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Centers

Highlights of Survey Data FY2017

IUCRC Evaluation Project June 15, 2018

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Overview

- Response rate
- Industry Findings
- Faculty Findings
- Student Findings
- Questions & Discussion
- Draft New Student Survey: For Evaluator Feedback



FY2017 Response Rates

	Center Level				Individual Level			
	Pulse	Benefits	Faculty	Student	Pulse	Benefits	Faculty	Student
Continuing Population from CD report	70	70	70	70	1214	1214	900	1432
1st Year Reporting Population from CD report	+2	+1	+1	+0	+12	+9	+12	+0
Retired/Defunct Centers	9	9	9	9	127	127	88	241
Retired/Defunct Centers Reporting ^[1]	+2	+2	+0	+1	+4	+6	+0	+5
Population ^[2]	65	64	62	62	1103	1102	824	1196
Centers That Did Not Return Data ^[3]	7	15	28	45	245	393	402	883
Available Population ^[4]	58	49	34	17	858	709	422	313
Data Received	58	49	34	17	457	317	269	108
Received / Population	87.69%	76.56%	54.84%	29.03%	41.43%	28.77%	32.64%	9.03%
Received / Available Population	100%	100%	100%	100%	53.26%	44.71%	63.74%	34.50%

^[1] Retired/defunct Centers are not required to submit data, but some do. If so, those data were included in the analysis. This year, a previously graduated Center that was not included in the FY2017 population from the CD report also reported data. Their data are counted in the individual counts, but not the center level.

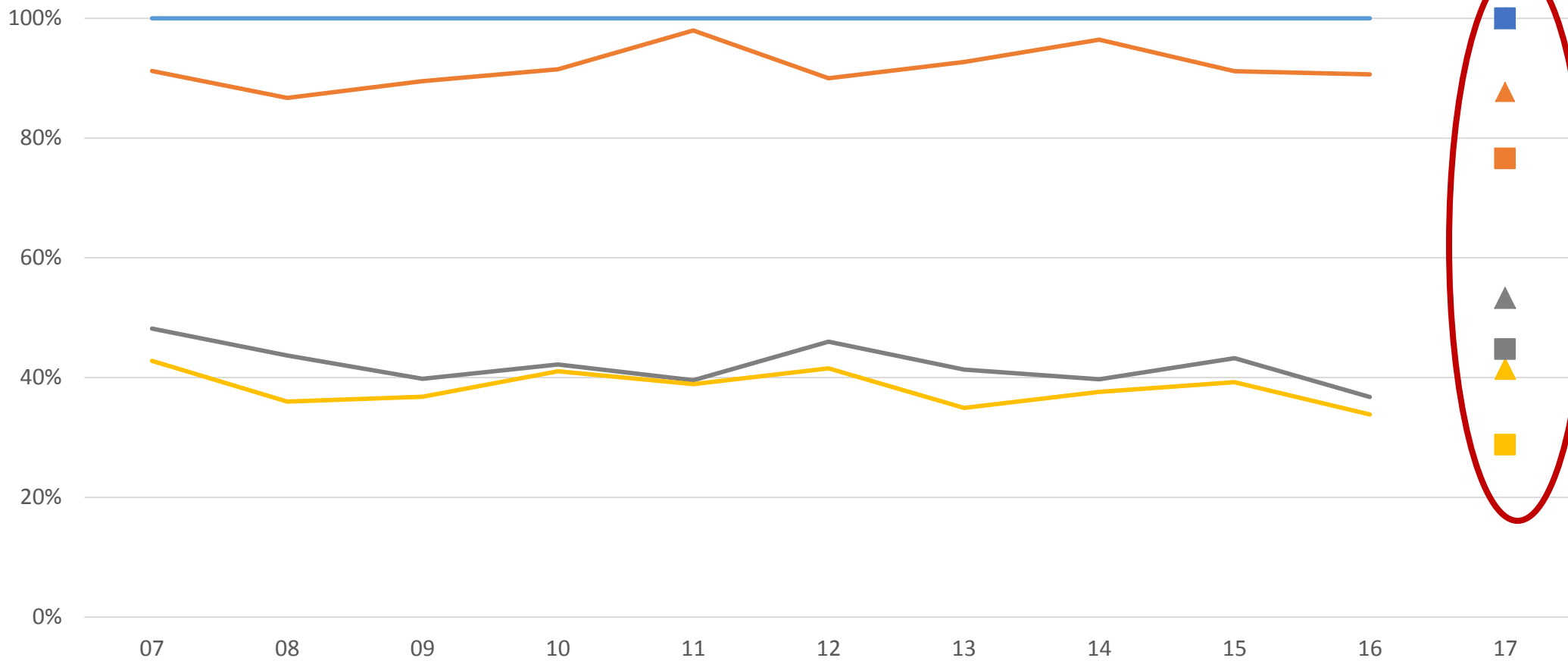
^[2] Population was defined as centers that were at least 1 year old.

^[3] Centers were excused for reasons such as being in the midst of center restructuring, high respondent turnover, and respondent refusal to complete surveys.

^[4] Numbers based on population minus excused and not returned counts.



Industry Response Rate



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- (Blue square)
- ▲ (Orange triangle)
- (Orange square)
- ▲ (Grey triangle)
- (Grey square)
- ▲ (Yellow triangle)
- (Yellow square)

— Center Level Received/Available Population — Center Level Received/Population
 — Individual Level Received/Available Population — Individual Level Received/Population

▲ = Pulse
 ■ = Benefits



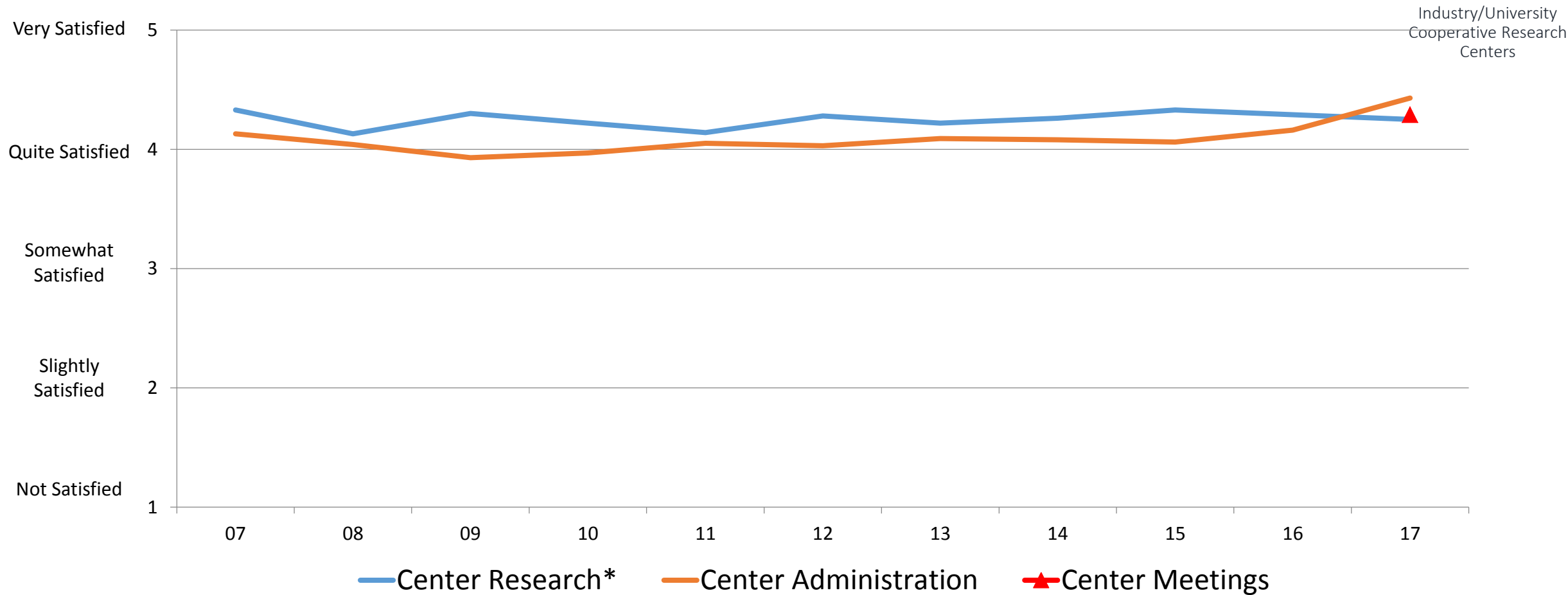
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Industry Pulse Survey

