

**National Science Foundation
Industry/University
Cooperative Research Centers**



FINAL

June 2007

2005-2006 Process Outcome Survey Results

Descriptive Statistics Compiled from Industry and Faculty Surveys

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REPORT PROCESSING & DATA ISSUES

This report provides basic descriptive statistics on the evaluator Process Outcome Questionnaires. Data were collected during the fall of 2006 and refer to the Center activity for FY 2005-2006.

Since most evaluators use this report to benchmark their Center compared to a program-wide “norm”, we have reported “Center-level” means and standard deviations. Means for each center were used to calculate a Center-level mean and are therefore unweighted aggregate means. Because questions that require a numeric answer (e.g. number of dollars) often have highly skewed distributions, we also reported the medians for these variables. For forced choice questions, frequencies and standard deviations for individual respondents were also reported.

Industry Questionnaires

Question #6 on the Industrial Member survey (the number of new projects supported by industry and the dollar value of these projects) was reported in three ways. First, we reported the Center-level mean, median, and standard deviation for all cases with a valid response. Second, we reported a Center level mean, median, and standard deviation only for those who reported supporting at least one new project. Finally, an average cost per project was calculated from the figures obtained for those reporting at least one new project.

Results for unique items in the Industry Short Questionnaire are presented in the same format as the regular Industry Questionnaire, and can be found in a separate section of the report. The short questionnaire is for use with Centers that have surpassed five years of funding (refer to <http://www.ncsu.edu/iucrc/ProcessOut.htm>, section 3.2.1). Since both the industry long and industry short questionnaires share some of the same questions, data for these shared questions were pooled for analysis. These questions are marked with a *.

RESPONSE RATES

Category	Center Level		Individual Level	
	Industry	Faculty	Industry	Faculty
<i>Response Frequency</i>				
Population from CD report	39	39	661	561
Retired Centers	7	7	101	79
Retired/Defunct Centers Reporting ^a	+2	+2	+29	+15
New Centers Reporting	+1	0	+2	0
Population ^b	35	34	591	497
Centers Excused from Evaluation ^c	1	3	25	56
Centers that did not return data	3	4	42	35
Available Population ^d	31	27	524	406
Data Received	31	27	243	199
<i>Response Rates</i>				
Received / Population	88.6%	79.4%	41.1%	40.0%
Received / Available Population	100%	100%	46.4%	49.0%

- a. Some retired, defunct, and new Centers that were not required to submit data, did in fact submit some data. Those data were included in the analysis.
- b. Population was defined as centers that were at least 1 year old.
- c. Centers were excused for reasons such as being in the midst of center restructuring and respondent refusal to complete surveys.
- d. Numbers based on population minus excused and not returned counts.

LONG INDUSTRY FORM VS. SHORT INDUSTRY FORM

	Long Form	Short Form
# of items	46	29
# of questions in common	22	22
# of unique questions	24	7
# of Centers using form	14	17
Sample size	109	134

Industry Results: 2005-2006

Table 1: Interest In Research

1. What percentage of Center research projects do you take an active interest in?*											Center Level	
Individual Frequencies												
0-19%		20-39%		40-59%		60-79%		80-100%				
N	%	N	%	N	%	N	%	N	%	Mean	S.D.	
39	16.5	58	24.6	61	25.8	59	25.0	19	8.1	2.88	.75	
3. How long, on average, do you feel that it should take for a Center research project to yield tangible results? (in Months)										Mean	S.D.	
										18.42	9.34	

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Table 2: Satisfaction with Research Program

4. During the past year, how satisfied were you with the following features of the Center's research program?												
	Individual Frequencies										Center Level	
	Not Satisfied		Slightly Satisfied		Satisfied		Quite Satisfied		Very Satisfied			
	1		2		3		4		5			
	N	%	N	%	N	%	N	%	N	%	Mean	S.D.
a. Capabilities of faculty and graduate students	0	0	1	0.8	10	8.3	57	47.5	52	43.3	4.30	.36
b. Breadth of the research topics covered *	4	1.7	7	2.9	62	25.8	111	46.3	56	23.3	3.86	.43
c. Focus of the research *	4	1.7	13	5.4	62	25.8	114	47.5	47	19.6	3.81	.44
d. Technical quality of research	0	0	3	2.5	15	12.6	57	47.9	44	37.0	4.22	.37
e. Innovative quality of research	2	1.7	7	5.9	25	21.0	51	42.9	34	28.6	3.86	.52
f. Relevance of research to my organizations short-term needs	5	4.2	14	11.9	37	31.4	46	39.0	16	13.6	3.43	.70
g. Relevance of research to organizations long term needs	1	0.8	6	5.0	24	20.2	60	50.4	28	23.5	3.88	.46

