



U.S. Space Industry 'Deep Dive' Assessment

Respondent Risk Methodology

Preliminary Findings from the Second Waypoint

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Introduction

- In order to identify potential risks to the space industrial base, particular supply chains, and unique capabilities, we need an understanding of respondent risk.
- For this study, we have designed a methodology to evaluate individual respondent risk. It takes into account a broad array of factors to establish
 - how vulnerable a respondent is to health and competitiveness issues; and
 - the impacts a respondent's failure could have on the U.S. Government and broader U.S. space industrial base.
- Risk = Vulnerability * Consequence
- In this presentation we are considering future risk. This risk is that may manifest itself should there be declines in U.S. Government space-related spending, general economic downturn, or other unforeseen events.

Vulnerability

I. Dependency Elements

- a. Dependency on USG space programs for continued viability
- b. Vulnerability to changes in USG space-related demand
- c. Percentage of sales to USG customers
- d. Number of impacts due to sudden decline in USG space-related demand
- e. Loss of viability/solvency due to sudden decline in USG space-related demand

II. Financial Elements

- a) Number of years with negative net profit margins
- b) Average debt-to-equity ratio
- c) Average current ratio

III. Warning Elements

- a) Change in number of full-time employees
- b) Change in R&D expenditures
- c) Change in capital expenditures
- d) Compatibility between space and non-space related products

Consequence

I. Capability Elements

- a) Number of product/service areas provided by respondent
- b) Number of sole source product/service areas provided by respondent
- c) Estimate of respondent's industrial base impact (via product/service areas provided)

II. U.S. Government Impact Elements

- a) Involvement in USG space programs
- b) Support for USG agencies

III. Industrial Impact Elements

- a) Number of suppliers
- b) Number of space-related customers
- c) Number of full-time employees
- d) Number of space-related employees

Calculating Risk

- Each individual element is scored on a ten-point basis, with 0 indicating low risk and 10 indicating high risk.
- The elements are weighted equally for each of the three segments of consequence and risk.
 - For example, to determine the score for the financial elements, the three individual element scores are added together and divided by 30.
- The risk methodology is designed to allow for custom weighting of each of the element scores. This provides users the ability to emphasize the particular risk factors they believe are most important.

Calculating Risk (cont.)

Risk Matrix Formula:

Risk	=	Vulnerability						X	Consequence				
			Dependency Elements		Financial Elements		Warning Elements			Capability Elements		USG Impact Elements	

We fill in the boxes above to weight the various sub-segments of vulnerability and consequence.

Vulnerability and consequence should each add up to 100%.

Through this scoring system, we can plot risk through vulnerability and consequence scores for each respondent on an X-Y axis.

U.S. Space Industry Deep Dive Second Waypoint Risk Estimate

Risk Matrix Formula:

Risk	=	Vulnerability					X	Consequence				
		40%	Dependency Elements	50%	Financial Elements	10%		Warning Elements	30%	Capability Elements	50%	USG Impact Elements

