Price of Product/Technology/Service	Explain
	Increase 25%		
	Increase 50%		
Comments:			

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Section 9.b	OPERATIONS (cont.)				
A.	Did the January 2006 consolidation of U.S. commercial EO satellite imagery providers (ORBIMAGE acquired Space Imaging to form GeoEye) affect your organization?				
B.	If "Yes", select the impacts, if any, that your organization experienced as a result of the consolidation of U.S. commercial EO satellite imagery providers. Select all that apply.				
	Quality of imagery		Participation in U.S. Government contracts		
	Capital expenditures		Participation in Commercial contracts		
	Research & development expenditures		Existing product lines		
	Technology/products/services costs		Ability to meet U.S. Government contract obligations		
	Technology/products/services prices		Sales revenue		
	Personnel with key skills		Foreign sourcing purchasing		
	Lead times		Other (specify)		
	New product lines		Other (specify)		
	Comments:				

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Section 9.c OPERATIONS (cont.)

The following are two scenarios that could affect consumers of U.S. commercial EO satellite imagery and providers of enabling technologies/products/services. Please read scenarios A and B, and select the corresponding impacts to your organization if each scenario were to occur.

A.

From the list below, select the potential impacts that a sudden decrease in the number of U.S.-based commercial EO satellite imagery providers would have on your organization. Select all that apply.

Quality of imagery		Existing product lines		
Capital expenditures		Ability to meet U.S. Government contract obligations		
Research & development expenditures		Sales revenue		
Technology/products/services costs		Foreign sourcing purchasing		
Technology/products/services prices		Exit the business		
Personnel with key skills		No Impact		
Lead times		Not Sure		
New product lines		Other (specify)		
Participation in U.S. Government contracts		Other (specify)		
Participation in Commercial contracts		Other (specify)		

Comments:

B.

From the list below, select the potential impacts if your organization could only purchase from **non-U.S.-based** commercial EO satellite imagery providers. Select all that apply.

Quality of imagery		Existing product lines		
Capital expenditures		Ability to meet U.S. Government contract obligations		
Research & development expenditures		Sales revenue		
Technology/products/services costs		Availability of imagery		
Technology/products/services prices		Exit the business		
Personnel with key skills		No Impact		
Lead times		Not Sure		
New product lines		Other (specify)		
Participation in U.S. Government contracts		Other (specify)		
Participation in Commercial contracts		Other (specify)		

Comments:

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Section 10	ADDITIONAL INFORMATION	
A.	Are there additional factors **currently** affecting the commercial EO satellite imagery industry that were not addressed in this survey or that you would like to further expand on? Explain below.	
B.	Are there other factors you see affecting the commercial EO satellite imagery industry **in the future** that were not addressed in this survey or that you would like to further expand on? Explain below.	
C.	Are there any additional comments you would like to make regarding your business operations or sectors you operate in that you believe are important? Explain below.	
Comments:		

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Section 11	CERTIFICATION
The undersigned certifies that the information herein supplied in response to this questionnaire is complete and correct to the best of his/her knowledge. It is a criminal offense to willfully make a false statement or representation to any department or agency of the United States Government as to any matter within its jurisdiction (18 U.S.C.A. 1001 (1984 & SUPP. 1197))	
Organization Name	
Organization's Internet Address	
Name of Authorizing Official	
Title of Authorizing Official	
E-mail Address	
Phone Number and Extension	
Date Certified	
In the box below, provide any additional comments or any other information you wish to include regarding this survey assessment.	
How many hours did it take to complete this survey?	

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APPENDIX B: FULL SCENARIO IMPACT TABLES

- TABULATIONS OF IMPACTS ON ALL FACTORS FOR THE 2006 INDUSTRY CONSOLIDATION AND THE TWO SCENARIOS PRESENTED. FOR THE SCENARIOS, TABULATIONS FOR EACH BUSINESS CATEGORIZATION IS ALSO INCLUDED.*

*There were an insufficient number of responses on the 2006 industry consolidation for a breakdown by business category.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

Impacts of the 2006 Consolidation of U.S. Commercial EO Satellite Imagery Providers (Formation of GeoEye)

