

# Research Analytics Maturity Model & HERD

Transforming Tomorrow by  
Using Data to Drive Decisions

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Research Analytics Using the Higher Education Research and Development Survey (HERD) to Impact Institutional Strategy ([Grant #2215223](#))



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Research Adviser: Shannon Sampson

# Survey Respondents

### Sector of institution

 Public, 4-year or above

Private not-for-profit, 4-year or above



# Overview



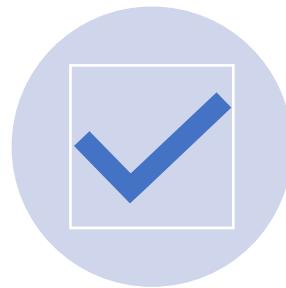
Research Analytics &  
HERD - Introduction  
and Scope



Research Analytics  
Capabilities (RAC)  
Maturity Model



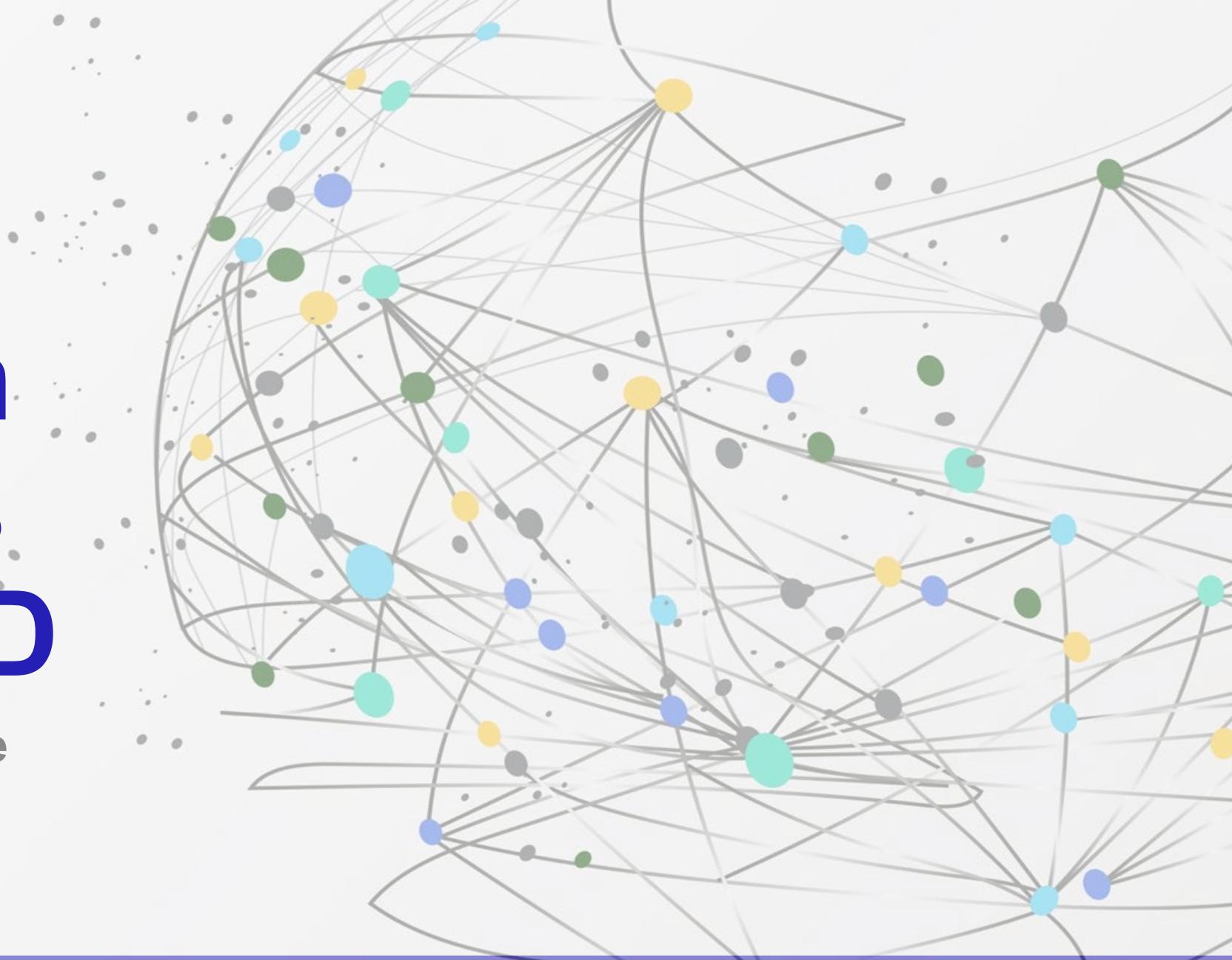
A study about HERD  
Survey Data Collection



Preliminary Results

# Research Analytics and HERD

Introduction and Scope



# Research Analytics and HERD

## Introduction and Scope

- **What is research analytics**
- **Why research analytics**
- The NSF Project
  - Rationale
  - Timeline
    - What we have done and discovered
    - Where we are now
    - Where we are heading

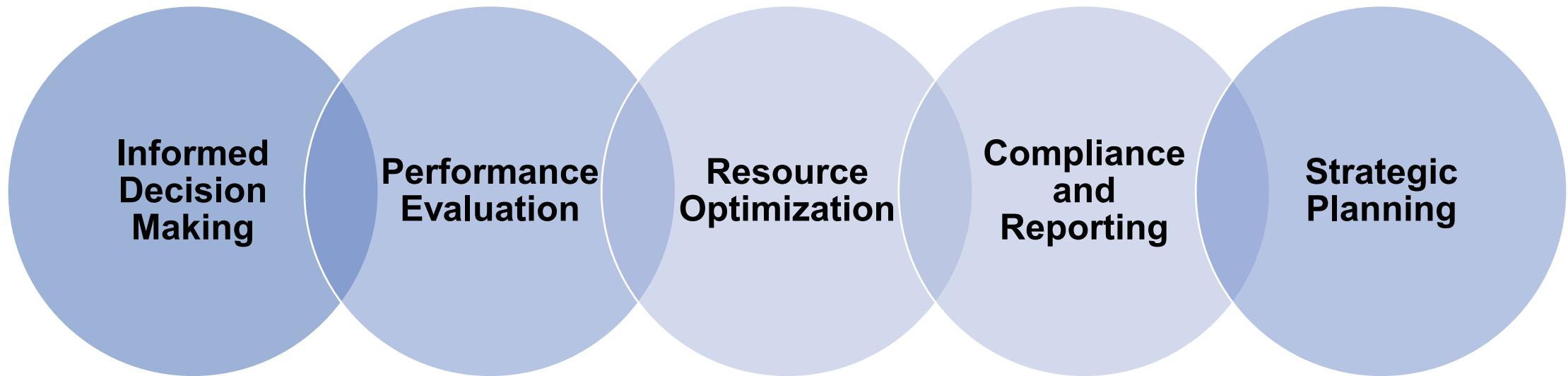


# What is Research Analytics?

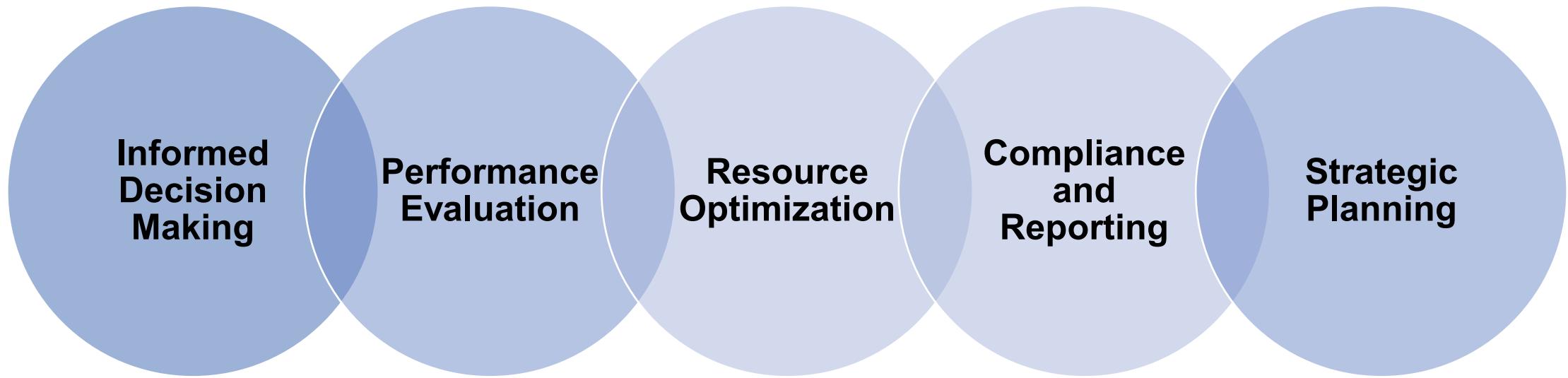
“Research analytics is the **science of analyzing data** to make **data-informed decisions** for **strategic planning, research and development** and **business processes** related to research administration functions.”