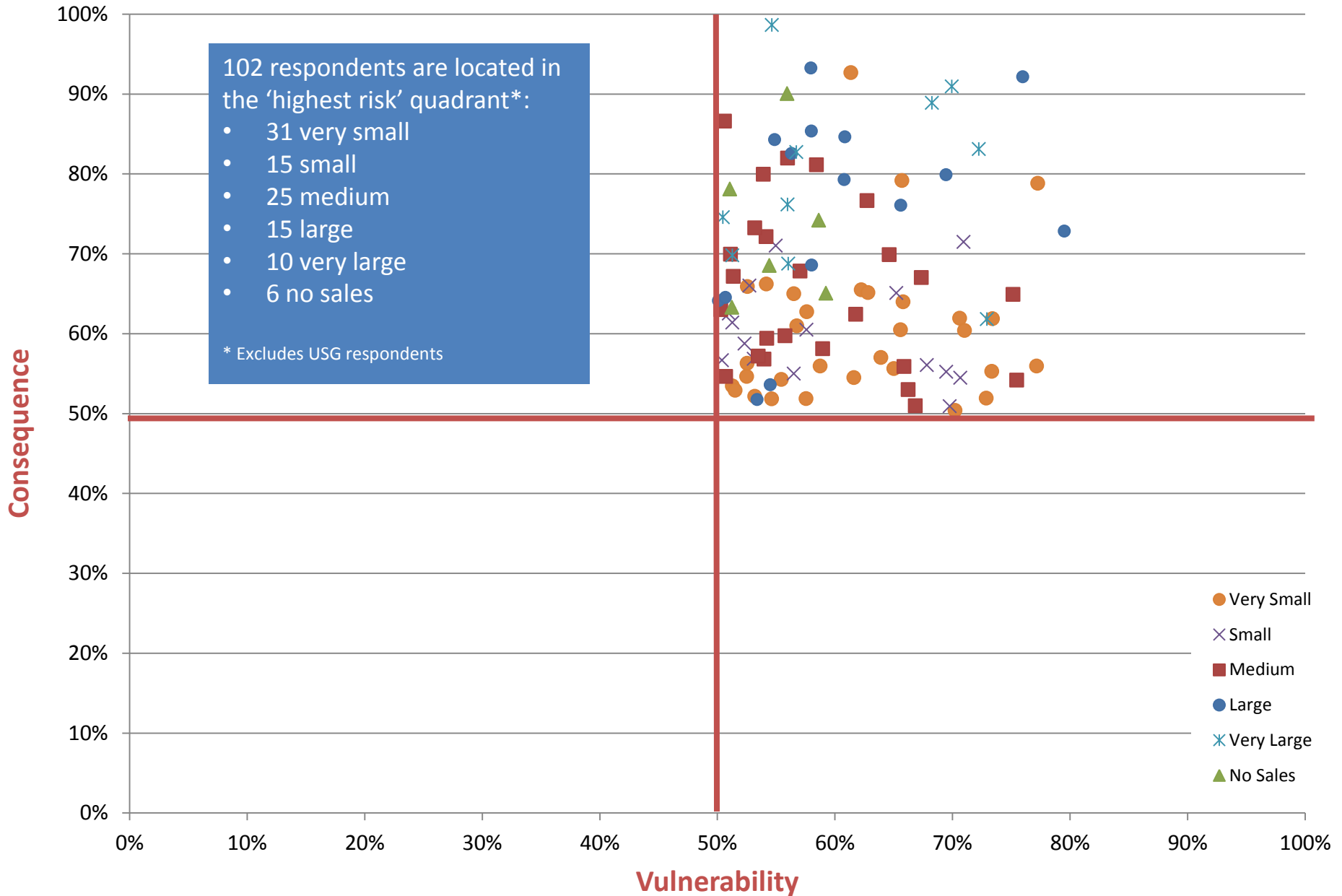
For this analysis, the above weightings were utilized – there are many other justifiable combinations that can be used.

The resulting graph is composed of four quadrants. Respondents in the upper-right quadrant represent the highest overall risk.

