



**MBSE Survey**  
**Presented January 2015 INCOSE IW**  
**Los Angeles, CA**

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January 24, 2015

# Survey Data Used for this Report

OMG issued a Request for Information on SysML and MBSE

INCOSE conducted survey for IW in Jacksonville, FL

INCOSE UK conducted MBSE Survey

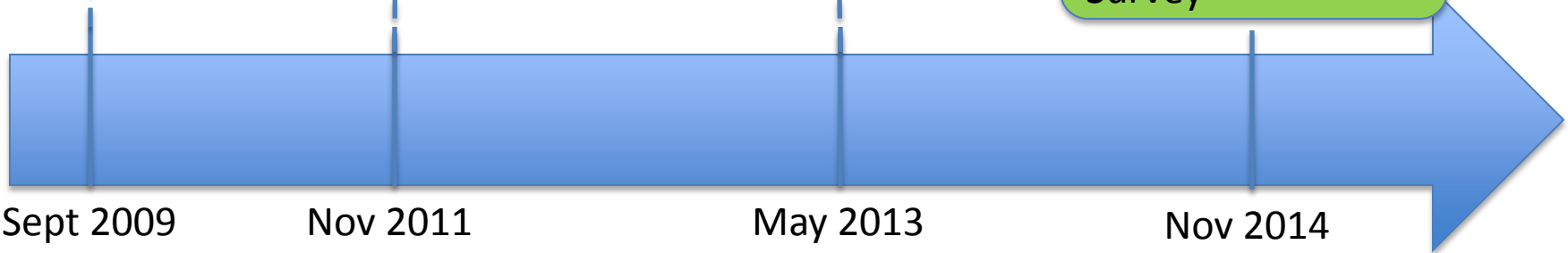
INCOSE conducted follow-on MBSE Survey

Sept 2009

Nov 2011

May 2013

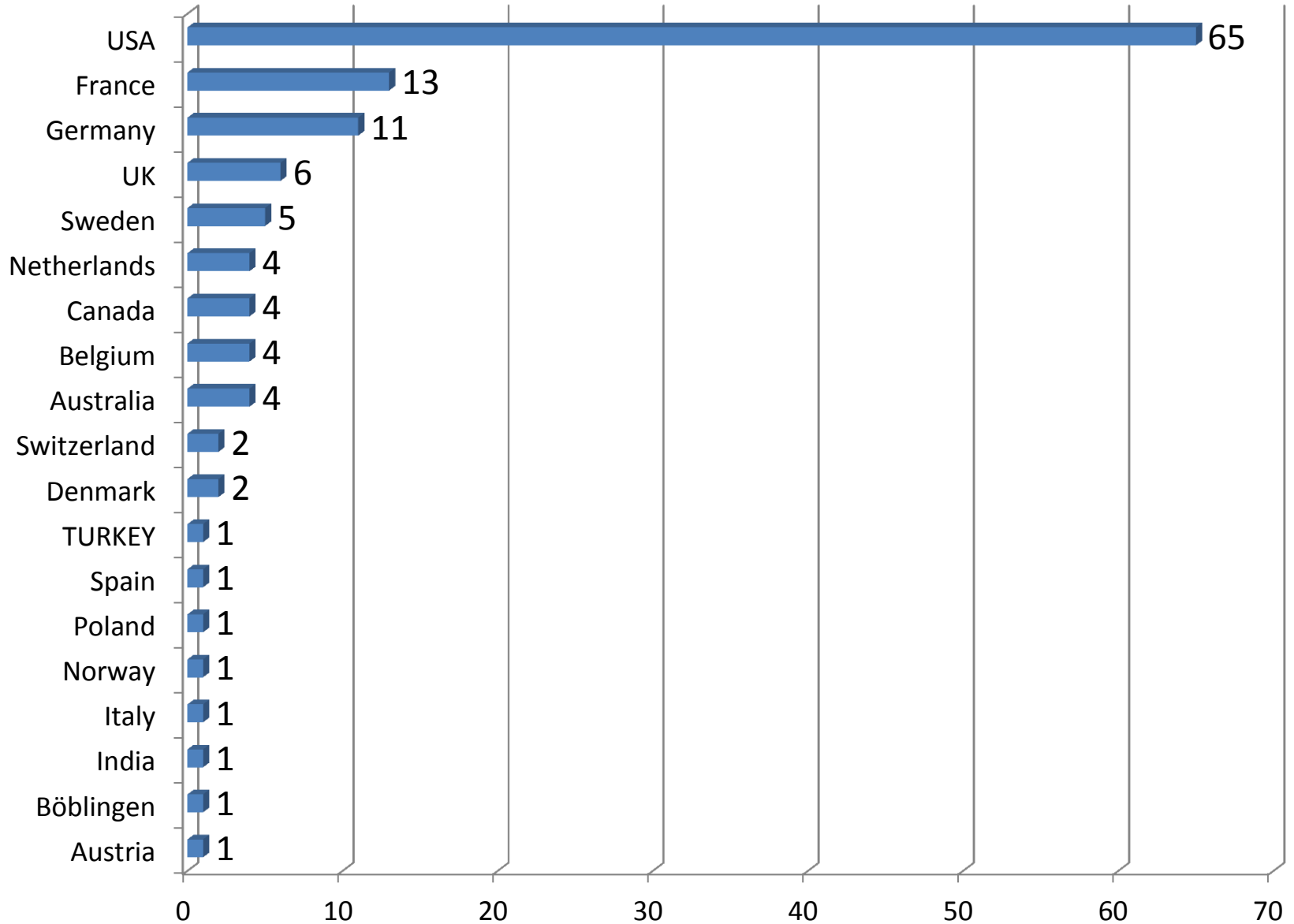
Nov 2014



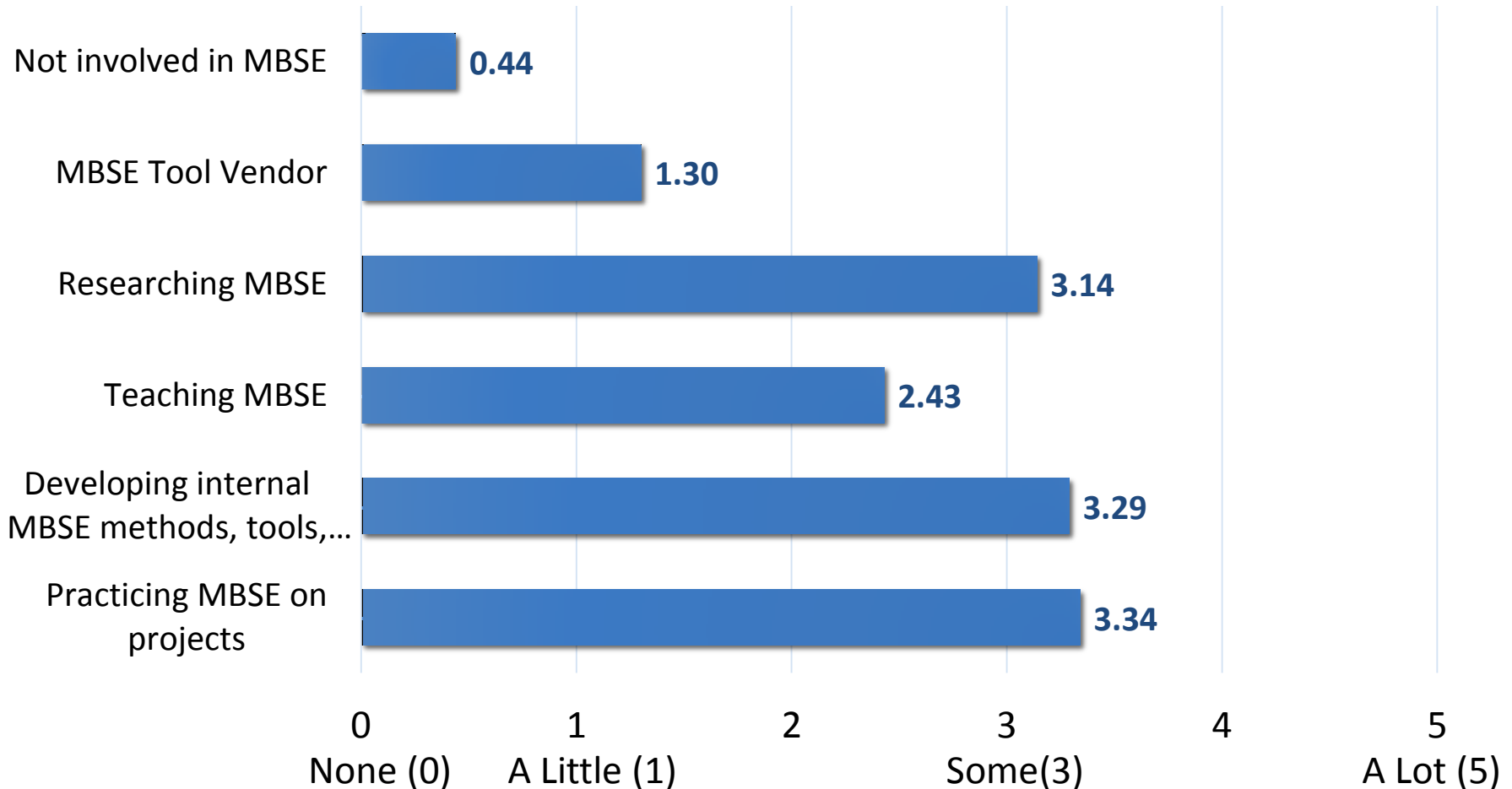
## Demographic Data

- There were 192 surveys as of 12/22/2014 and are incorporated in this data (2012 had 134 responses)
- Of the 192 responses, 136 provided demographic information
- Responses came from 19 countries (2012 had 14 countries)
- 99 unique companies/divisions represented
  - Umptiscrunch Automotive and Umtiscrunch Defense counted as 2 different companies