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Table 3: Follow-On Research

6. During the past year, approximately how many Center-stimulated research projects were supported by your organization (include projects contracted to outside performers)? Please estimate the dollar value of all Center-stimulated research projects (excluding Center membership fee).*

	Center Level		
	Mean	Median	S.D.
a. Number of research projects supported by your organization	1.32	1.30	.59
Average spending on center-stimulated projects for center members (in thousands) <i>(Includes cases citing 0 or more projects: N of members= 215, N of Centers=30)</i>	233.89	135.12	333.75
b. Number of research projects supported by your organization	2.32	2.00	1.28
Dollar value of center-stimulated projects (in thousands)	441.42	169.58	651.21
c. Average dollar value per project (in thousands) <i>(Includes cases citing 1 or more projects: N of Members= 131, N of Centers=30)</i>	264.65	76.94	409.17

* = Included in both long and short forms of the IUCRC Industry

Table 4: Technical Benefits

7. During the past year, to what extent has participation in the Center contributed to the technical benefits for your organization?

	Individual Frequencies											Center Level		
	No Impact		Slight Impact		Moderate Impact		High Impact		Very High Impact		N/A		Mean	S.D.
	1	2	3	4	5	N/A								
	N	%	N	%	N	%	N	%	N	%	N	%		
Research and Development														
a. Increased your general technical awareness and/or capabilities	2	1.7	12	10.0	33	27.5	46	38.3	26	21.7	1	.8	3.57	.43
b. Accelerated or improved existing research projects	11	9.1	24	19.8	42	34.7	21	17.4	15	12.4	8	6.6	2.98	.58
c. Stimulated new research projects	19	16.0	18	15.1	33	27.7	27	22.7	15	12.6	7	5.9	2.98	.75
d. Contributed to development of Intellectual Property in my org.	31	25.8	25	20.8	22	18.3	16	13.3	9	7.5	17	14.3	2.34	.66

Table 4: Technical Benefits (cont'd)

7. During the past year, to what extent has participation in the Center contributed to the technical benefits for your organization?

	Individual Frequencies												Center Level	
	No Impact		Slight Impact		Moderate Impact		High Impact		Very High Impact		N/A		Mean	S.D.
	1	2	3	4	5	N/A								
	N	%	N	%	N	%	N	%	N	%				
Commercialization														
e. Improvements to existing products, processes, or services	32	27.1	28	23.7	24	20.3	15	12.7	6	5.1	13	11.1	2.27	.71
f. Development of new products, processes, and/or services	24	20.3	27	22.9	23	19.5	20	16.9	9	7.6	15	12.8	2.43	.85
g. Improved sales or profitability	54	45.4	18	15.1	11	9.2	5	4.2	1	.8	30	25.3	1.54	.48
h. Created or helped maintain jobs in your organization	50	41.7	21	17.5	11	9.2	6	5.0	3	2.5	29	24.1	1.79	.67

Table 5: Other Benefits

10. During the past year, to what extent has participation in the Center contributed to the benefits for your organization?

	Individual Frequencies												Center Level	
	No Impact		Slight Impact		Moderate Impact		High Impact		Very High Impact		N/A		Mean	S.D.
	1	2	3	4	5	N/A								
	N	%	N	%	N	%	N	%	N	%				
a. Enhanced your ability to recruit talented students	36	30.3	15	12.6	25	21.0	16	13.4	10	8.4	17	14.3		
b. Improved cooperation with scientists and technical resources outside your organization.	10	8.4	21	17.6	26	21.8	39	32.8	21	17.6	2	1.8	3.26	.34
c. Improved cooperation with other Center members.	14	11.8	19	15.9	34	28.6	35	29.4	13	10.9	4	3.4	3.10	.73

Mean S.D.