Robershaw, Katherine and Wolf, Baron, Research Analytics: A Systematic Literature Review (February 18, 2023). Available at SSRN: <https://ssrn.com/abstract=4363262> or <http://dx.doi.org/10.2139/ssrn.4363262>

# Why Research Analytics?



# Why Research Analytics?

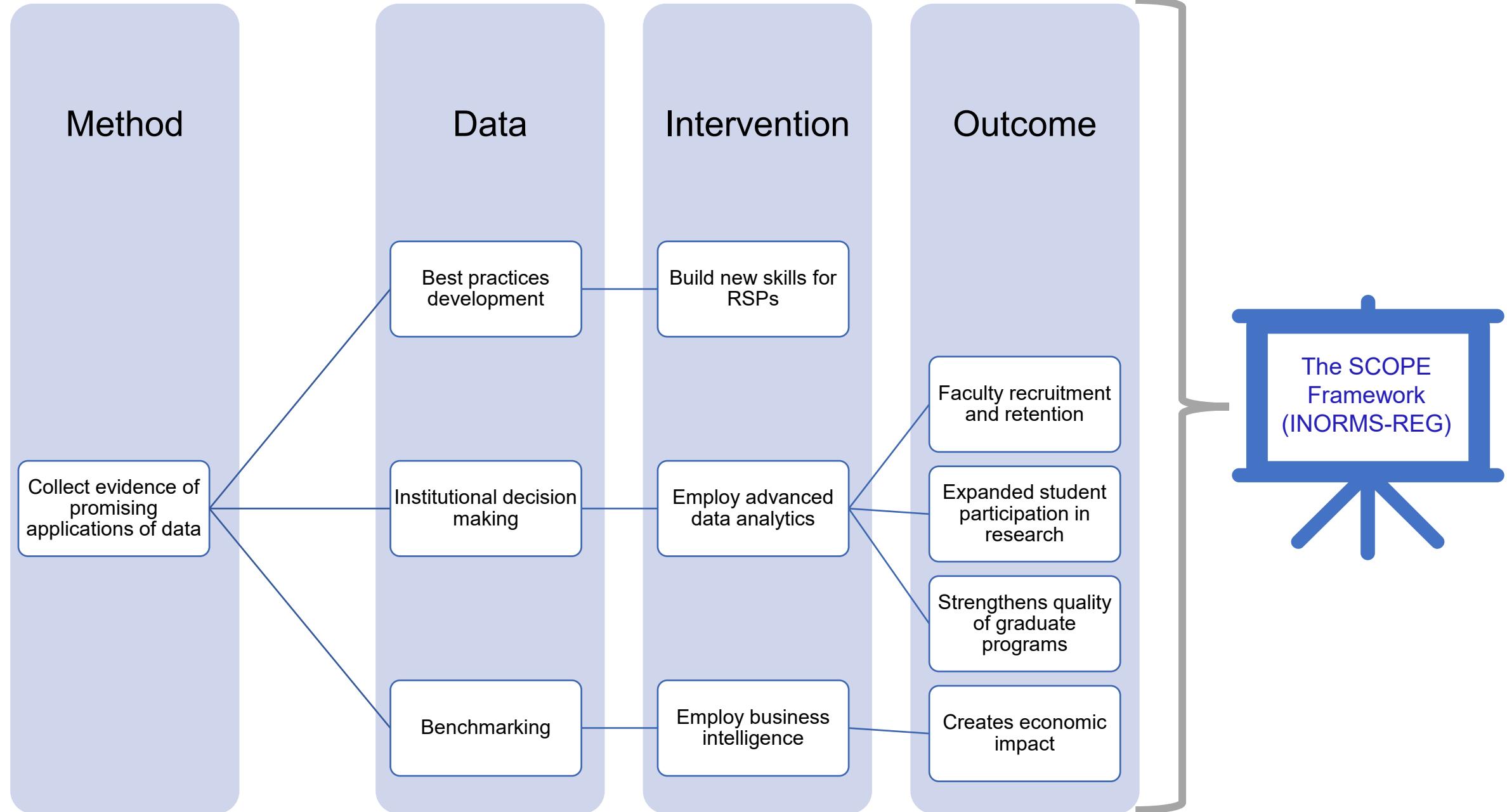


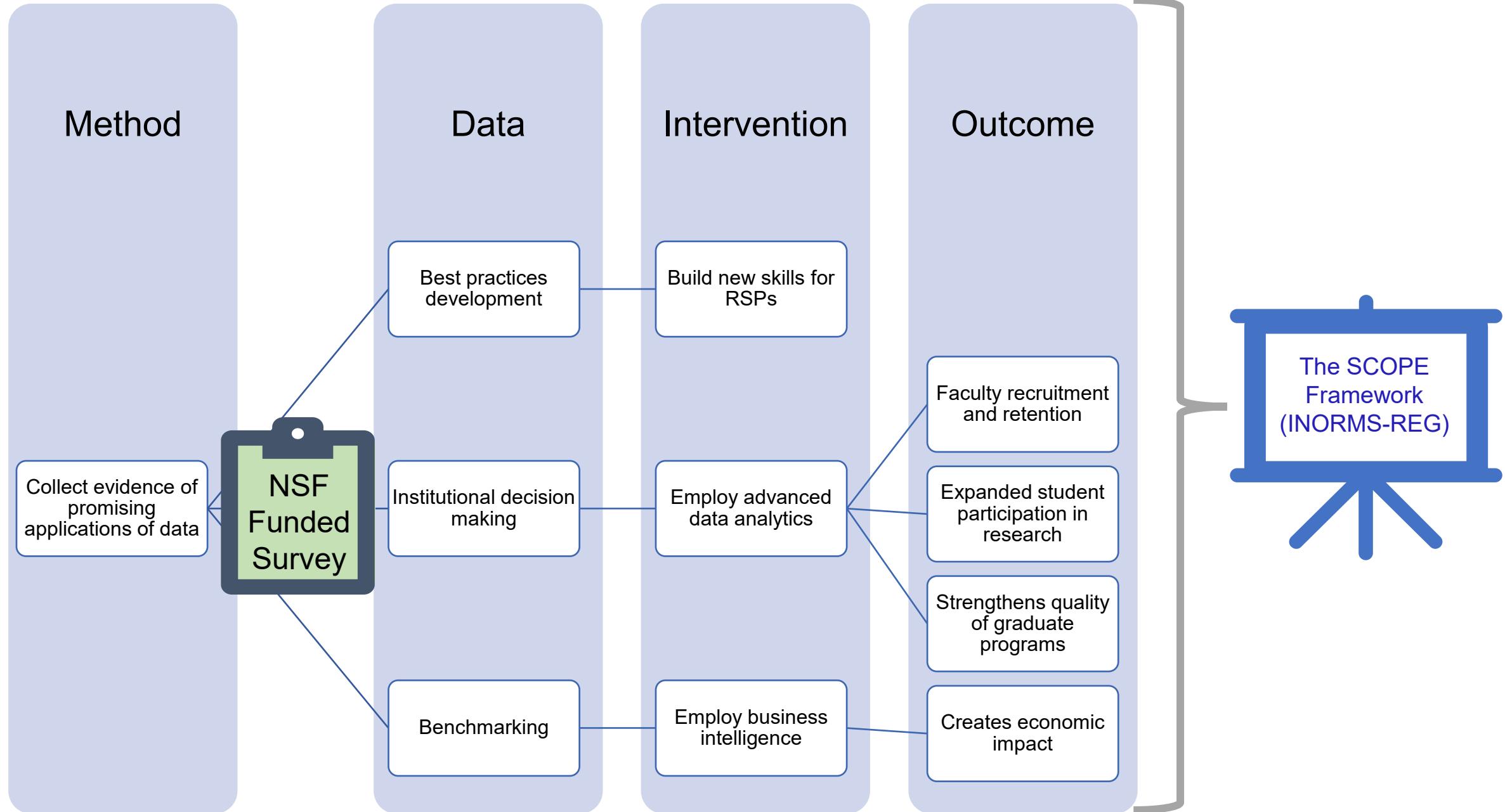
**Sustain and Grow the Research Enterprise  
for New Discoveries & Impact**

# The Project

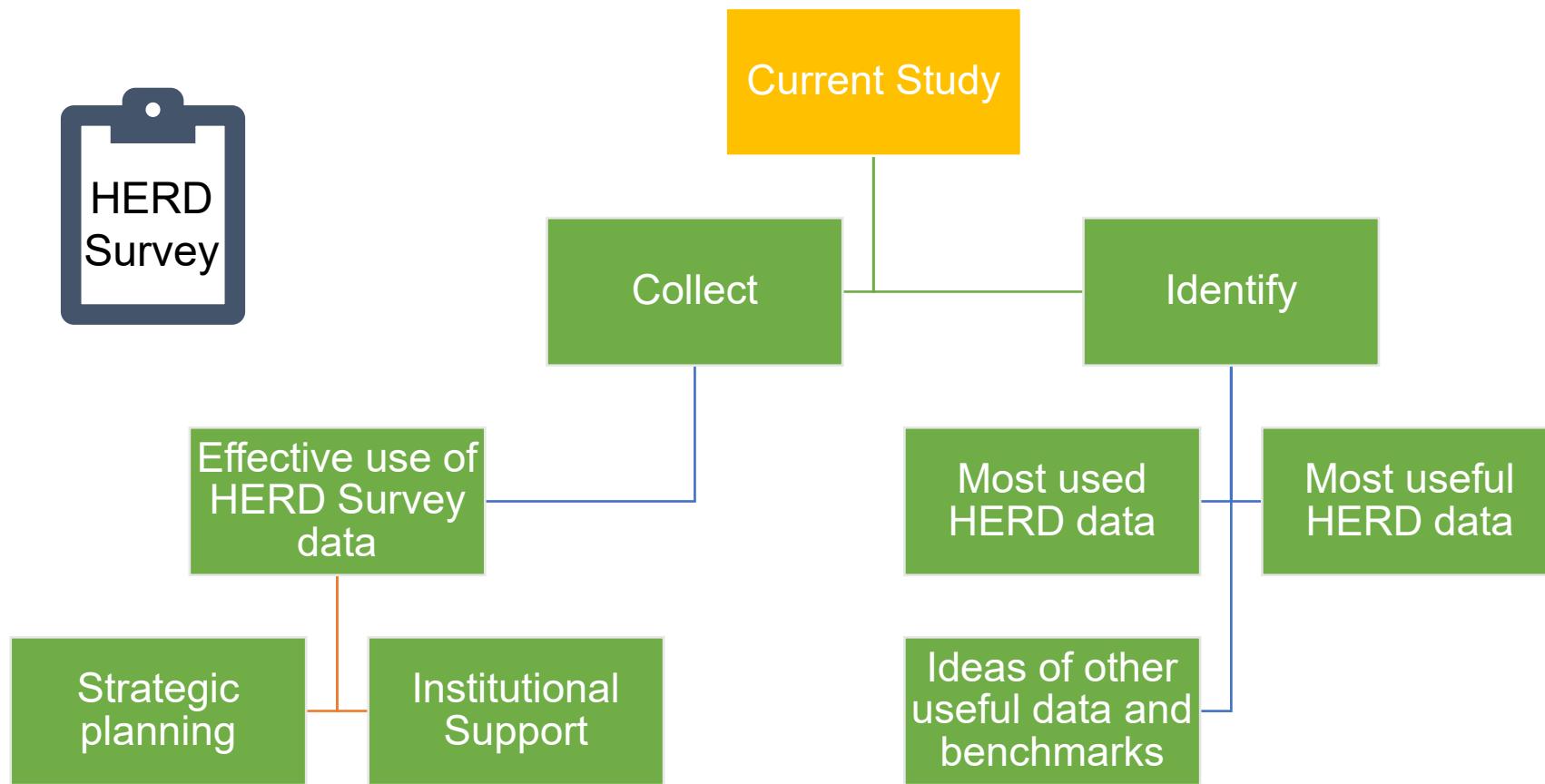
Research Analytics and Higher  
Education Research & Development Survey  
(HERD)