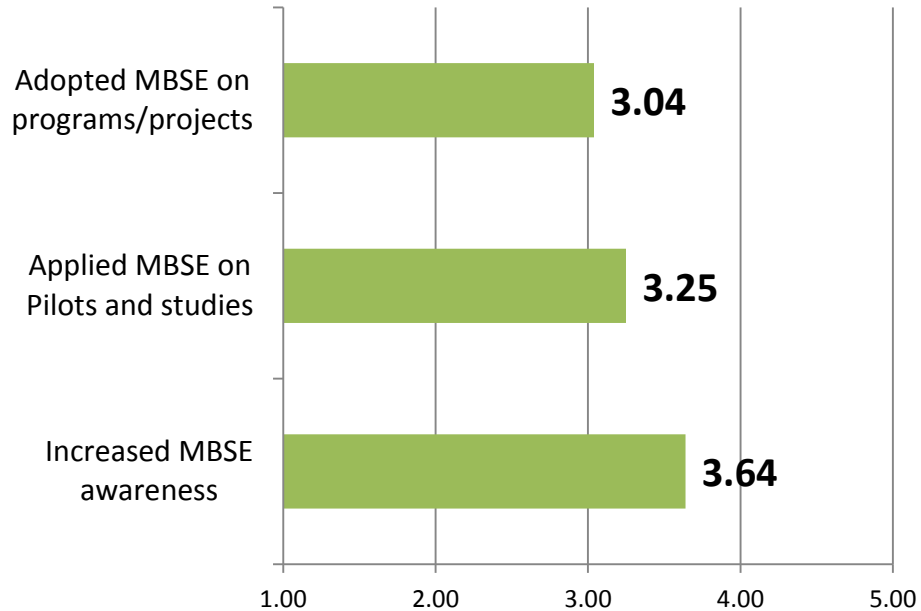
# No. Respondents by Country



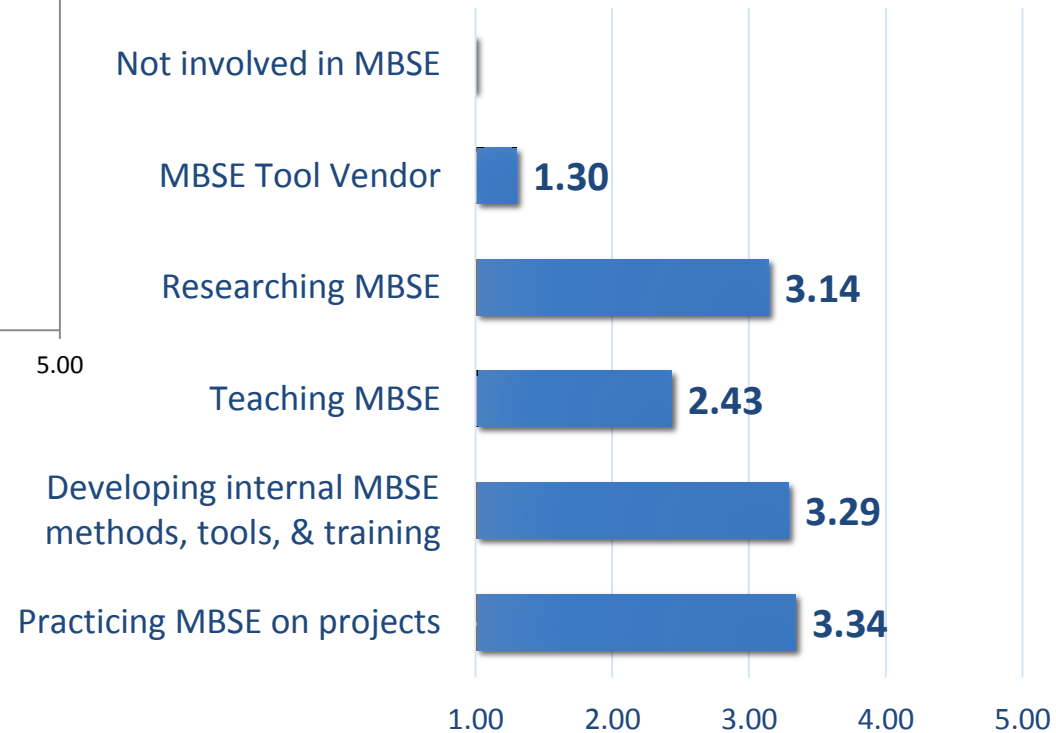
## To what extent have you participated in MBSE activities during the last 5 years?



**2013** To what extent in the last 3 years has your company/organization:

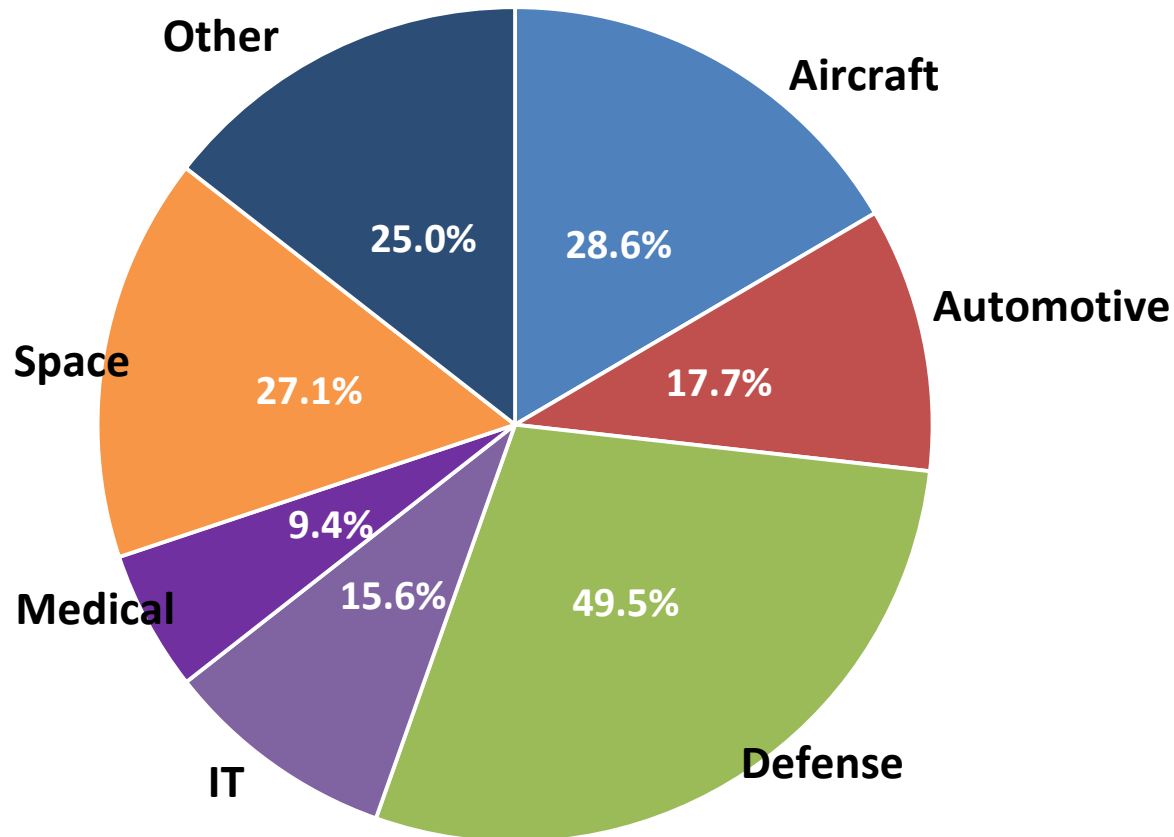


To what extent have you participated in MBSE activities during the last 5 years?



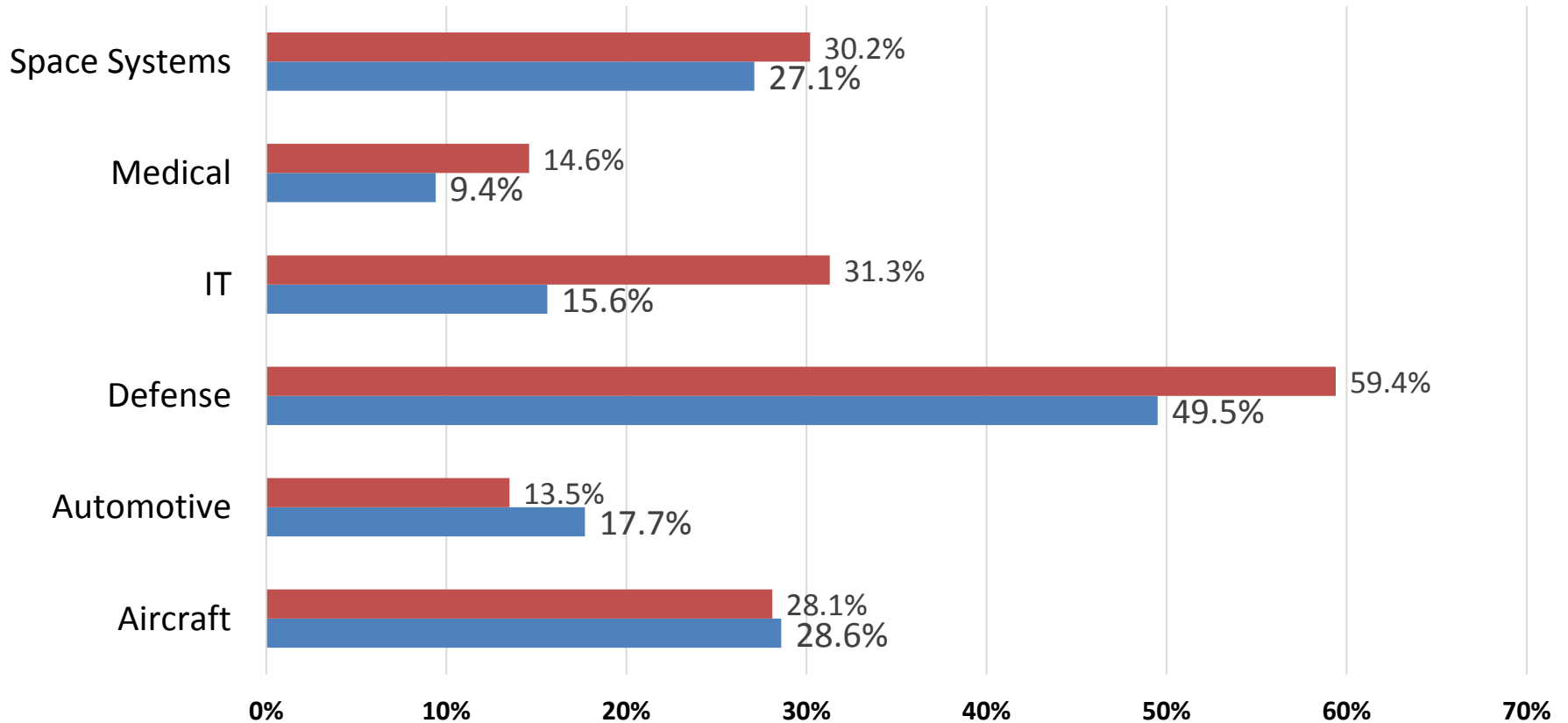


What type(s) of industry and/or product(s) does your company represent? If your industry is not represented, do not check a box, simply type your answer in the "Other" field provided.