11. During the past year, how many students trained in the Center projects were hired by your organization?*

.34 .31

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Table 6: Center Administration and Operations

12. During the past year, how satisfied were you with the following features of the Center's administrative operations?

	Individual Frequencies										Center Level	
	Not Satisfied 1		Slightly Satisfied 2		Satisfied 3		Quite Satisfied 4		Very Satisfied 5		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
a. Communication between Center staff and your organization	2	1.7	8	6.8	14	12.0	59	50.4	34	29.1	3.99	.54
b. Center-related proposals, reports and publications (e.g. quality and timeliness)	2	1.7	9	7.7	27	23.1	53	45.3	26	22.2	3.80	.48
c. Planning and development of the research program (e.g. new projects, changes in research areas)	3	2.5	6	5.1	33	28.0	52	44.1	24	20.3	3.74	.61
d. Management of ongoing research projects	1	.9	5	4.3	24	20.5	63	53.8	24	20.5	3.88	.48
e. Project selection process	3	2.6	4	3.4	39	33.6	45	38.8	24	20.7	4.02	.86
f. Technology transfer activities	5	4.8	17	16.3	43	41.3	31	29.8	8	7.7	3.18	.48
g. Center fundraising (e.g. member recruitment, grant-writing)	4	3.7	12	11.2	36	33.6	41	38.3	14	13.1	3.50	.58
h. Management of intellectual property issues	3	2.9	7	6.7	35	33.7	39	37.5	20	19.2	3.64	.50

Table 7: General Evaluation

14. To what extent are you generally satisfied with the operation and activities of the Center?*											
Individual Frequencies										Center Level	
Not Satisfied		Slightly Satisfied		Satisfied		Quite Satisfied		Very Satisfied			
1		2		3		4		5			
N	%	N	%	N	%	N	%	N	%	Mean	S.D.
2	.8	5	2.1	36	14.9	140	58.1	58	24.1	3.99	.37

* = Included in both long and short forms of the IUCRC Industry Questionnaire

15. Will your organization renew its membership?*											
Individual Frequencies										Center Level	
Definitely Not		Probably Not		Uncertain		Probably Yes		Definitely Yes			
1		2		3		4		5			
N	%	N	%	N	%	N	%	N	%	Mean	S.D.
1	.4	2	.9	34	14.5	124	52.8	74	31.5	4.11	.36

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Table 8: Membership Information

18. Which ONE of the following categories best describes your division's PRIMARY research?*								
Individual Frequencies								
Category	N	%	Category	N	%	Category	N	%
Food	5	2.1	Primary Metals	4	1.7	Electrical, Electronic or communications equip.	53	22.6
Textiles or Apparel	2	.9	Fabricated Metals	1	.4	Prof or Scientific Instruments	4	1.7
Lumber, Wood, or Furniture	3	1.3	Machinery	4	1.7	Surgical or Medical Supplies	2	.9
Paper	0	0	Motor Vehicles	23	9.8	Other Manufacturing	28	11.9
Chemical	17	7.2	Other Transportation	6	2.6	Health Services	5	2.1
Petroleum	4	1.7	Aircraft or Missiles	18	7.7	Mining	2	.9
Rubber	1	.4	Munitions	3	1.3	Building or	7	3.0
Stone, Clay, or Glass	3	1.3	Other Military Equipment	15	6.4	Other Non-manufacturing	25	10.6

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Table 9: Member Descriptives

19. Years organization has been a member of the Center?*											
Individual Frequencies										Center Level	
0-1 Years 1		2-3 Years 2		4-5 Years 3		6-7 Years 4		8+ Years 5		Mean	S.D.
N	%	N	%	N	%	N	%	N	%		
45	19.7	83	36.2	53	23.1	19	8.3	29	12.7	2.52	.76

* = Included in both long and short forms of the IUCRC Industry Questionnaire

20. Organization is? *		
Individual Frequencies		
	N	%
1. For-Profit Large (> 500 employees)	156	66.7
2. For-Profit Small (< 500 employees)	34	14.5
3. Non-Profit/Government	44	18.8