# HERD Survey Study



# The SCOPE Framework



Expand metrics of research evaluation

Training Workshop

Predictive analytics

Data visualizations

Analytical tools

Network analysis

Make better decisions on research funding strategies

<https://inorms.net/scope-framework-for-research-evaluation/>

# Project Timeline



# Research Analytics Capabilities (RAC)

RAC Maturity Model

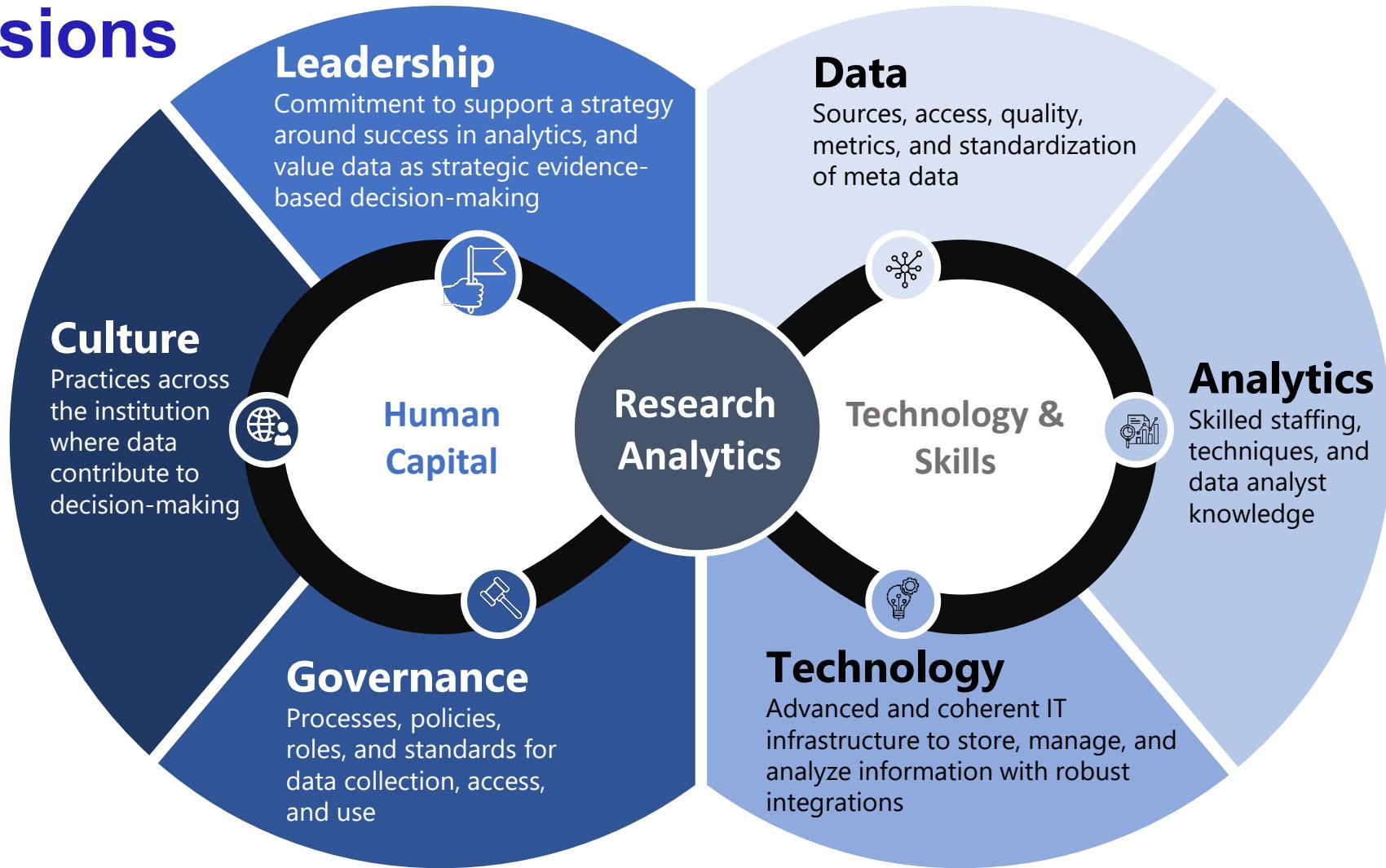
RAC Workforce Survey



# Objective

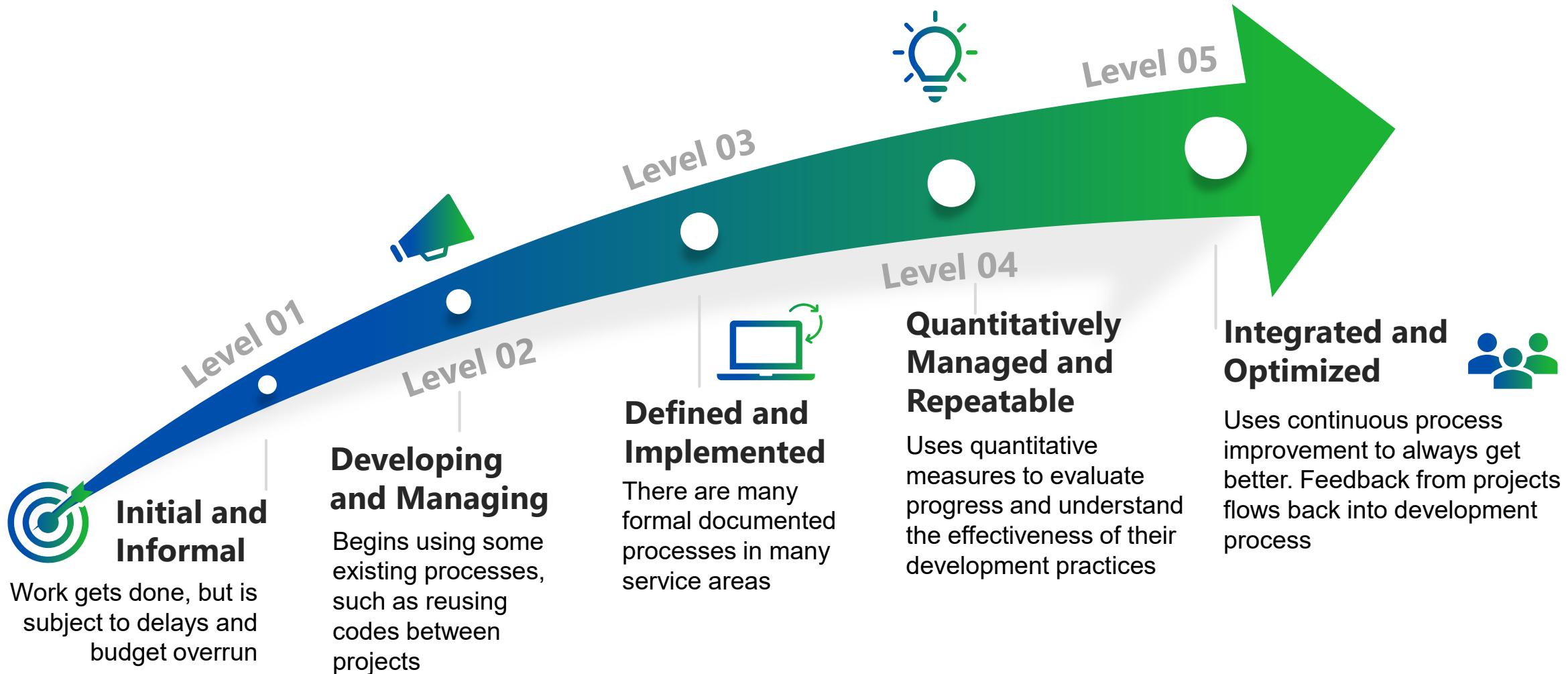
- **Provide tools to help research administration offices:**
  - *Identify areas of focus and improvement*
  - *Set goals and priorities*
  - *Influence and justify resource allocation*
  - *Improve strategic planning and business operations*
  - *Track key aspects of an effective research analytics program*

# Dimensions



Conceptual Framework of *Research Analytics Capabilities* (RAC)

# RAC Maturity Assessment Arc



# A Study of the HERD Survey

## Purpose

- Gather information on institutions' utilization of HERD Survey results
- Propose best practices to collect data for the HERD Survey

## Questions

- Relative ease to complete and usefulness of 16 HERD Survey Questions
- Difficulty of capturing expenses
- Difficulty of calculating responses to questions

# Results

- Quality of the RAC scale
- Quantitative survey results
  - RAC survey
  - HERD survey
    - Results utilization
    - Data collection
- Qualitative comment analysis



# Results - RAC

Survey Validation Results

# Survey Respondents

### Sector of institution

 Public, 4-year or above

Private not-for-profit, 4-year or above





## Survey Validation Results

- High reliability (persons: 0.92; items: 0.98)
- Presence of a second dimension (eigenvalue: 4.45)
- But dimensions are highly correlated (lowest disattenuated correlation: 0.64)
- A simplified rating scale is recommended
- All survey items function properly

# Results - RAC

Quantitative Survey Results

# RAC - Respondent Demographics

**211**  
respondents

**90**  
comments

The University of Kentucky Research Analytics Capabilities (UK RAC) survey was conducted in June 2023.

