



**BOOTHROYD  
DEWHURST**

**28<sup>th</sup>  
International  
Forum  
on  
DFMA**

**Warwick  
Rhode Island**

**June  
13-14**

**2013**

# **Product Development Practices In The Manufacturing Sector: 2010-2020**

*North American Practices In  
Organic R&D, Open Innovation,  
IP, & CXO Corporate Metrics*

**DRAFT**

*All Information Herein Is Preliminary*

**Presented By:**

**Bradford L. Goldense**

**June 14, 2013**

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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

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## *Composite Results: A. Respondent Profiles*

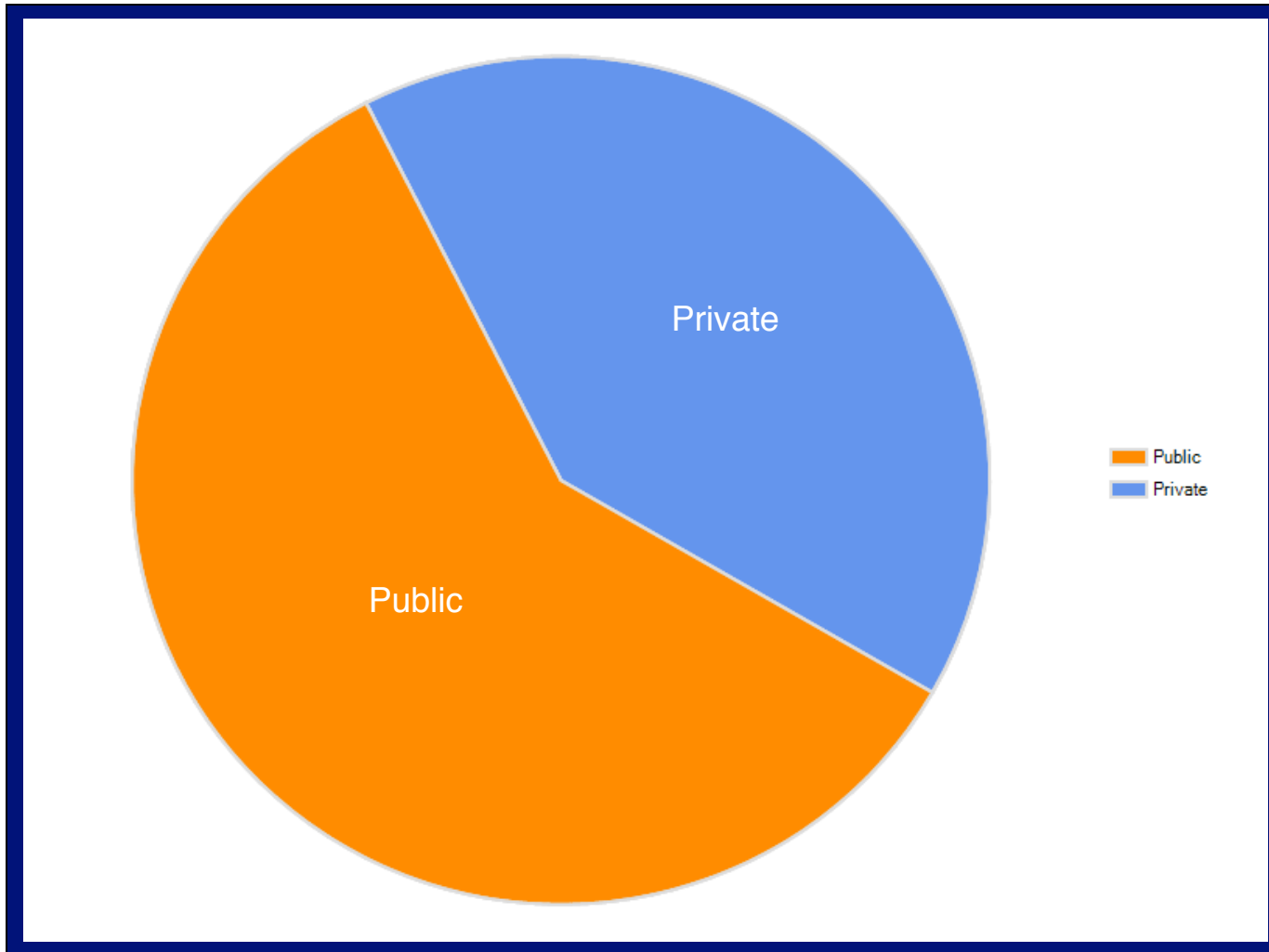
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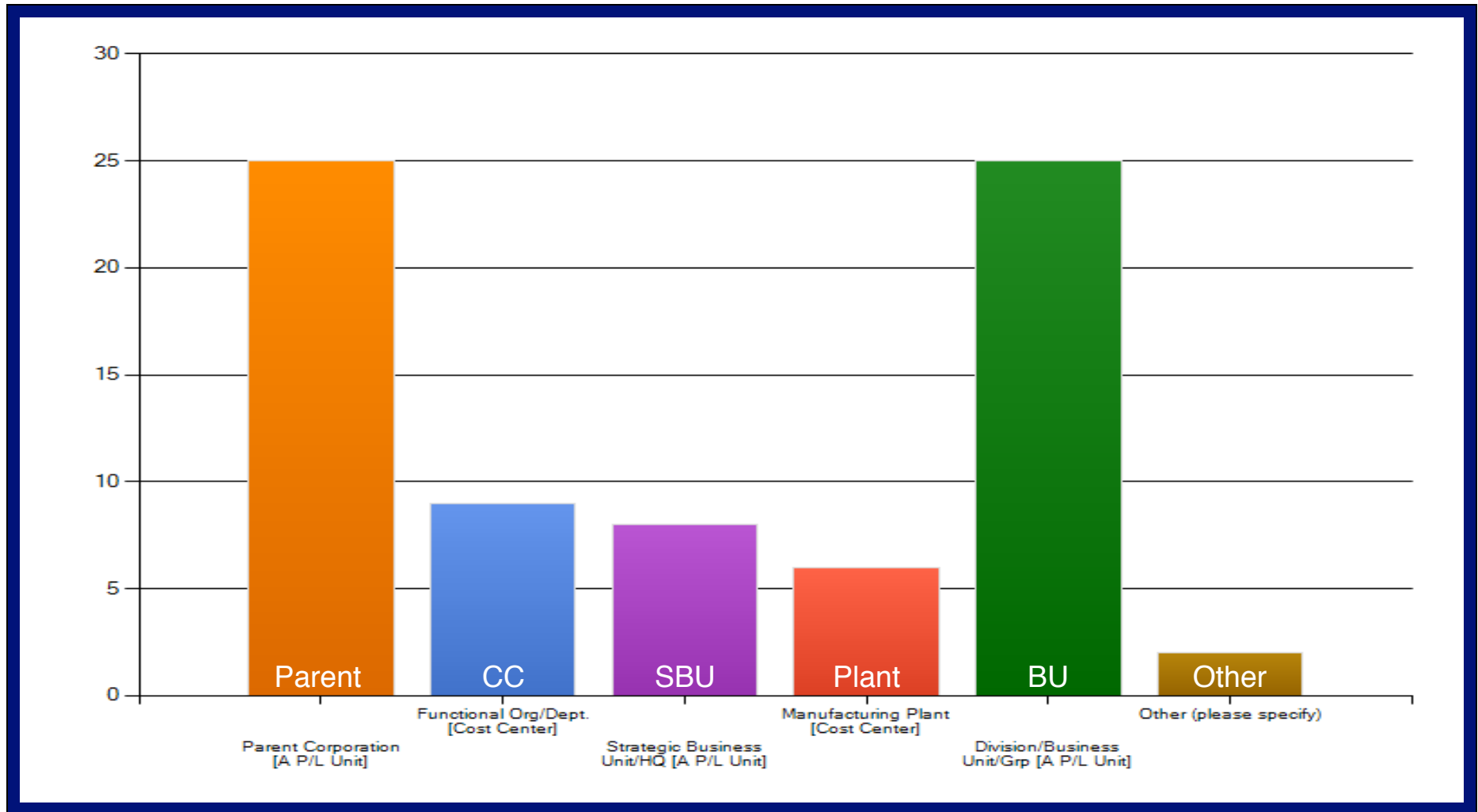
## Respondent Profile: **Public vs. Private**



QUESTION: A2. Is this a public or private company?

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

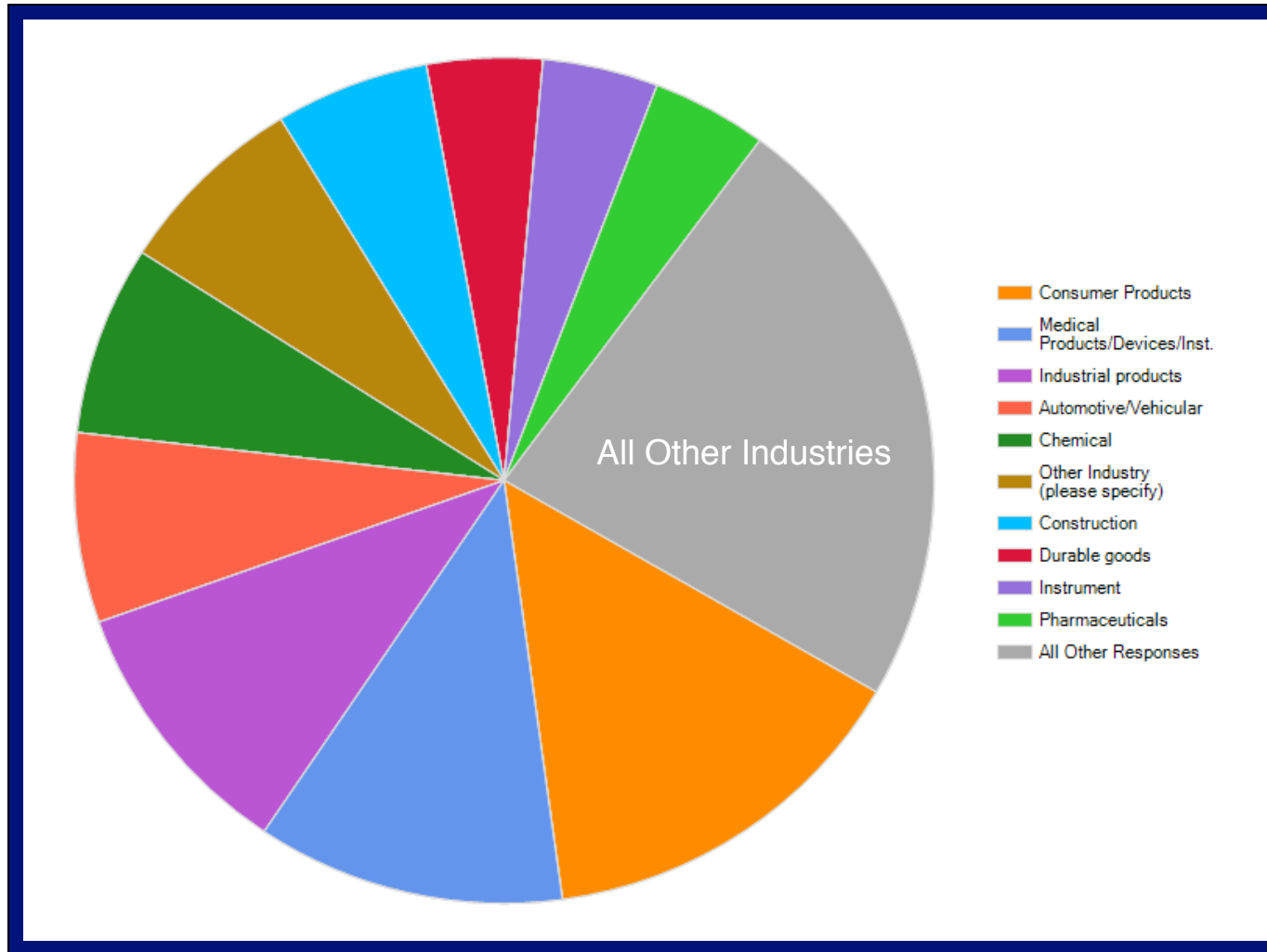
## Respondent Profile: **Type/Scope Of Company/Organization**



QUESTION: A3. For what type/scope of company or organization are the responses to the questions in this survey?  
(Check One Box That Best Applies)

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

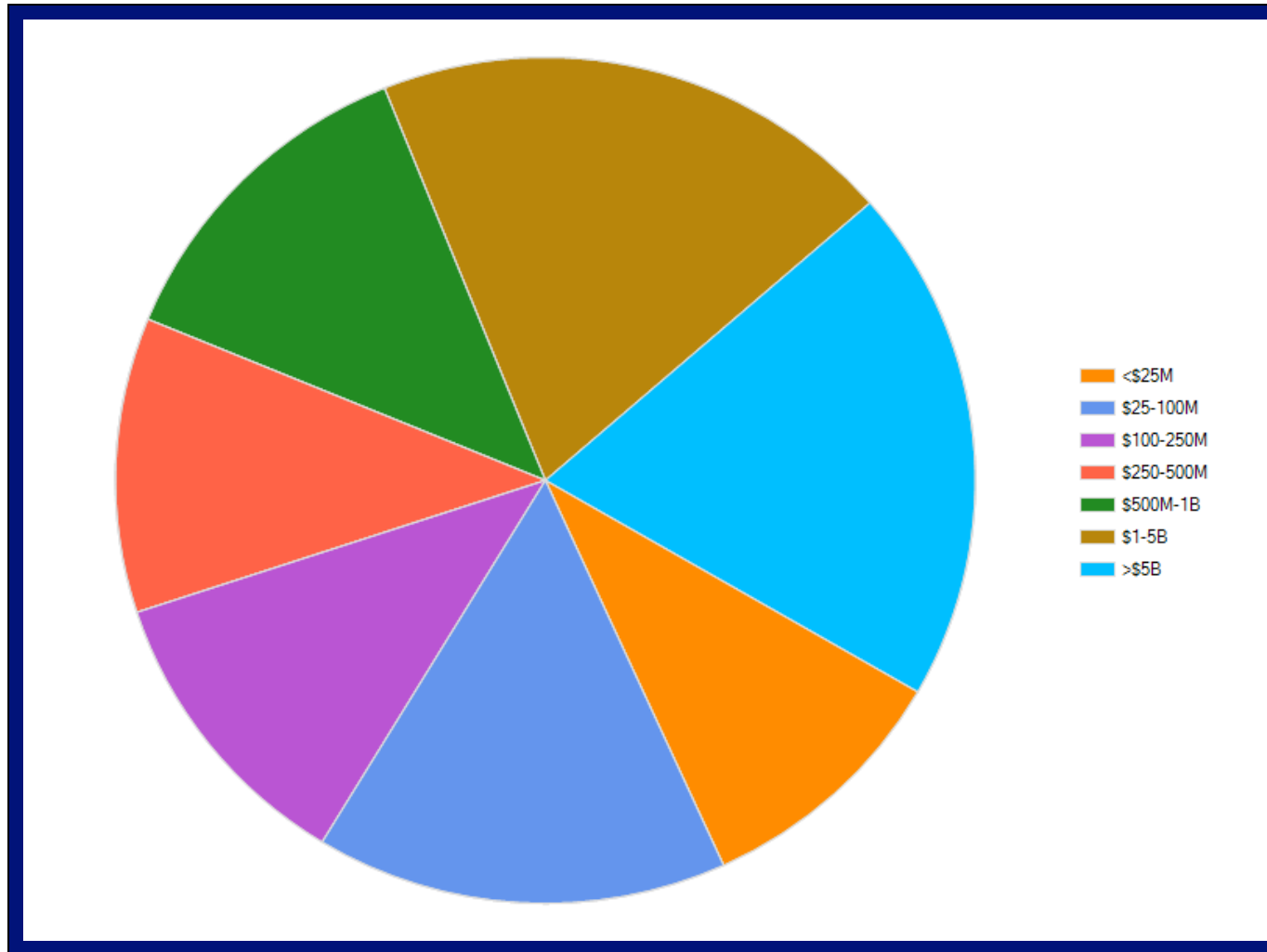
## Respondent Profile: **Industry**



QUESTION: A4. Identify your company's industry or service: (Check One Box That Best Applies)