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■ 2012 ■ **2014**

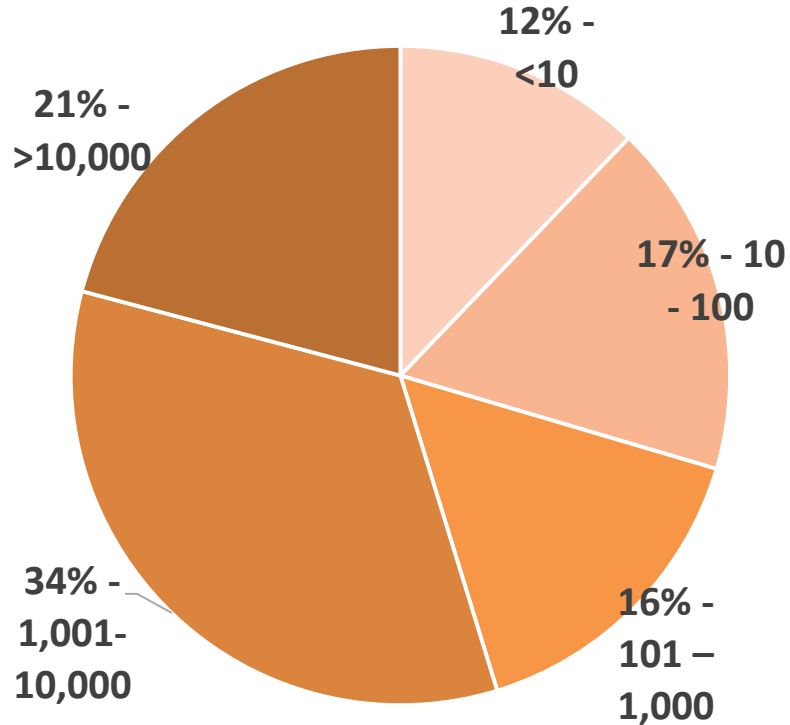




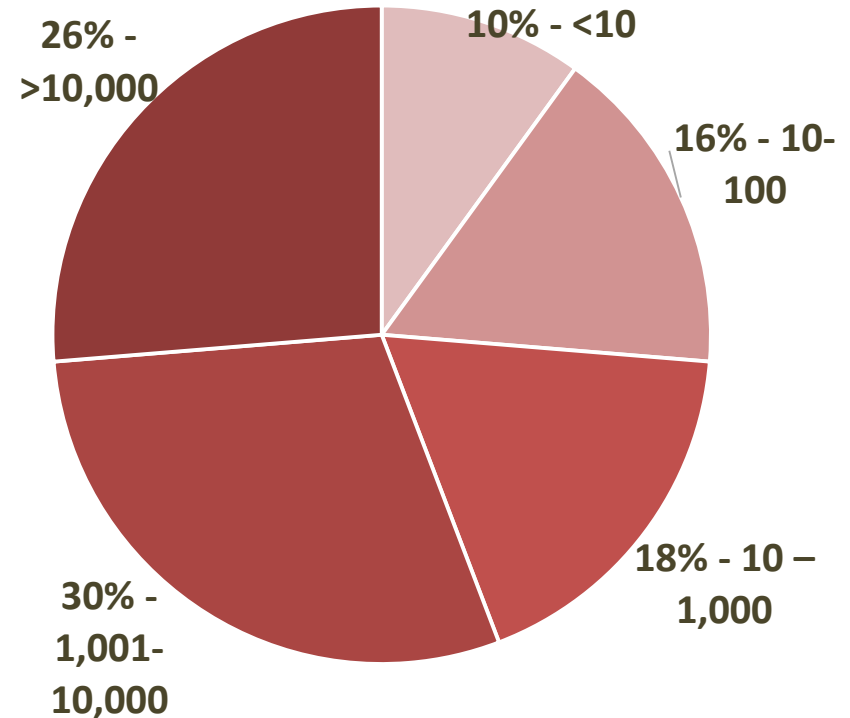


# Question 4: How many engineers does your company/organization employ?

OMG SURVEY 2012



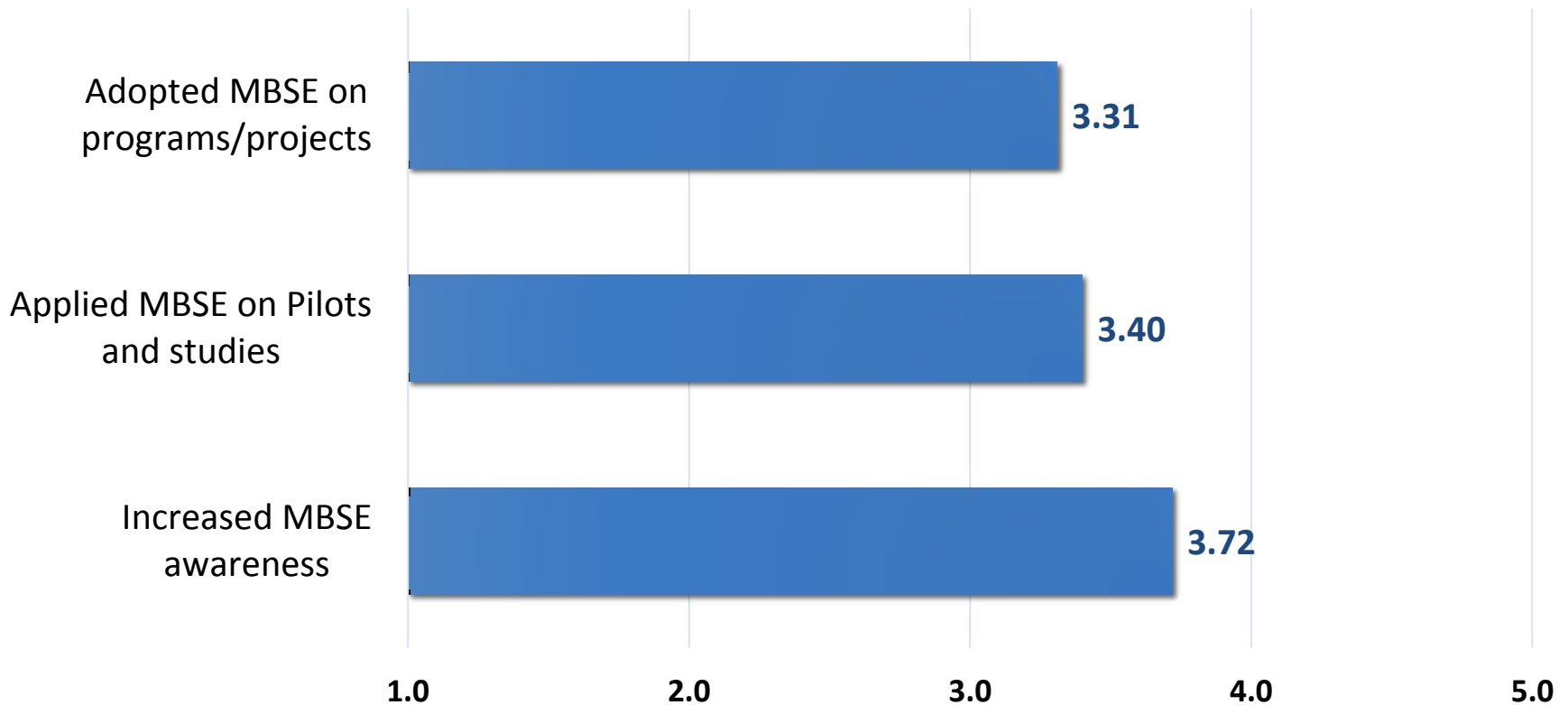
OMG SURVEY 2014



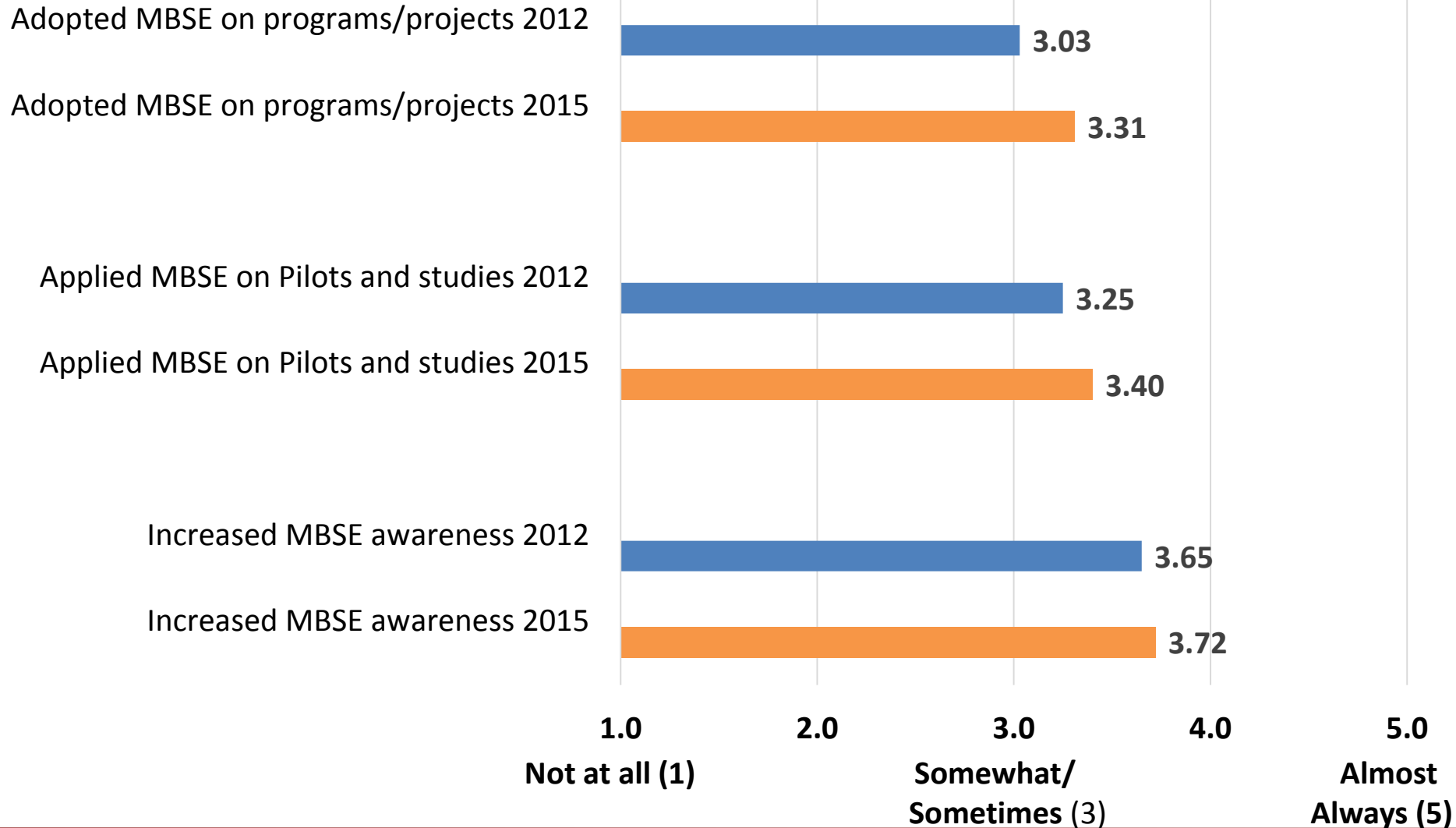
**2012, 45% of the respondents had 1,000 or fewer engineers**