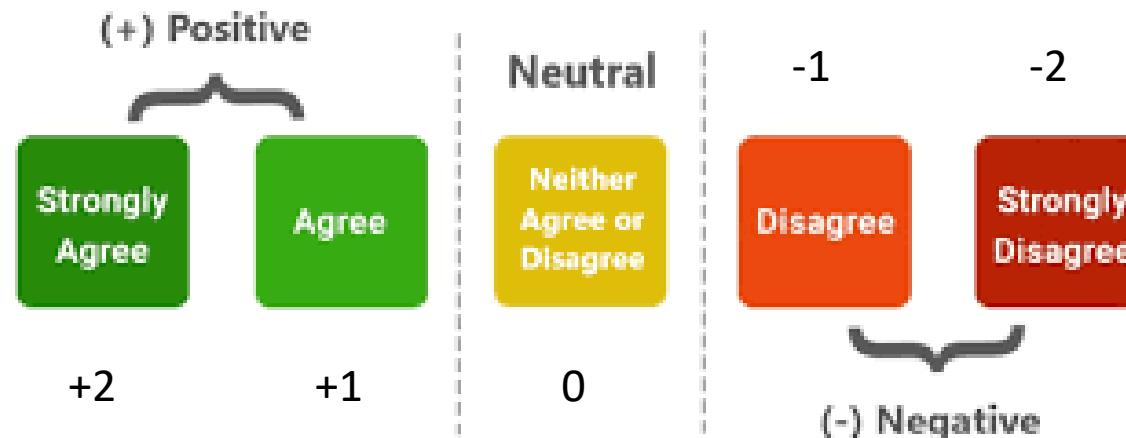
The UK RAC survey was administered through an anonymous online link.

**211** research administration professionals responded to the UK RAC survey.

**90 (42.7%)** of your respondents provided improvement feedback in the comments section.

# RAC - Average Response Scores

This survey report includes summaries and demographic comparisons of the UK RAC survey dimensions and statements using average response scores. The average response scores for the 36 statements range from -2 to +2. Their corresponding response options are listed below (for positively-phrased items):



# RAC - Overall and Six Dimension Results

RAC Overall (ARS)



\*ARS = Average Response Score

Data Dimension ARS



Analytics Dimension ARS



Technology Dimension ARS



Governance Dimension ARS



Culture Dimension ARS



Leadership Dimension ARS



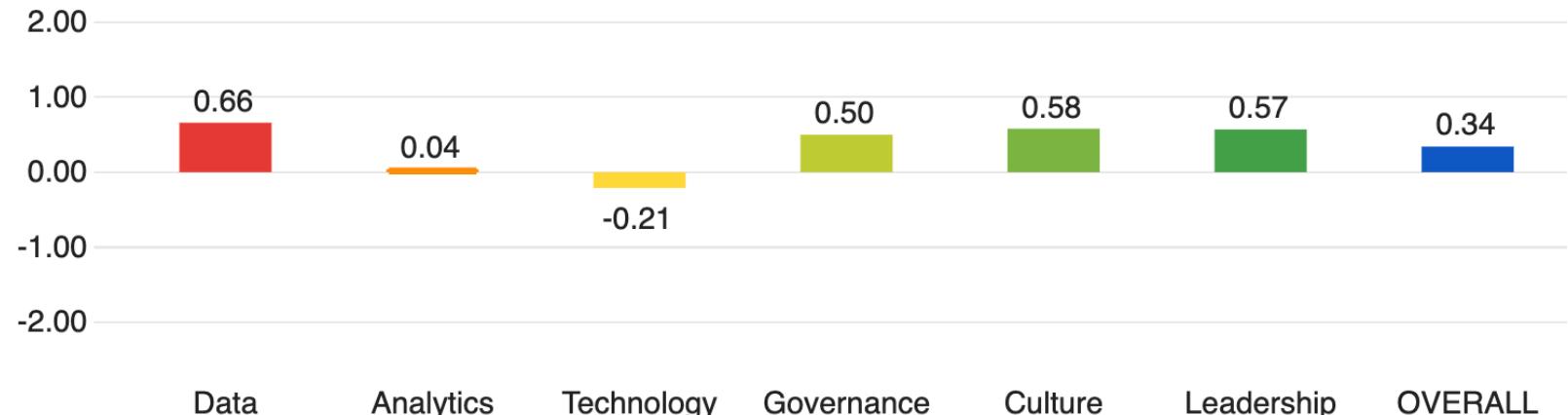
# RAC - Overall and Six Dimension Results

RAC Overall (ARS)