Select Results



Industry Satisfaction

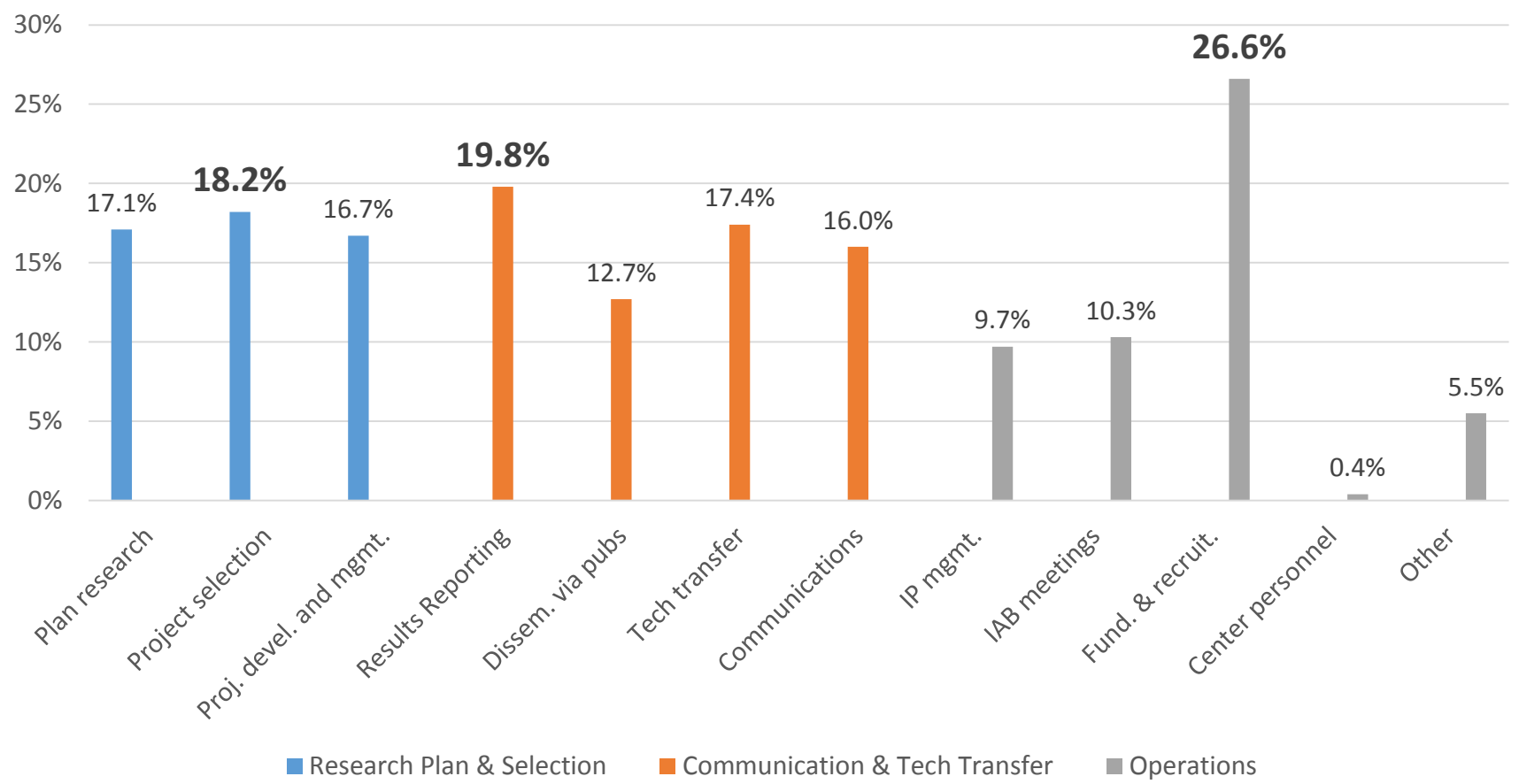


* Previous years data reflect ratings of research quality



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Areas for Improvement



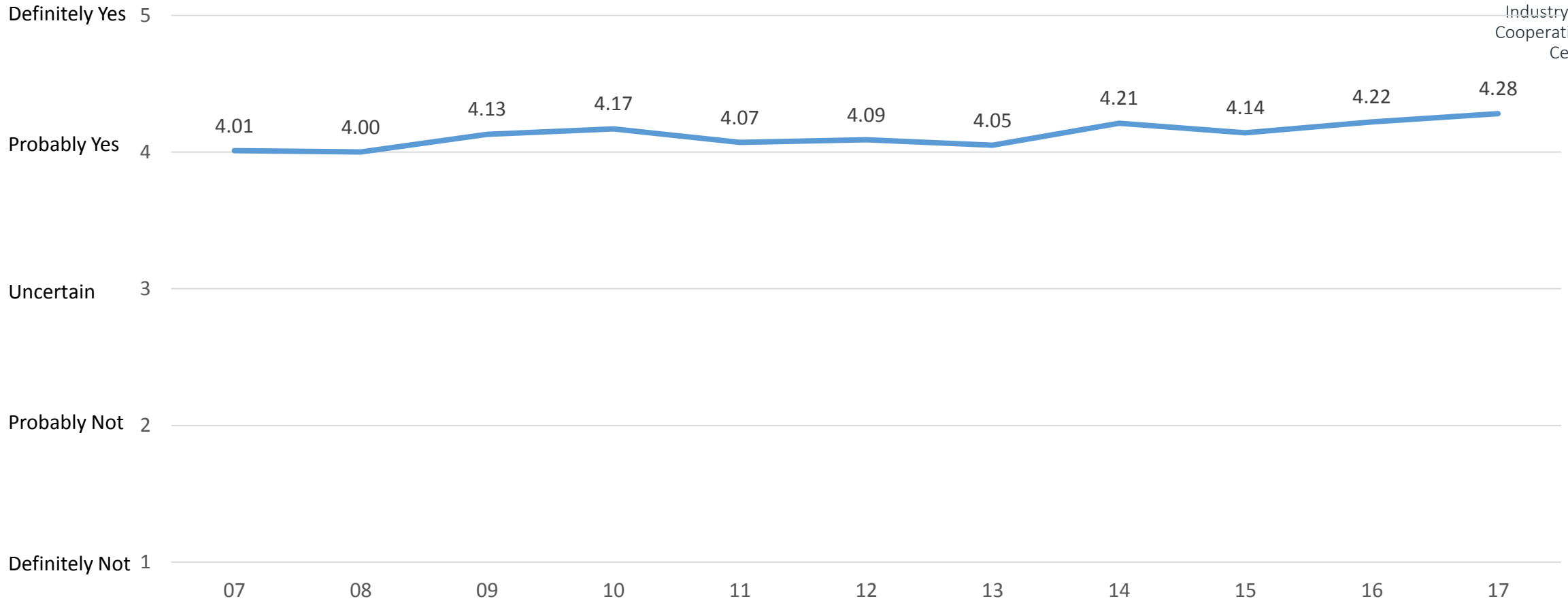
“Academic leads and IAB members need to work more closely together to recruit, especially at conferences. It may become easier when the results get presented at conferences.”

“The group can work together to improve project results reporting and archiving, access to results, and technology transfer”



Renewal Intentions

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*Response Categories include: Definitely Not (1), Probably Not (2), Uncertain (3), Probably Yes (4), Definitely Yes (5)



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Predicting Renewal Intentions

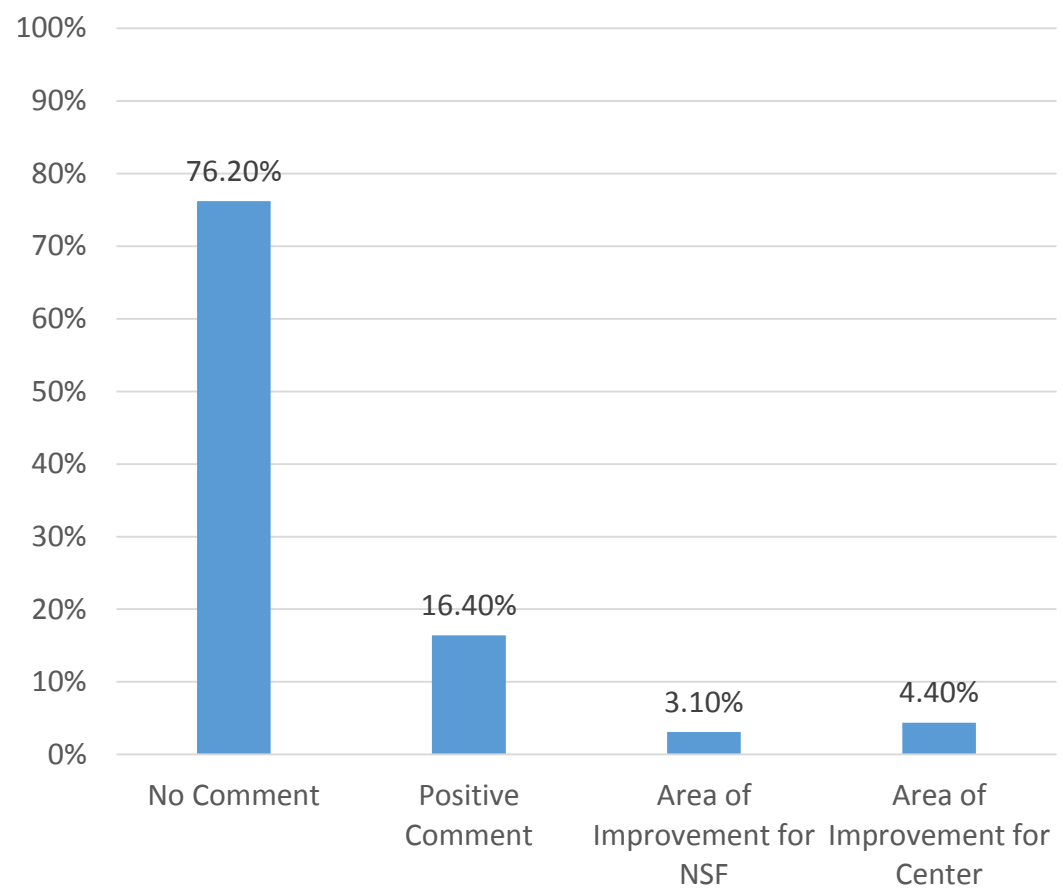
	Likelihood to Renew
Satisfaction: Center Research	.305**
Satisfaction: Center Administration	.231*
Satisfaction: Center Meetings	.175**
Improve: Project Selection	-.139**