**2014, 34% of the respondents had 1,000 or fewer engineers**

To what extent in the last 3 years has your company/organization:



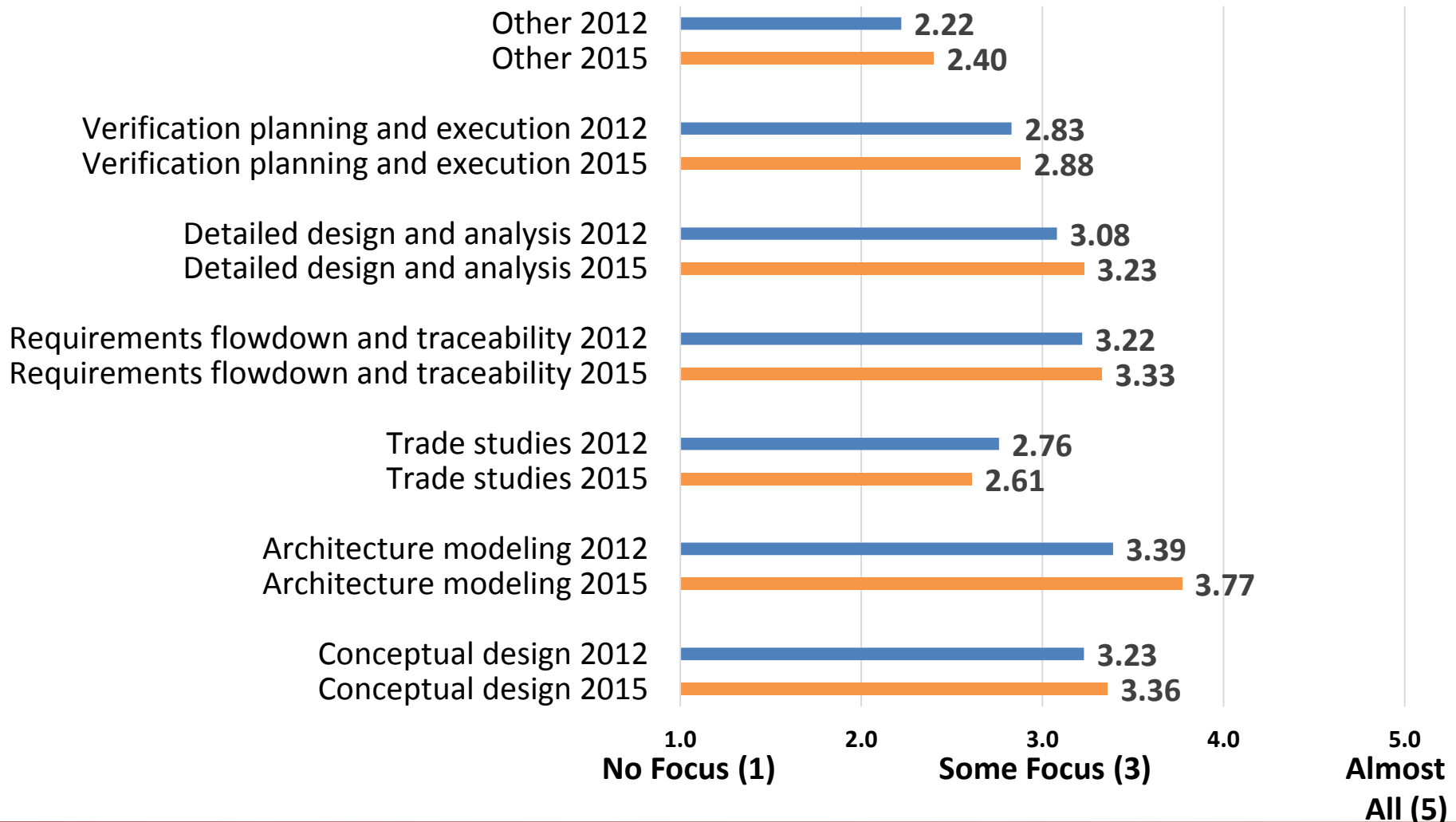
## Comparing 2012 responses with 2014 responses



## What is the relative focus of the MBSE effort in your organization to support each of the following?

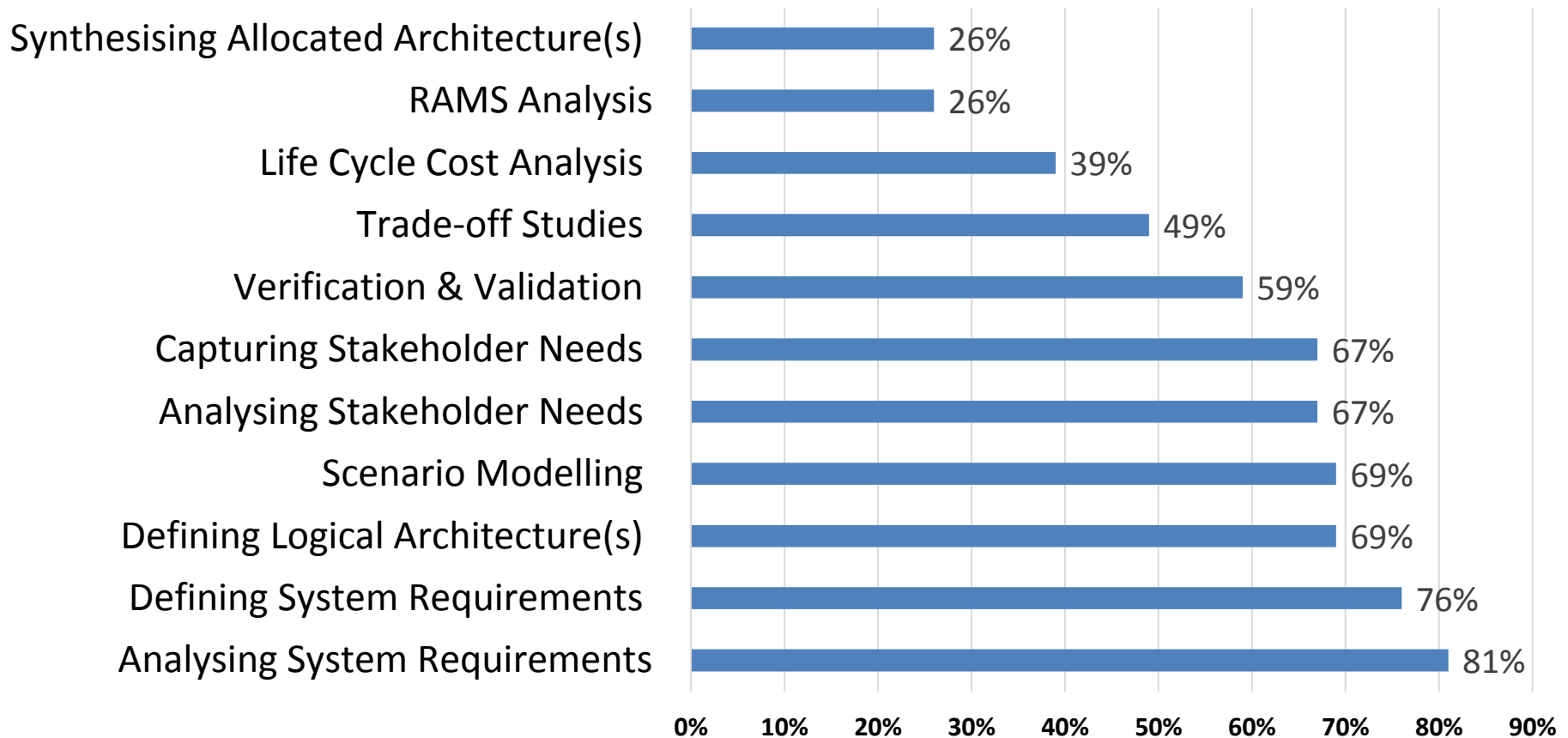


## What is the relative focus of the MBSE effort in your organization to support each of the following?



## INCOSE UK MBSE 'State of the Nation'\*

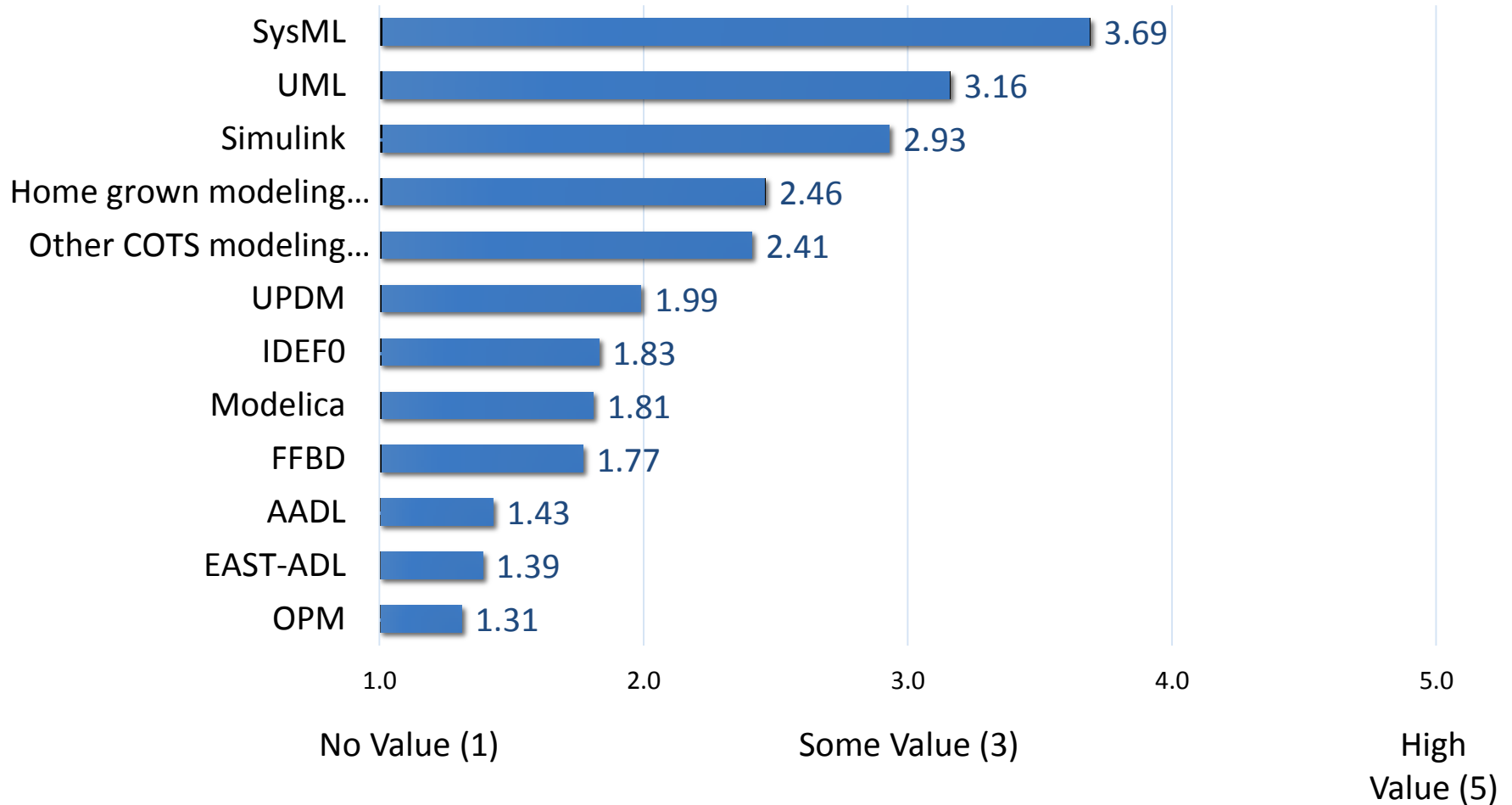
Q2.4 - In which SE activities do you use modelling?