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

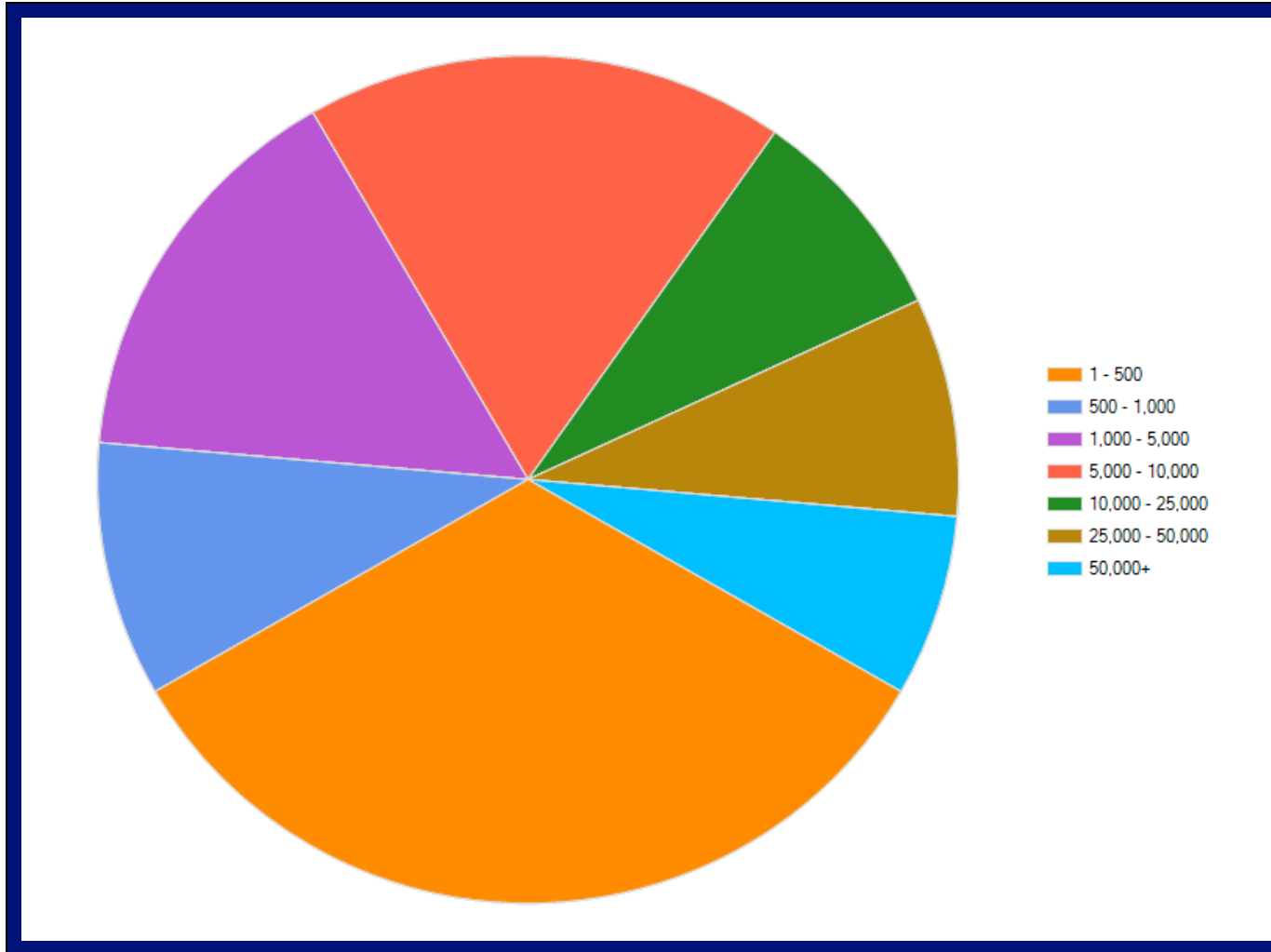
## Respondent Profile: Sales Revenue



QUESTION: A5. Sales revenue over your last full year: (Check One Box That Best Applies)

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Respondent Profile: **Number Of Employees**

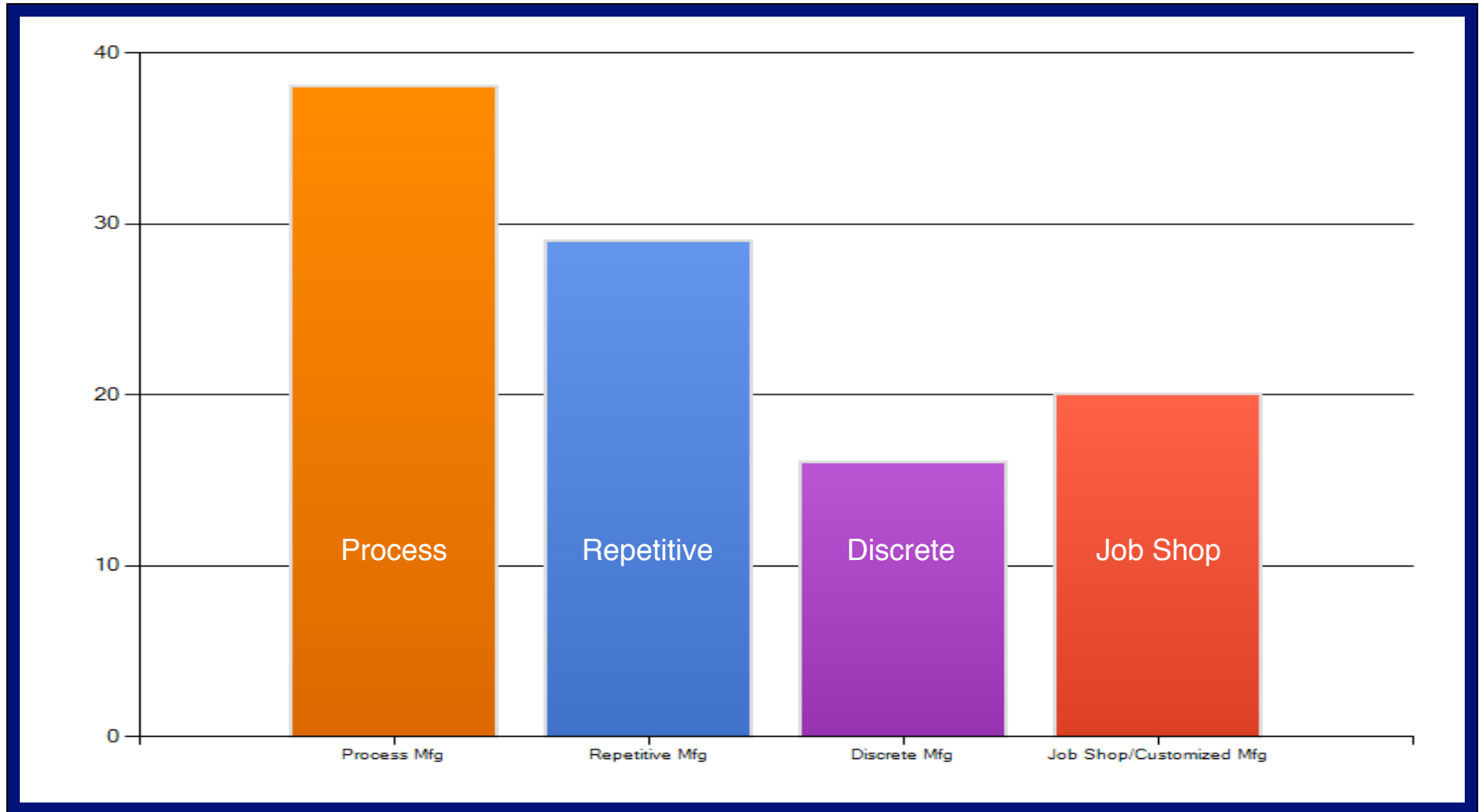


QUESTION: A6. Number of full-time employees: (Check One Box That Best Applies)



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

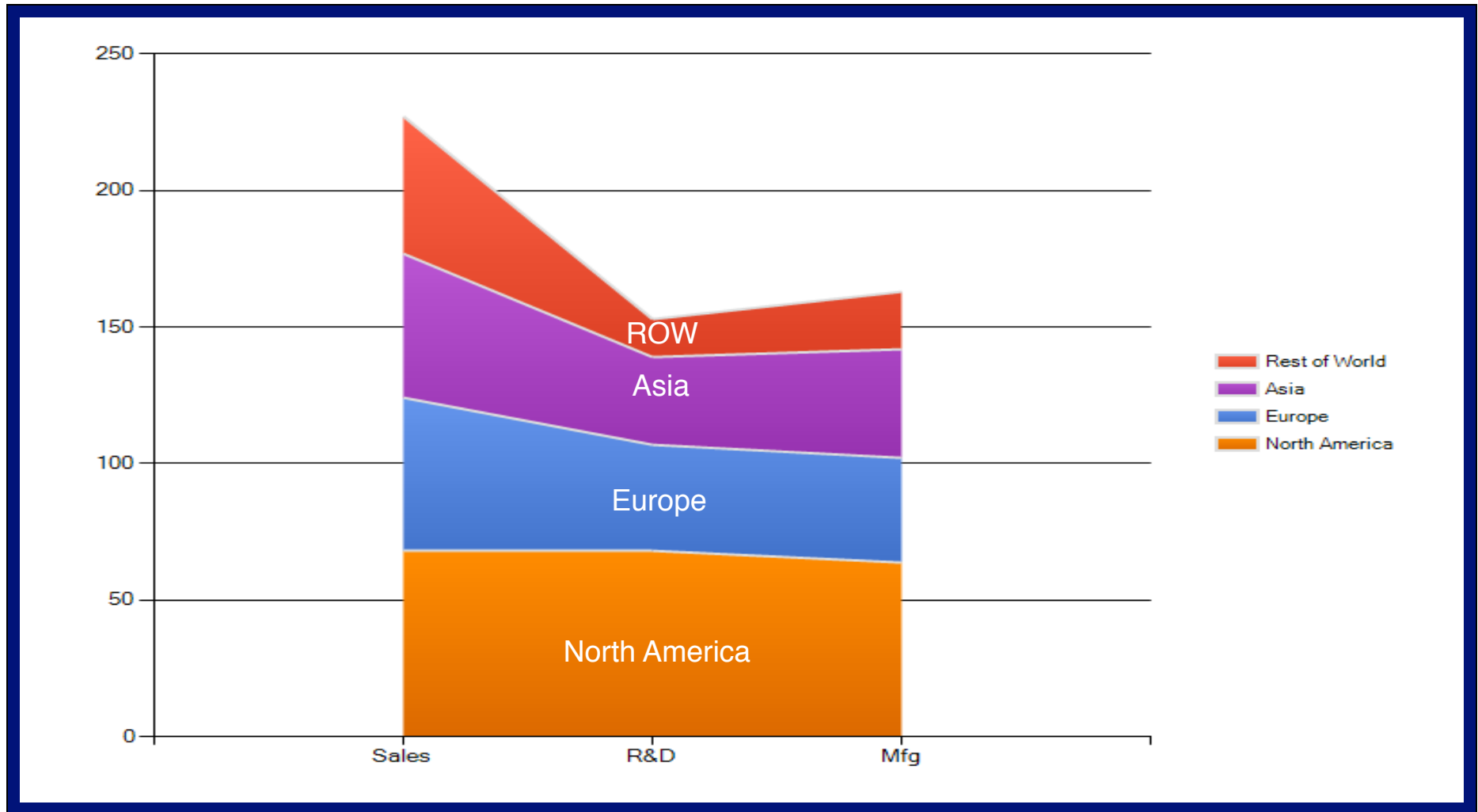
## Respondent Profile: **Types Of Manufacturing Operations**



QUESTION: A7. Please indicate the types of manufacturing operations covered by the metrics discussed in this survey:  
(Check All Boxes That Apply)

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

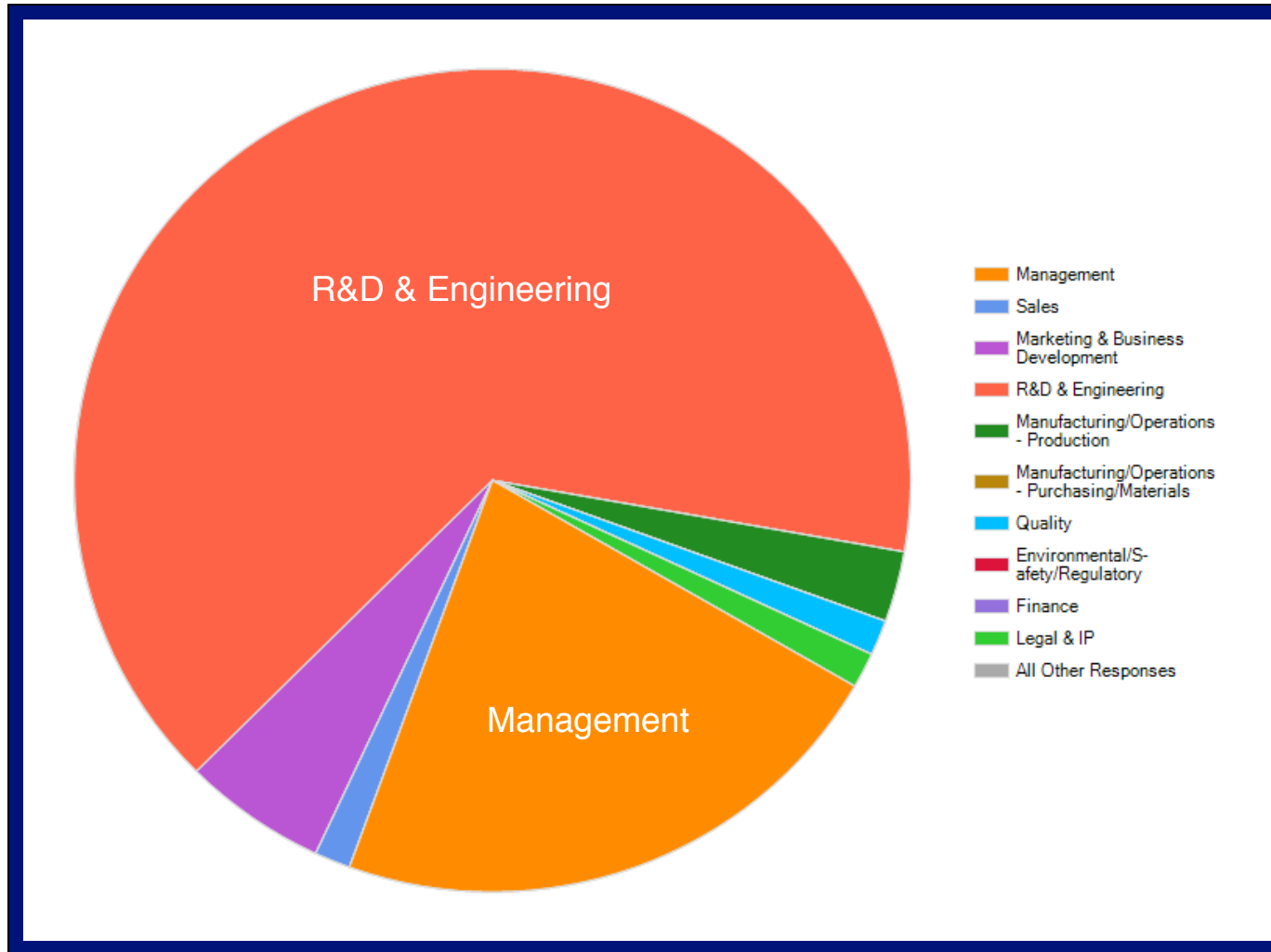
## Respondent Profile: **Business Geographies**