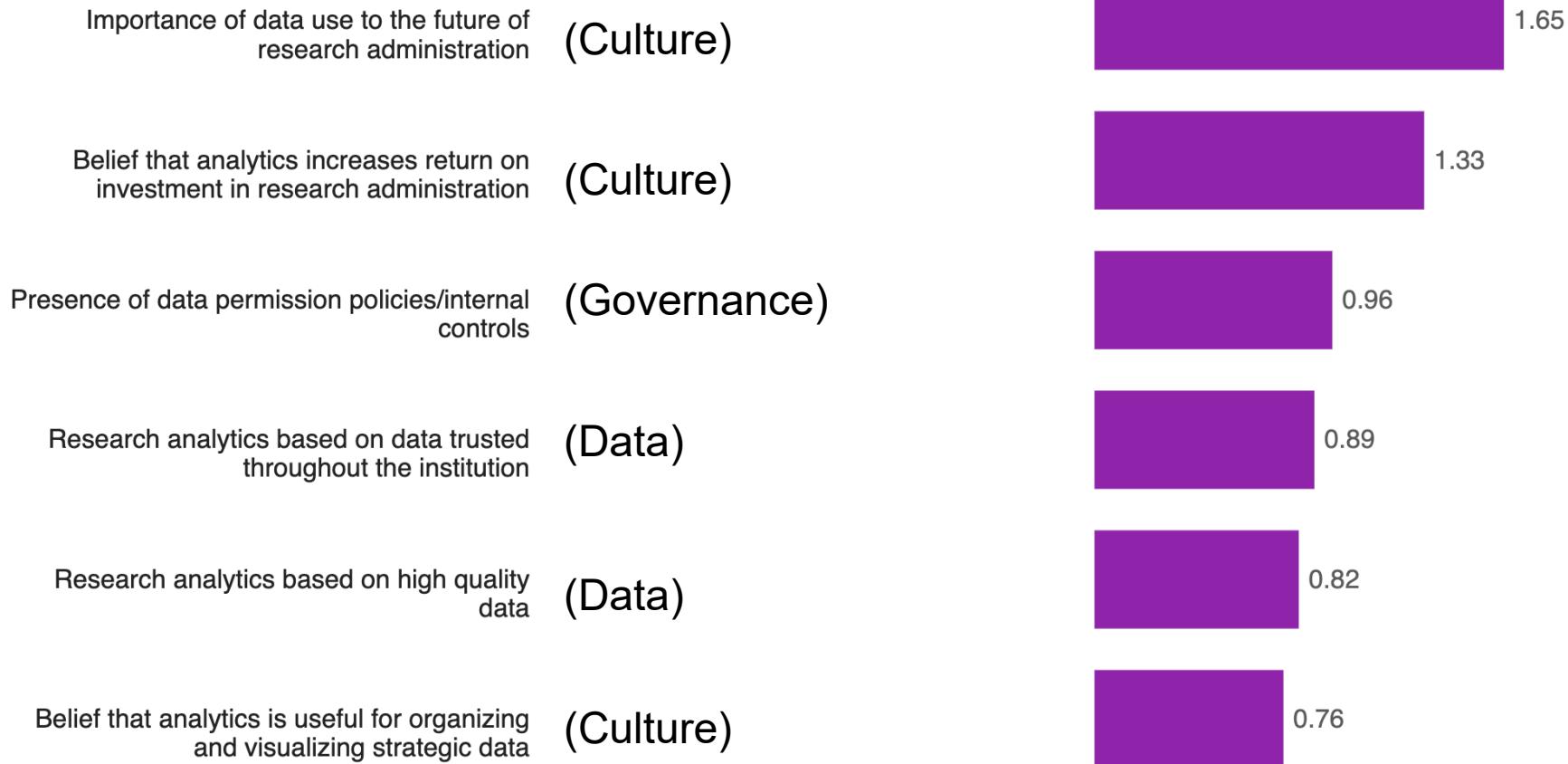


\*ARS = Average Response Score

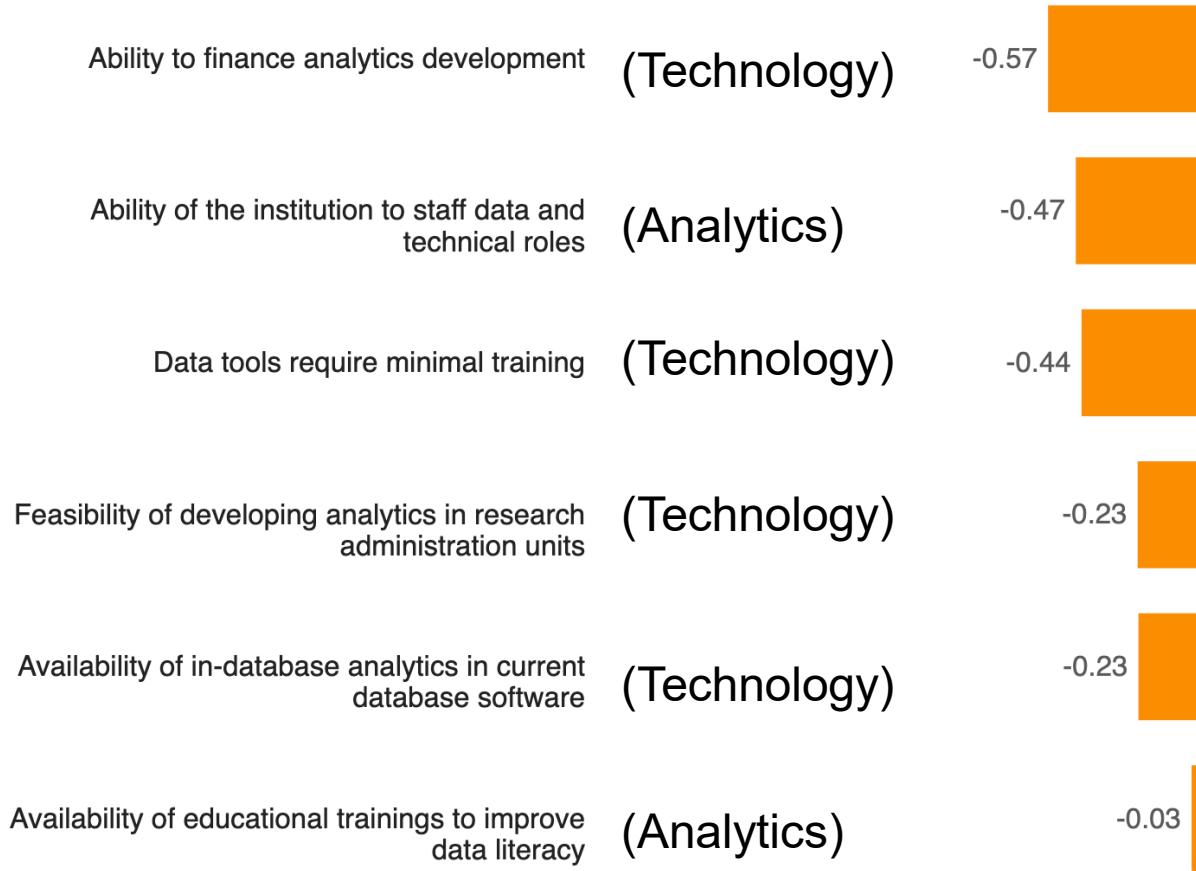
Overall and Six Dimensions Average Response Scores (ARS)



# RAC - Top Strengths

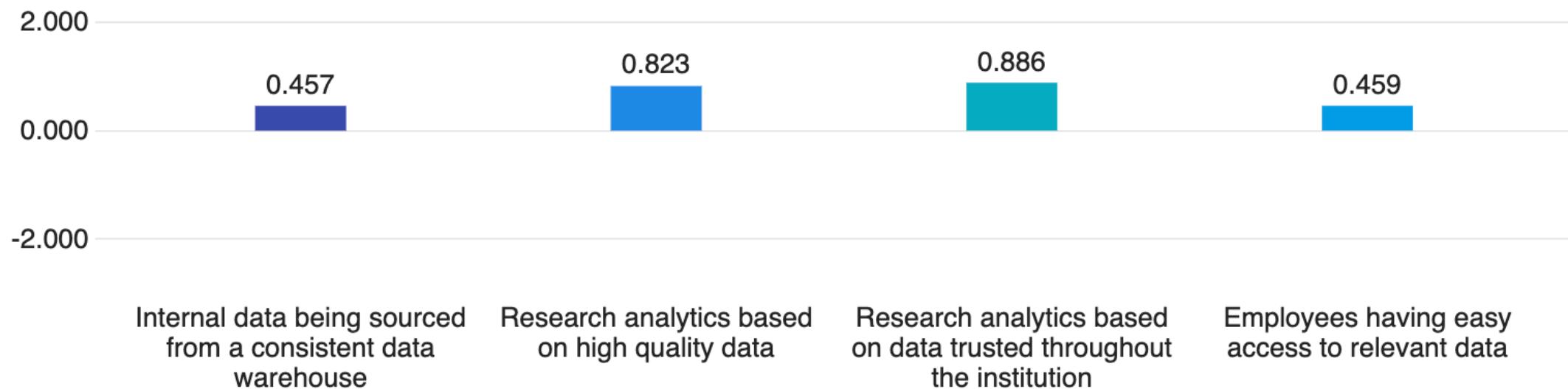


# RAC - Growth Priorities



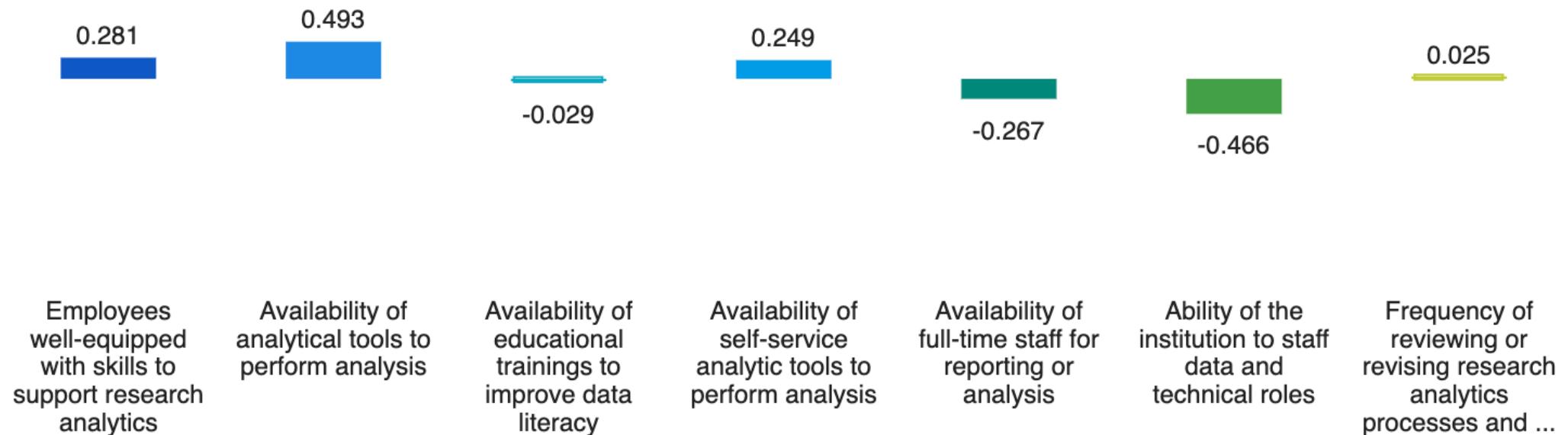
# RAC - Data Dimension Results

## Average Response Scores (Overall: 0.66)



# RAC - Analytics Dimension Results

## Average Response Scores (Overall: 0.04)



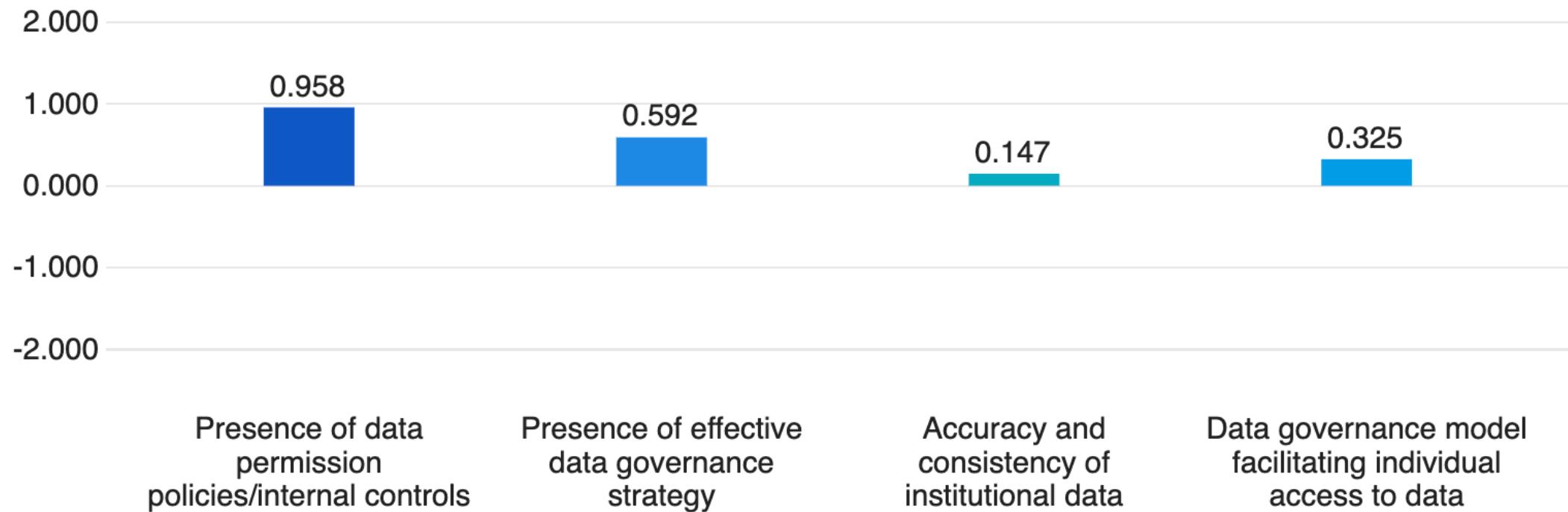
# RAC - Technology Dimension Results

Average Response Scores (Overall: -0.21)



# RAC - Governance Dimension Results

Average Response Scores (Overall: 0.50)