Factor (Number of Respondents)	Increased	Unchanged	Decreased	Not Sure
All Beneficial Factors	**38%**	**39%**	**13%**	**10%**
Sales Revenue (14)	50%	21%	14%	14%
Participation in Commercial Contracts (16)	50%	25%	13%	13%
Existing Product Lines (16)	44%	31%	19%	6%
Participation in USG Contracts (13)	23%	54%	8%	15%
Quality of Imagery (16)	31%	56%	6%	6%
New Product Lines (13)	31%	46%	15%	8%
Ability to Meet USG Contract Obligations (13)	23%	54%	8%	15%
All Costly Factors	**26%**	**50%**	**6%**	**19%**
R&D Expenditures (14)	36%	36%	0%	29%
Technology/Product/Service Costs (13)	31%	46%	0%	23%
Capital Expenditures (13)	31%	54%	0%	15%
Lead Times (14)	7%	64%	21%	7%
All Other Factors				
Personnel with Key Skills (16)	38%	56%	0%	6%
Foreign Sourcing Purchasing (14)	36%	50%	7%	7%
Technology/Product/Service Prices (13)	23%	62%	0%	15%

98 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: Expected Impacts of a Sudden Decrease in the Number of U.S.-Based Commercial Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Beneficial Factors	**3%**	**44%**	**25%**	**28%**
Sales Revenue (64)	5%	36%	31%	28%
Participation in Commercial Contracts (61)	3%	39%	28%	30%
Existing Product Lines (64)	2%	50%	23%	25%
Participation in USG Contracts (60)	3%	42%	25%	30%
Quality of Imagery (63)	0%	49%	21%	30%
New Product Lines (61)	2%	43%	26%	30%
Ability to Meet USG Contract Obligations (60)	5%	48%	20%	27%
All Costly Factors	**16%**	**50%**	**12%**	**23%**
R&D Expenditures (60)	10%	53%	17%	20%
Technology/Product/Service Costs (62)	24%	47%	8%	21%
Capital Expenditures (62)	5%	56%	18%	21%
Lead Times (60)	23%	43%	5%	28%
All Other Factors				
Personnel with Key Skills (61)	3%	54%	20%	23%
Foreign Sourcing Purchasing (59)	20%	41%	5%	34%
Technology/Product/Service Prices (61)	25%	49%	8%	18%

69 total respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: Expected Impacts on Imagery Resellers/Providers of a Sudden Decrease in the Number of U.S.-Based Commercial Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**1%**	**25%**	**28%**	**46%**
Sales Revenue	8%	8%	50%	33%
Participation in Commercial Contracts	0%	30%	30%	40%
Existing Product Lines	0%	10%	40%	50%
Participation in USG Contracts	0%	20%	20%	60%
Quality of Imagery	0%	50%	20%	30%
New Product Lines	0%	20%	30%	50%
Ability to Meet USG Contract Obligations	0%	40%	0%	60%
All Costs	**25%**	**25%**	**13%**	**38%**
R&D Expenditures	20%	30%	10%	40%
Technology/Product/Service Costs	30%	20%	10%	40%
Capital Expenditures	10%	30%	20%	40%
Lead Times	40%	20%	10%	30%
All Other Factors				
Personnel with Key Skills	20%	30%	10%	40%
Foreign Sourcing Purchasing	33%	27%	3%	37%
Technology/Product/Service Prices	40%	20%	0%	40%

14 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: Expected Impacts on Analysis & Related Tools Providers of a Sudden Decrease in the Number of U.S.-Based Commercial Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**1%**	**45%**	**29%**	**24%**
Sales Revenue	0%	38%	38%	25%
Participation in Commercial Contracts	3%	42%	32%	23%
Existing Product Lines	0%	56%	22%	22%
Participation in USG Contracts	0%	42%	29%	29%
Quality of Imagery	0%	48%	24%	27%
New Product Lines	0%	42%	32%	26%
Ability to Meet USG Contract Obligations	6%	47%	28%	19%
All Costs	**14%**	**52%**	**12%**	**21%**
R&D Expenditures	3%	55%	26%	16%
Technology/Product/Service Costs	28%	44%	6%	22%
Capital Expenditures	6%	66%	13%	16%
Lead Times	19%	45%	3%	32%
All Other Factors				
Personnel with Key Skills	0%	55%	23%	23%
Foreign Sourcing Purchasing	14%	52%	10%	24%
Technology/Product/Service Prices	25%	47%	13%	16%