QUESTION: A8. Places the company does business: (Check All Boxes That Apply)

# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Respondent Profile: Respondent's Function



QUESTION: A9. What function do you personally perform in the company: (Check One Box That Best Applies)



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## *Composite Results: B. R&D Operating Environment*

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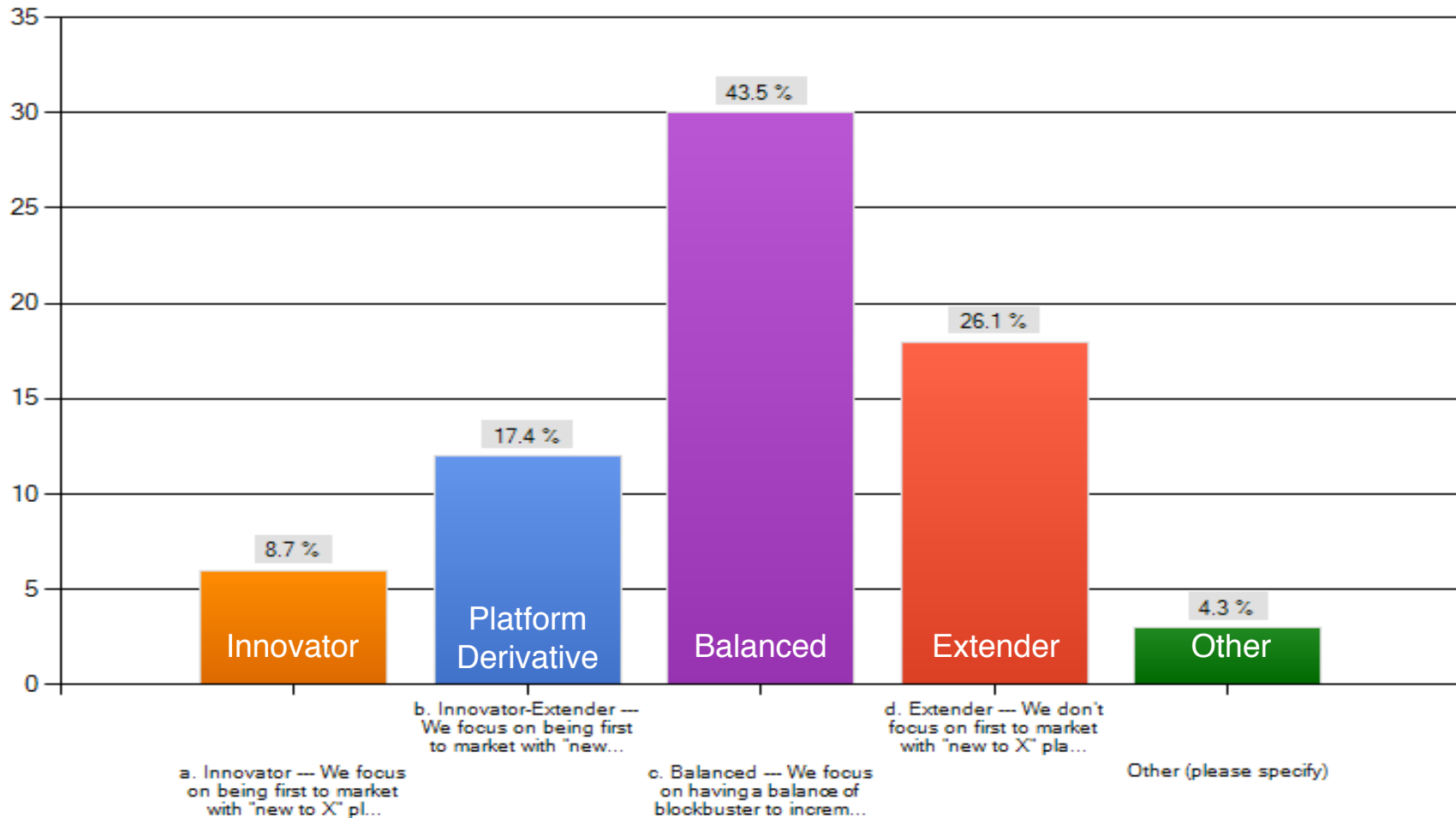
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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## R&D Operating Environment: **Perceived R&D Strategy**

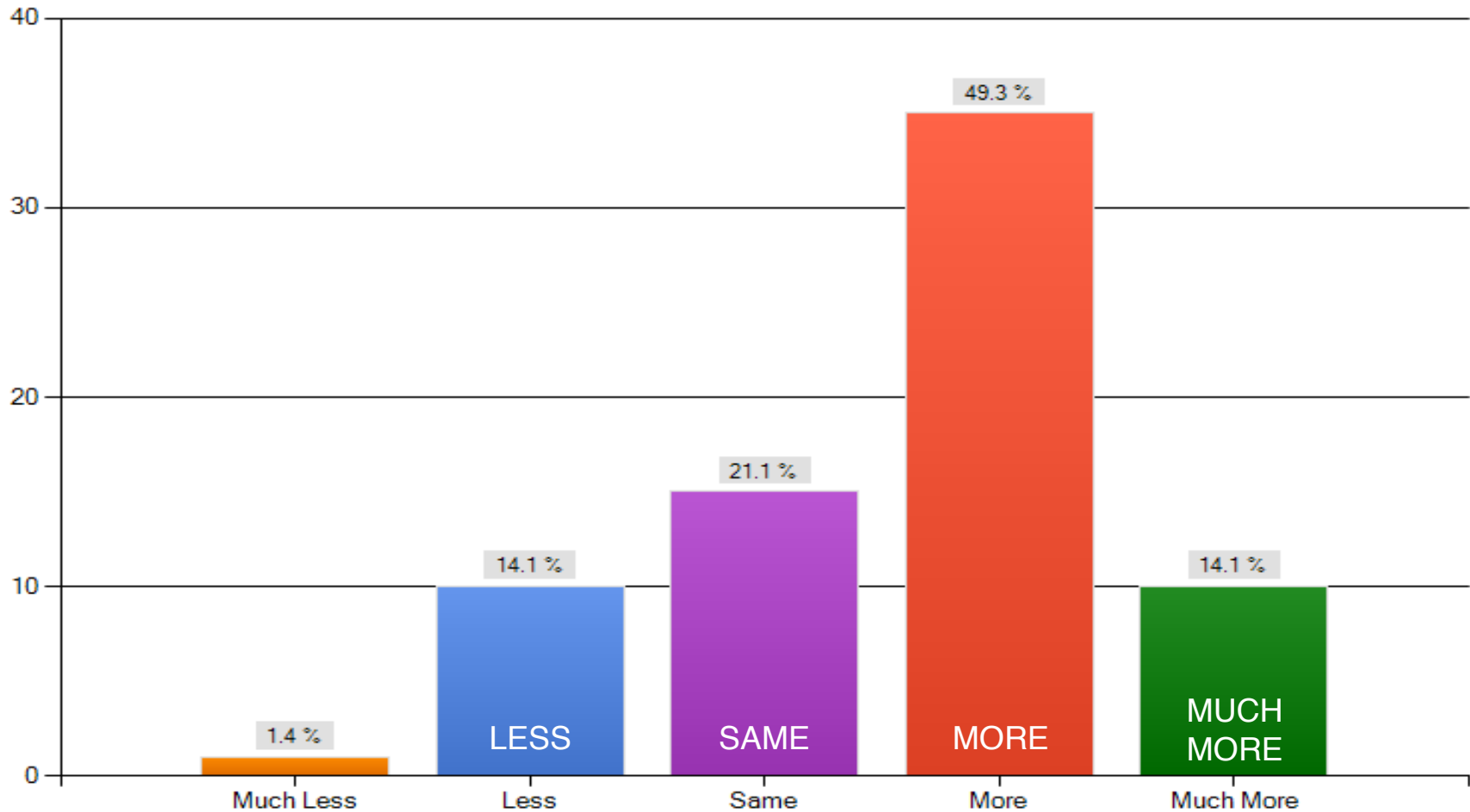
**B1. Perceived Strategy: What is your company's fundamental approach to new product creation today?**  
Please reply for what you currently do. Please do not reply as to what your company might do in the future or has done in the past, today's environment is the focus of this research. [Check One Box Only]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## R&D Operating Environment: **Perceived Importance Of Organic Innovation**

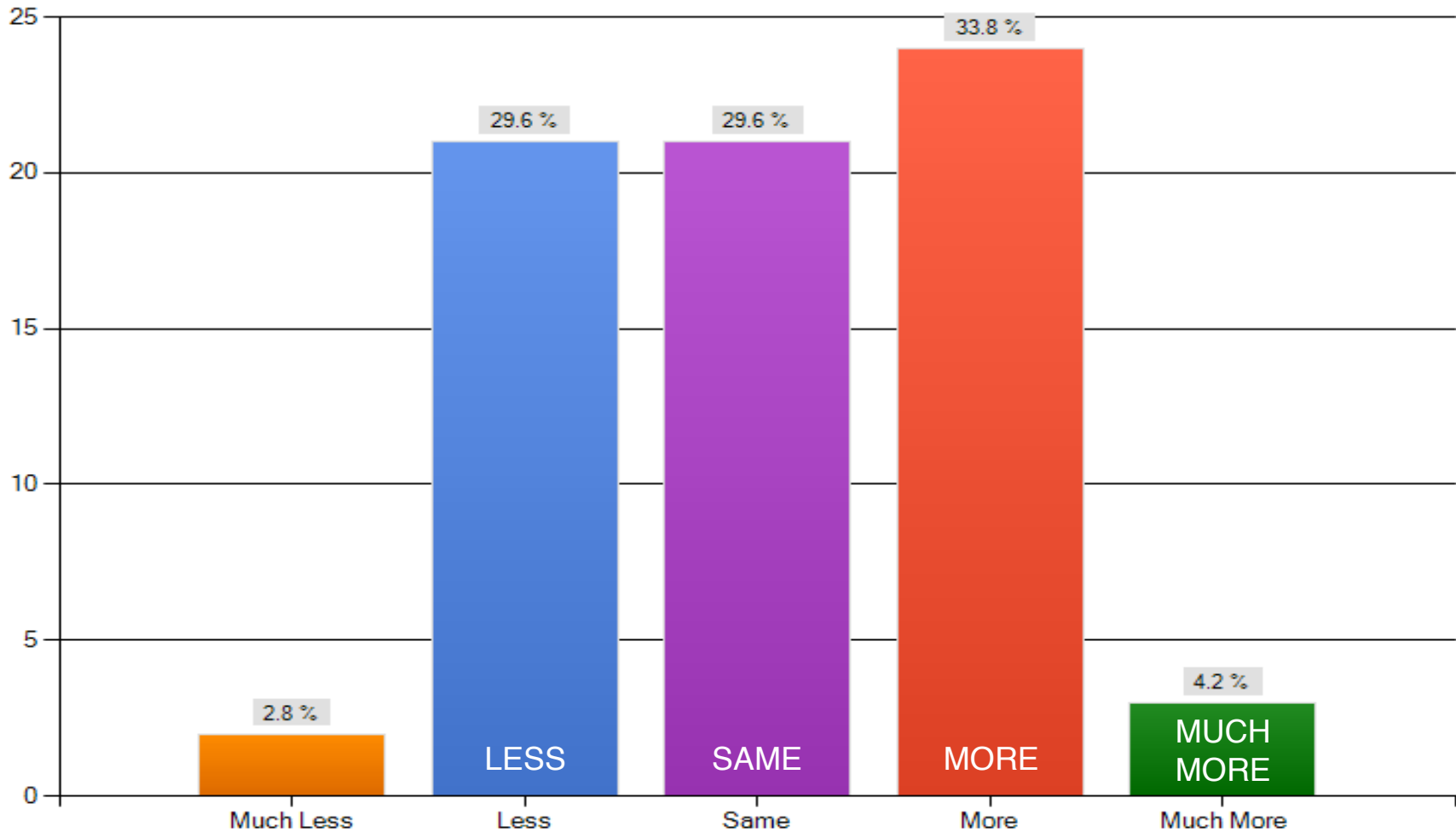
**B2. Perceived Approach:** Please complete the following sentence. Since 2008, "Organic R&D" [innovation/invention from within the company] has become \_\_\_\_\_ important at my company. [Check One Box Only]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## R&D Operating Environment: **Organization Philosophy**