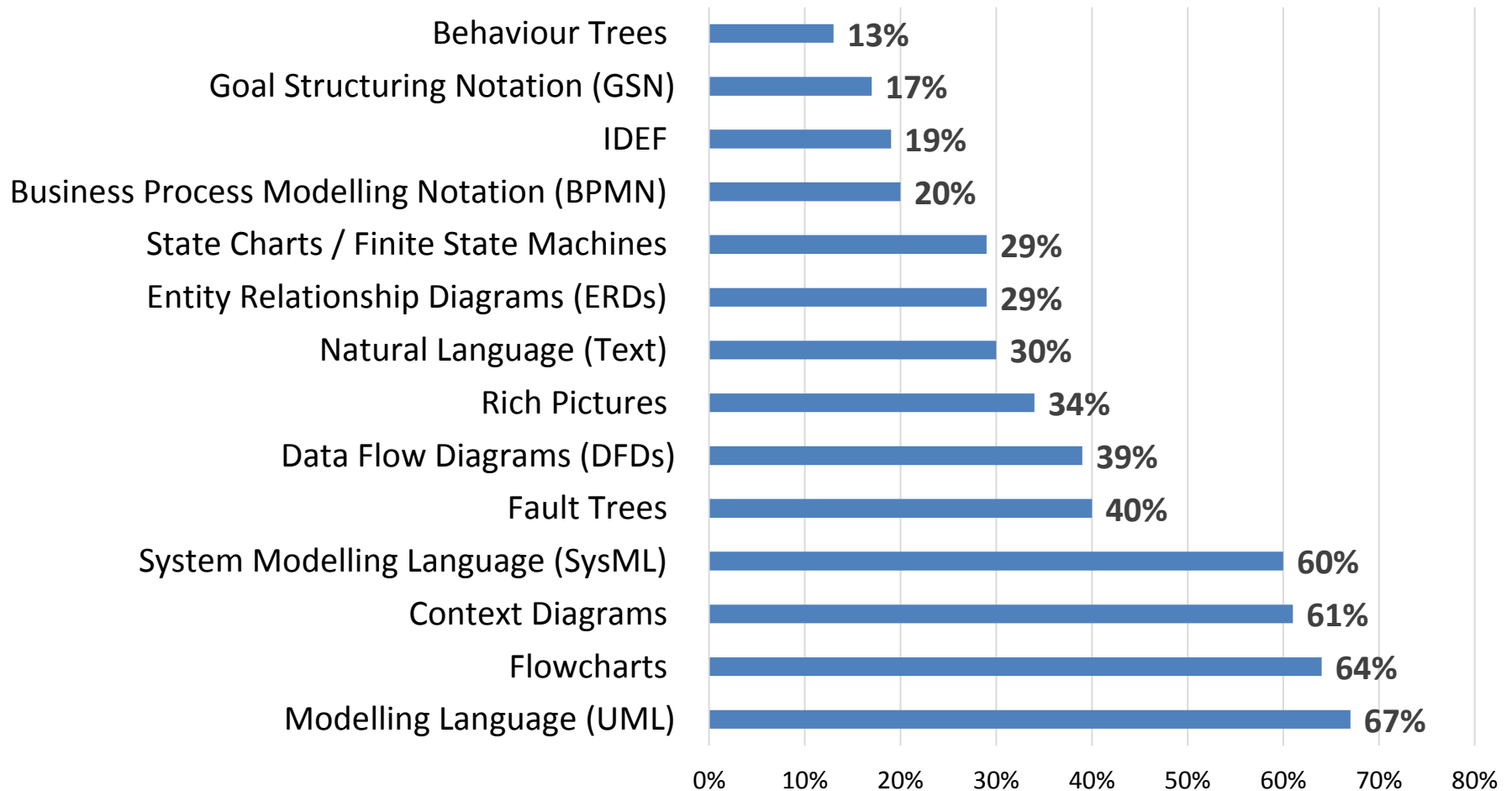
\*Tower. James. 2013. "Model Based Systems Engineering 'The State of the Nation'" INCOSE UK ASEC 2013.



**To what extent are the following modeling languages used for system architecture modeling as part of your MBSE effort?**