49 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: Expected Impacts on Engineering/Support Service Providers of a Sudden Decrease in the Number of U.S.-Based Commercial Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**3%**	**58%**	**16%**	**22%**
Sales Revenue	8%	54%	15%	23%
Participation in Commercial Contracts	8%	46%	15%	31%
Existing Product Lines	0%	57%	29%	14%
Participation in USG Contracts	8%	50%	25%	17%
Quality of Imagery	0%	73%	0%	27%
New Product Lines	0%	58%	17%	25%
Ability to Meet USG Contract Obligations	0%	73%	9%	18%
All Costs	**10%**	**69%**	**13%**	**8%**
R&D Expenditures	8%	83%	8%	0%
Technology/Product/Service Costs	23%	69%	8%	0%
Capital Expenditures	0%	50%	33%	17%
Lead Times	9%	73%	0%	18%
All Other Factors				
Personnel with Key Skills	0%	75%	17%	8%
Foreign Sourcing Purchasing	0%	33%	0%	67%
Technology/Product/Service Prices	25%	75%	0%	0%

20 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 1: Expected Impacts on Universities/Non-Profits of a Sudden Decrease in the Number of U.S.-Based Commercial Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**9%**	**42%**	**17%**	**32%**
Sales Revenue	14%	43%	0%	43%
Participation in Commercial Contracts	0%	29%	29%	43%
Existing Product Lines	13%	63%	0%	25%
Participation in USG Contracts	14%	29%	29%	29%
Quality of Imagery	0%	22%	33%	44%
New Product Lines	13%	50%	13%	25%
Ability to Meet USG Contract Obligations	14%	29%	29%	29%
All Costs	**17%**	**43%**	**10%**	**30%**
R&D Expenditures	29%	29%	0%	43%
Technology/Product/Service Costs	0%	57%	14%	29%
Capital Expenditures	0%	63%	13%	25%
Lead Times	38%	25%	13%	25%
All Other Factors				
Personnel with Key Skills	0%	50%	25%	25%
Foreign Sourcing Purchasing	50%	25%	0%	25%
Technology/Product/Service Prices	0%	57%	14%	29%

15 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 2: Expected Impacts if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Beneficial Factors	**4%**	**36%**	**35%**	**25%**
Sales Revenue (60)	2%	33%	37%	28%
Participation in Commercial Contracts (59)	3%	41%	34%	22%
Existing Product Lines (59)	3%	41%	34%	22%
Participation in USG Contracts (60)	5%	37%	33%	25%
Quality of Imagery (62)	3%	27%	44%	26%
New Product Lines (58)	7%	38%	34%	21%
Ability to Meet USG Contract Obligations (60)	3%	35%	30%	32%
All Costly Factors	**24%**	**44%**	**11%**	**21%**
R&D Expenditures (58)	16%	50%	17%	17%
Technology/Product/Service Costs (58)	33%	40%	5%	22%
Capital Expenditures (58)	14%	48%	19%	19%
Lead Times (59)	34%	39%	3%	24%
All Other Factors				
Personnel with Key Skills (57)	4%	56%	19%	21%
Availability of Imagery (62)	2%	23%	52%	24%
Technology/Product/Service Prices (57)	35%	42%	4%	19%

67 total respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 2: Expected Impacts on Imagery Resellers/Providers if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**6%**	**5%**	**52%**	**38%**
Sales Revenue	0%	10%	70%	20%
Participation in Commercial Contracts	11%	0%	56%	33%
Existing Product Lines	11%	0%	56%	33%
Participation in USG Contracts	0%	11%	33%	56%
Quality of Imagery	11%	0%	67%	22%
New Product Lines	11%	0%	67%	22%
Ability to Meet USG Contract Obligations	0%	11%	11%	78%
All Costs	**44%**	**14%**	**19%**	**22%**
R&D Expenditures	33%	22%	22%	22%
Technology/Product/Service Costs	33%	11%	22%	33%
Capital Expenditures	33%	11%	33%	22%
Lead Times	78%	11%	0%	11%
All Other Factors				
Personnel with Key Skills	22%	22%	33%	22%
Availability of Imagery	0%	11%	78%	11%
Technology/Product/Service Prices	56%	11%	11%	22%