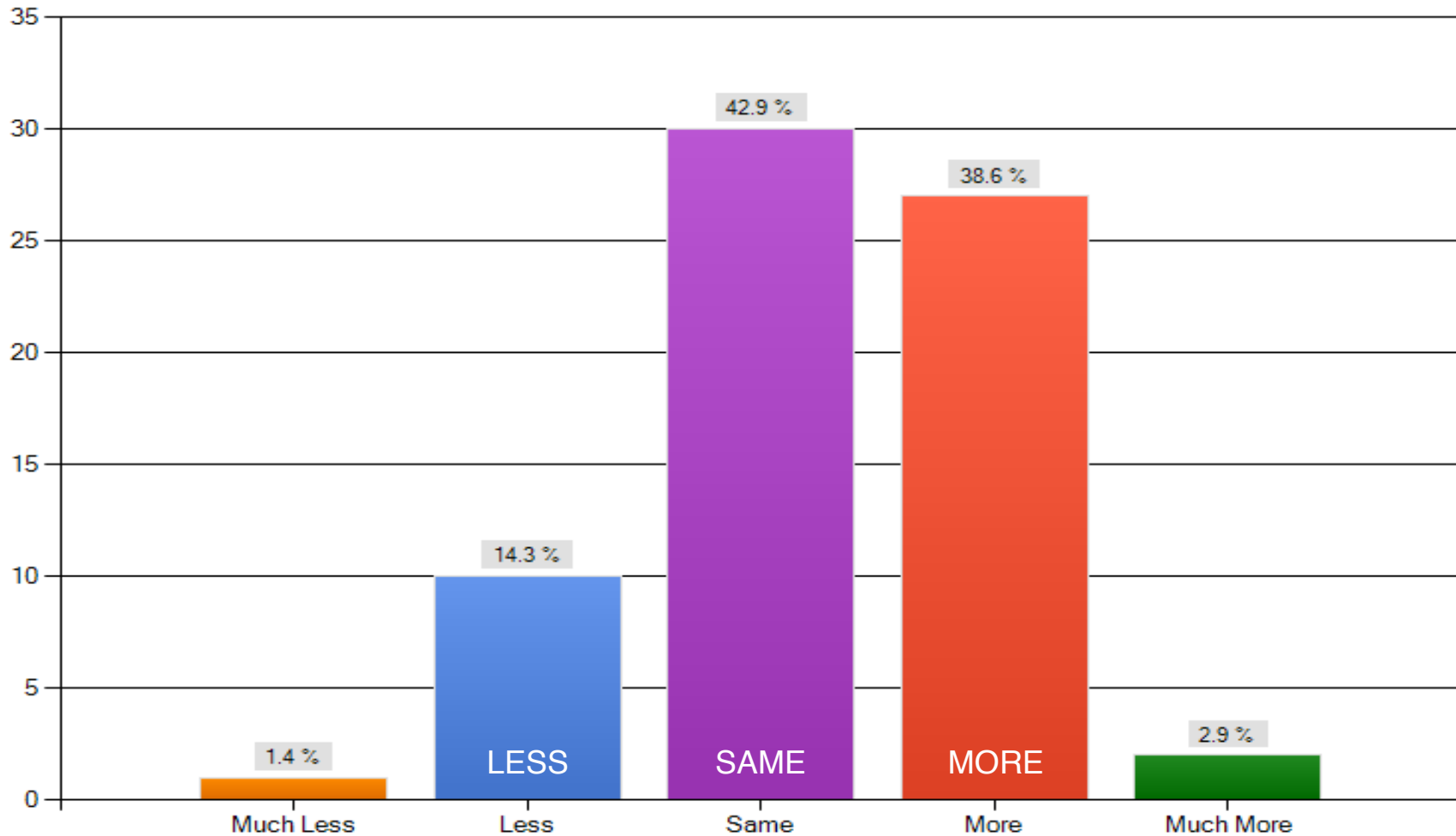
**B3. Perceived Tactics: Please complete the following sentence. Since 2008, "R&D and Product Development activities" have become \_\_\_\_\_ centralized. [Check One Box Only]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## R&D Operating Environment: **Number Of Locations**

**B4. Perceived Operations:** Please complete the following sentence. Since 2008, the "number of physical locations performing R&D and Product Development" are \_\_\_\_\_.







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## *Composite Results: C. Organic Innovation*

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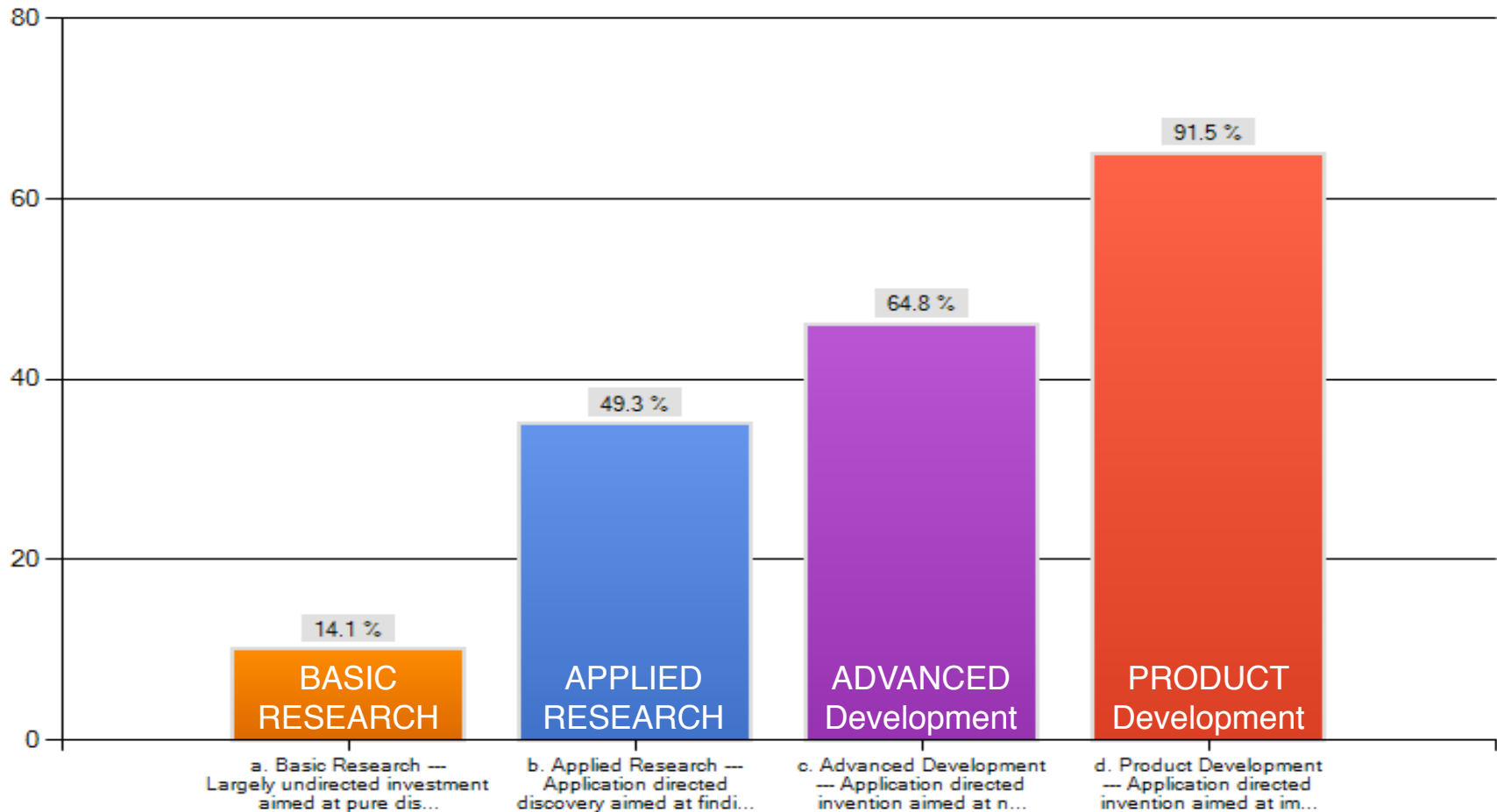
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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Organic Innovation: Types Of Research & Development

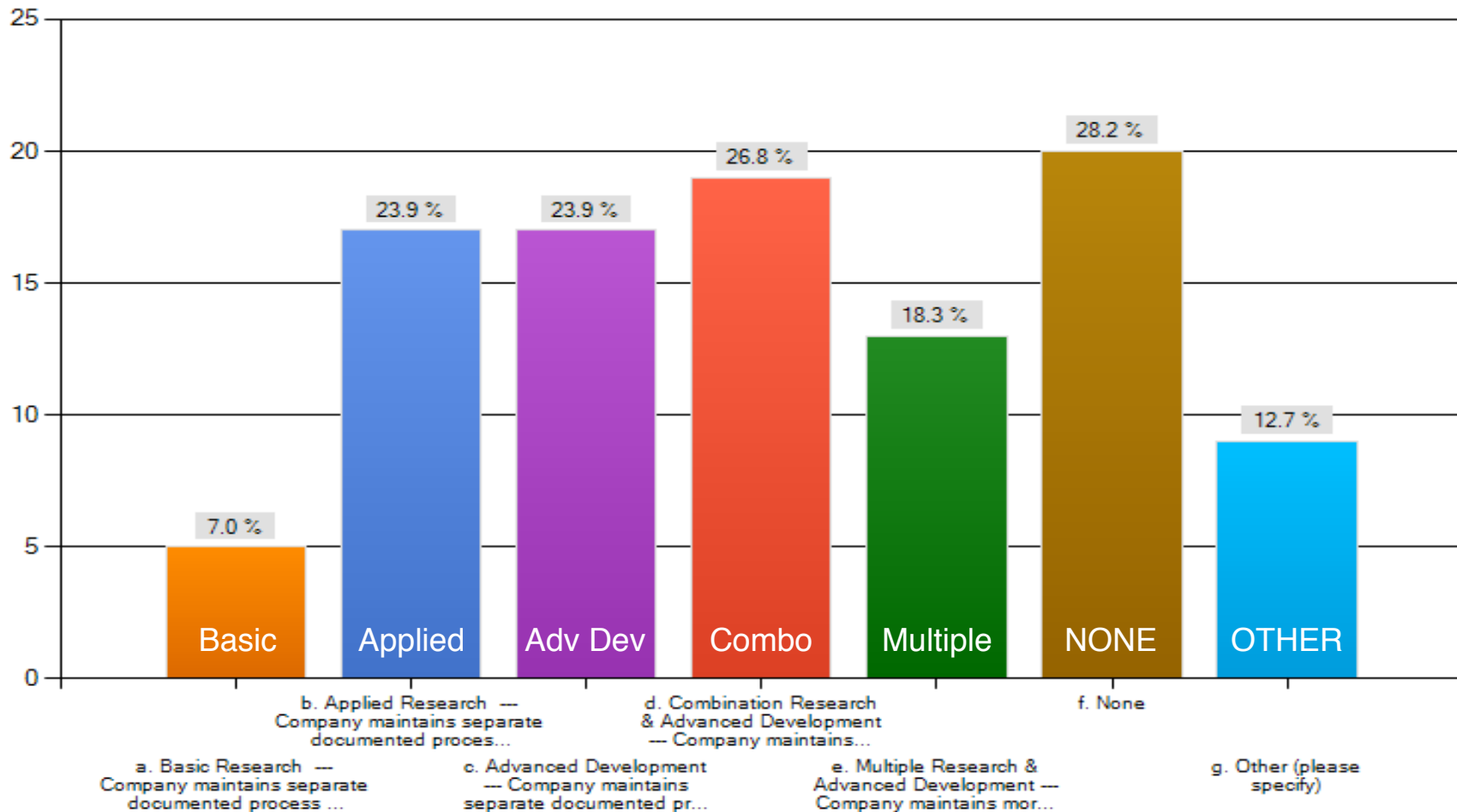
**C1. Types & Areas:** Without disclosing any indication of emphasis or percentages of R&D investment and without regard as to whether the company accomplishes the type of R&D internally/organically or externally/open or both, please indicate the type(s) of R&D in which your company engages. [Check All That Apply]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Organic Innovation: Processes Utilized - Research & Advanced Development

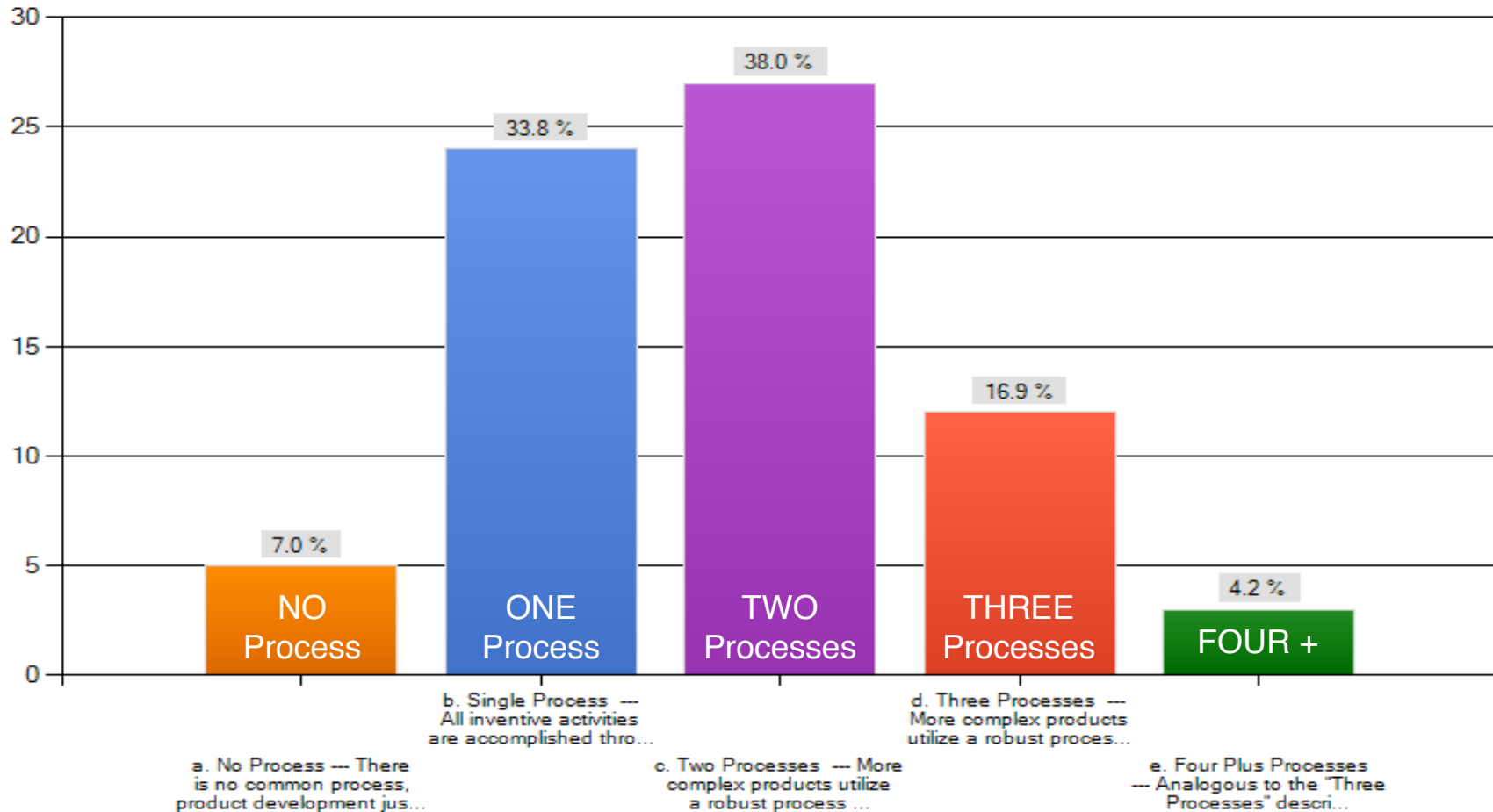
**C2. Research & Advanced Development Processes: Excluding “Product Development Processes,” please indicate the type(s) of R&D for which your company maintains a “documented process” or “documented guidelines.” [Check All That Apply]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Organic Innovation: Processes Utilized - Product Development