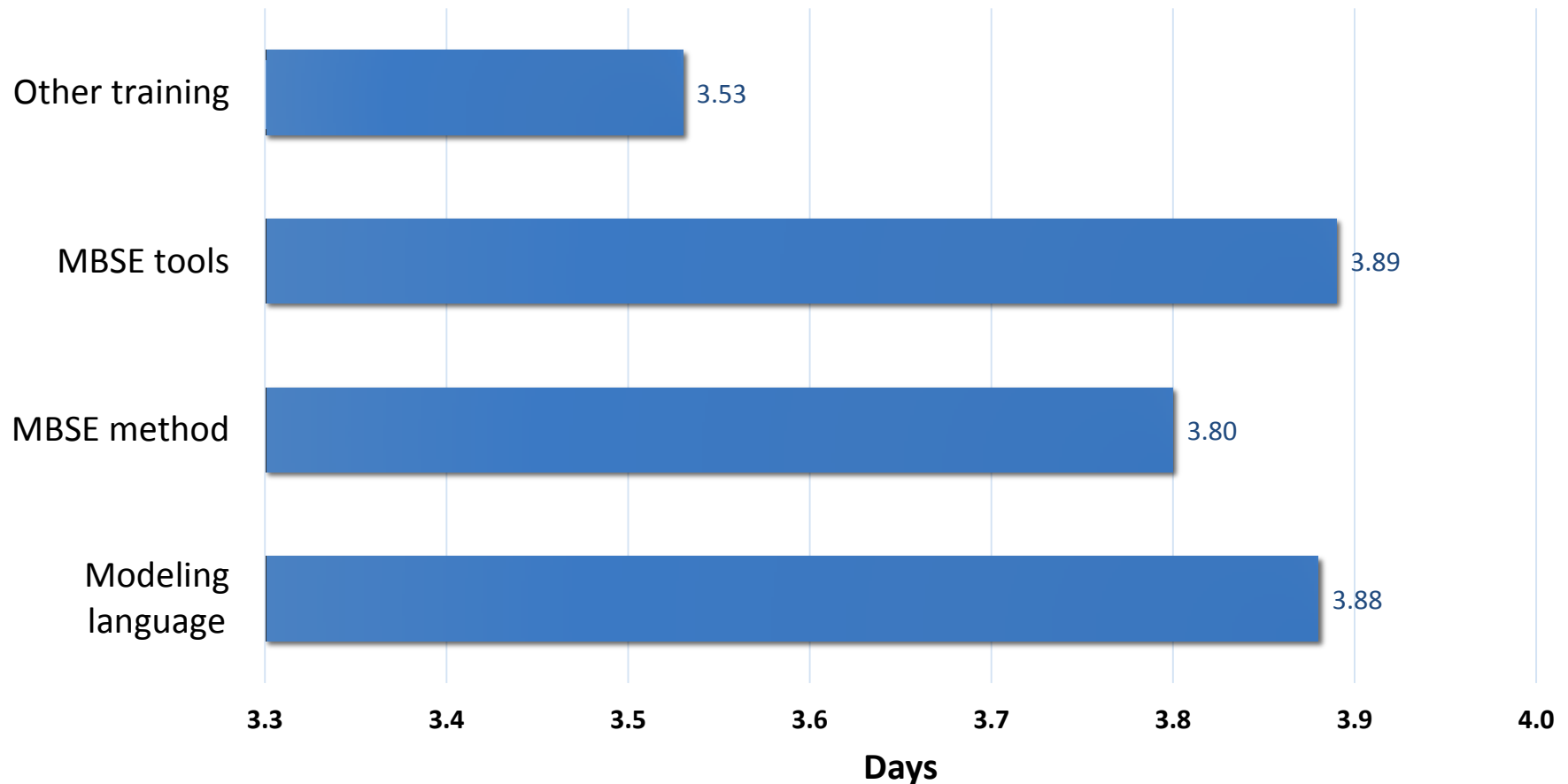


## INCOSE UK MBSE 'State of the Nation'\* Q2.5 Most widely used languages

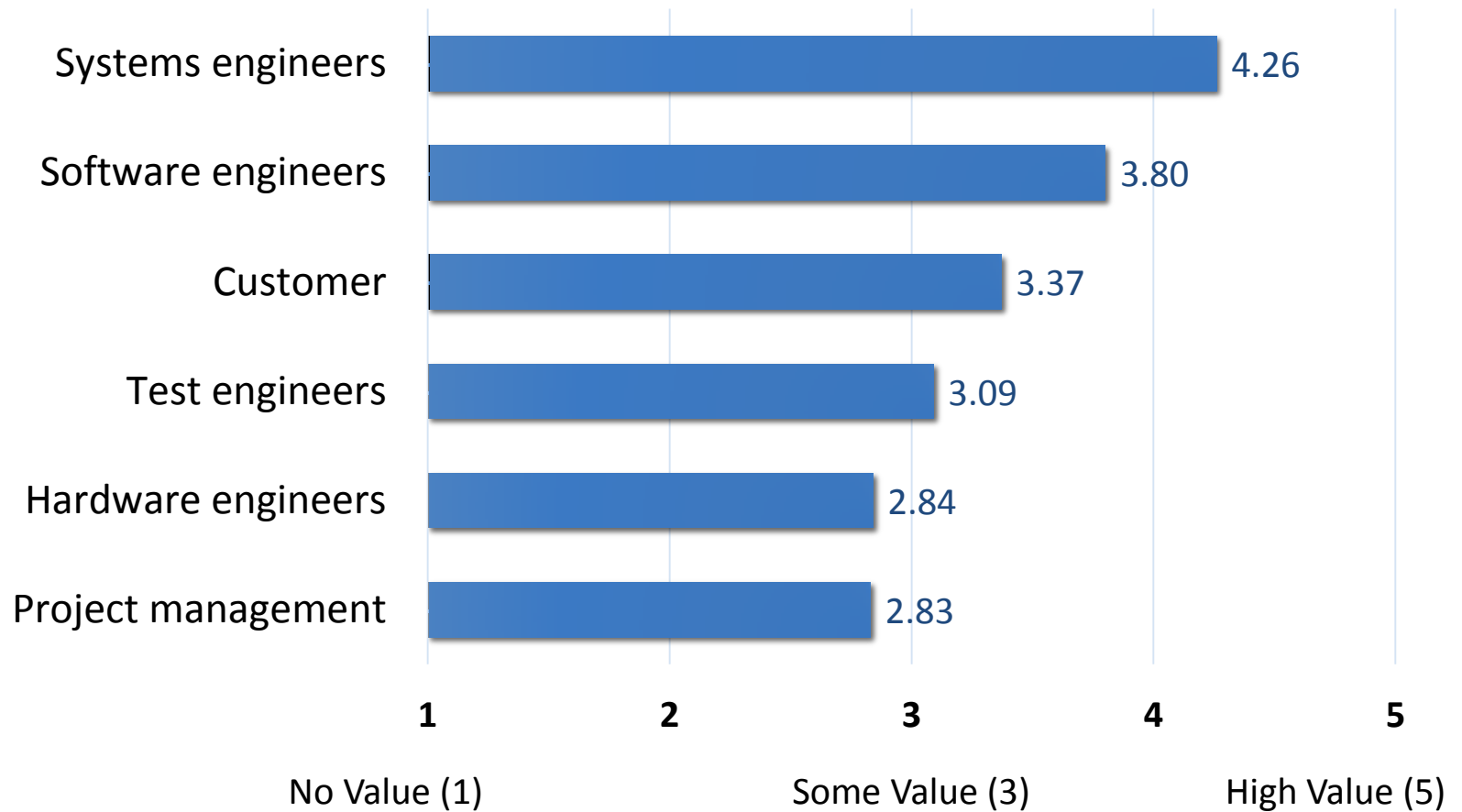


\*Tower. James. 2013. "Model Based Systems Engineering 'The State of the Nation'" INCOSE UK ASEC 2013.

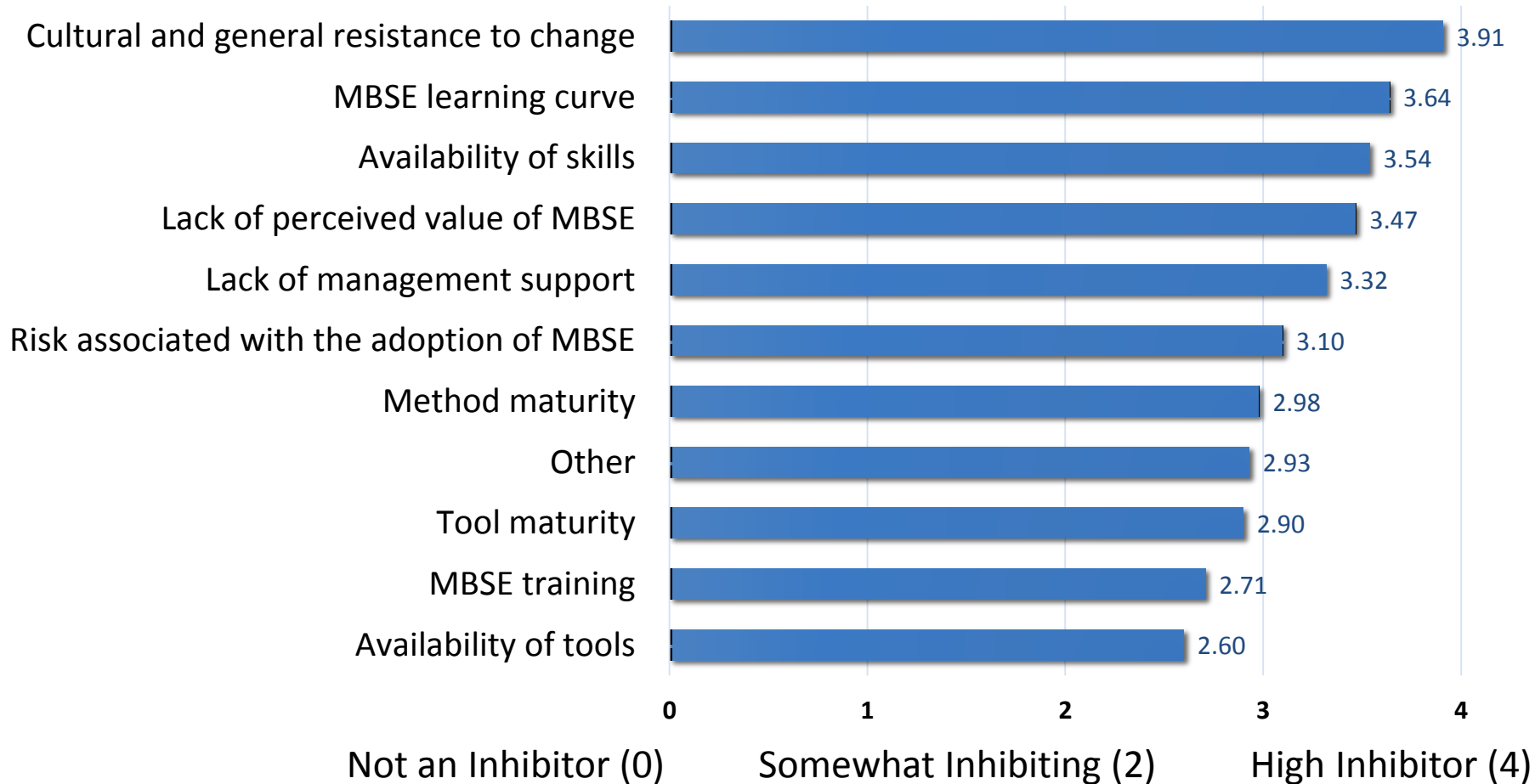
**How much formal training is typically offered, in number of days, to the team members involved in the modeling effort?**



**What is the perceived value of the modeling effort by each of the following?**

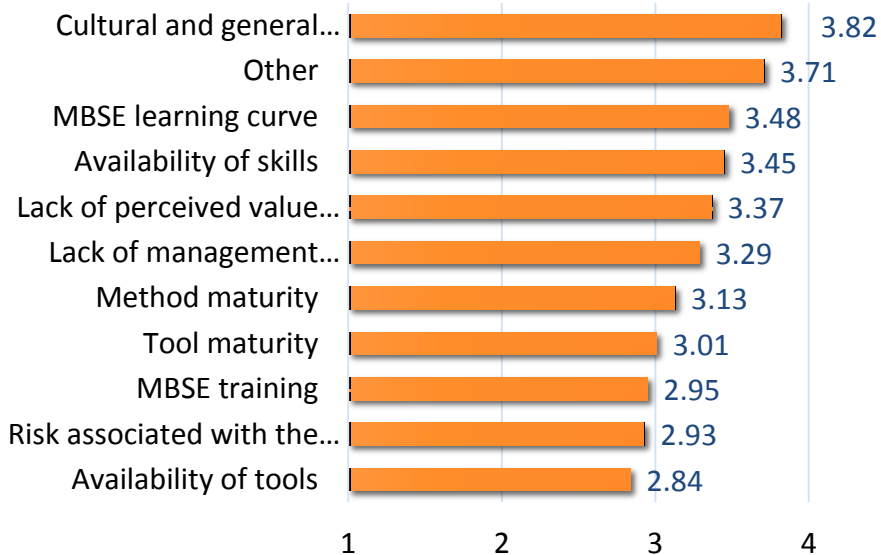


**Rank each item below in terms of the extent that it currently inhibits successful adoption of the MBSE within your organization/company.**