14 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 2: Expected Impacts on Analysis & Related Tools Providers if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**1%**	**35%**	**39%**	**25%**
Sales Revenue	0%	31%	44%	25%
Participation in Commercial Contracts	0%	44%	34%	22%
Existing Product Lines	0%	42%	35%	23%
Participation in USG Contracts	3%	35%	41%	21%
Quality of Imagery	0%	26%	44%	29%
New Product Lines	3%	35%	32%	29%
Ability to Meet USG Contract Obligations	3%	29%	41%	26%
All Costs	**22%**	**41%**	**12%**	**26%**
R&D Expenditures	10%	48%	19%	23%
Technology/Product/Service Costs	39%	33%	3%	24%
Capital Expenditures	13%	47%	19%	22%
Lead Times	24%	36%	6%	33%
All Other Factors				
Personnel with Key Skills	0%	48%	23%	29%
Availability of Imagery	0%	18%	53%	29%
Technology/Product/Service Prices	34%	38%	3%	25%

49 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 2: Expected Impacts on Engineering/Support Service Providers if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**4%**	**67%**	**14%**	**15%**
Sales Revenue	0%	55%	9%	36%
Participation in Commercial Contracts	9%	55%	18%	18%
Existing Product Lines	0%	82%	18%	0%
Participation in USG Contracts	10%	60%	10%	20%
Quality of Imagery	0%	70%	10%	20%
New Product Lines	10%	70%	20%	0%
Ability to Meet USG Contract Obligations	0%	80%	10%	10%
All Costs	**3%**	**84%**	**5%**	**8%**
R&D Expenditures	0%	90%	10%	0%
Technology/Product/Service Costs	11%	78%	0%	11%
Capital Expenditures	0%	80%	10%	10%
Lead Times	3%	84%	5%	8%
All Other Factors				
Personnel with Key Skills	0%	90%	10%	0%
Availability of Imagery	0%	60%	10%	30%
Technology/Product/Service Prices	22%	78%	0%	0%

20 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

Scenario 2: Expected Impacts on Universities/Non-Profits if Respondents Could Only Purchase From Non-U.S. Based Commercial EO Satellite Imagery Providers

Factor (Number of Respondents)	Increase	No Change	Decrease	Not Sure
All Benefits	**11%**	**36%**	**28%**	**25%**
Sales Revenue	14%	43%	0%	43%
Participation in Commercial Contracts	0%	57%	29%	14%
Existing Product Lines	13%	25%	25%	38%
Participation in USG Contracts	14%	43%	29%	14%
Quality of Imagery	11%	11%	56%	22%
New Product Lines	13%	50%	25%	13%
Ability to Meet USG Contract Obligations	14%	29%	29%	29%
All Costs	**37%**	**43%**	**7%**	**13%**
R&D Expenditures	38%	38%	13%	13%
Technology/Product/Service Costs	29%	57%	0%	14%
Capital Expenditures	14%	57%	14%	14%
Lead Times	63%	25%	0%	13%
All Other Factors				
Personnel with Key Skills	0%	86%	0%	14%
Availability of Imagery	11%	11%	67%	11%
Technology/Product/Service Prices	29%	57%	0%	14%

15 respondents

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

APPENDIX C: U.S. COMMERCIAL EO SATELLITE IMAGERY MARKET SIZE CALCULATIONS

- DETAILS ON BIS'S ESTIMATION OF THE SIZE OF THE U.S. COMMERCIAL EO SATELLITE IMAGERY MARKET AND THE PORTION COVERED BY THIS SURVEY.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

U.S. Commercial EO Satellite Imagery Market Size

- As the organizations included in this survey represent only a portion of the U.S. commercial EO satellite imagery market, BIS attempted to estimate the true size of the market, and the share of that market accounted for in this survey collection.
- All external data is from SEC 10-K disclosures, publicly available at http://www.sec.gov/
- While the U.S. commercial EO satellite operators, DigitalGlobe and GeoEye, reported combined total sales of $758 million in 2012, the majority of these sales came from governmental sources, making estimates necessary for commercial sales.
- In 2012, the direct imagery purchases reported in this survey represented approximately 33% of the estimated commercial sales of the two U.S. commercial EO satellite imagery direct providers.
- This percentage likely overstates the portion of the market covered by this survey, as commercial satellite imagery is available from other sources.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