**C3. Product Development Processes: Not considering "Basic Research," "Applied Research," or "Advanced Development" in your reply, please indicate the number of documented processes or variants of an overall documented process that your company utilizes for "Product Development." [Check One Box Only]**





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## *Composite Results: D. Open Innovation*

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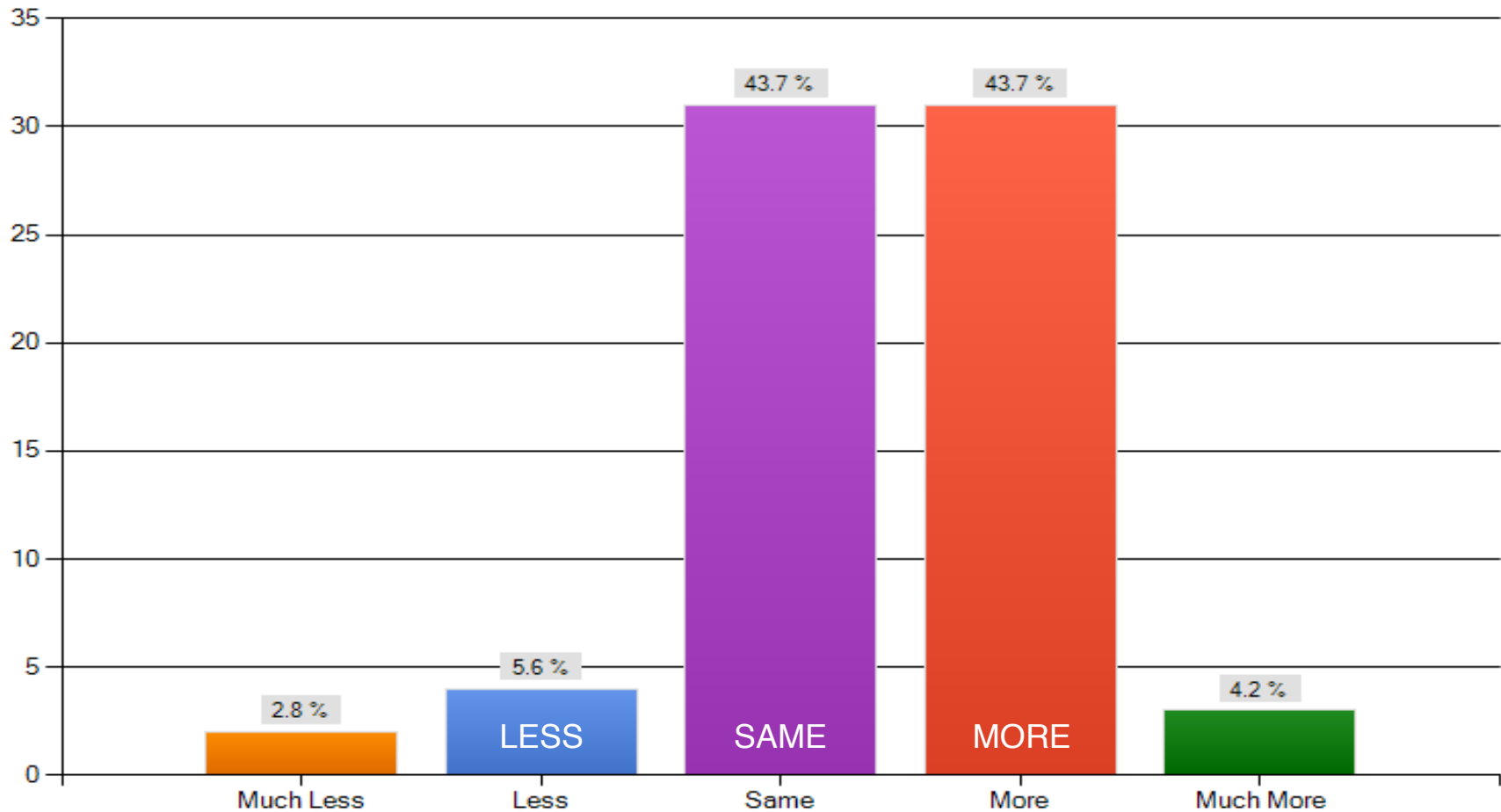
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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: **Importance Of The Activity**

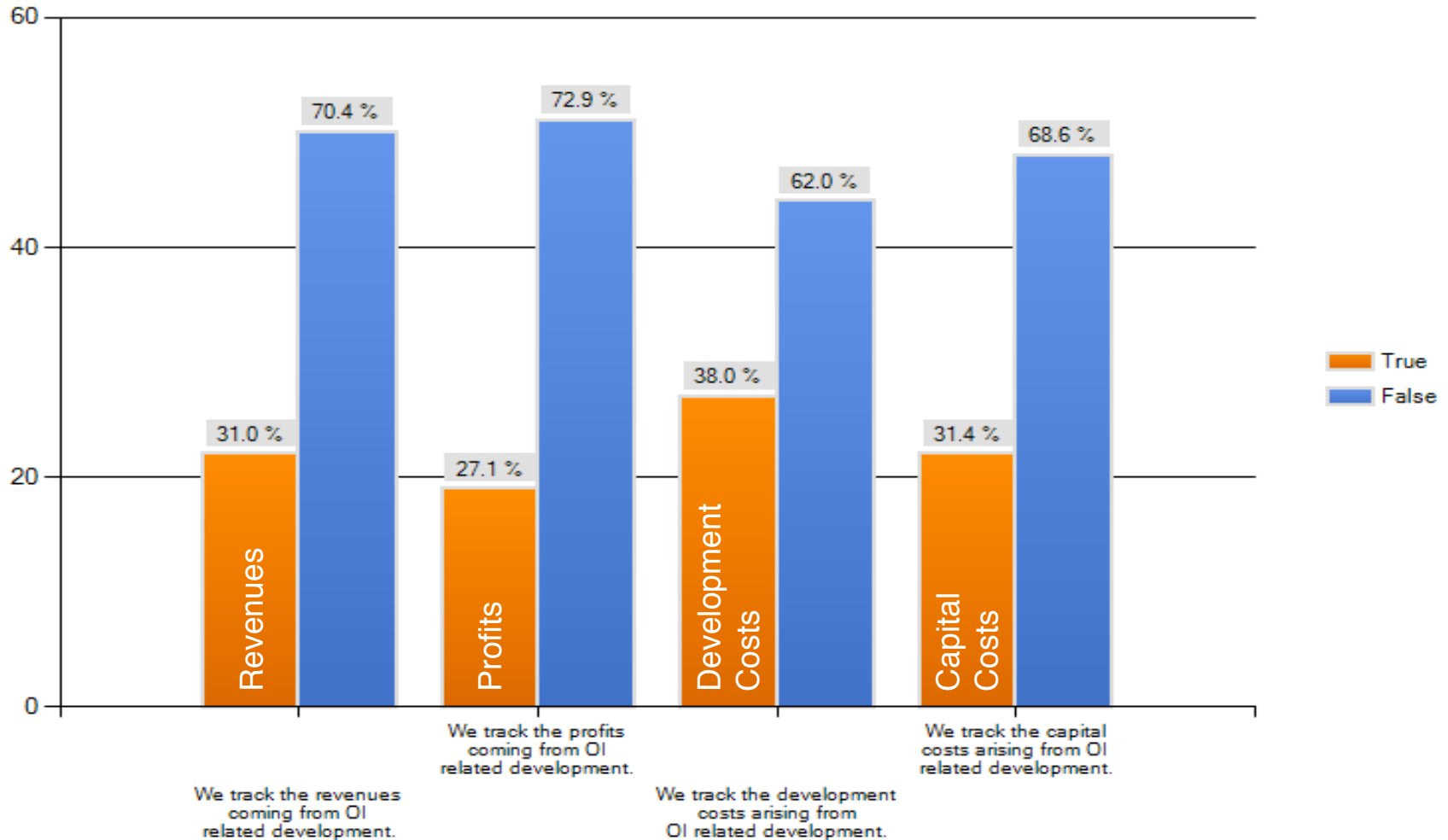
**D1. Open Innovation Activity: Recognizing that the term "Open Innovation," acquiring or collaborating on innovations and inventions with external organizations, has now been in the nomenclature of corporations for a number of years. Please indicate the degree to which your company utilizes Open Innovation techniques compared to what it did in 2008. [Check One Box Only]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: **Tracking Of Financial Parameters**

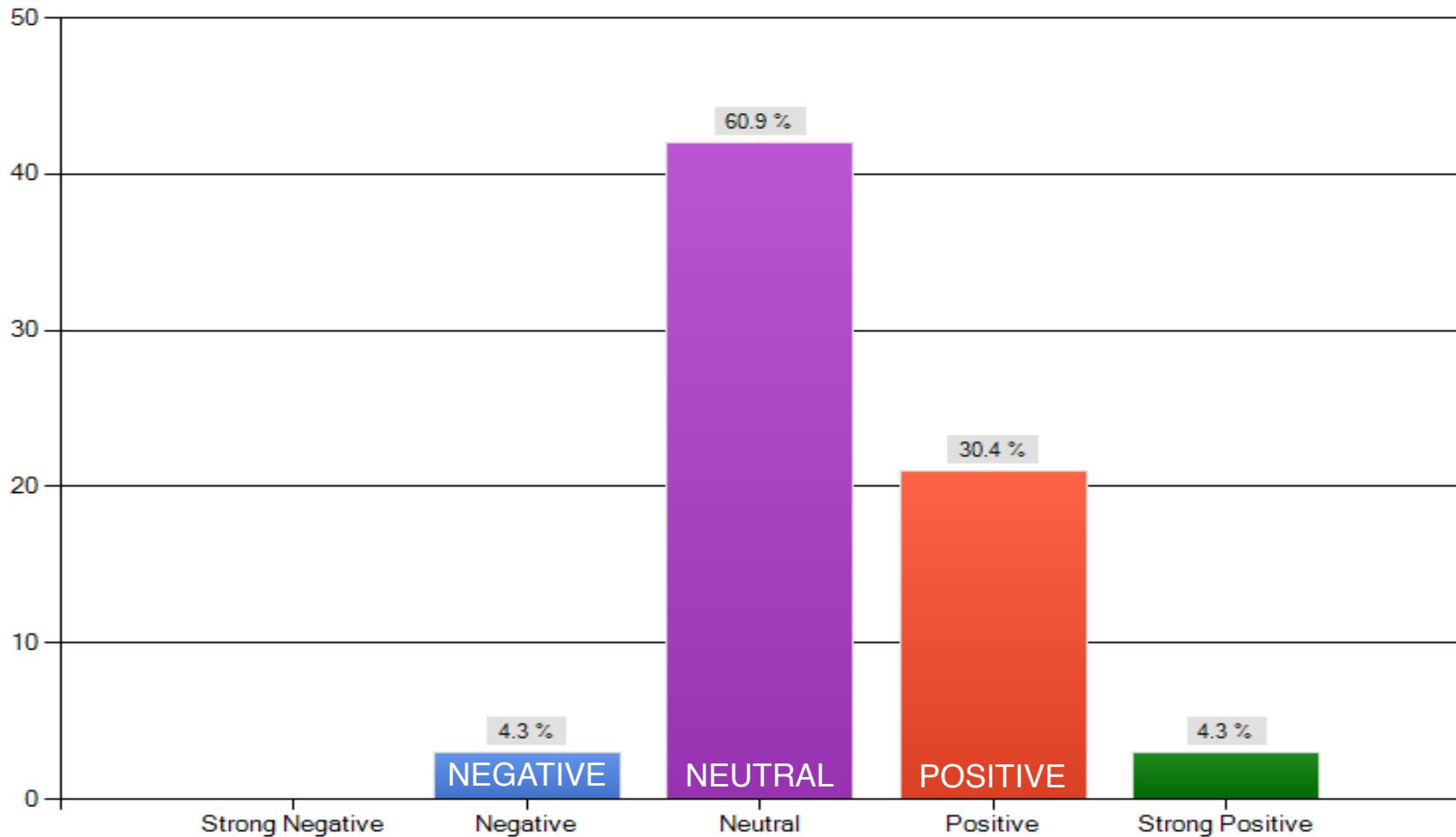
### D2. Open Innovation Results: My company separately tracks, or breaks out as an analysis, the financial results of Open Innovation initiatives.



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: Perception Of Financial Results

D3. Open Innovation Impact: My company believes that Open Innovation has had a \_\_\_\_\_ impact on the overall financial performance of the company.