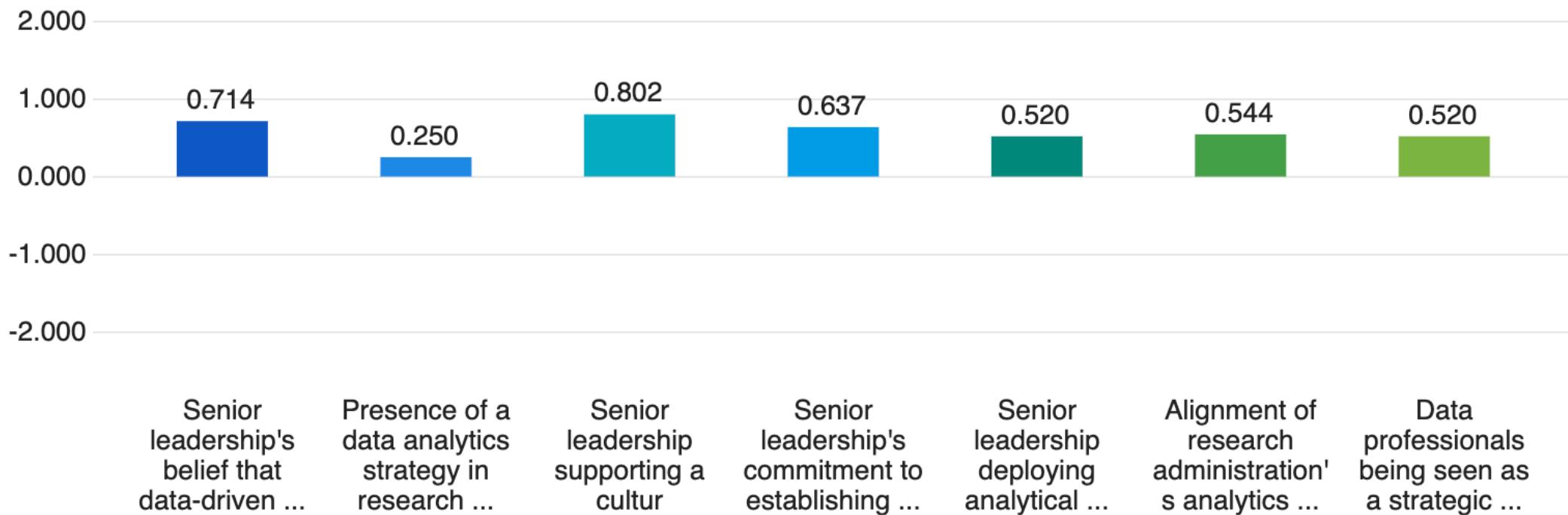
# RAC - Culture Dimension Results

Average Response Scores (Overall: 0.58)

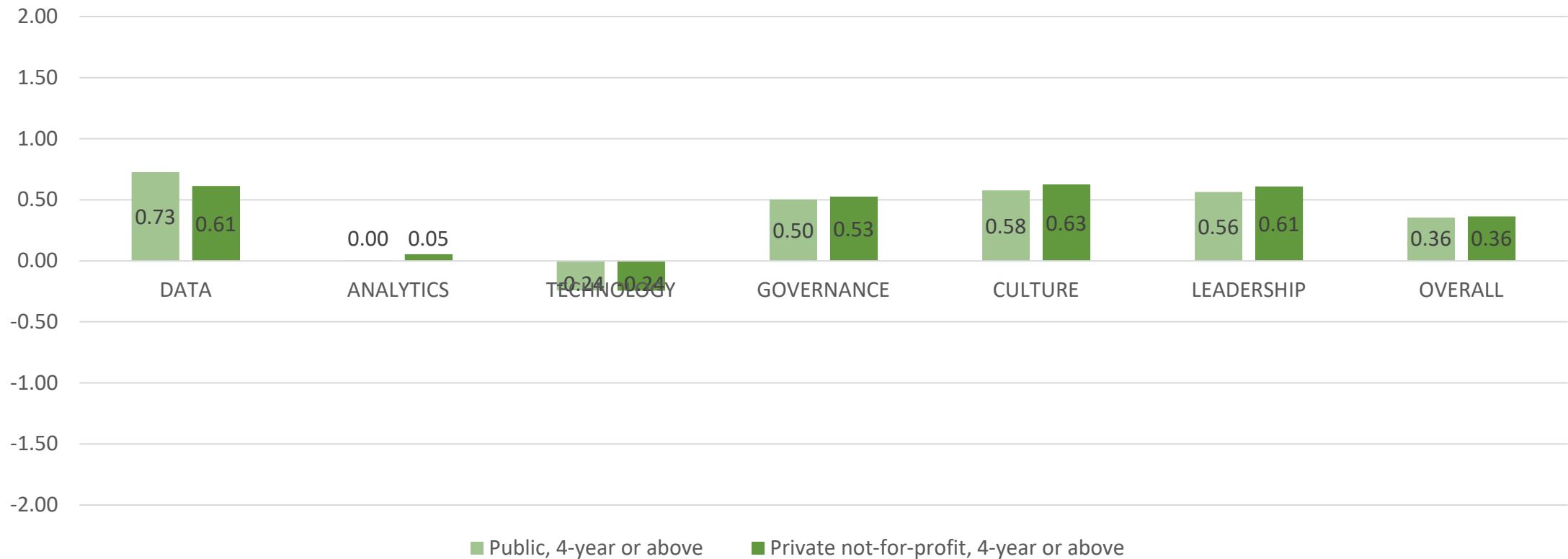


# RAC - Leadership Dimension Results

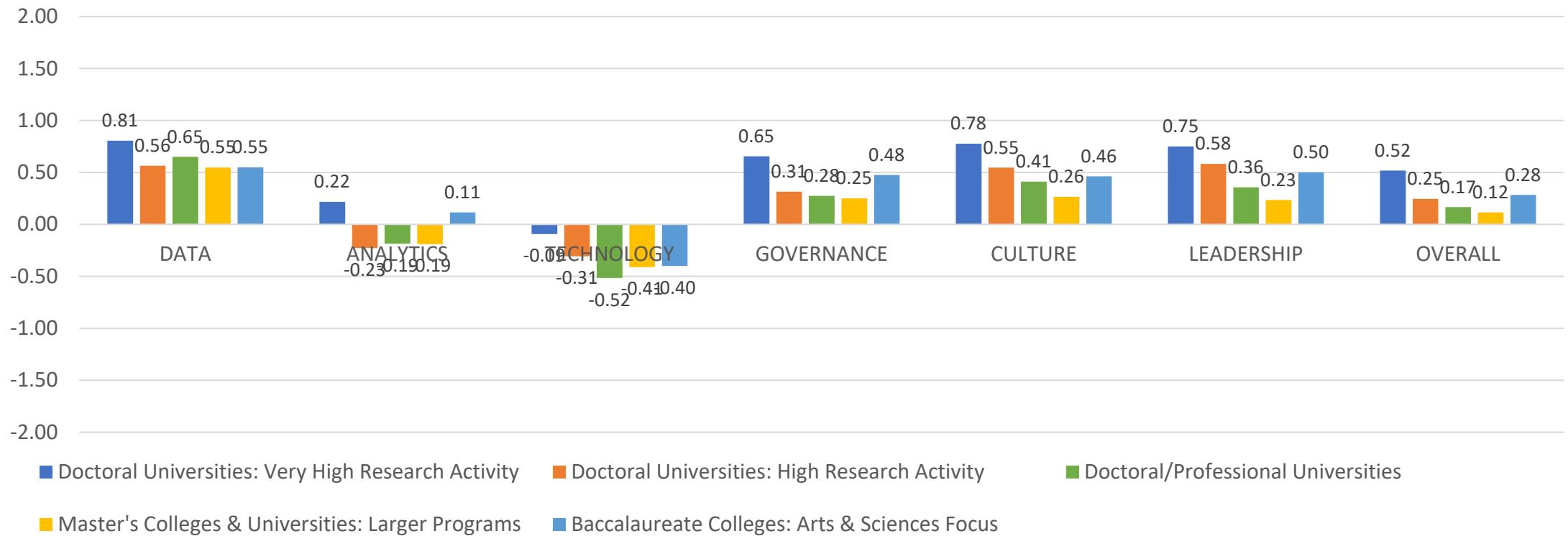
## Average Response Scores (Overall: 0.57)



# RAC - Comparison by Sector



# RAC - Comparison by Carnegie Classification 2021



# Respondent Comments

## Centralized database

# Robust staffing in data analytics

## An ERA system and implementation

## → Leadership buy-in

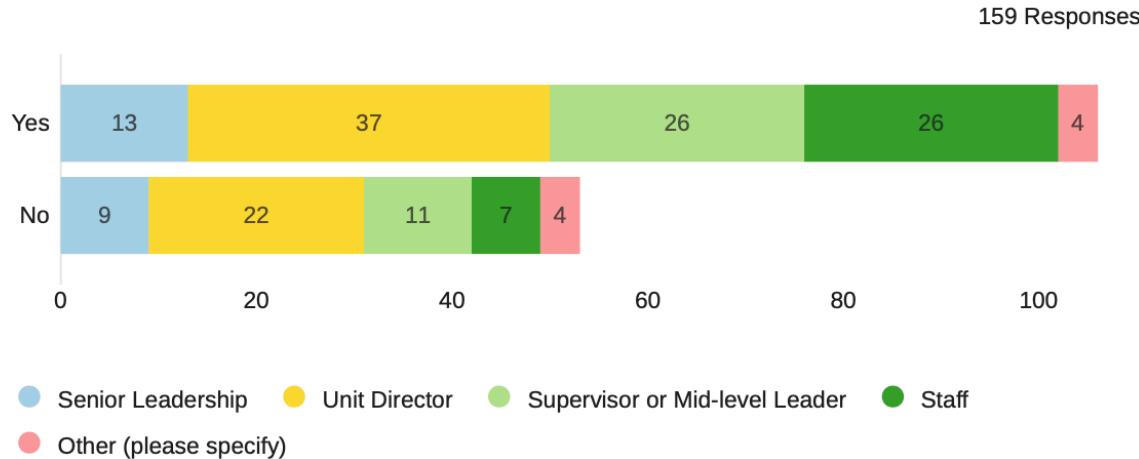
# Results - HERD

Quantitative Survey Results



# HERD - Descriptive Statistics

Is data collection for HERD Survey part of your position duties?