*Note. *p<.05, **p<.01*



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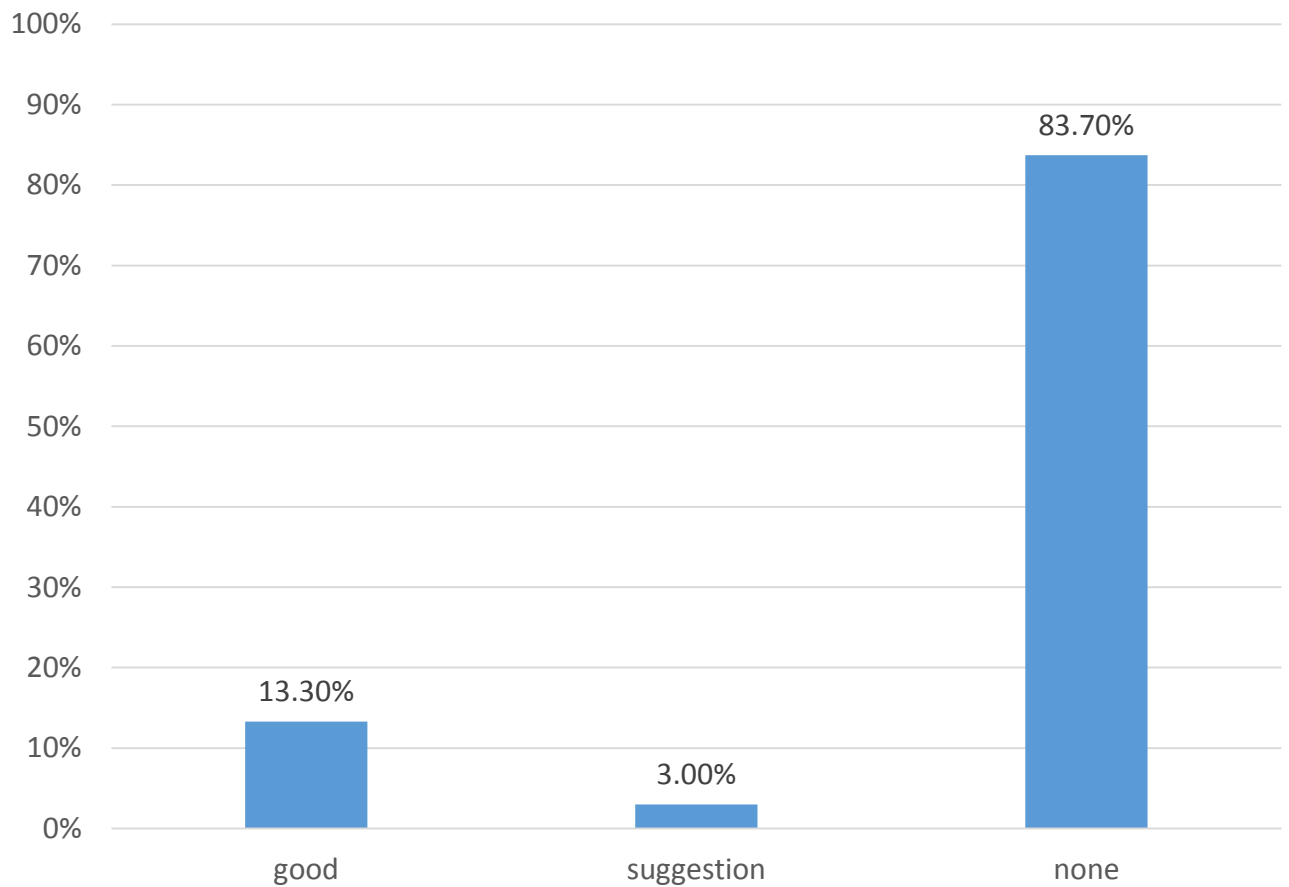
Comments for NSF



- *“This is one of the greatest opportunities to bring industry, academia and government together and we have to work to keep it together.”*
- *“I recently learned that NSF stopped providing assistance to STTR/SBIR companies for membership fees. I think it's a great mistake. The centers are excellent opportunities for SBIR/STTR companies to outreach their technology to seek cost-effective technical partnership for further R&D beyond original SOW as well as commercial partnership opportunities with other member companies.”*
- *“The center is great but still needs to improve integrating industries' interests. Otherwise it is hard to recruit and convince additional members to join the center. “*



Industry Feedback: Pulse Survey



“Might be good to include metrics that you can track for improvement of the center over time. This is useful for pulse surveys. One suggestion is a Net Promoter Score.”

“Consider using numerical ranking system. Also include a space for 'wish list'.”

“Query relevance level of overall research to the organization/industry in the survey.”

“The question, "Have you received benefits of participation" should have drop-down choices and/or scale of benefits”

“Have a section asking the users for additional questions that they would like to see included in the survey. These can be reviewed and used to update the structure of the survey in line with users' views.”



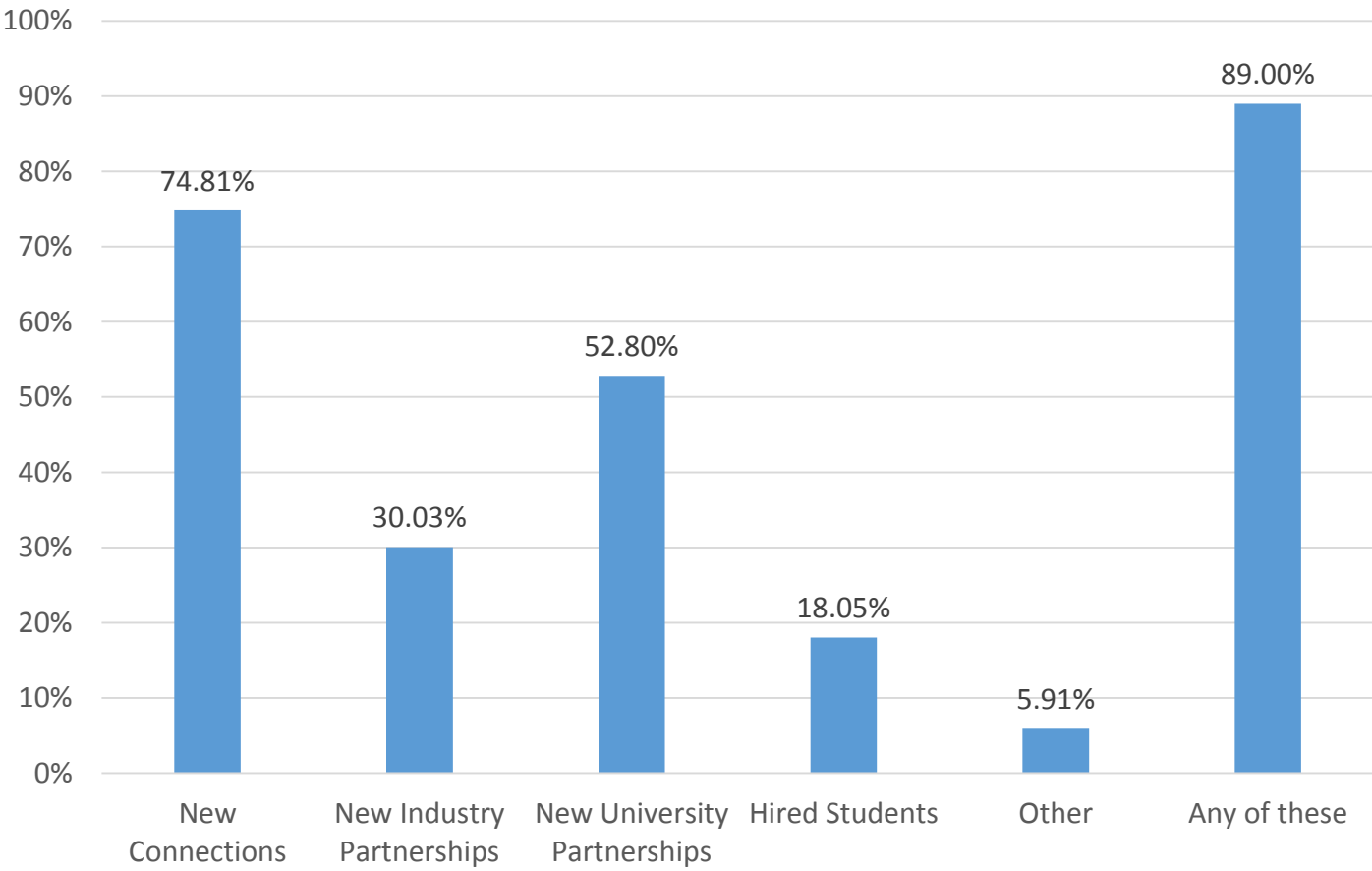
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Industry Benefits Inventory

Select Results



Networking Benefits



“Our membership has been a critical part of almost every business relationship we currently enjoy. Absolutely irreplaceable in the growth and maturation of our company.”

“We have gained improved access to University faculty and staff for grant collaborations above and beyond the [Center] projects.”

“The interns provide fresh, state-of-the-art knowledge to our organization.”

“We have leveraged human resources and expertise from industry otherwise unavailable to us.”