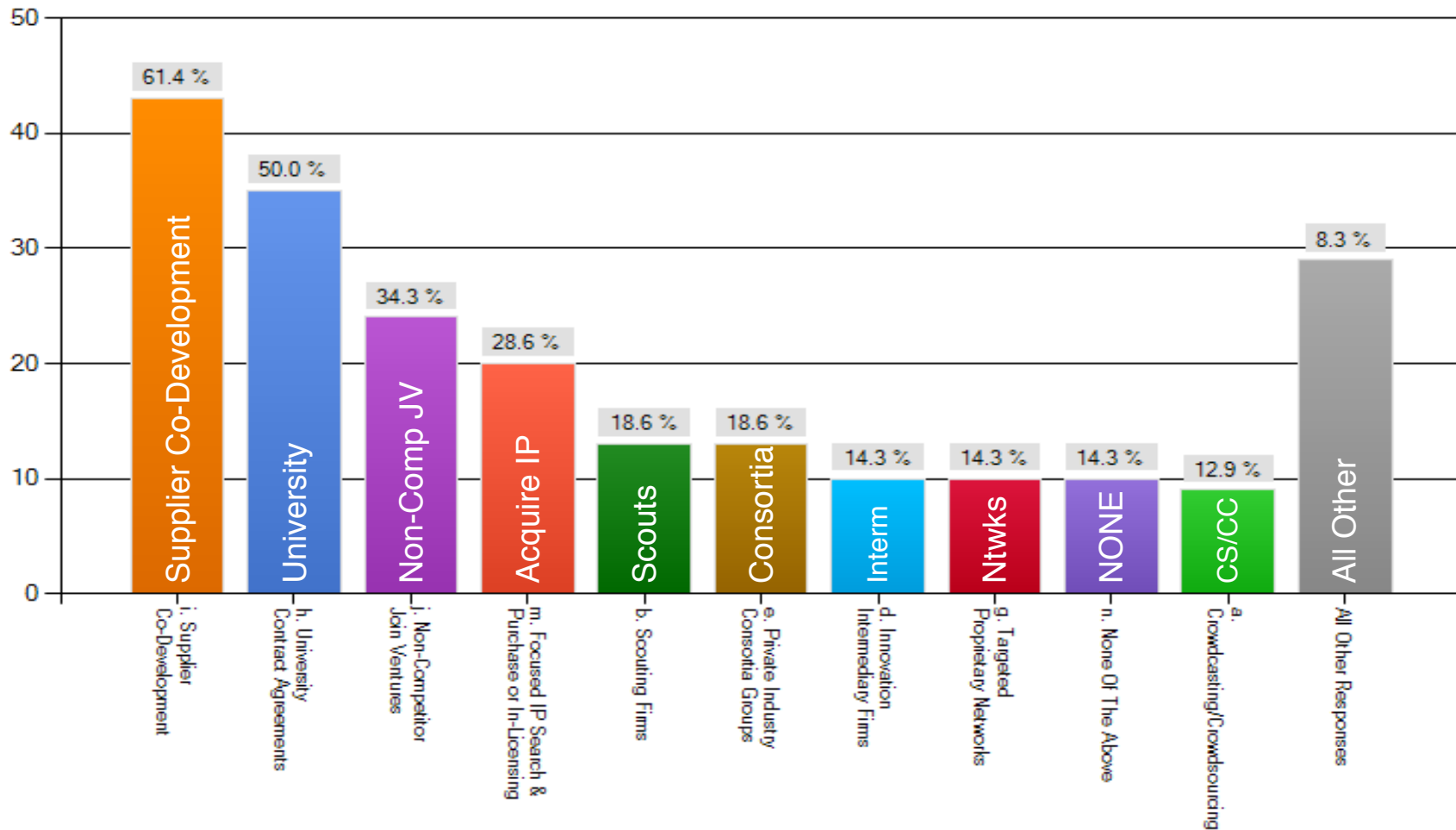




# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: **Approaches - Inbound**

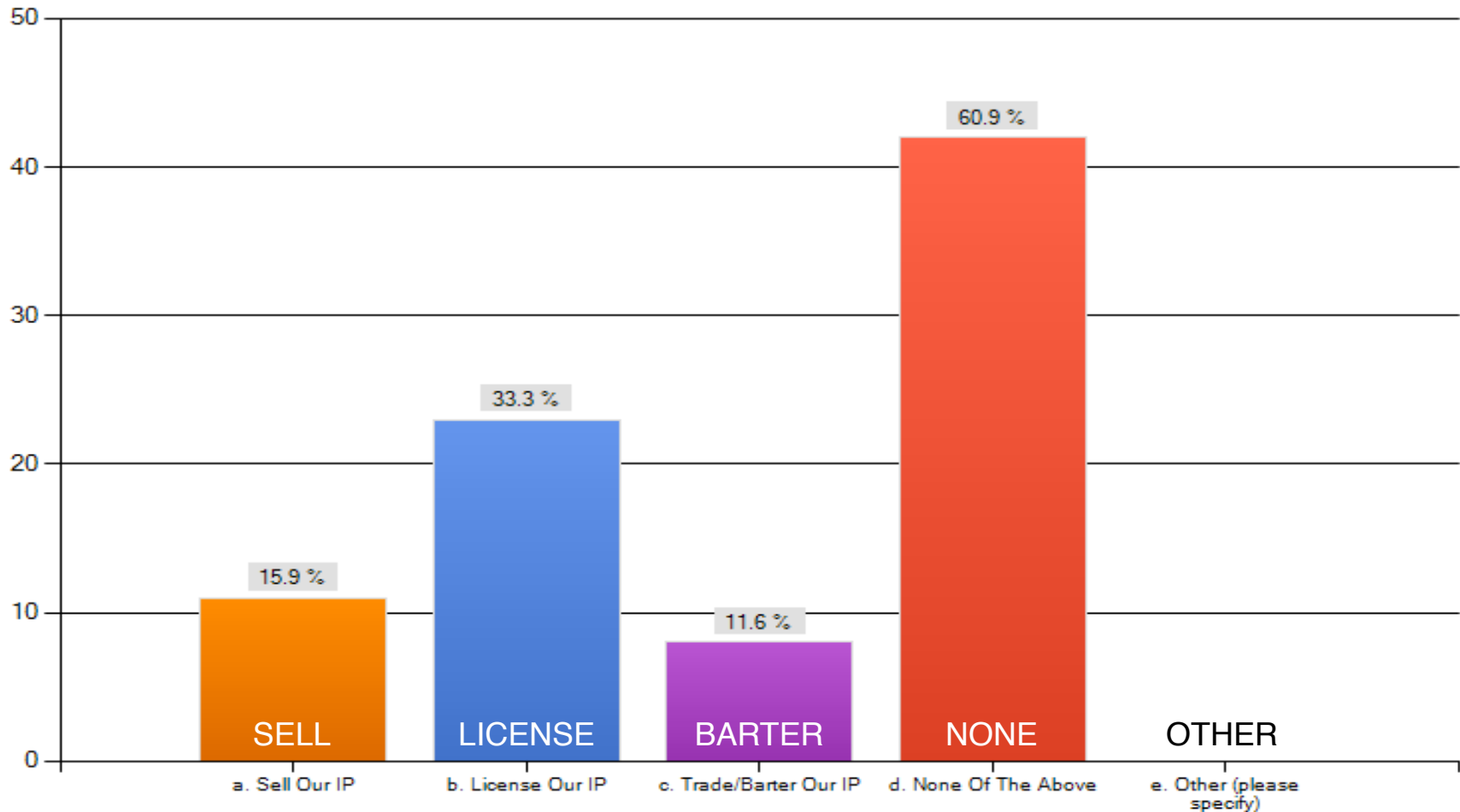
**D4a. Open Innovation Approaches - Inbound: My company now utilizes the following Open Innovation approaches to acquire capabilities. [Check All That Apply]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: **Approaches - Outbound**

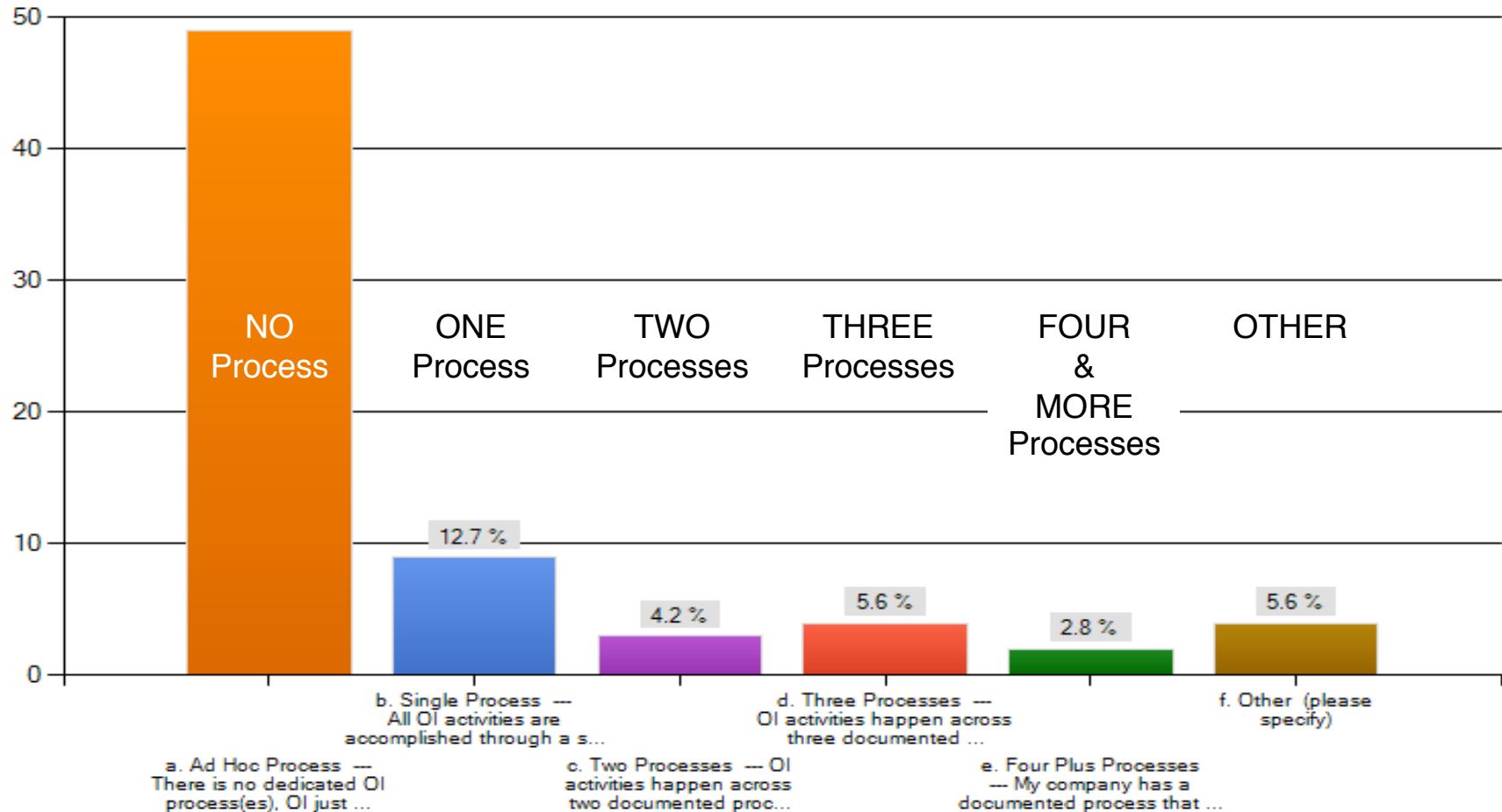
**D4b. Open Innovation Approaches - Outbound: My company now utilizes the following Open Innovation approaches to generate additional revenues or to trade/barter for additional capabilities. [Check All That Apply]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Open Innovation: Processes Utilized

**D5. Open Innovation Processes: Excluding all "Applied Research," "Advanced Development," and "Product Development" processes identified in the previous section C of this survey, please indicate the nature of any separately documented "Open Innovation [OI]" processes for which your company maintains either a "documented process" or "documented guidelines." [Check One Box Only]**





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## *Composite Results: E. Intellectual Property*

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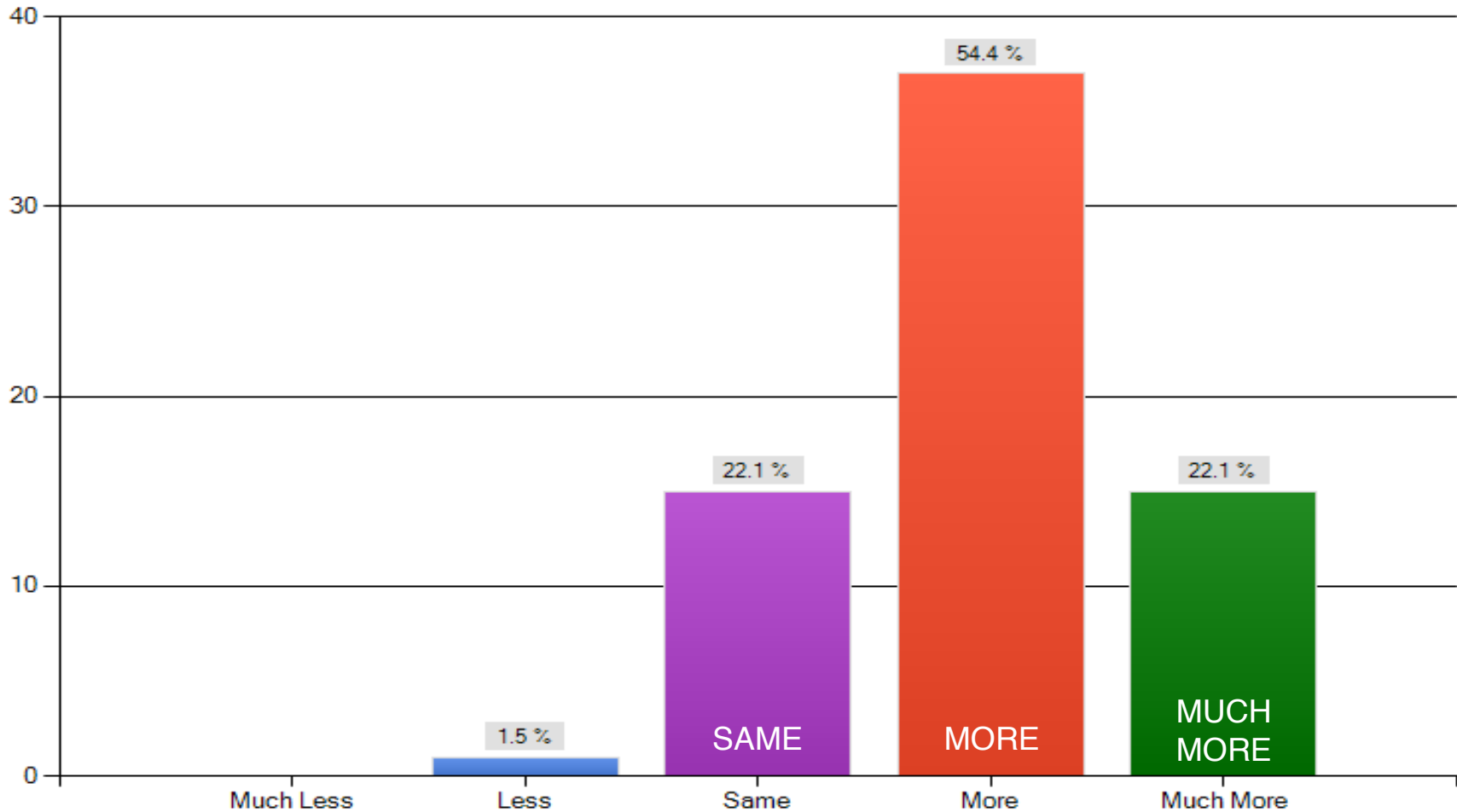
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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: **Importance Of The Activity**