211

Total no. of responses

116

Responded to HERD Survey  
Data Collection Section

125+

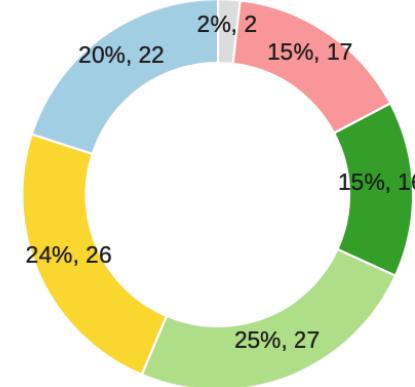
Participating Institutions

41

US States (incl. DC)  
Surveyed

Respondents' Years of Experience with HERD Survey Data Collection

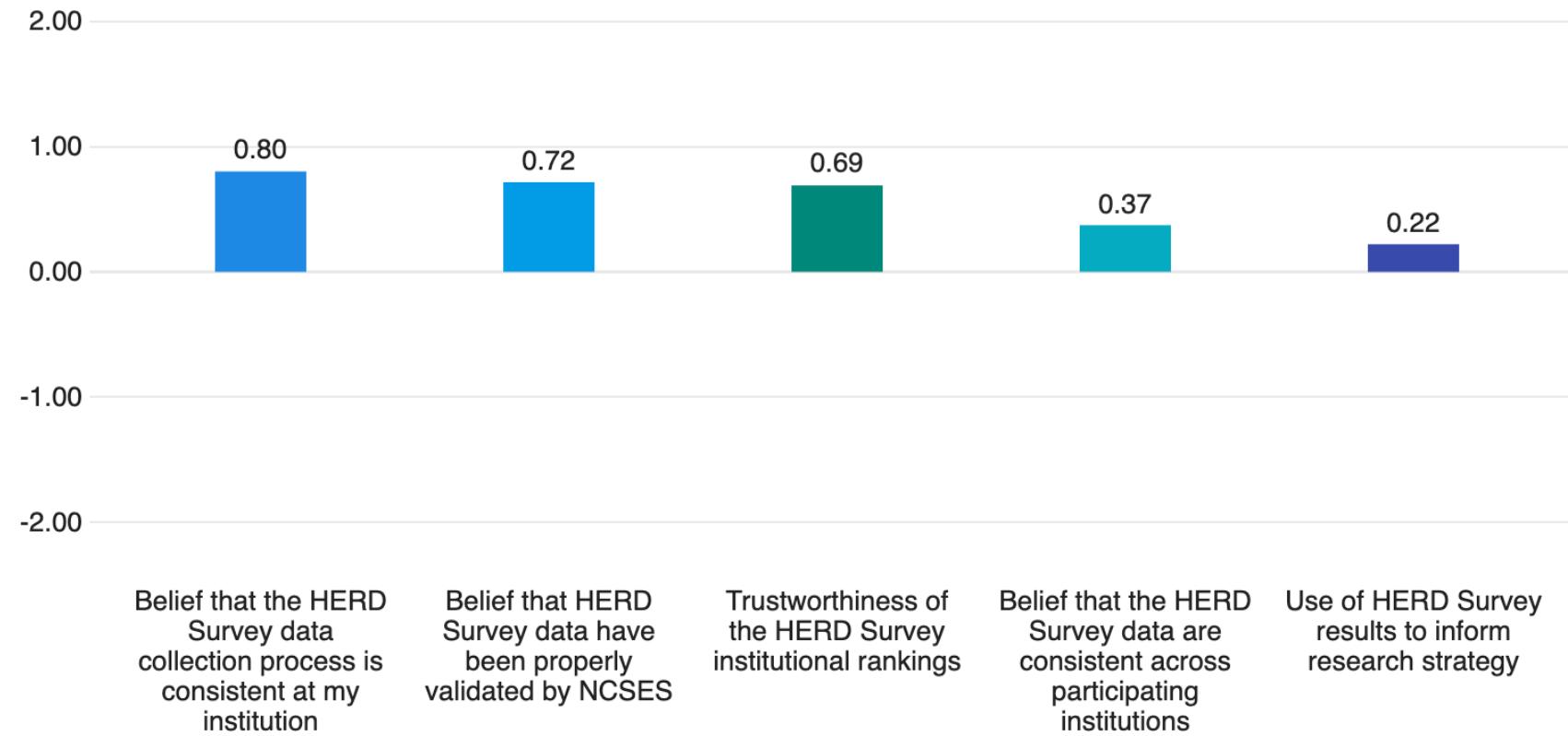
110 Responses



- Not responsible for data collection
- 16+ years
- 11 - 15 years
- 6 - 10 years
- 3 - 5 years
- 0 - 2 years

# HERD - Results Utilization

Average Response Scores (Overall: 0.56) (ranging from -2 = Strongly Negative to +2 = Strongly Positive)



# HERD - Data Collection

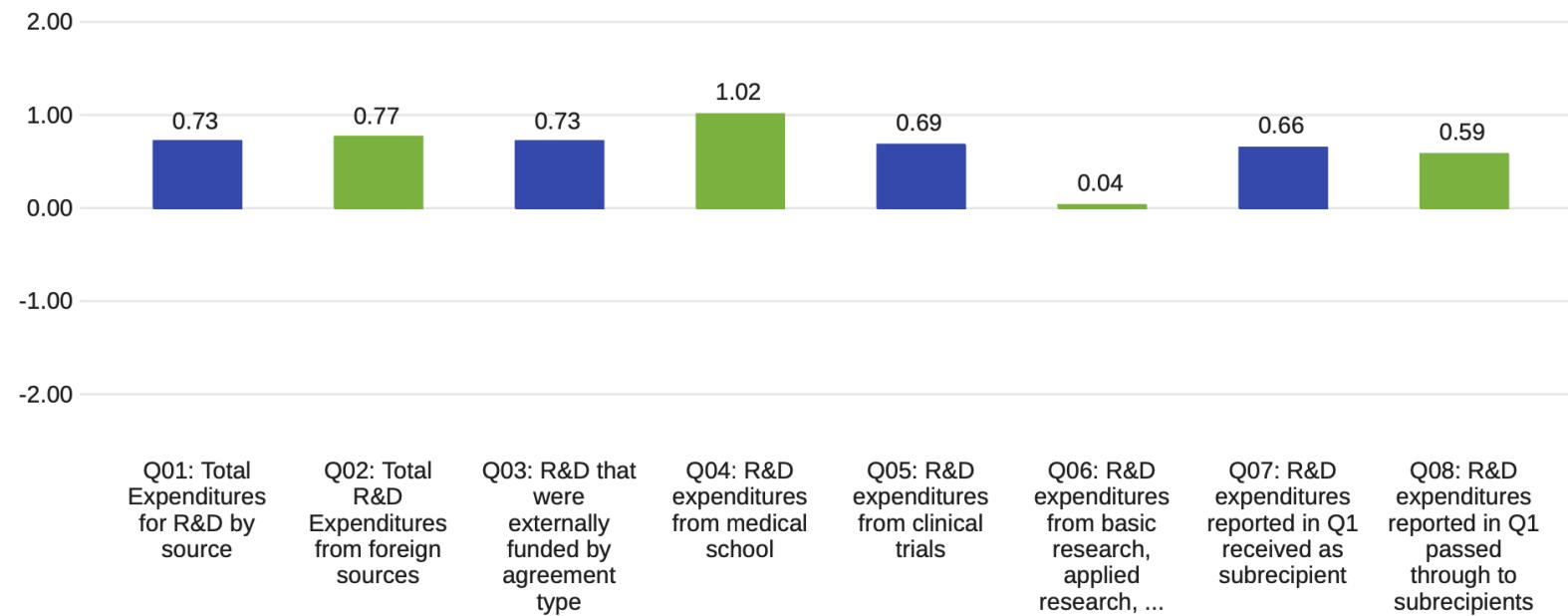
**Average Response Scores (Overall: 0.34) (ranging from -2 = Strongly Negative to +2 = Strongly Positive)**

Field	Mean
HERD data collection form provides clear definitions of key terms	0.76
Institutions' accounting system effective differentiating between R&D and non R&D expenditures	0.73
Senior leadership placing high priority in compiling accurate responses for HERD Survey	0.72
Institution's accounting system effectively documenting institutional funds and cost sharing	0.68
Primary data system allowing for accurate dollar amount calculations	0.66
The work of HERD Survey data collection personnel valued by institution	0.57
HERD data collection staff having the right data analytics tools to gather the data	0.53
Collaborations between units to provide and evaluate comprehensive responses for HERD questions	0.44
NCSES providing adequate training and support for HERD Survey data collection	0.35
Data allowing for ease and accuracy of unrecovered indirect cost calculations	0.22
Accessibility of HERD data from the primary data system	0.21
Accessibility of the data required for completing the HERD Survey	-1.07