U.S. Commercial EO Satellite Imagery Market Size

	2008	2009	2010	2011	2012
Estimated GeoEye North American Commercial Sales	$18.9	$16.3	$26.4	$35.6	$33.6
DigitalGlobe Americas Commercial Revenue	$27.6	$23.6	$32.5	$32.9	$48.0
Combined Estimated U.S. Commercial Revenue	$46.6	$39.9	$58.9	$68.5	$81.6
Total Reported Direct Imagery Sales (All Sources)	$15.7	$25.0	$43.4	$33.6	$27.4
Estimated Surveyed Percentage of Commercial Market	**33.7%**	**62.7%**	**73.6%**	**49.0%**	**33.6%**

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

U.S. Commercial EO Satellite Imagery Market Size Calculations

- DigitalGlobe reported commercial revenue for the Americas (in millions) of $27.6 in 2008, $23.6 in 2009, $32.5 in 2010, $32.9 in 2011, and $48.0 in 2012.

- GeoEye reported North American commercial sales as a percent of total revenue: 13% in 2008, 6% in 2009, 8% in 2010, and 10% in 2011, and total revenue (in millions) of $146 in 2008, $271 in 2009, $330 in 2010, and $356 in 2011, resulting in total North American commercial sales of $19.1 million, $16.3 million, $26.4 million, and $35.6 million, respectively.

- For 2012, as DigitalGlobe purchased GeoEye before the end of the fiscal year, GeoEye commercial sales are unavailable, but can be estimated based on the initial 9 months of the year reported in their 10-Q filing and prior year commercial percentages: GeoEye reported 9 month revenue of $264.8 million in 2012, 2% higher than in 2011. Assuming an identical annual increase for the fourth quarter, estimated GeoEye 2012 revenue was $363.5 million. Based on the average percentage of total revenue that North American commercial sales represent (9%), GeoEye 2012 North American commercial sales are estimated to be $33.6 million.

- Combined estimated commercial sales from the two are thus: $46.6 in 2008, $39.9 in 2009, $58.9 in 2010, $68.5 in 2011, and $81.6 in 2012.

- Total direct imagery purchases reported in this survey for the years 2008-2012 are: $15.7 million, $25.0 million, $43.4 million, $33.6 million, and $27.4 million, representing 34%, 63%, 74%, 49%, and 33% of the combined estimated DigitalGlobe and GeoEye commercial sales.

Source: U.S. Department of Commerce, Bureau of Industry and Security,
Consumers of U.S. Commercial Electro-Optical Satellite Imagery, August 2013

APPENDIX D: BIS PUBLICATIONS LIST

- LIST OF PRIOR AND FORTHCOMING ASSESSMENTS PRODUCED BY BIS.

Source: U.S. Department of Commerce, Bureau of Industry and Security, *Consumers of U.S. Commercial Electro-Optical Satellite Imagery*, August 2013

OFFICE OF TECHNOLOGY EVALUATION (OTE)

PUBLICATIONS LIST

August 1, 2013

The U.S. Department of Commerce's Office of Technology Evaluation is the focal point within the Department for conducting assessments of defense-related industries and technologies. The studies are based on detailed industry-specific surveys used to collect information from U.S. companies and are conducted on behalf of the U.S. Congress, the military services, industry associations, or other interested parties.

PUBLICATION TITLE	**Bold* indicate forthcoming studies
Strategic and Critical Materials Supply Chain Assessment – Spring 2014	
Cost-Metric Assessment of Diminishing Manufacturing Sources and Material Shortages (Update) – Winter 2013	
Defense Industrial Base Assessment of the U.S. Underwater Acoustics Transducer Industry – Fall 2013	
Assessment of the U.S. Space Industrial Base Supply Chain – Fall 2013	
Industrial Base Assessment of Consumers of U.S. Electro-Optical (EO) Satellite Imagery – August 2013	
National Security Assessment of the Cartridge and Propellant Actuated Device Industry: Fourth Review – July 2013	
Defense Industrial Base S2T2 Survey of C4ISR Sector – Spring 2013	
Critical Technology Assessment: Night Vision Focal Plane Arrays, Sensors, and Cameras – October 2012	
National Aeronautics and Space Administration (NASA) Industrial Base – Post-Space Shuttle – June 2012	
Defense Industrial Base Assessment of the Telecommunications Industry Infrastructure – April 2012	
Reliance on Foreign Sourcing in the Healthcare and Public Health (HPH) Sector – December 2011	
Defense Industrial Base S2T2 Survey of Six Sectors –July 2011	
Cost-Metric Assessment of Diminishing Manufacturing Sources and Material Shortages – August 2010	
Critical Technology Assessment: Impact of U.S. Export Controls on Green Technology Items – August 2010	
Technology Assessment of Fine Grain, High-Density Graphite – April 2010	
Defense Industrial Base Assessment of Counterfeit Electronics – January 2010	
Technology Assessment of 5-Axis Machine Tools – July 2009	
Defense Industrial Base Assessment of U.S. Integrated Circuit Design and Fabrication Capability – March 2009	
Defense Industrial Base Assessment of the U.S. Space Industry – August 2007	
Technology Assessment of Certain Aromatic Polyimides – July 2007	
Defense Industrial Base Assessment of U.S. Imaging and Sensors Industry – October 2006	
National Security Assessment of the Cartridge and Propellant Actuated Device Industry: Third Review – August 2006	
Economic Impact Assessment of the Air Force C-17 Program – December 2005	
National Security Assessment of the Munitions Power Sources Industry – December 2004	
National Security Assessment of the Air Delivery (Parachute) Industry – May 2004	
Industry Attitudes on Collaborating with DoD in R&D – Air Force – January 2004	