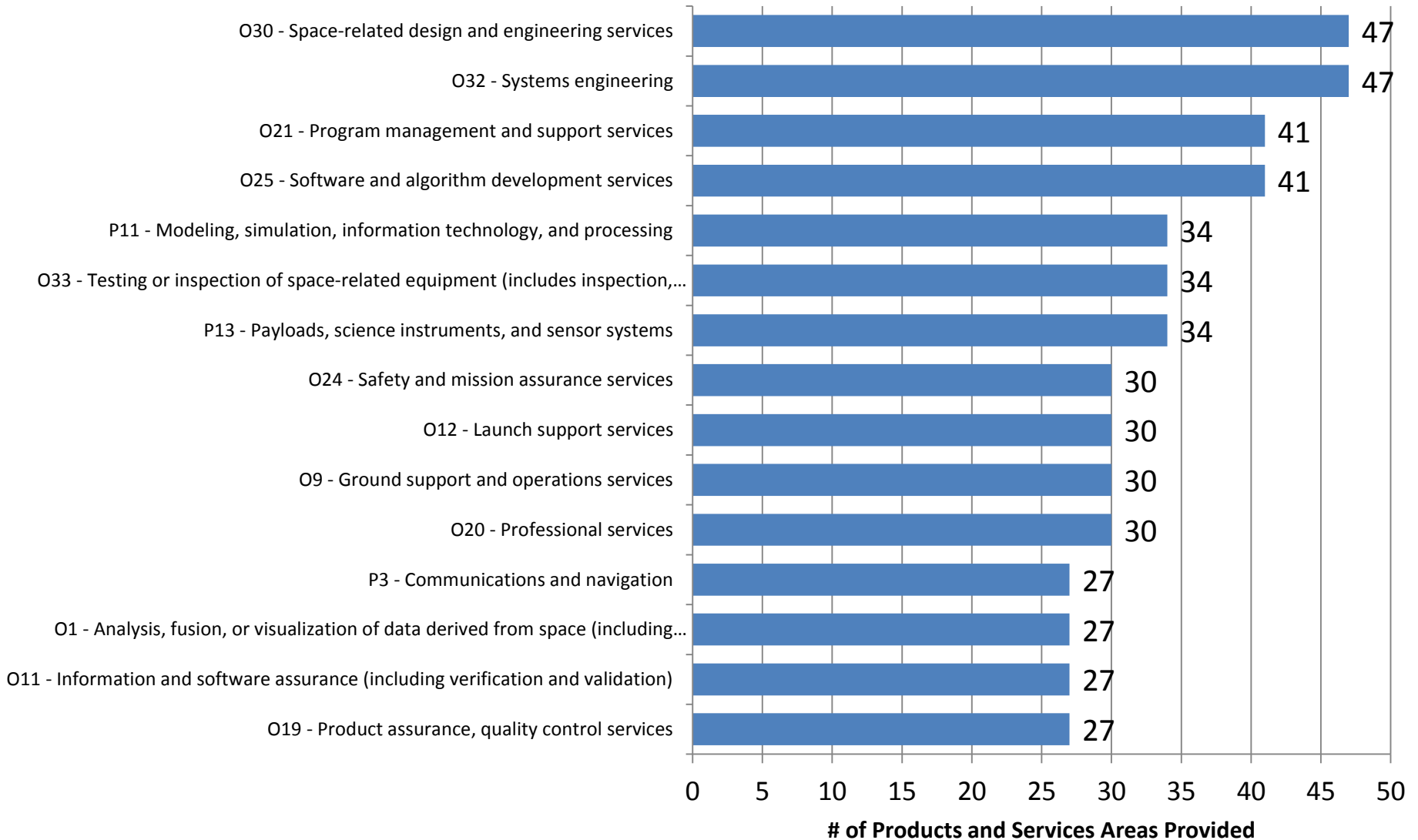
Respondent Risk Matrix



Highest Risk Respondents