* = Included in both long and short forms of the IUCRC Industry Questionnaire

21. Which functional group pays for your organization's membership in this Center?*		
Individual Frequencies		
	N ^a	%
1. Corporate	53	21.8
2. Research	105	43.2
3. Development	24	9.9
4. Engineering	27	11.1
5. Product Development	29	11.9
6. Manufacturing	8	3.3
7. Marketing/Sales	7	2.9
8. Other	21	8.6

* = Included in both long and short forms of the IUCRC Industry Questionnaire

a = Multiple responses allowed; N reflects responses not respondents

22. Which of the following best describes your estimate of your division/organization's financial status for the next fiscal year? *											
Individual Frequencies										Center Level	
Significant Cuts 1		Modest Cuts 2		Stable Budget 3		Modest Increases 4		Significant Increases 5		Mean	S.D.
N	%	N	%	N	%	N	%	N	%		
10	4.3	27	11.7	140	60.6	45	19.5	9	3.9	3.04	.44

* = Included in both long and short forms of the IUCRC Industry Questionnaire

Short Form Unique Items: 2005-2006

Table 1: Research Program

4. During the past year, how satisfied were you with the following features of the Center's research program?

	Individual Frequencies										Center Level	
	Not Satisfied 1		Somewhat Satisfied 2		Satisfied 3		Quite Satisfied 4		Very Satisfied 5		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
a. Capabilities of faculty and graduate students	0	0	1	.8	14	11.7	65	54.2	40	33.3	4.18	.29
d. Relevance of research to my organizations short-term needs	2	1.7	13	10.8	45	37.5	38	31.7	22	18.3	3.61	.50

Table 2: Benefits

8. During the past year, to what extent has participation in the Center contributed to the technical benefits for your organization?

	Individual Frequencies										Center Level			
	No Impact 1		Slight Impact 2		Moderate Impact 3		High Impact 4		Very High Impact 5		N/A		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%	N	%		

Commercialization

a. Research and Development: Enhanced via increased technical awareness, accelerated or new projects or development of intellectual property in my organization.	3	2.5	15	12.5	40	33.3	46	38.4	13	10.8	3	2.5	3.42	.51
b. Commercialization: Enhanced via improved or new products processes, services, improved sales, or new or retained jobs.	31	26.1	28	23.5	34	28.6	10	8.4	1	.8	15	12.6	2.32	.65
c. Professional Networking: Enhanced via improved ability to recruit students, increased cooperation with other industrial members/scientists outside organization.	4	3.3	10	8.3	35	29.2	45	37.5	24	20.0	2	1.7	3.64	.37

Table 3: Center Administration and Operations

11. During the past year, how satisfied were you with the Center's administrative operations?											
Individual Frequencies										Center Level	
Not Satisfied 1		Slightly Satisfied 2		Satisfied 3		Quite Satisfied 4		Very Satisfied 5		Mean	S.D.
N	%	N	%	N	%	N	%	N	%		
1	.8	0	0	17	14.3	65	54.6	36	30.3	4.10	.34

Faculty Results: 2005-2006

Table 1: Research Program

1. Compared to the research projects that you typically conduct outside the Center, would you describe your Center-funded research as:

Individual Frequencies											Center Level	
a.	Much more basic (1)		More basic (2)		Same (3)		More Applied (4)		Much more applied (5)		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
	4	2.1	28	14.8	64	33.9	81	42.9	12	6.3		
b.	Much Broader in Scope (1)		Broader (2)		Same (3)		Narrower (4)		Much Narrower in Scope (5)		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
	9	4.8	37	19.7	67	35.6	63	33.5	12	6.4		
c.	Much Longer Time Frame (1)		Longer (2)		Same (3)		Shorter (4)		Much Shorter Time Frame (5)		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
	5	2.6	24	12.7	61	32.3	81	42.9	18	9.5		
Number of Months												
2.	How long, on average, do you feel that it should take for a new Center research project to yield tangible results?										Mean:	19.51
											SD:	11.83

Table 2: Knowledge Production

		Center Level
		Based on Center research
4. During the past year:		
4a.	How many publications in the open literature have you had based on Center research?	Mean: 2.90 SD: 1.93
4b.	How many presentations have you made at conferences or professional meetings based on Center research?	Mean: 3.76 SD: 2.60
4c.	How many theses/dissertations based on Center research are under your supervision?	
Number completed		Mean: .93 SD: .61
Number still in progress		Mean: 1.24 SD: .94
4d.	How many intellectual property events (including inventions disclosed, patent applications received, and copyrights granted) have you contributed to that were based on Center research?	Mean: .52 SD: .49