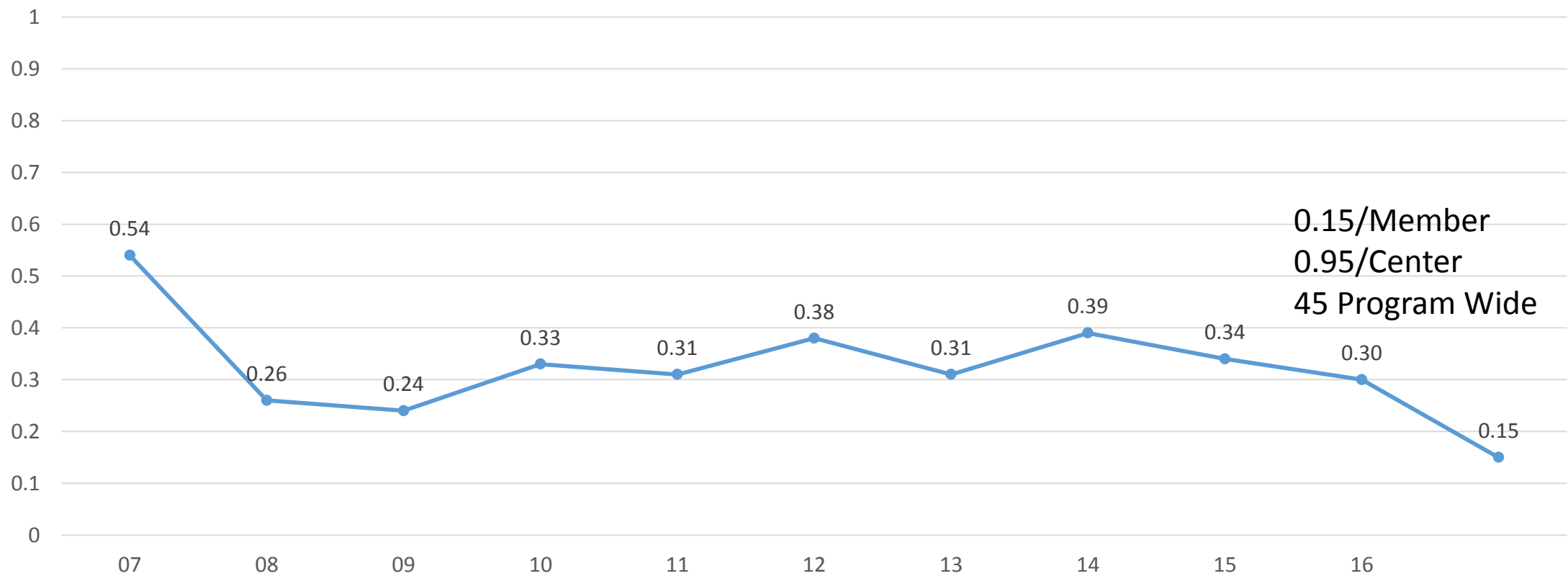
“We have two collaborations with IAB members (large companies) that have directly emerged from prior center research and win-win opportunity assessment.”



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Students Hired

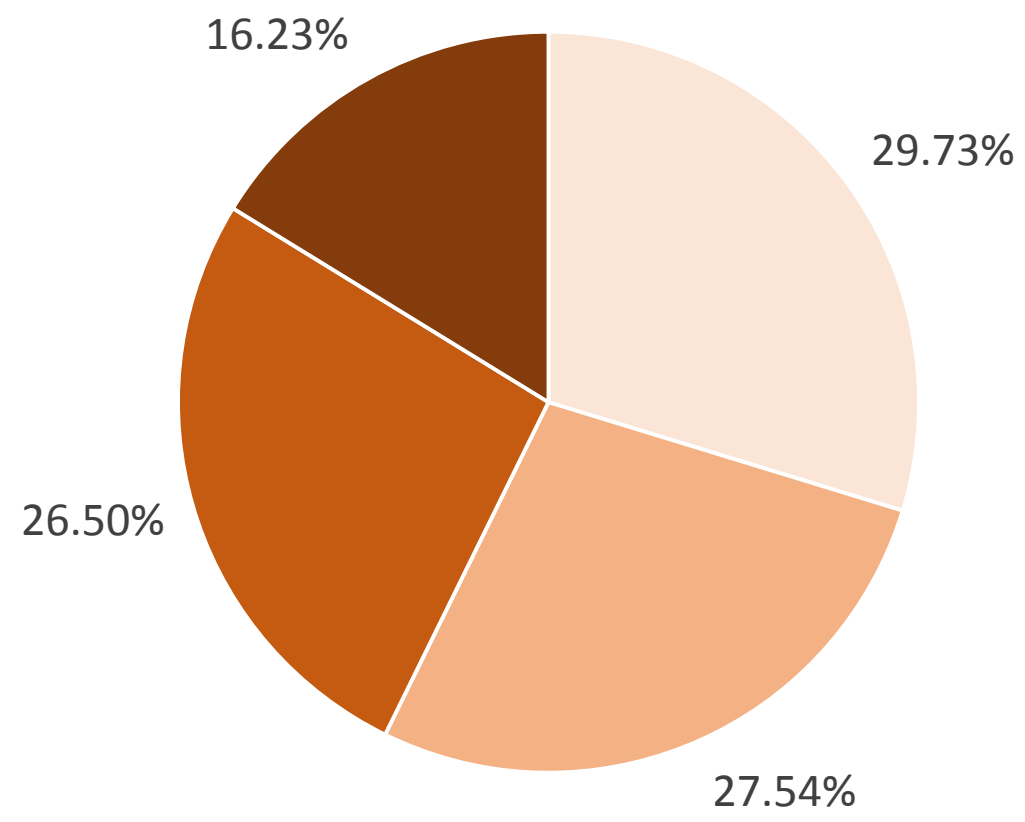
Average Students Hired per Member Firm





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Research Relevance of the Average Member



- Not Relevant Research: % of projects that are probably not relevant to your organization's current or future needs
- Adjacent Research: % of projects that are potentially relevant to your organization's current or future needs, but in an area that is outside your organization's current focus
- Core Research: % of projects so relevant to your organization's current or future needs that your organization would almost certainly have conducted or contracted out a similar project within the next couple years
- Transformational Research: % of projects that are potentially relevant to your organization's current or future needs, but too risky/blue sky for internal investment



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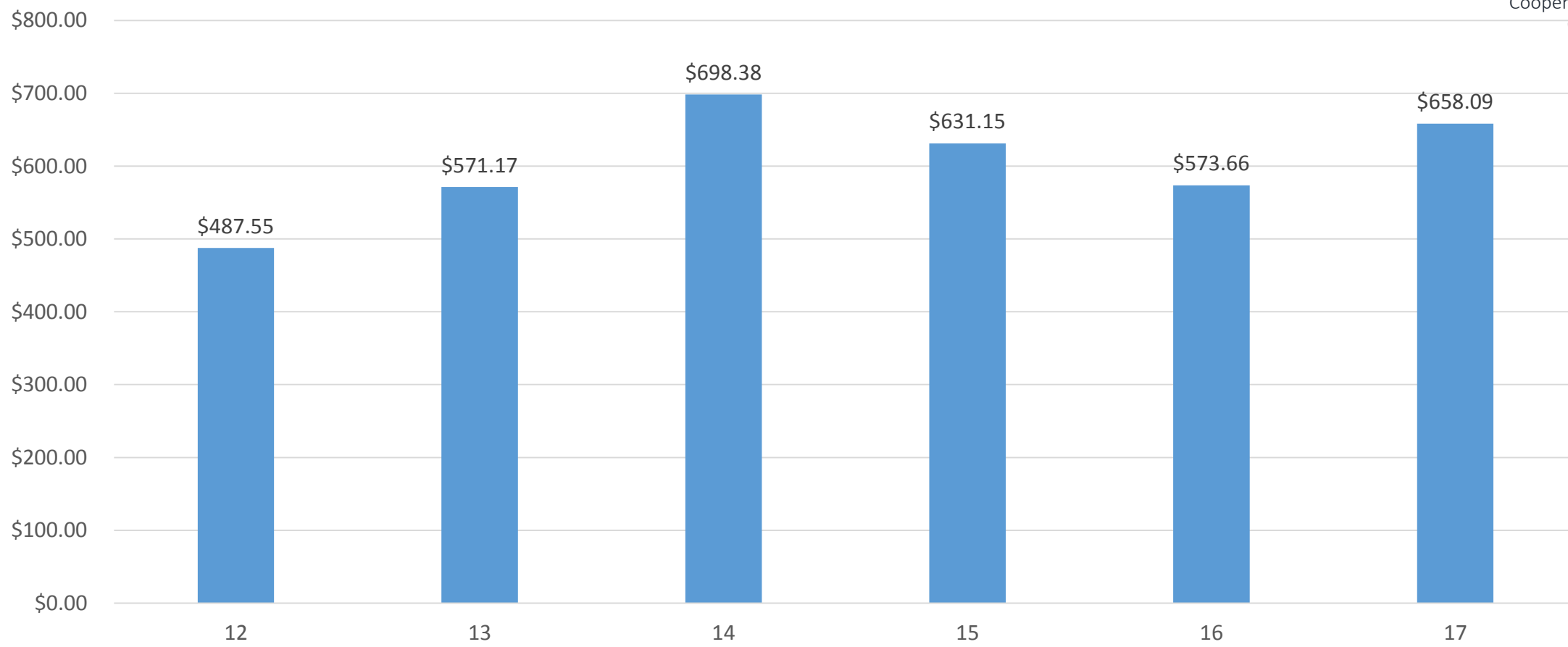
Research Cost Avoidance

- Definition: Research cost avoidance is savings a firm obtains by having “necessary” research projects performed by a center rather than performing them internally.
- Example: If a firm reports that a particular “necessary” project would cost \$100,000 to carry out internally (counterfactual estimate) but that project was actually carried out by a center to which they pay a \$50,000 membership fee that firm has avoided \$50,000 of R&D costs.
- $RCA = N \text{ of Proj. Avoid} \times \text{Scien. Months} \times \$/\text{Scien. Months}$ (Gray & Steenhuis, 2003)
 - N of Proj. Avoid = N of Center projects (CD report) X % Core projects (Benefits Inventory)
 - N Scientist months = 5 year median