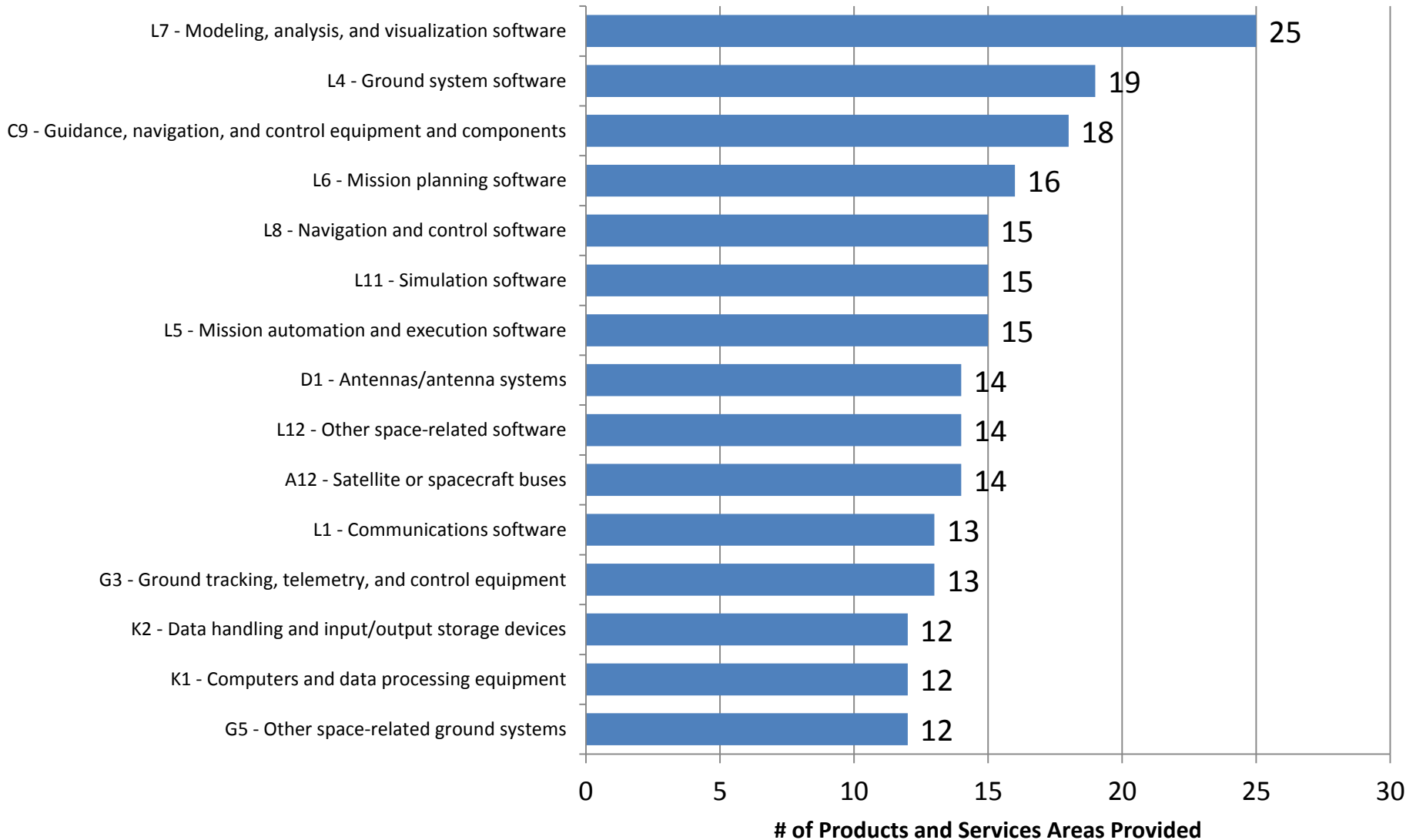


Top 15 Product/Service Areas Provided by Highest Risk Respondents* – All Segments