Industrial Base/Economic Impact Assessment of Army Theater Support Vessel Procurement – December 2003
A Survey of the Use of Biotechnology in U.S. Industry – October 2003
Industrial Base Assessment of U.S. Textile and Apparel Industries – September 2003
Technology Assessment of U.S. Assistive Technology Industry – February 2003
Heavy Manufacturing Industries: Economic Impact and Productivity of Welding – Navy – June 2002
The Effect of Imports of Iron Ore and Semi-Finished Steel on the National Security – October 2001
National Security Assessment of the U.S. High-Performance Explosives & Components Sector –June 2001
National Security Assessment of the U.S. Shipbuilding and Repair Industry - May 2001
Statistical Handbook of the Ball and Roller Bearing Industry (Update) - June 2001
National Security Assessment of the Cartridge and Propellant Actuated Device Industry: Update - December 2000

Archived Studies	
The Effect on the National Security of Imports of Crude Oil and Refined Petroleum Products - November 1999	National Security Assessment of the Antifriction Bearings Industry - February 1993
U.S. Commercial Technology Transfers to The People's Republic of China – January 1999	National Security Assessment of the U.S. Forging Industry - December 1992
Critical Technology Assessment of Optoelectronics - October 1998	The Effect of Imports of Gears & Gearing Products on the National Security – July 1992
National Security Assessment of the Emergency Aircraft Ejection Seat Sector - November 1997	Natl. Sec. Assessment of the Dom. and For. Subcontractor Base~3 US Navy Systems - March 1992
Critical Technology Assessment of the U.S. Semiconductor Materials Industry - April 1997	Natl. Sec. Assessment of the U.S. Semiconductor Wafer Processing Equipment Industry - April 1991
National Security Assessment of the Cartridge and Propellant Actuated Device Industry - October 1995	National Security Assessment of the U.S. Robotics Industry - March 1991
A Study of the International Market for Computer Software with Encryption – NSA - 1995	National Security Assessment of the U.S. Gear Industry - January 1991
The Effect of Imports of Crude Oil and Petroleum Products on the National Security - December 1994	The Effect of Imports of Uranium on the National Security – Sept. 1989
Critical Technology Assessment of U.S. Artificial Intelligence - August 1994	The Effect of Imports of Crude Oil and Refined Petroleum on Natl. Security – Jan. 1989
Critical Technology Assessment of U.S. Superconductivity - April 1994	The Effect of Imports of Plastic Injection Molding Machines on Natl. Security – Jan. 1989
Critical Technology Assessment of U.S. Optoelectronics - February 1994	The Effect of Imports of Anti-Friction Bearings on the Natl. Security - July 1988
Critical Technology Assessment of U.S. Advanced Ceramics - December 1993	Investment Castings: A Natl. Security Assessment – Dec. 1987
Critical Technology Assessment of U.S. Advanced Composites - December 1993	An Economic Assessment of the U.S. Industrial Fastener Industry – Mar. 1987
The Effect of Imports of Ceramic Semiconductor Packages on the National Security - August 1993	Joint Logistics Commanders/DOC Precision Optics Study - June 1987
National Security Assessment of the U.S. Beryllium Industry - July 1993	Joint Logistics Commanders/DOC Bearing Study - June 1986

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