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## MBSE 2012



## MBSE 2014

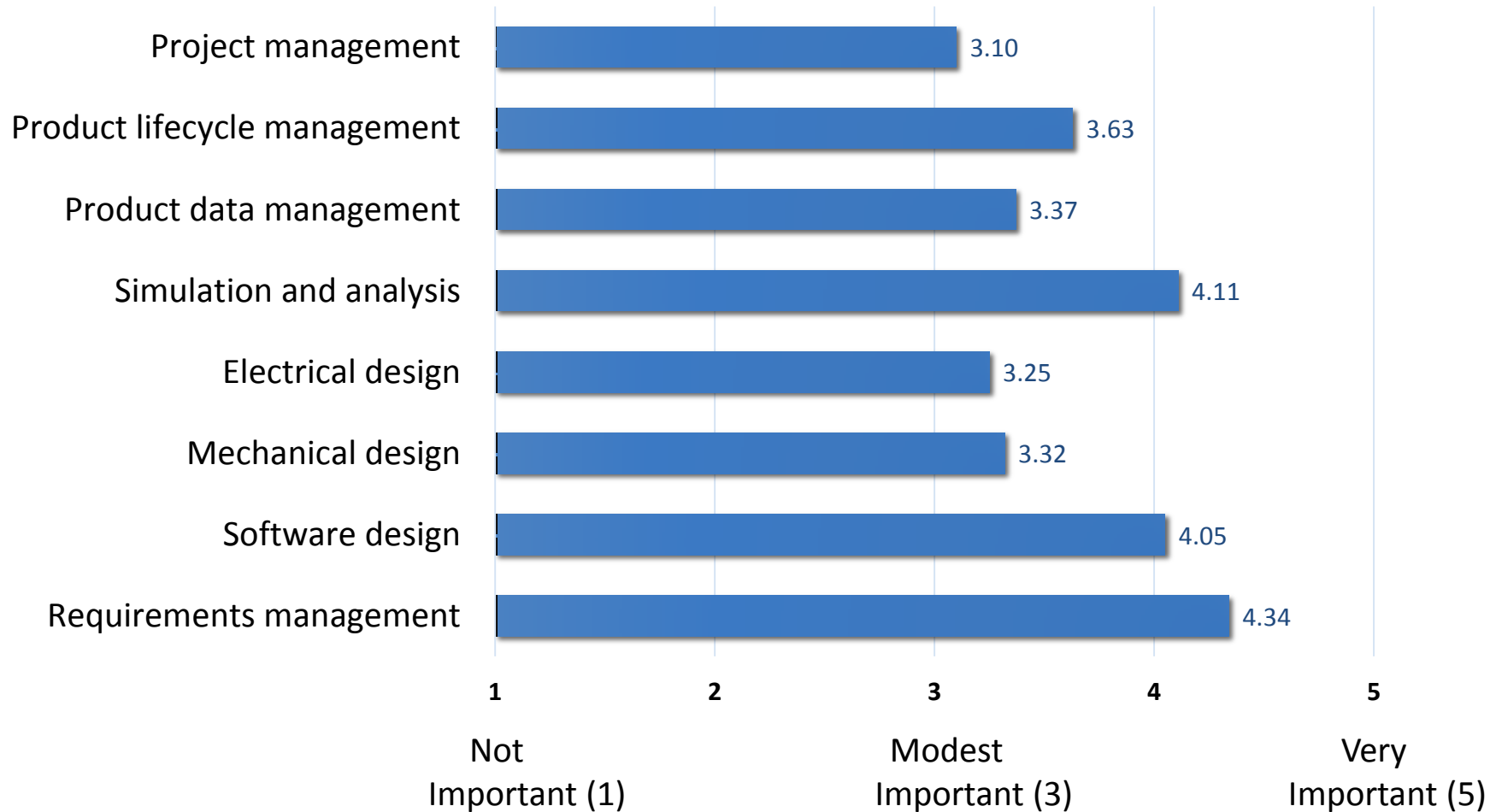


Not An Inhibitor (1)

Somewhat Inhibiting (3)

High Inhibitor (5)

## What is the relative importance that your system model integrates with the following models and/or tools?





# SURVEY INITIAL FINDINGS

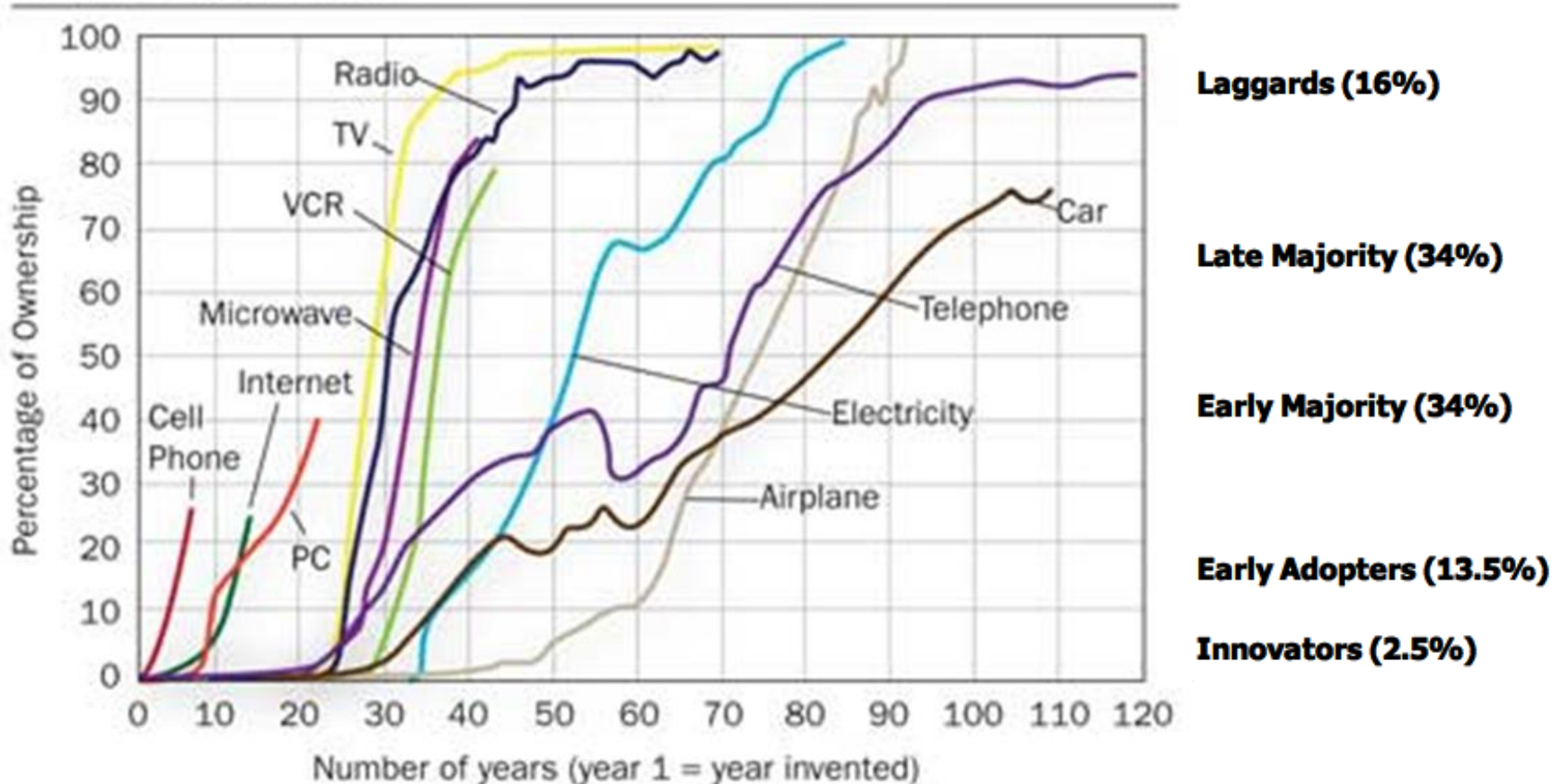
# Quick word on Bias of this Survey

- The data is biased in that we asked the MBSE and INCOSE community to tell us what they think of MBSE to date
  - Seems plausible that the most responses will be those with high interest
- IMPORTANT THAT WE DO NOT JUMP TO CONCLUSIONS NOT SUPPORTED BY THE DATA

# Technology Adoption S curve \*

Systems Engineering, and MBSE, are somewhere  
On their way up their own technology adoption curve

## Technology Adoption

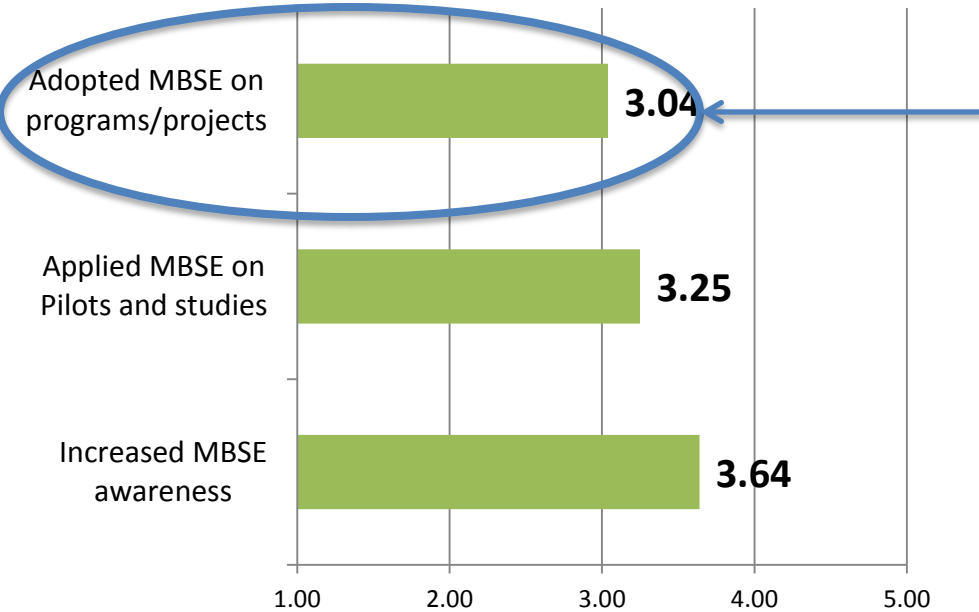


Source: Forbes Magazine

**Q2 seems to indicate that:**

**There is an increase in the number of companies Practicing MBSE & Developing internal MBSE methods, tools, and training**

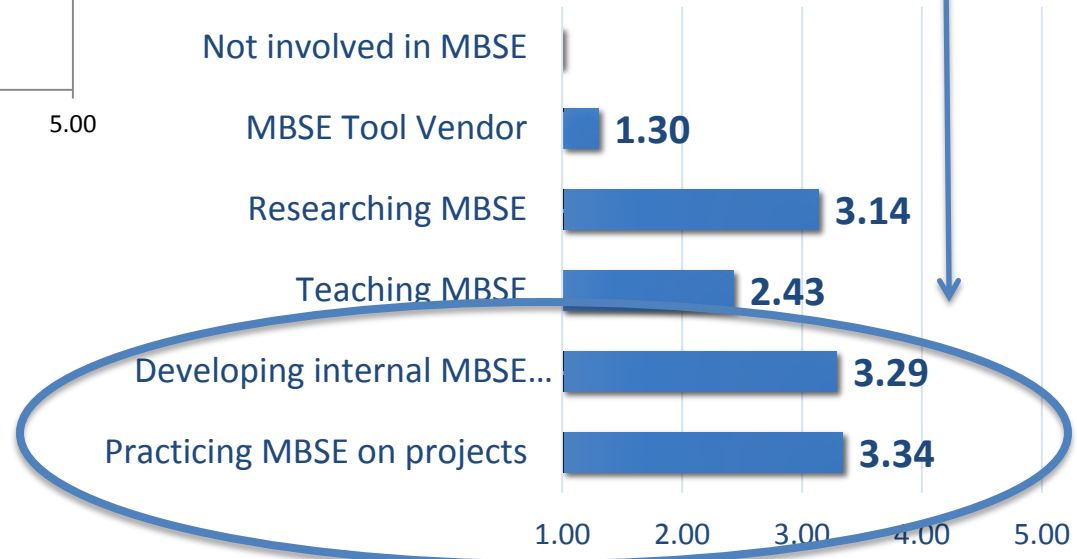
**2013** To what extent in the last 3 years has your company/organization:



We see that since the last survey, there is an increase in the number of companies practicing MBSE & Developing internal MBSE methods, tools, and training.