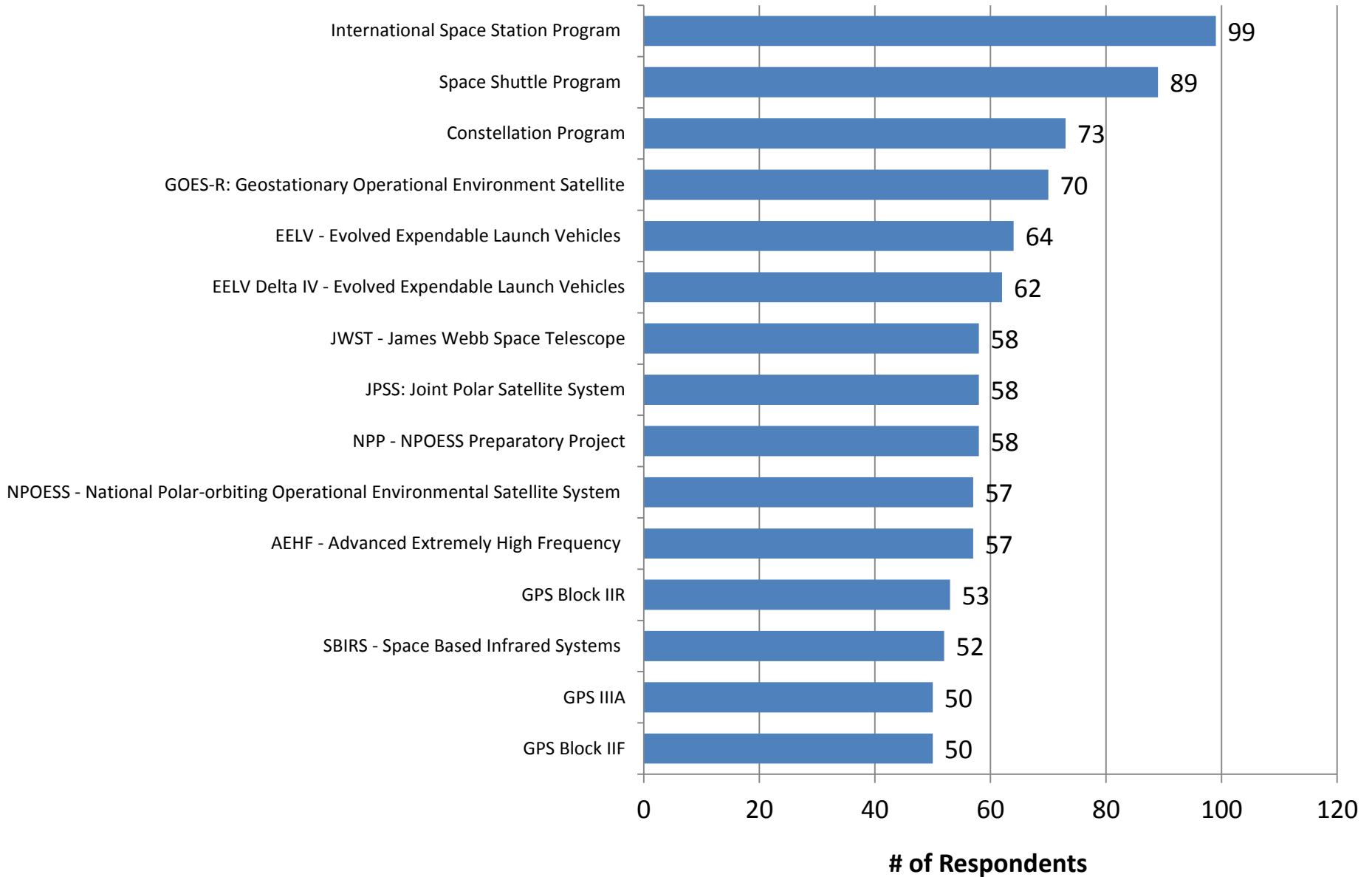
* 102 respondents were identified in the 'highest risk' quadrant.