Table 3: Investigator Outcomes

5. During the past year, what impact has participation in the Center had for YOU in the following areas?

	Individual Level										Center Level	
	No Impact (1)		Somewhat Positive Impact (2)		Moderately Positive Impact (3)		Very Positive Impact (4)		Extremely Positive Impact (5)		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
5a. The feeling of accomplishment I get from the research I do.	14	7.3	25	13.0	43	22.3	77	39.9	34	17.6	3.46	.41
5b. Opportunities for research contracts/grants	14	7.3	28	14.5	56	29.0	62	32.1	33	17.1	3.32	.51
5c. The recognition I receive for the work I do	16	8.3	37	19.3	34	17.7	82	42.7	23	12.0	3.25	.55
5d. Access to useful equipment	45	23.6	30	15.7	47	24.6	48	25.1	21	11.0	2.79	.69
5e. Ability to support graduate students	19	9.9	22	11.5	62	32.5	58	30.4	30	15.7	3.24	.57
5f. The challenges posed by my center research	14	7.3	28	14.7	58	30.4	62	32.5	29	15.2	3.32	.52
											Total Impact Score	
											Mean	S.D.
											3.22	.40

Table 4: Satisfaction

6. During the past year, how satisfied were you with the following features of the Center?

	Individual Level										Center Level	
	Not Satisfied (1)		Slightly Satisfied (2)		Somewhat Satisfied (3)		Quite Satisfied (4)		Very Satisfied (5)		Mean	S.D.
	N	%	N	%	N	%	N	%	N	%		
6a. Quality of the Center-supported research program	4	2.1	17	8.9	38	19.8	92	47.9	41	21.4	3.76	.48
6b. Relevance of the Center's research program to my professional goals	7	3.6	16	8.3	43	22.4	87	45.3	39	20.3	3.70	.40
6c. Center administration and operations	10	5.2	14	7.3	28	14.6	65	33.9	75	39.1	3.90	.76
6d. Frequency and quality of interactions with industry members	7	3.7	18	9.4	49	25.7	79	41.4	38	19.9	3.63	.52
6e. Frequency and quality of interactions with other faculty and student researchers	7	3.7	22	11.6	50	26.3	76	40.0	35	18.4	3.58	.53
6f. Research sophistication shown by our members	4	2.1	31	16.1	43	22.4	74	38.5	40	20.8	3.64	.43
											<u>Total Satisfaction Score</u>	
											Mean	S.D.
											3.70	.42

Table 5: Organizational Commitment

7. Think about your involvement in the Center during the past year and rate your level of agreement or disagreement with the following statements:

	<u>Individual Level</u>							<u>Center Level</u>	
	Strongly Disagree (1)	Moderately Disagree (2)	Slightly Disagree (3)	Neither Agree or Disagree (4)	Slightly Agree (5)	Moderately Agree (6)	Strongly Agree (7)	Mean	S.D.
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
7a. It would take very little change in my present circumstances to cause me to leave this Center.	84(45.2)	24(12.9)	9(4.8)	36(18.1)	9(4.8)	11(5.9)	13(7.0)	2.66	1.02
7b. I am committed to bringing my best research ideas to the Center	7(3.7)	3(1.6)	7(3.7)	21(11.1)	20(10.5)	46(24.2)	86(45.3)	5.80	1.09
								<u>Total Commitment Score^a</u>	
								Mean	S.D.
								5.58	.82

a. Scores based on recoded data

Table 6: Faculty Descriptives

9.	How many years have you been involved with the Center?	Mean:	4.42
		SD:	4.05
<u>Individual Frequencies</u>			
		N	%
10.	What is your academic rank?	Assistant Professor (1)	38 19.5
		Associate Professor (2)	53 27.2
		Full Professor (3)	77 39.5
		Other (please state) (4)	27 13.8
11a.	Are you tenured?	Yes	109 56.5
		No	84 43.5
11b.	If NO, are you in a tenure track position?	Yes	54 71.1
		No	22 28.9