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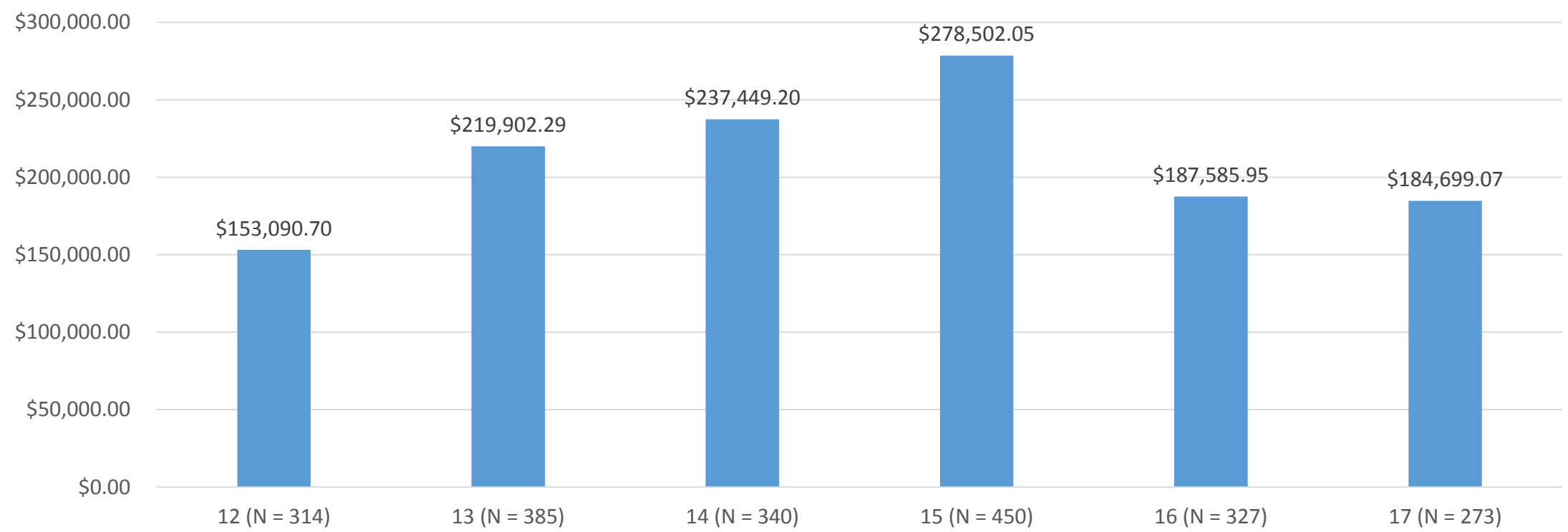
Mean Research Cost Avoidance (in thousands)





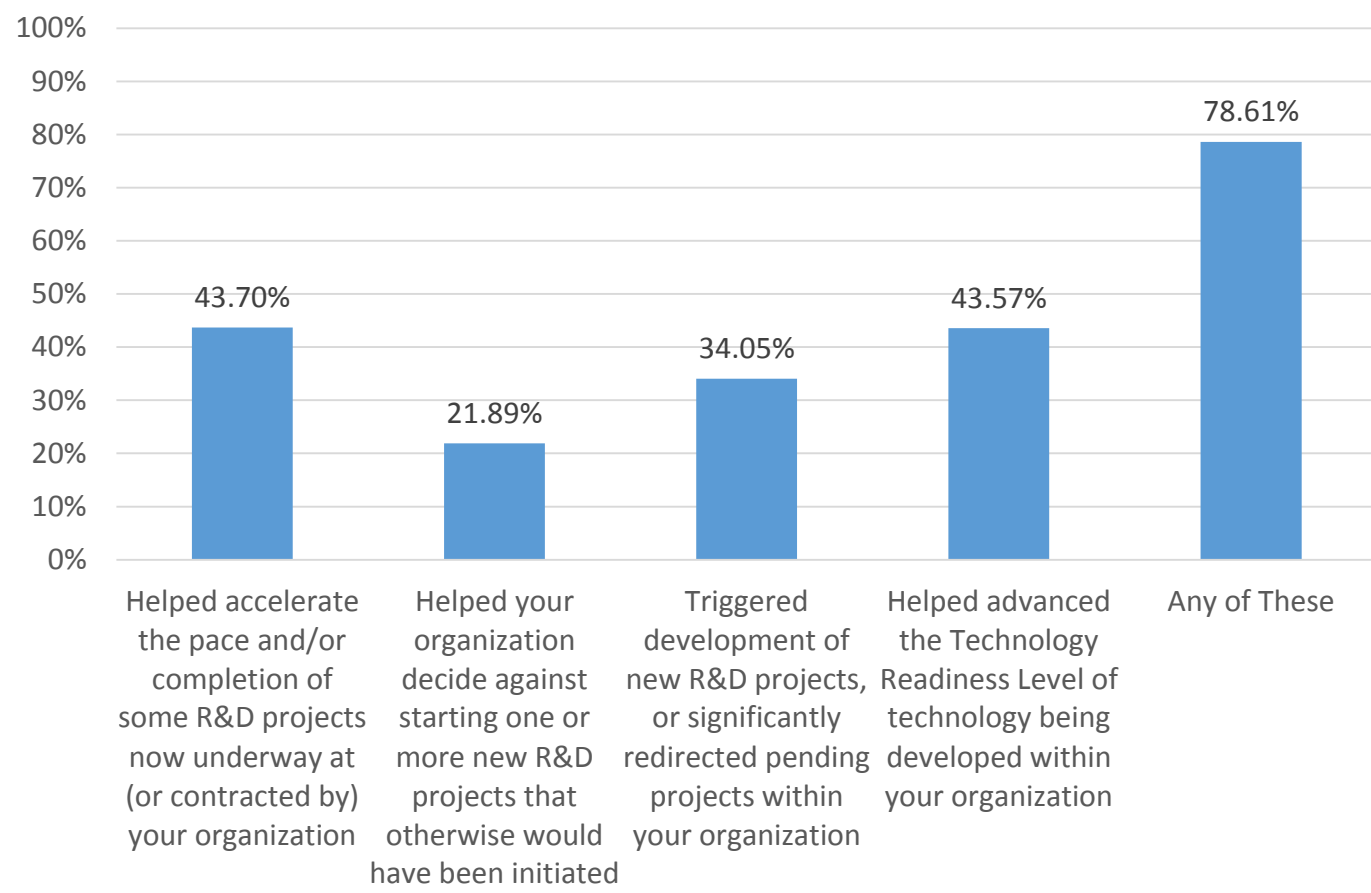
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Total Research Cost Avoidance (in thousands)





R&D Impacts: 2017



“The most useful benefit has been providing additional insight on fundamental aspects of technologies... This knowledge has informed project decision making and helped guide current projects. Additionally, projects have allowed us to look at low TRL projects and determine their potential...”

“...We have saved 3x our fee in development costs.”

“The models developed in partnership with [Center] have reduced our internal forecast error by 60%, allowing the company to more confidently set budgets and targets.”

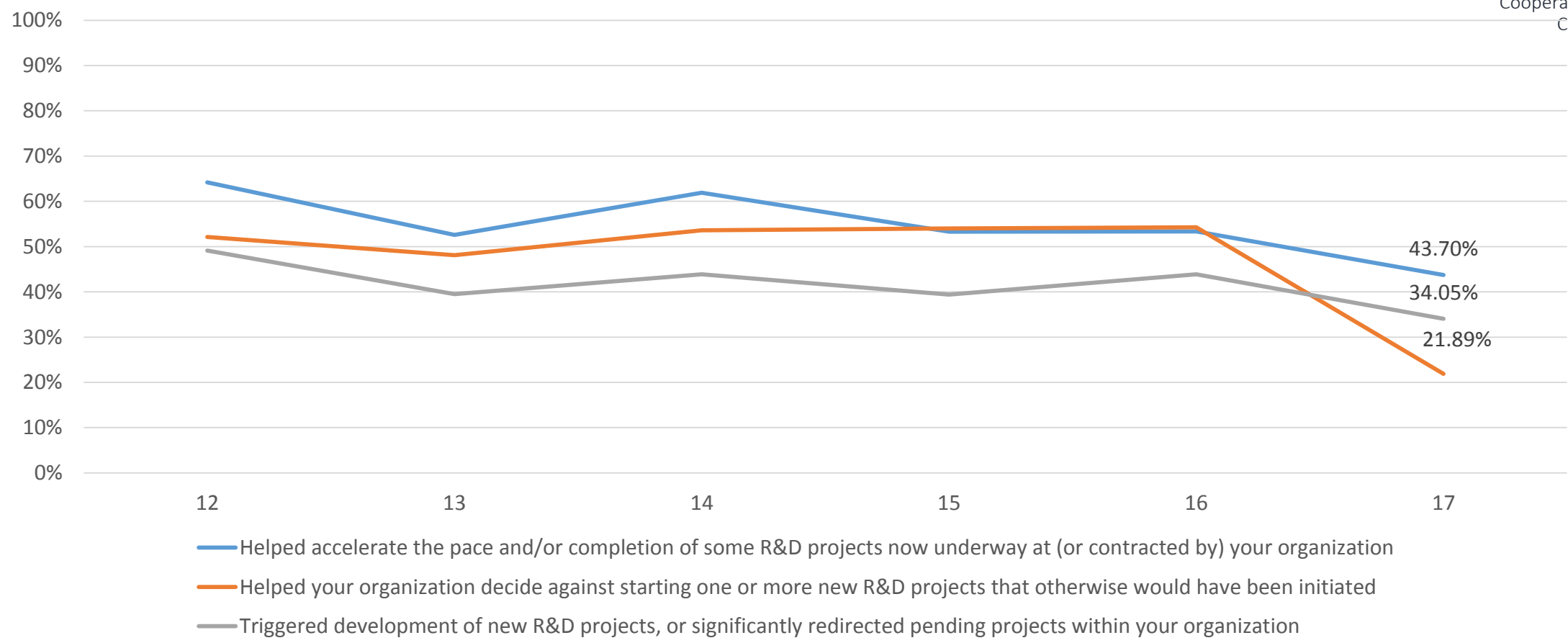
“Allowed us to pursue a necessary research path without adding personnel or starting a new contract. Saved 1 full time employee worth of work (\$300k) and yielded results about 8 months earlier than alternate options.”

“Most important benefit is to increase our organization's capability... It's not the time or money saved; it is the possibility of higher quality medicine we develop, that is priceless!”