Top 15 Product/Service Areas Provided by Highest Risk Respondents* – Excluding R&D and Services Segment



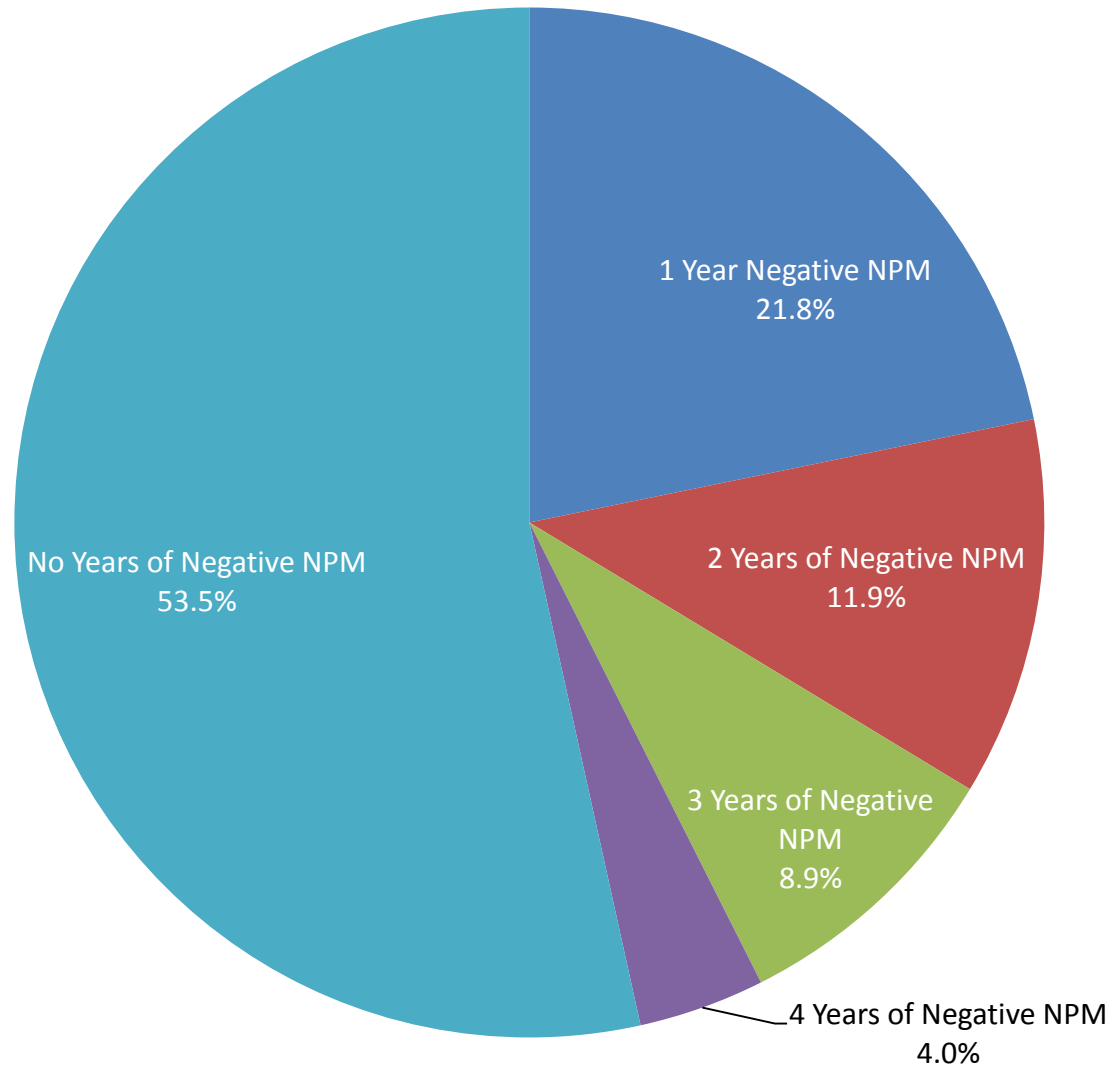
* 102 respondents were identified in the 'highest risk' quadrant.

Support for USG Space Programs by Highest Risk Respondents*



* 102 respondents were identified in the 'highest risk' quadrant.

Highest Risk Respondents' Years of Negative Net Profit Margin*



* 102 respondents were identified in the 'highest risk' quadrant.

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