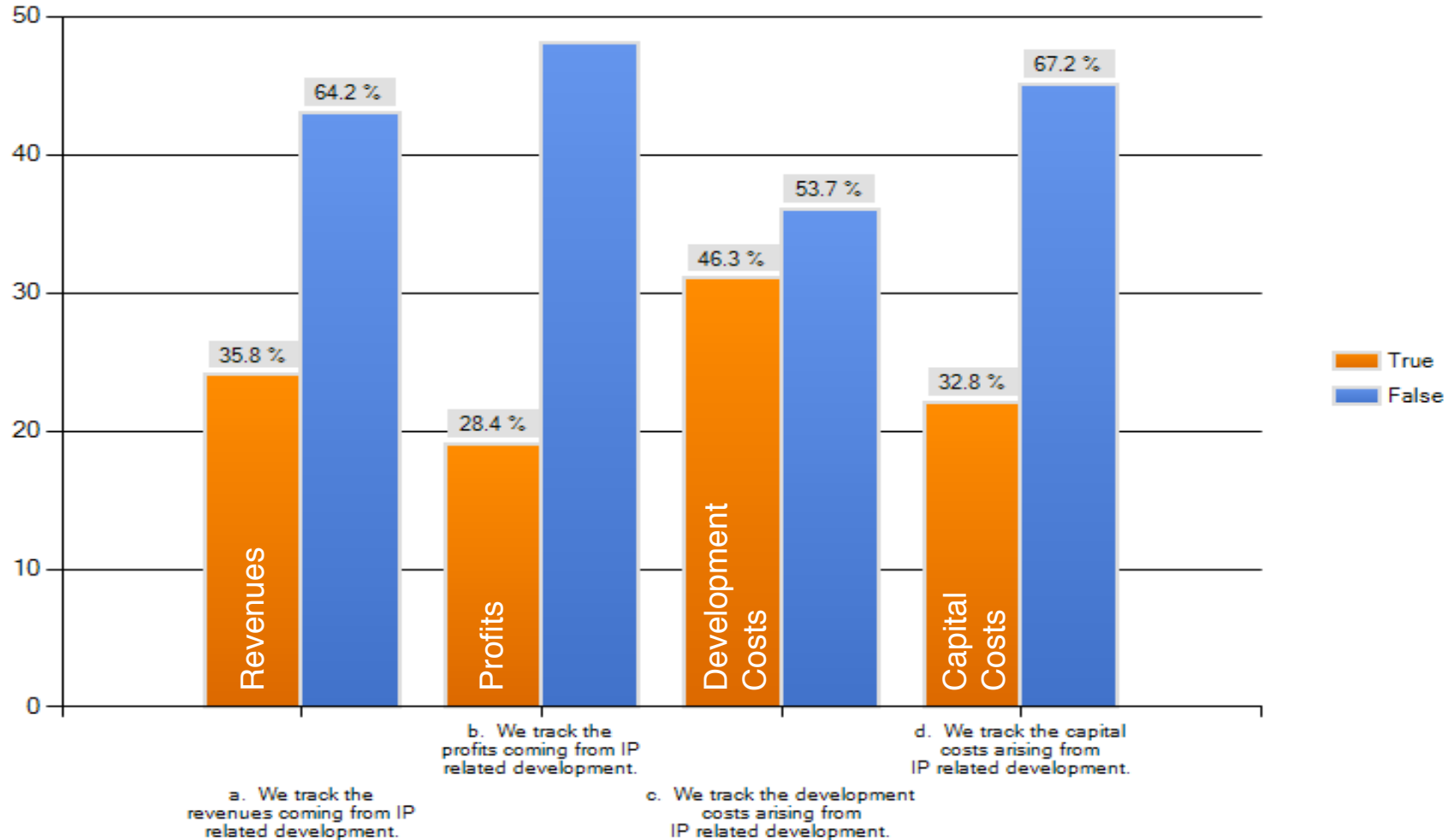
E1. IP Activity: Recognizing that Intellectual Property has been in the nomenclature of corporations for centuries, please indicate the degree to which IP will be more important in the next five years than it was in 2008? [Check One Box Only]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: **Tracking Of Financial Parameters**

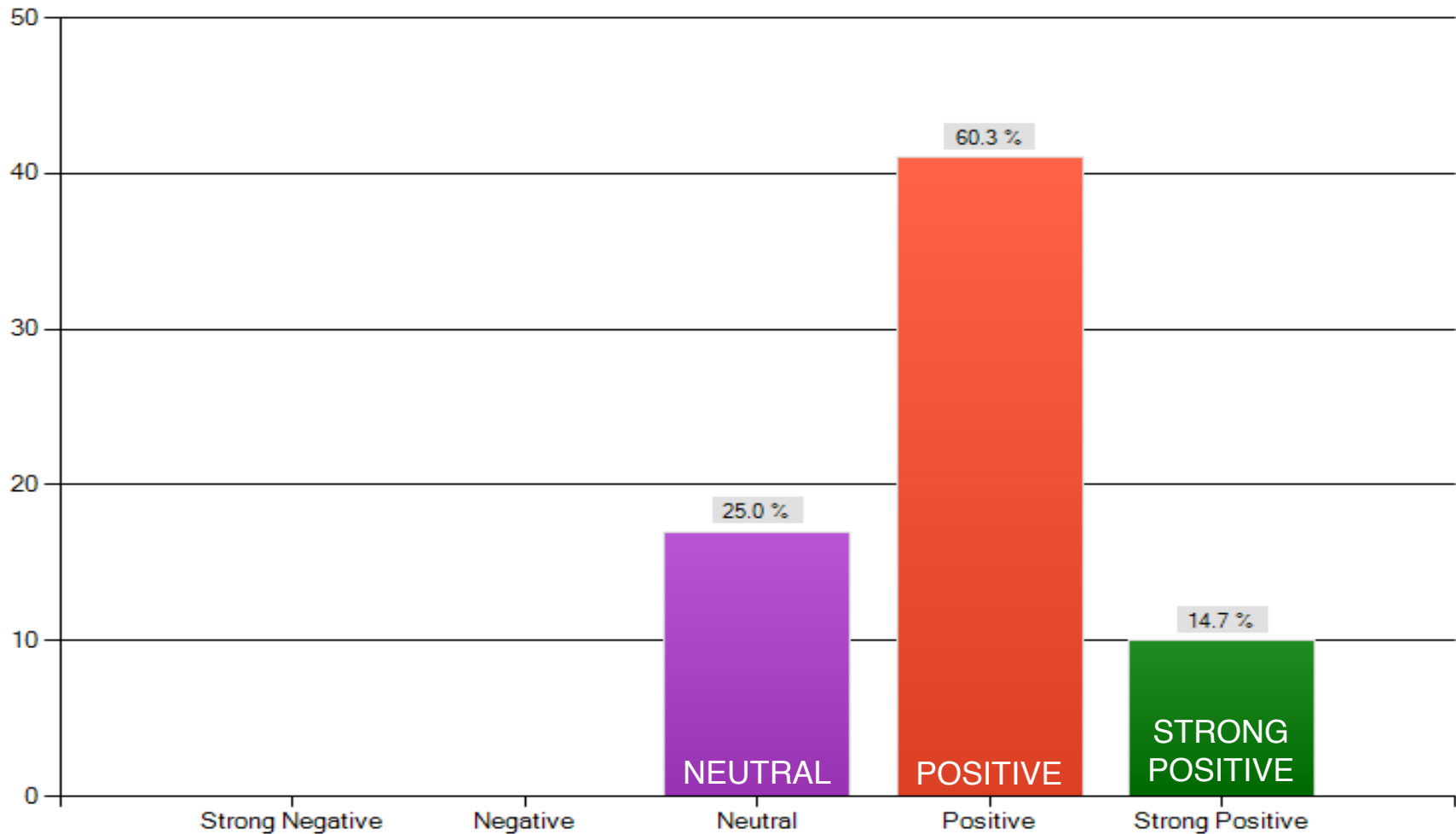
**E2. IP Results: My company separately tracks, or breaks out as an analysis, the financial results of Intellectual Property initiatives. [True or False]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: Perception Of Financial Results

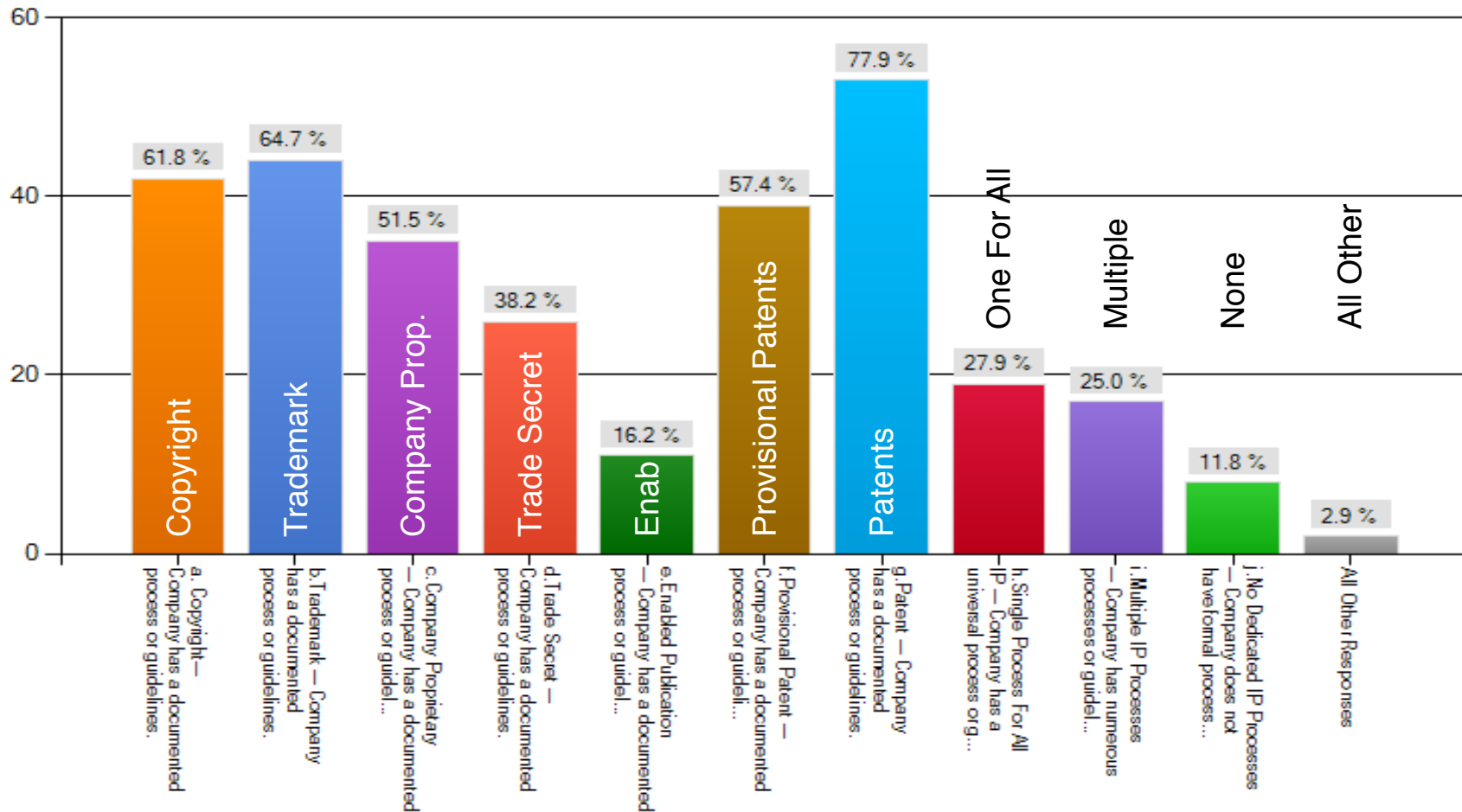
E3. IP Impact: My company believes that our Intellectual Property initiatives have had a \_\_\_\_\_ impact on the overall financial performance of the company. [Check One Box Only]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: **Protection & Registration Processes**

**E4. IP Protection & Registration Processes: Excluding "Product Development Processes" and "Open Innovation Processes," please indicate the type(s) of IP for which your company maintains a "documented process" or "documented guidelines" for protection and/or registration. [Check All That Apply]**

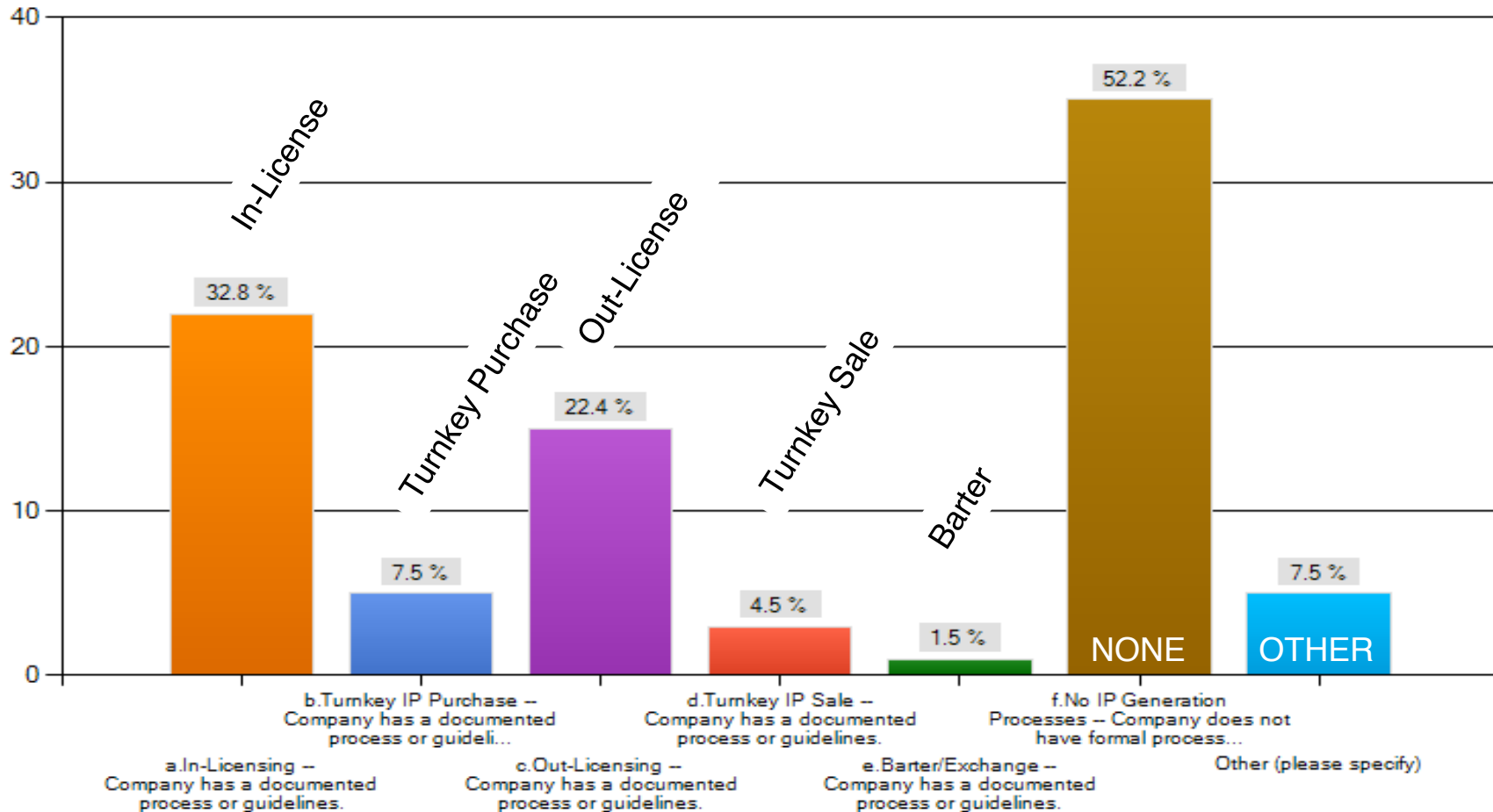




# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: Acquisition & Sales Processes