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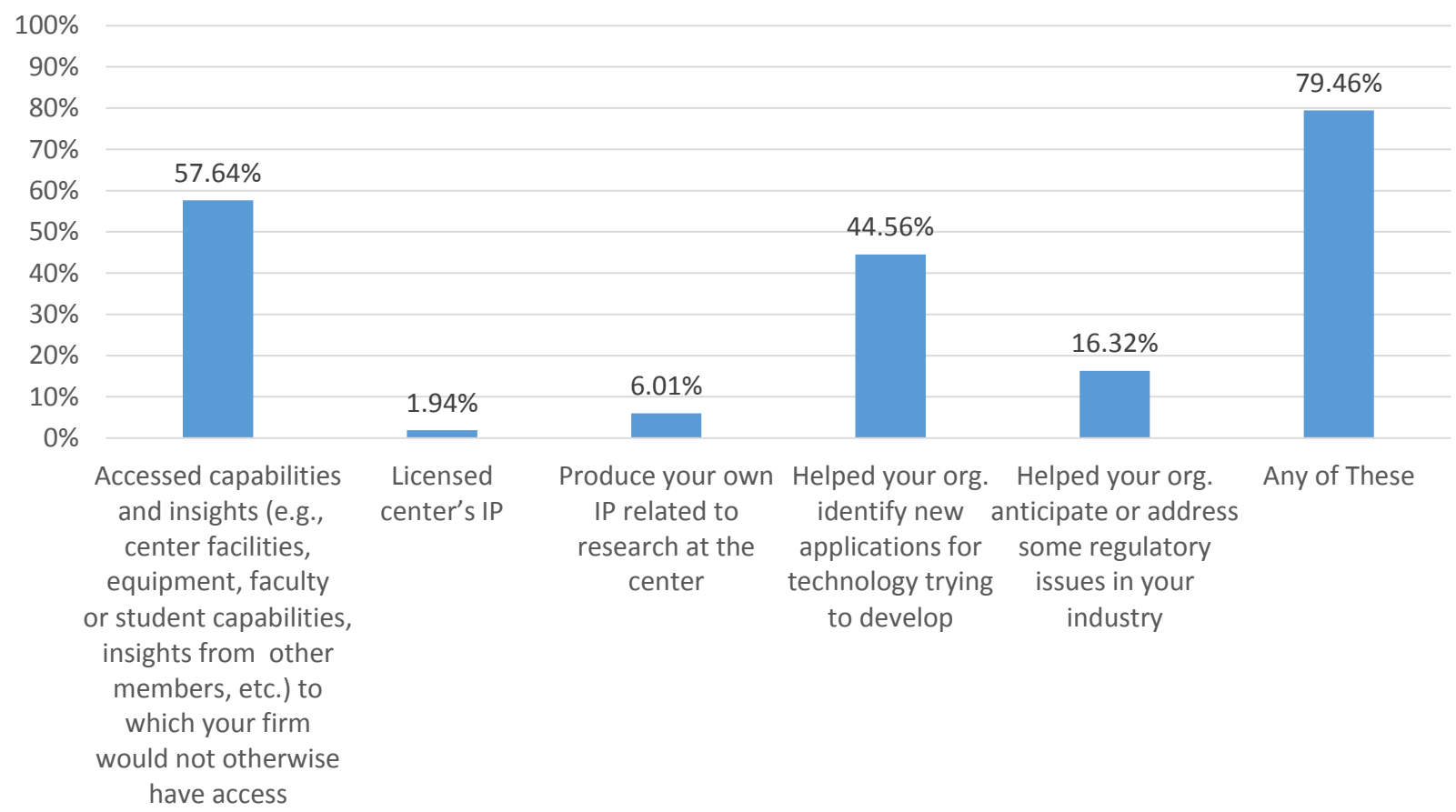
R&D Impacts: Trend Over Time





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Technology Translation Benefits



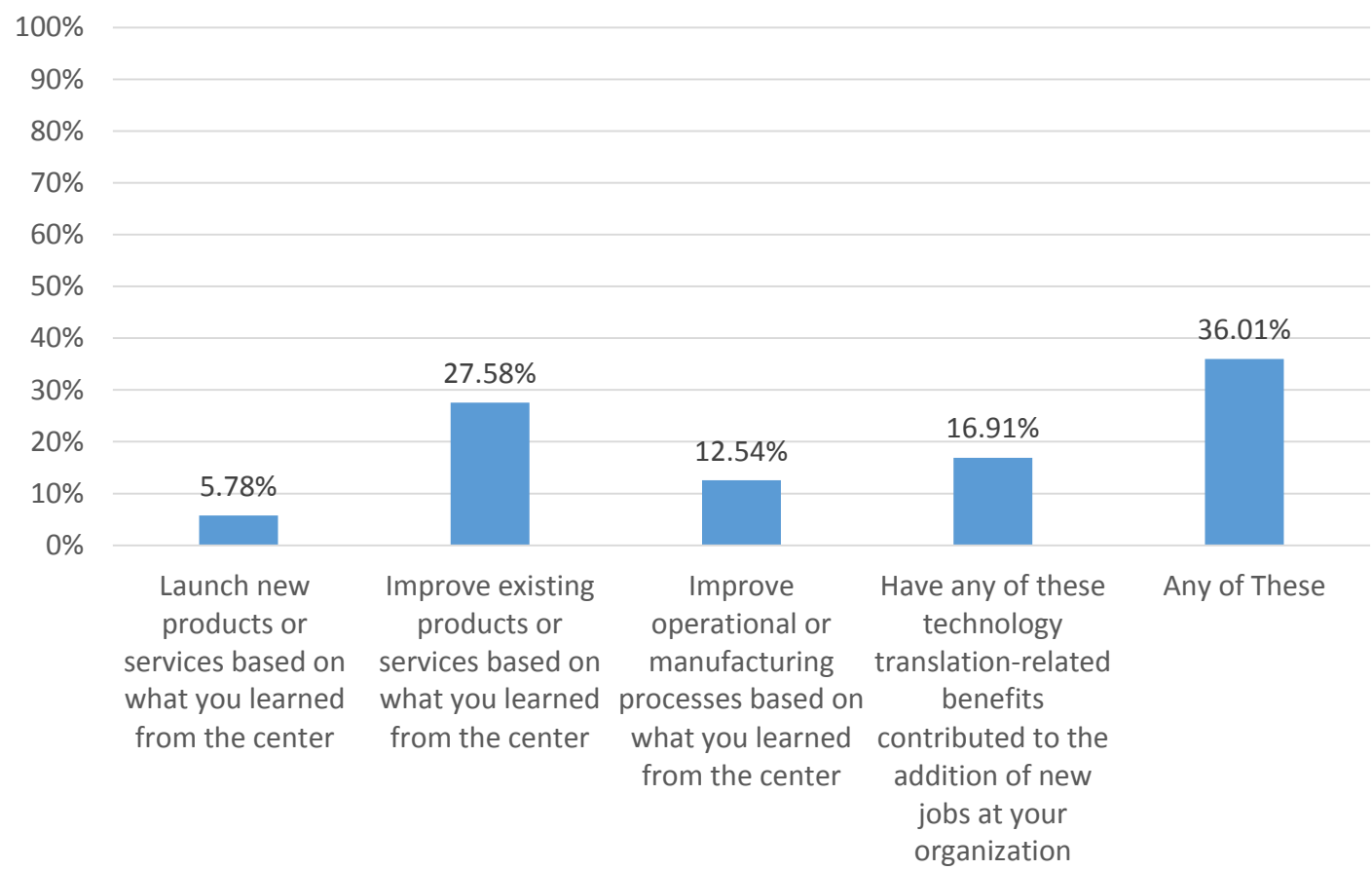
“Technology transfer has happened between the center and the [industry regulator] which impacts our organization. We find this work tremendously valuable.”

“We see the potential to utilize devices produced by two projects in pre-clinical trials which could set us ahead in terms of incorporating the technologies and potentially licensing and leveraging the devices for creating new therapies.”



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Commercial & Financial Benefits



“We have developed new product conceptualization from examples prepared by center researchers.”

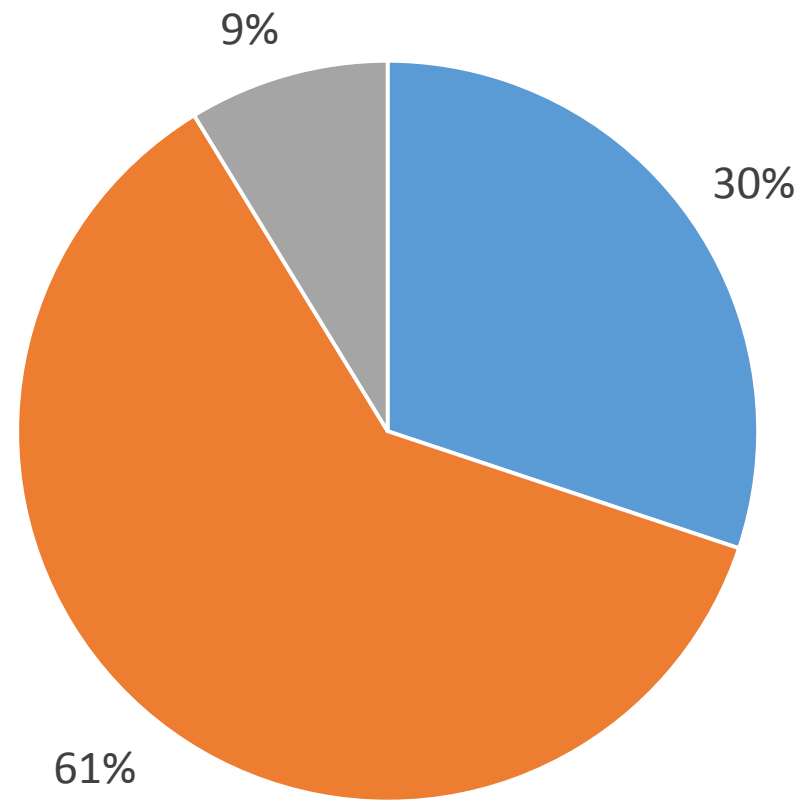
“We launched an updated version of our initial product. The center helped to independently validate the technology, speed to market and provide research results to the community.”