# HERD - Ease to Complete (Q01 - Q08)

16 HERD Survey Questions: Degree of Ease to Complete (Q01 - Q08)

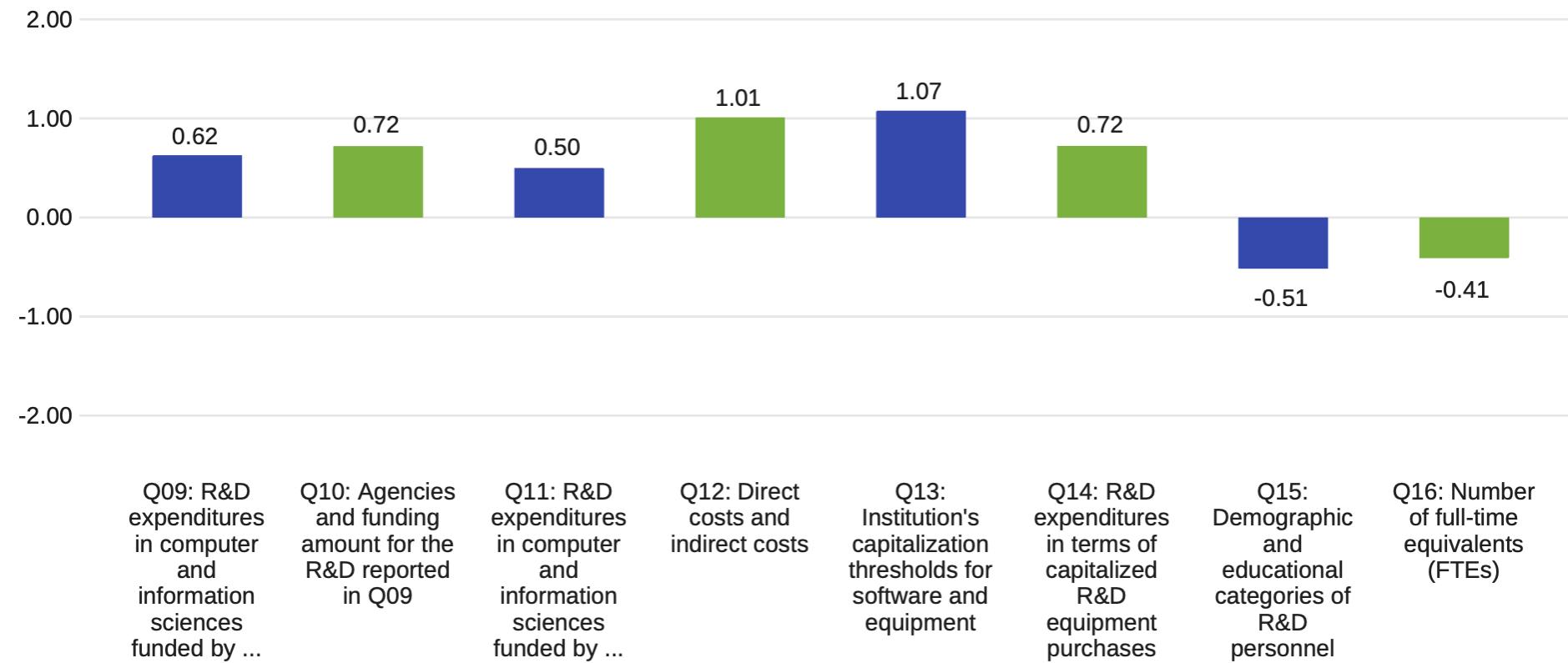
115 Responses



# HERD - Ease to Complete (Q09 - Q16)

16 HERD Survey Questions: Degree of Ease to Complete (Q09 - Q16)

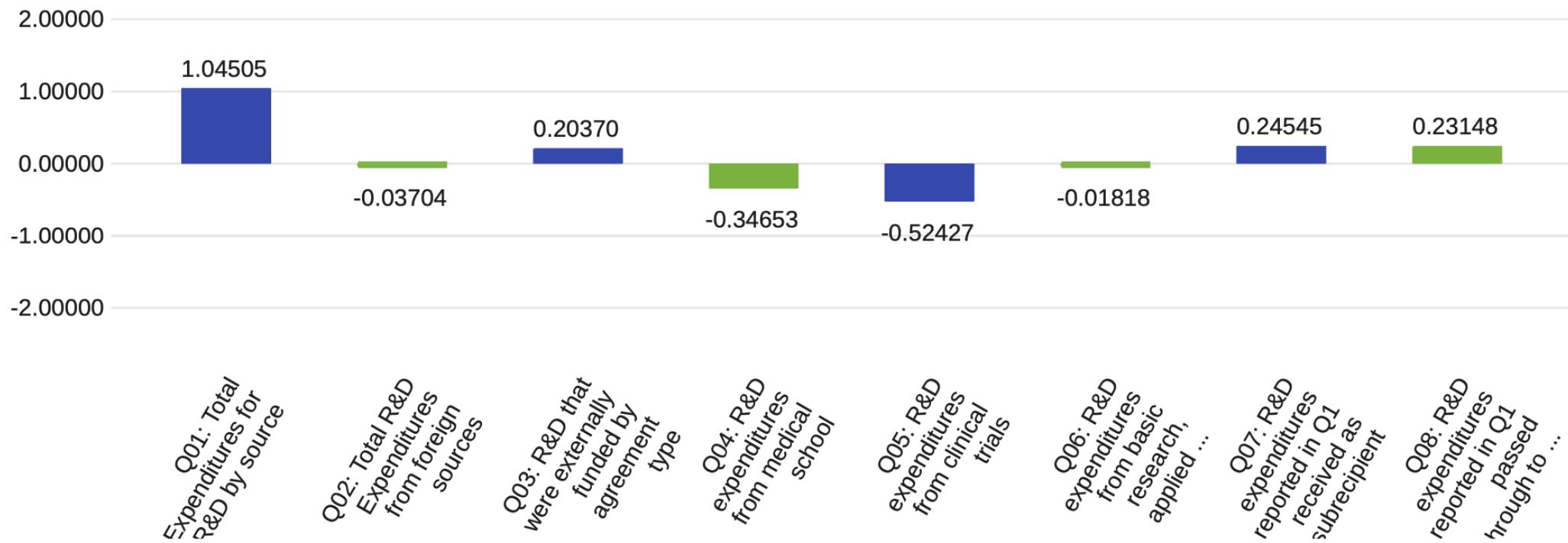
115 Responses



# HERD - Usefulness (Q01 - Q08)

16 HERD Survey Questions: Degree of Usefulness (Q01 - Q08)

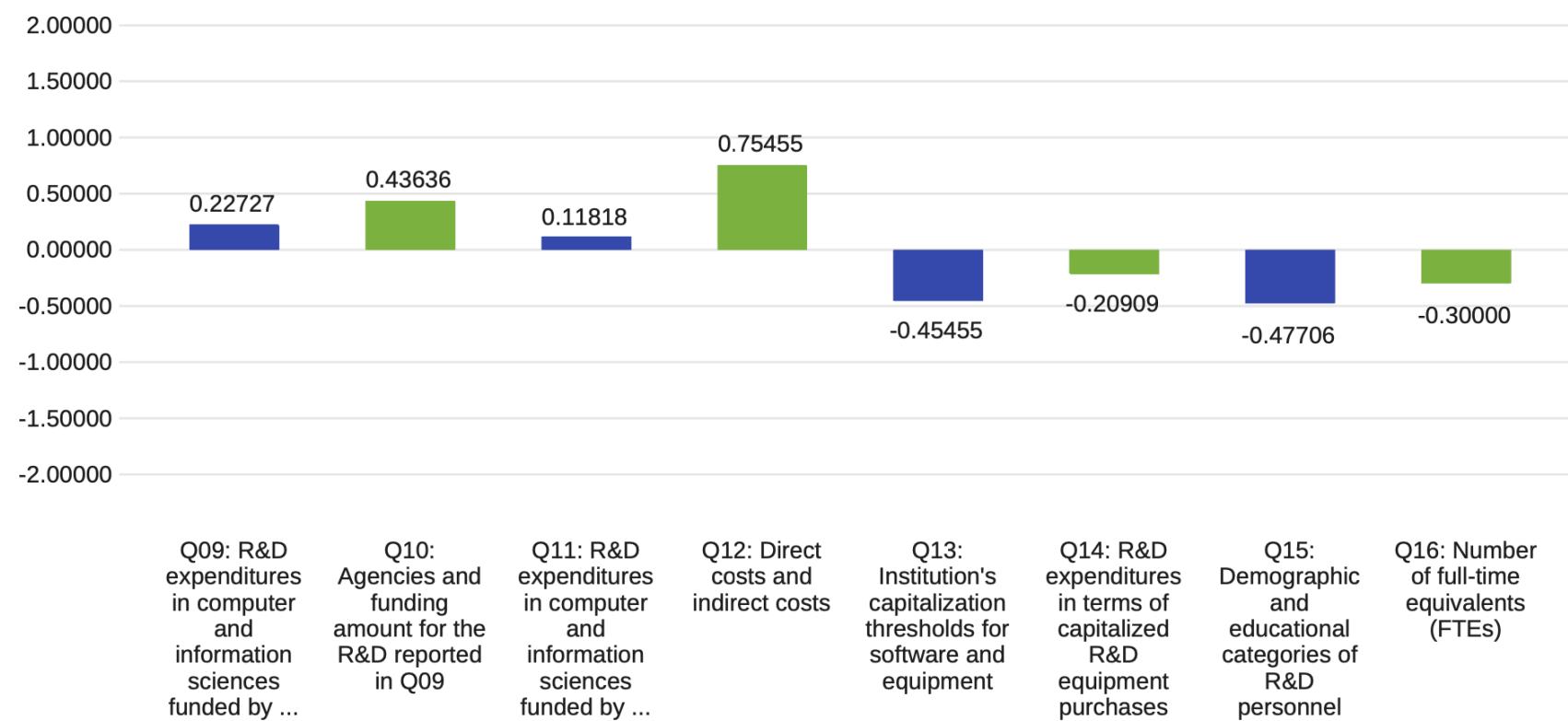
111 Responses



# HERD - Usefulness (Q09 - Q16)

16 HERD Survey Questions: Degree of Usefulness (Q09 - Q16)

111 Responses



# Thank you!

## Any questions?

## Q and A



# Contact

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