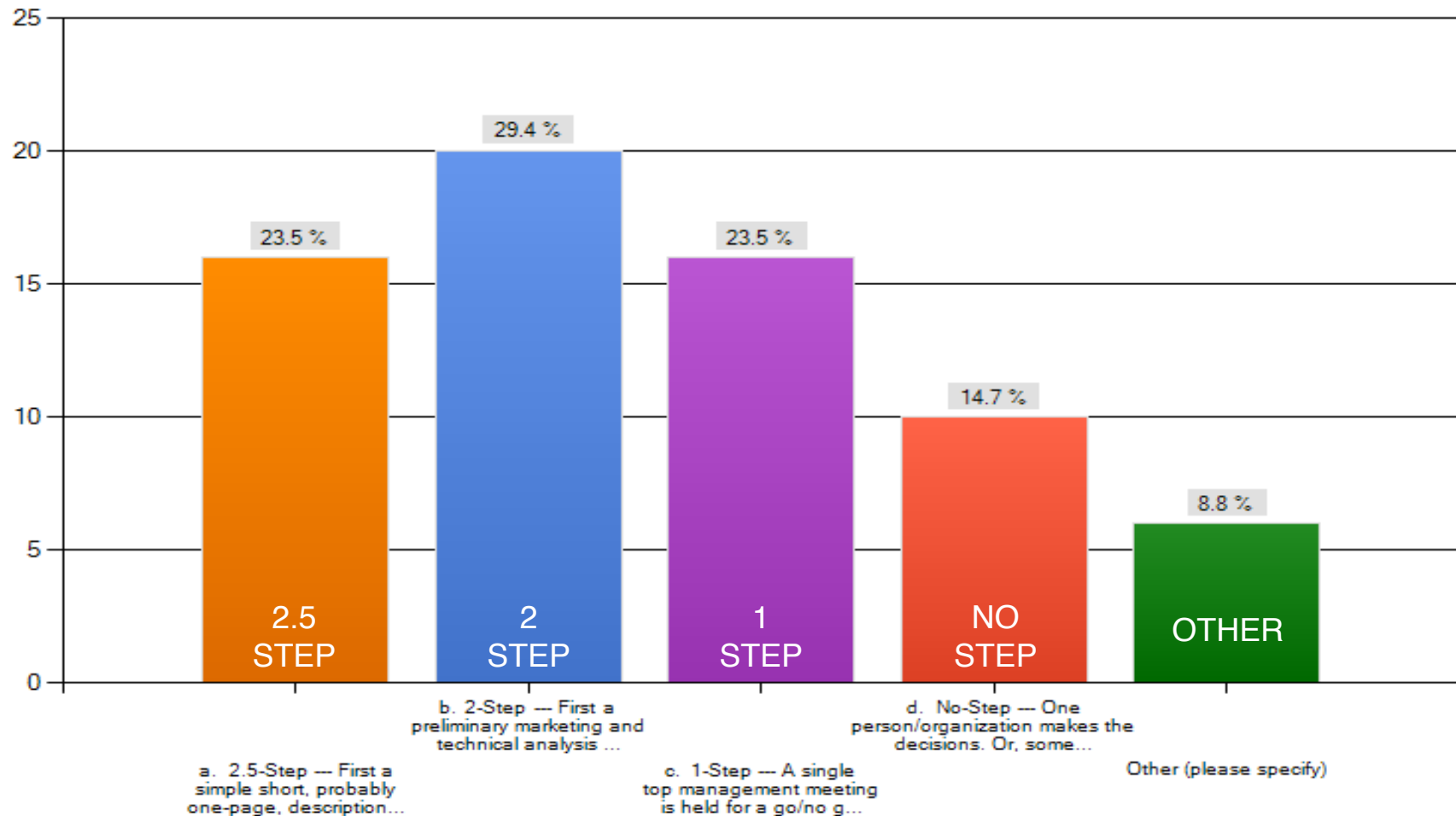
**E5. IP Revenue & Profit Generation Processes:** Excluding revenues and profits accruing from intellectual property embedded in products the company produces and sells, or OEMs for others, please indicate the type(s) of IP for which your company maintains a “documented process” or “documented guidelines”.  
[Check All That Apply]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: Patent Decision Making

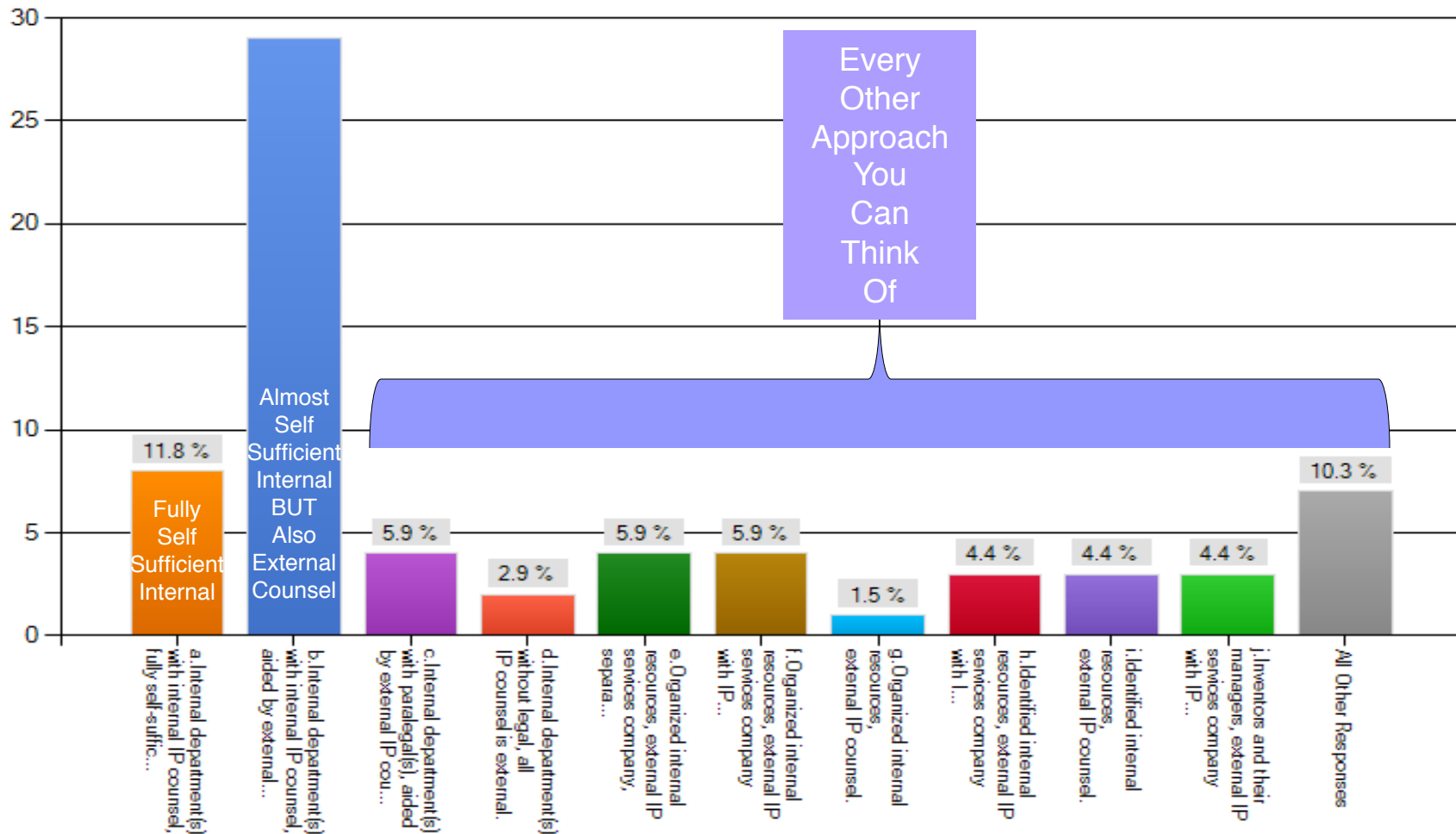
E6. IP Patent Decisions: How many times does the company review a given Design or Utility Provisional Patent or Patent proposal before finally making a business decision to either formally approve or formally reject the registration of the IP? [Check One Box Only]



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: **Organization Approach**

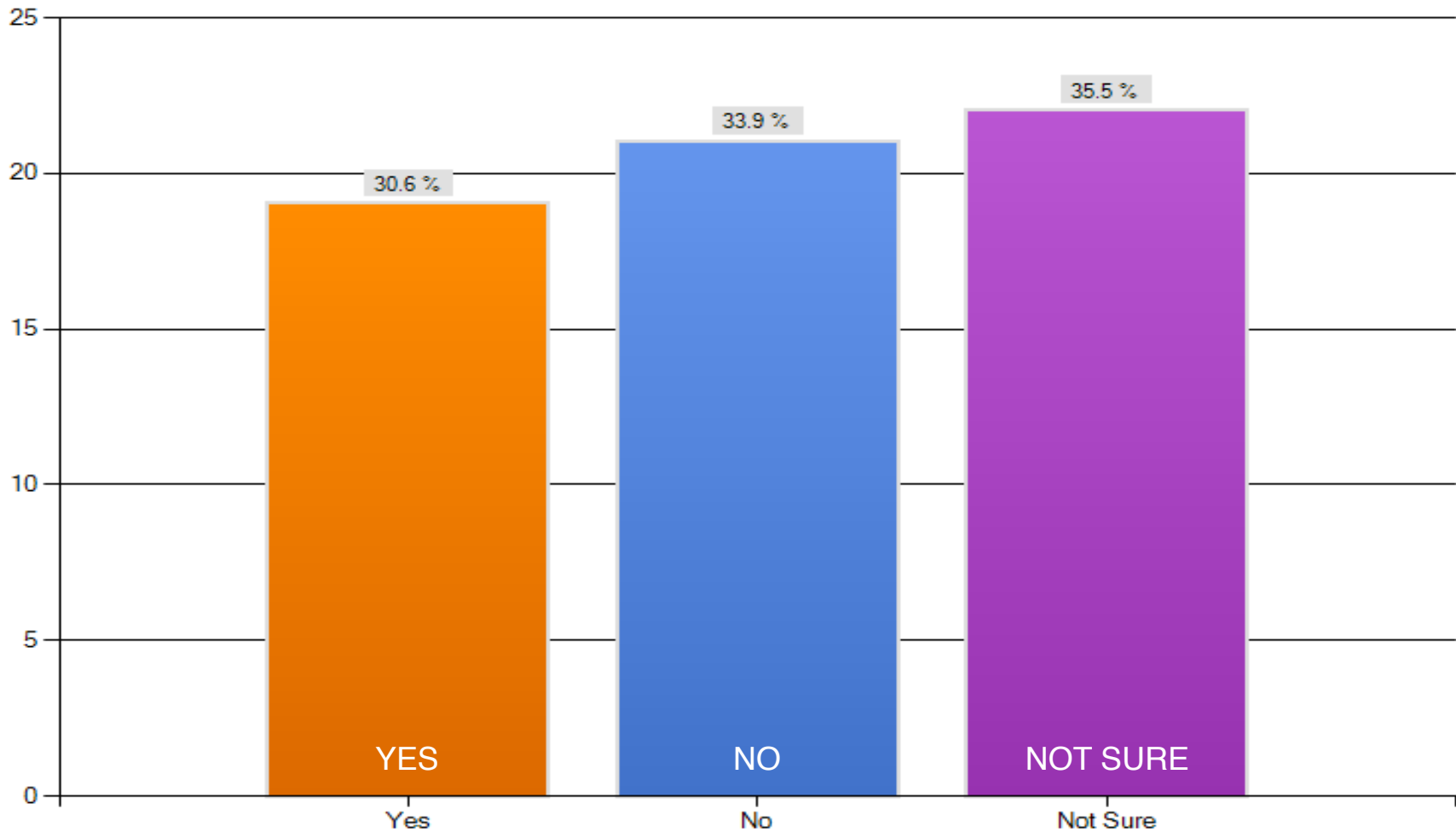
**E7. IP Organization: Which statement best describes the organization and resources that support IP activities? [Check One Box Only]**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Intellectual Property: **Impact Of First-To-File On Trade Secrets**

**E8. First To File Legislation: Is your company augmenting its procedures related to securing Trade Secrets given the passage of First To File legislation in the United States?**





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## *Composite Results: F. R&D Metrics Used in Industry*

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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## R&D Metrics Used In Industry: **Top Ten Comparison - 1998 vs. 2008**

<b>Top 10 R&amp;D Metrics Used by Industry, 1998</b>	
1. R&D spending as a percentage of sales	76%
2. New products completed/released	68%
3. Number of approved projects ongoing	61%
4. Total active products supported	54%
5. Total patents filed/pending/awarded	51%
6. Current-year percentage of sales due to new products released in past x years	48%
7. Percentage of resources/investment dedicated	46%
8. Percentage of increase/decrease in R&D head count	43%
9. Percentage of resources/investment dedicated to sustaining products	39%
10. Average development cost per projects/product	39%

**1998**

<b>Top 10 R&amp;D Metrics Used by Industry, 2008</b>	
1. R&D spending as a percentage of sales	77%
2. Total patents filed/pending/awarded/rejected	61%
3. Total R&D headcount	59%
4. Current-year percentage sales due to new products released in past x years	56%
5. Number of new products released	53%
6. Number of products/projects in active development	47%
7. Percentage resources/investment dedicated to new product development	41%
8. Number of products in defined/planning/estimation stages	35%
9. Average project ROI -- return on investment or average projects payback	31%
10. Percentage increase/decrease in R&D headcount	31%

**2008**

 **A True Performance Metric**



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## *Summary*

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# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Summary

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**This presentation is a preliminary summarization of research that is actively in process. It represents a selected sample of approximately seventy companies that have been determined by the GGI research team to be a representative cross section across industries. The application of statistical parameters indicating margins of error and other codifying statistics is not appropriate at this time. The reader is encouraged focus on overall findings where there are large differences between data sets, and to focus obvious changes shown by these data from what experienced practitioners would consider to be traditional regular historical practices. A proper statistically-based compilation of the research findings will be performed on the entire population later this year when the research is completed.**

**The focus of this research is on the Organic R&D-Product Development Operating Environment, Organic Innovation, Open Innovation, Intellectual Property, and CXO Corporate Metrics for these activities. The research is aimed at culling-out industry's current deployment and utilization of selected innovation and intellectual property strategies, processes, practices, techniques, and measures.**

**This presentation addressed, in a preliminary way, the first four of the five research areas. CXO Corporate Metrics, not covered in this paper except to cite the Top 10 from GGI's 1998 and 2008 research, has a large population of 101 metrics that are used in industry. A sample size of seventy companies is not sufficient to summarize findings for CXO Corporate Metrics research area at this time.**



# PRODUCT DEVELOPMENT PRACTICES: 2010 - 2020

## Summary

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**GGI WILL BE CONCLUDING OUR RESEARCH PHASE BY MID-JULY 2013.**

**IF FOLKS AT THE 28<sup>th</sup> DFMA CONFERENCE WISH TO PARTICIPATE,**

**YOU MAY DO SO IF YOUR COMPANY MEETS THE FOLLOWING CRITERIA:**

This research is aimed at manufacturing companies,  
R&D Labs, and Contract Design/Development firms  
that are actively creating and commercializing new products.  
Responses from industry service and advisory firms will not be accepted.

\*\*\*\*\*

**WE HAVE SET UP A UNIQUE URL FOR  
QUALIFIED & INTERESTED  
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<http://www.goldensegroupinc.com/biennialsurvey/bdi.shtml>

\*\*\*\*\*

**! THANK YOU FOR YOUR TIME & ATTENTION TODAY !**

END