“Research projects contribute directly to our ability to maintain current jobs in our organization.”



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Center Contribution to Commercial Outcomes

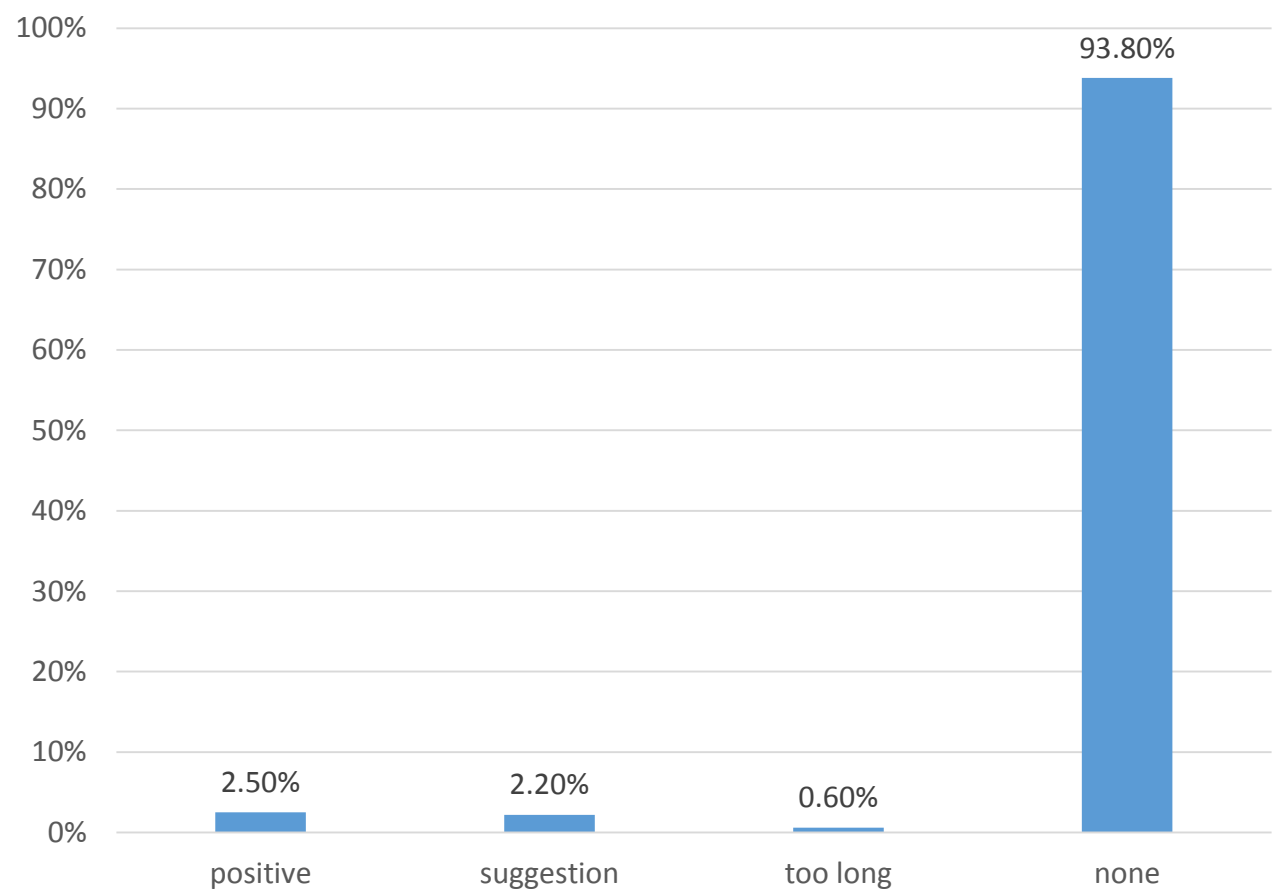


- the center played a critical role in realizing these benefits
- the benefits would have been delayed without the center's involvement
- the center had only limited influence on our ability to realize these benefits



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Industry Feedback: Benefits Survey



“Identify benefit, if any (members of Gov't and non-profit institution) in participating CSR.”

“Quantifying the amount of time or money saved would be difficult to answer. Rather suggesting to give rating.”

“replace free-form answers with multiple choice”

“The questions have a "manufacturing feel" in their wording and focus. They do not feel quite right for R&D work in the ASIC/SoC field.”

“We anticipate benefits in the future but haven't realized them yet. Survey could perhaps capture this”



Predicting Member Benefits

	Member years	Launched new products/services	Improve existing products/services	None of these benefits
Commercial or financial benefit: Improve existing product/services based on what you learned from the center	.163**		.152**	-.178**
Commercial or financial benefit: None of these benefits	-.135*	Hired any students as a full-time employee, contractor, intern	.283**	.136*
		Networking: None of these benefits	-.155**	.164**

Note. * $p < .05$, ** $p < .01$



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Faculty Questionnaire

Select Results



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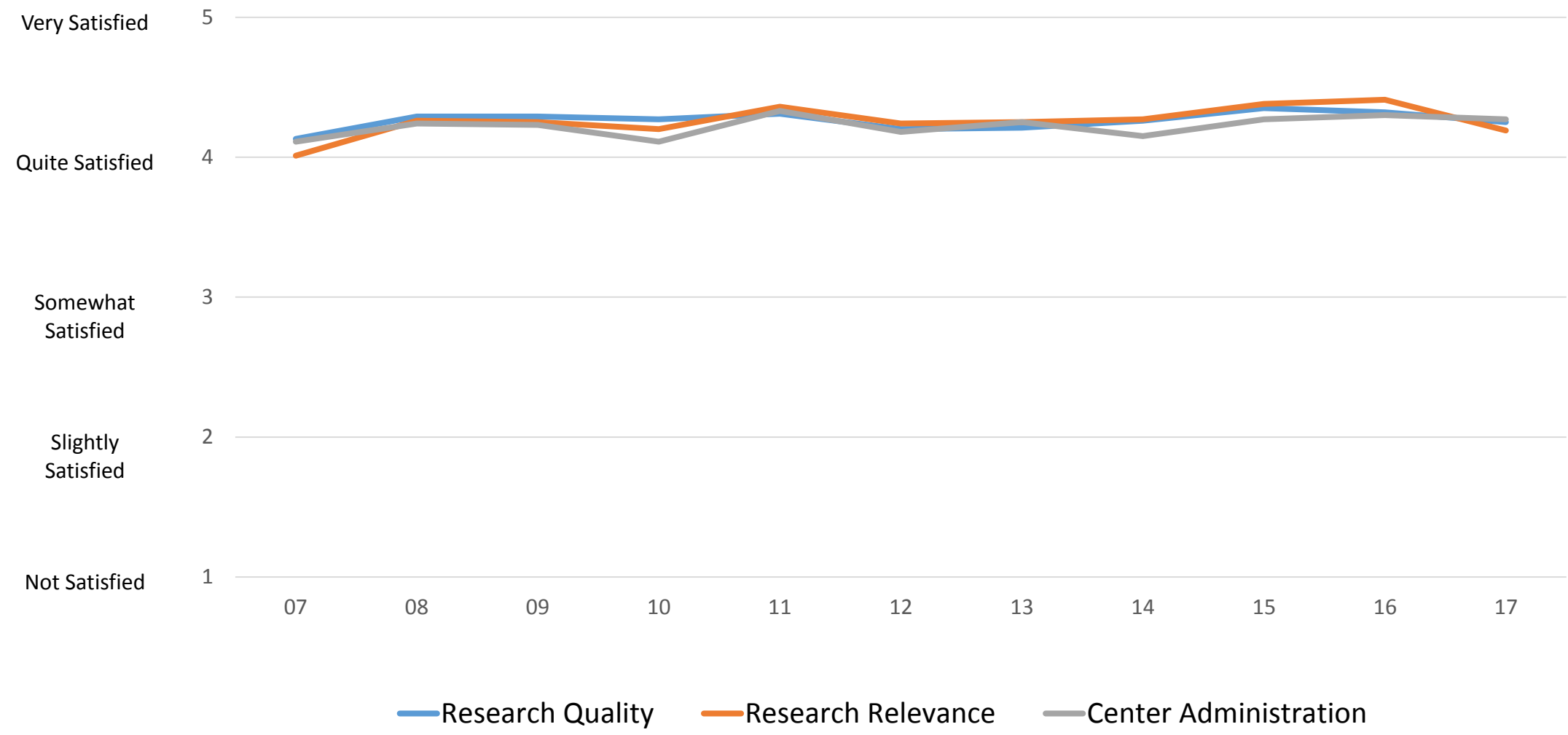
Faculty Long and Short Forms

	Long Form	Short Form
# of items	13	6
# of questions in common	6	6
# of unique questions	7	0
# of centers using form	17	17
Sample size	165	104