**2014 Survey**

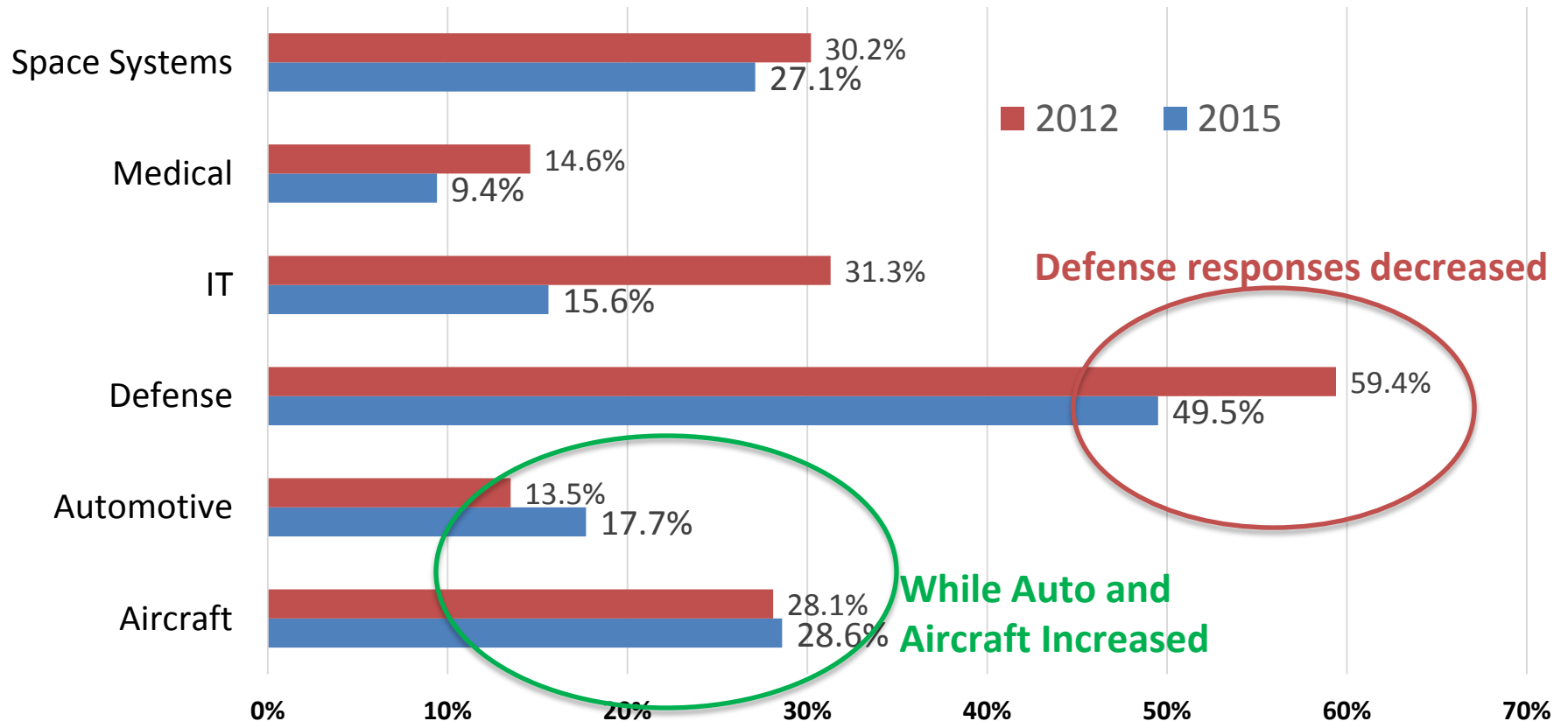
To what extent have you participated in MBSE activities during the last 5 years?



Q3 seems to point to:

**MBSE is migrating into more “main stream” industries**

What type(s) of industry and/or product(s) does your company represent? If your industry is not represented, do not check a box, simply type your answer in the "Other" field provided.

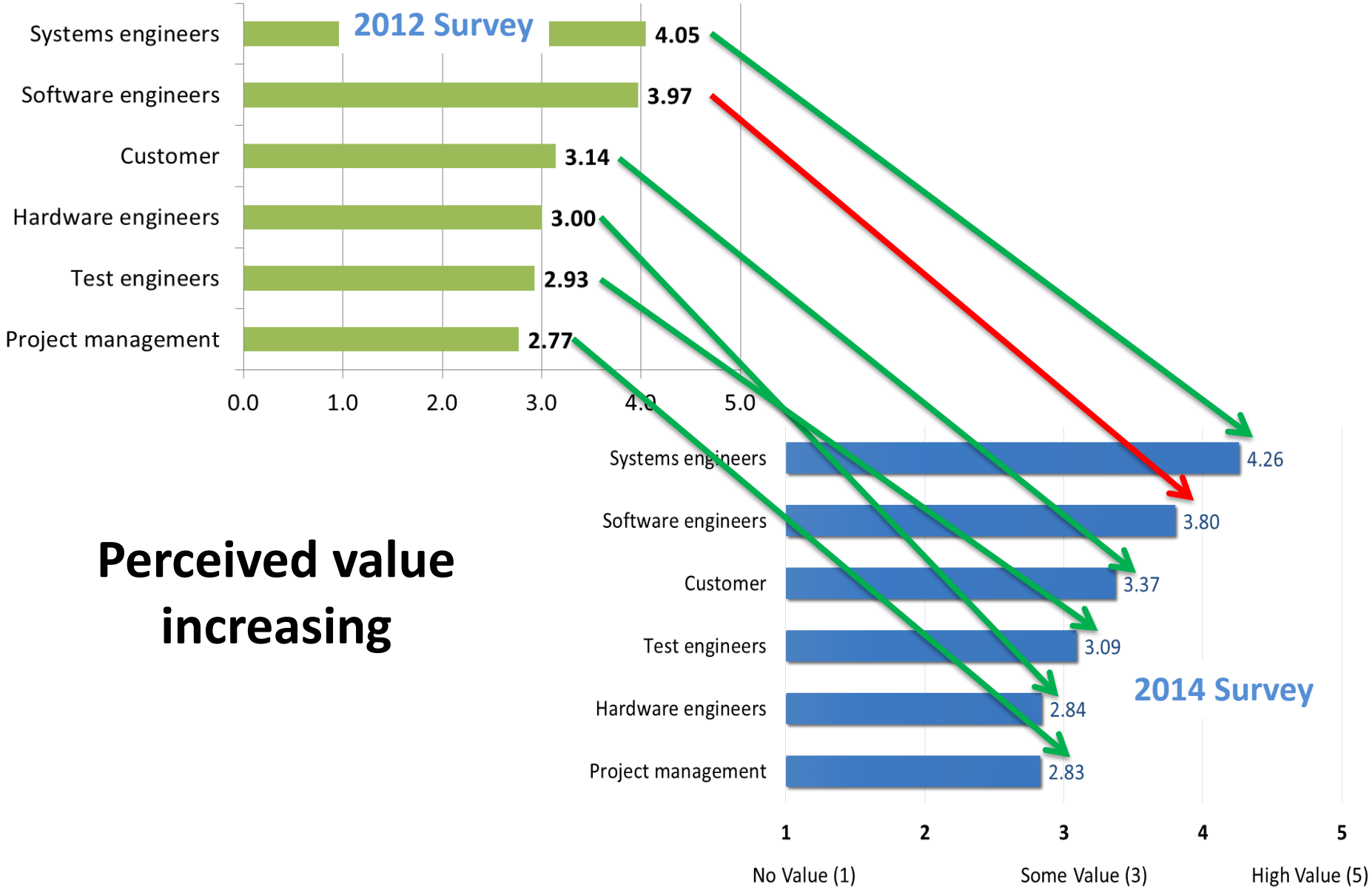




From Q9, it appears that

**Among the systems engineering survey participants,  
there is a high perceived value (4.26)**

- But remember, this is a biased survey



- Q6 and UK Q2.4 seems to indicate

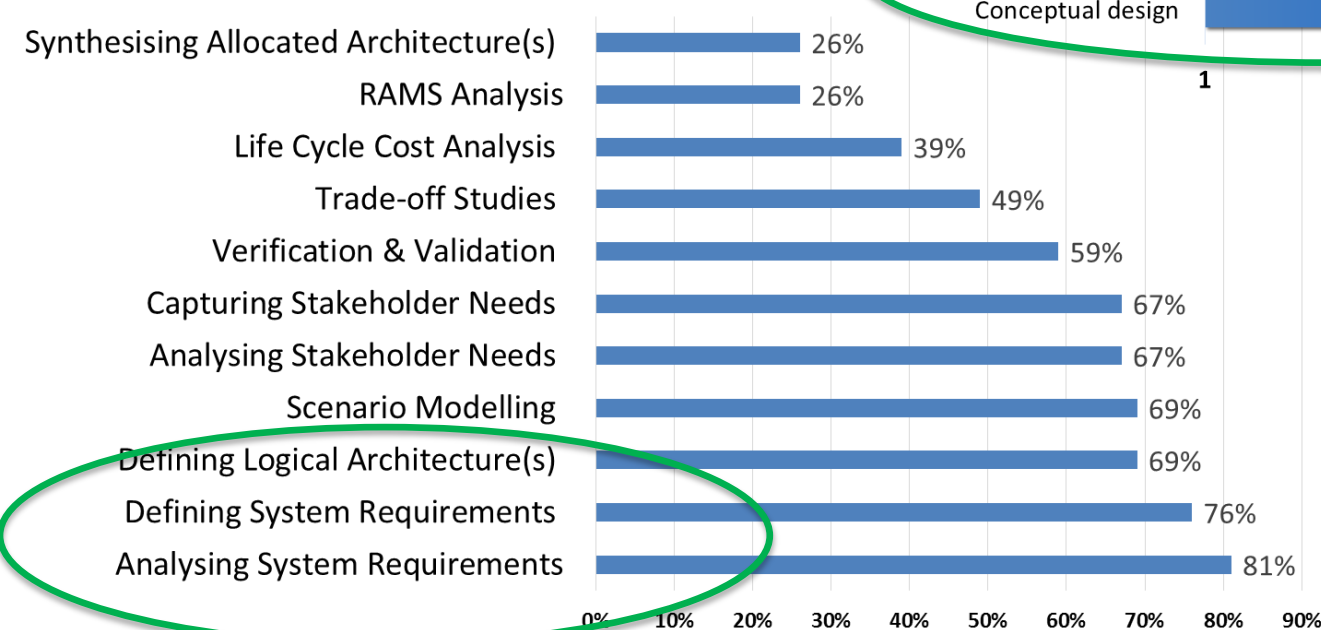
**Today, MBSE is most useful in Requirements management  
& Systems Architecture modeling**

## What is the relative focus of the MBSE effort in your organization to support each of the following?



### INCOSE UK MBSE 'State of the Nation'\*

Q2.4 - In which SE activities do you use modelling?



- The top 5 barriers have not changed much

**Cultural and general resistance to change**

**MBSE Learning curve**

**Availability of Skills**

**Lack of Perceived value**

**Lack of management support**



- Perform a full longitudinal analysis of the past surveys
- Issue an “open” technical report