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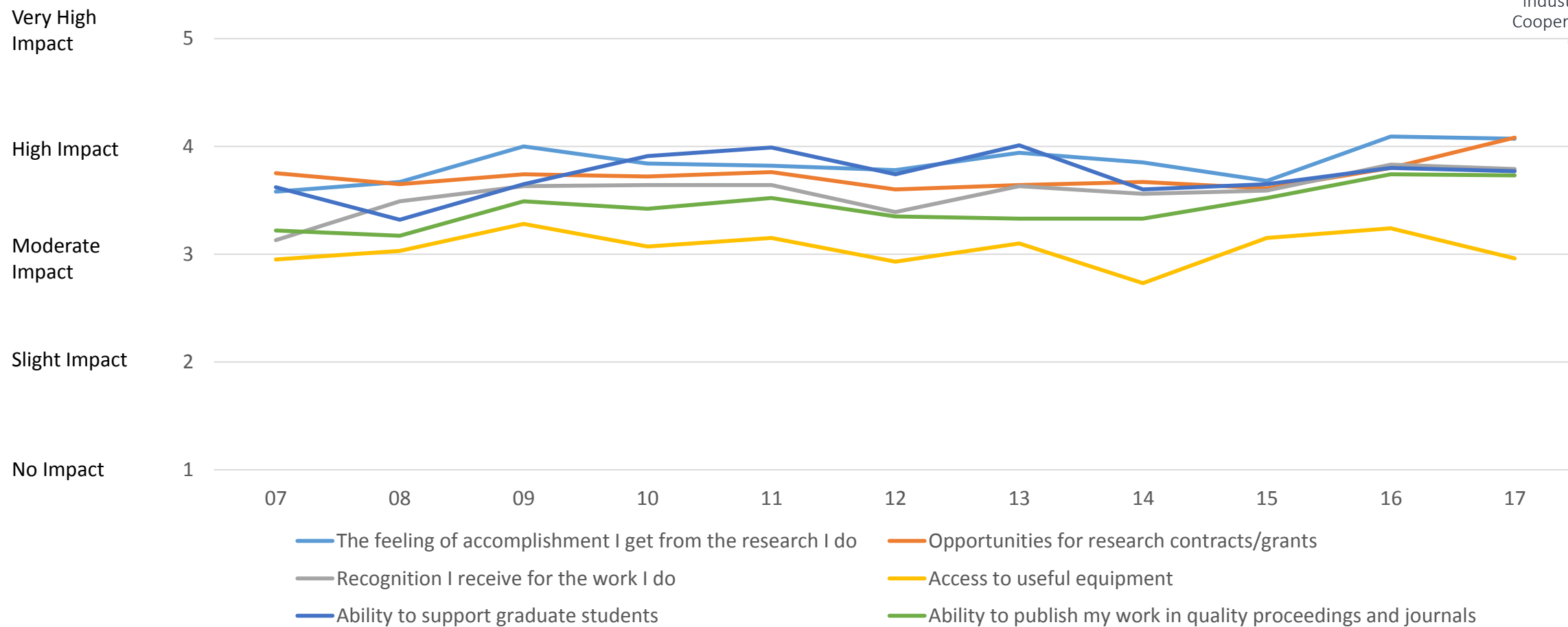
Faculty Satisfaction





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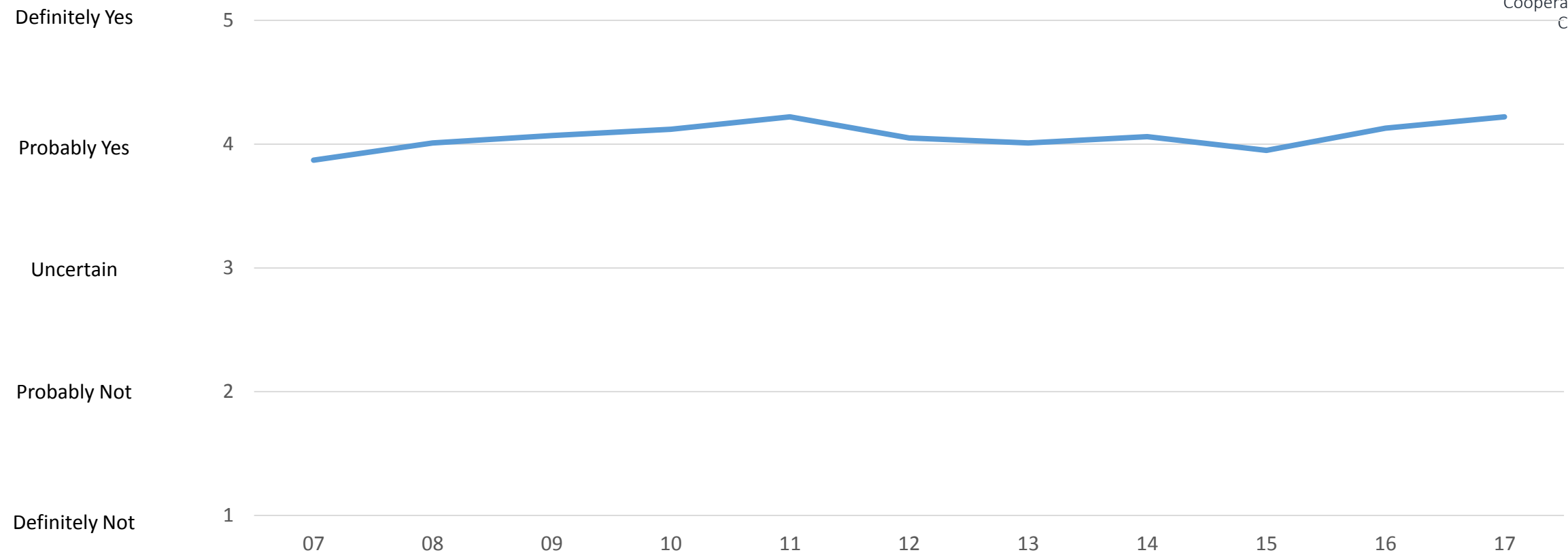
Faculty Benefits





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Faculty Commitment to submit best research ideas in a center funded proposal





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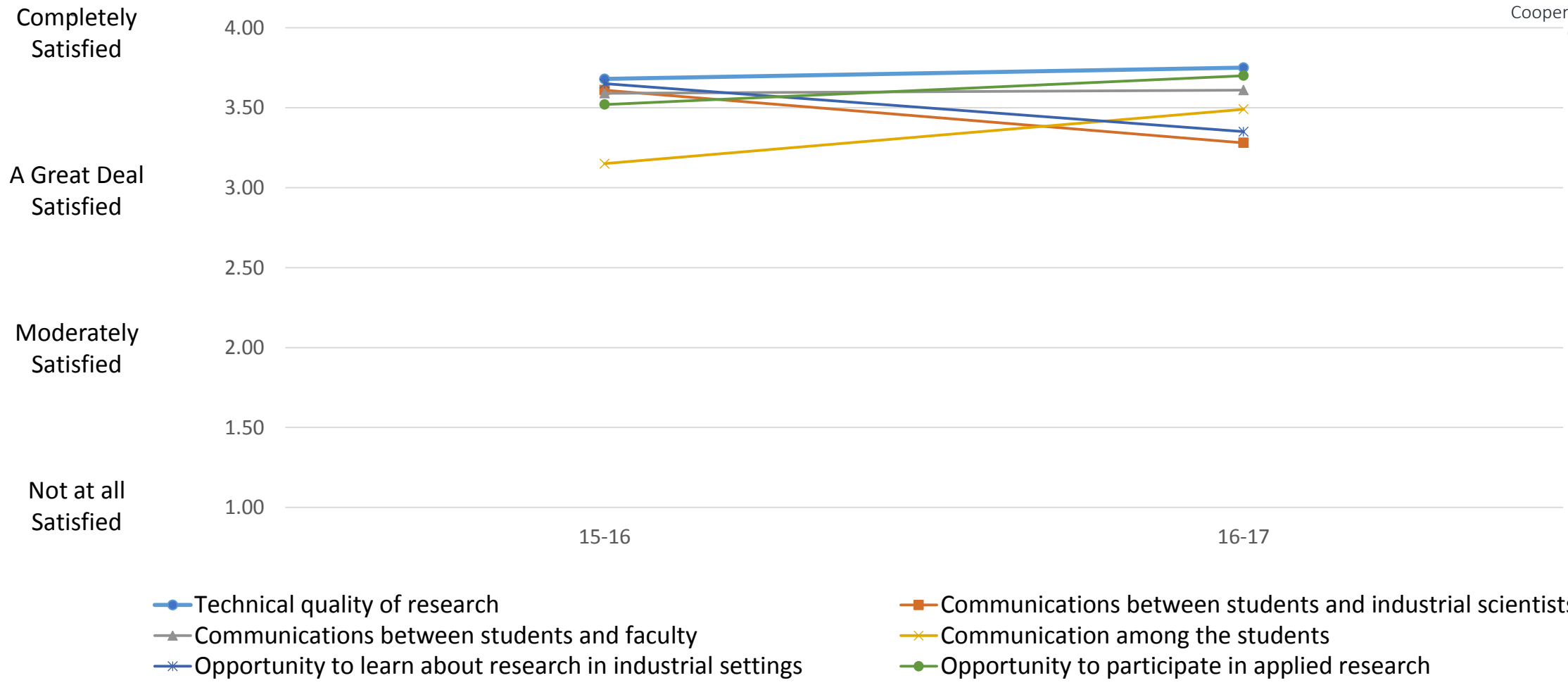
Student Questionnaire

Select Results



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Satisfaction with Center Experience





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Comparative Evaluation

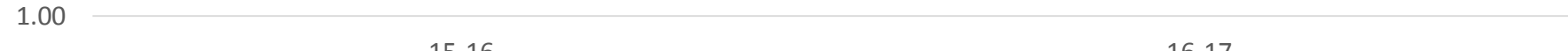
Compares favorably



About the same



Compares Unfavorably



- Axis Title
- Technical quality of research
 - ▲ Communications between students and faculty
 - ✱ Opportunity to learn about research in industrial settings
 - Communications between students and industrial scientists
 - ✕ Communication among the students
 - Opportunity to participate in applied research



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How Should These Survey Results be Used?

- Trends are probably much more interpretable at local center level
 - Director leaves; research direction changes; move from one-on-one to consortial center
- Benchmark center against previous year and national norms
 - By comparing means and standard deviations, evaluators can see how their centers compare to national “norms”

Questions?