

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

FINAL

June 2000

1998-1999 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 Questionnaire. Data was collected during the fall of 1999 and refers to the center activity for FY 1998-1999.

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, are therefore unweighted aggregate means. Because questions that required 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.

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

RESPONSE RATES

Category	Center Level		Individual Level	
	Industry	Faculty	Industry	Faculty
<i>Response Frequency</i>				
Population ^a	48	48	679	528
Available Population ^{b,c,d}	37	37	533	377
Sample	n/a	n/a	487	331
Data Received ^e	33	33	261	213
<i>Response Rates</i>				
Received/Population	68.75%	60.41%	38.44%	40.34%
Received/Available Population	89.19%	78.38%	48.97%	56.50%
Received/Sample	n/a	n/a	53.59%	64.35%

- a. Population was defined as centers that at least 1 year old
- b. 4 centers were in last year and did not collect PO data
- c. 4 centers were being restructured and did not collect PO data
- d. 3 centers conducted alternative evaluations
- e. 4 centers did not return PO data

INDUSTRY RESULTS: 1998-99

TABLE 1: INTEREST IN RESEARCH

1) What percentage of Center research projects do you take an active interest in?

INDIVIDUAL FREQUENCIES										CENTER LEVEL	
0-19% (1)		20-39% (2)		40-59% (3)		60-79%(4)		80-100%(5)		MEAN	S.D.
N	%	N	%	N	%	N	%	N	%		
46	18.1	57	22.4	74	29.1	48	18.9	29	11.4	2.86	0.84

	CENTER LEVEL	
	MEAN	S.D.
3) How long, on average, do you feel that it should take for a new Center research project to yield tangible results? number of months:	15.79	3.76

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	
	Not Satisfied 1		Slightly Satisfied 2		Somewhat Satisfied 3		Quite Satisfied 4		Very Satisfied 5		LEVEL	
	N	%	N	%	N	%	N	%	N	%	MEAN	S. D.
a Capabilities of faculty and graduate students	3	1.2	1	0.4	28	11.0	149	58.7	73	28.7	4.18	0.36
b Breadth of the research topic covered	1	0.8	14	5.5	72	28.3	141	55.5	25	9.8	3.62	0.59
c Focus of the research	2	0.8	20	7.9	87	34.3	125	49.2	20	7.9	3.59	0.39
d Technical quality of the research	1	0.4	6	2.4	40	15.7	153	60.2	54	21.3	4.02	0.31
e Innovative quality of the research	0	0.0	26	10.3	65	25.8	127	50.4	34	13.5	3.72	0.40

f	Relevance of research to my organization's <i>short term</i> (1-2 years) needs	7	2.8	49	19.3	97	38.2	79	31.1	22	8.7	3.22	0.55
g	Relevance of research to my organization's <i>long term</i> (3+ years) needs	5	2.0	28	11.0	62	24.4	127	50.0	32	12.6	3.54	0.43

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.

CENTER LEVEL

	# of projects/ member			Total dollar value of/ member		
	MEAN	MEDIAN	S. D .	MEAN	MEDIAN	S. D .
a New research projects supported by <i>your organization</i> Total Sample (N of members = 261, N of Centers = 33)	2.11	1.33	3.36	159,475	75,000	256,798
b New research projects supported by <i>your organization</i> Centers reporting at least One Project (N of members = 122 , N of Centers = 32)	3.13	2.37	3.26	245,298	130,233	333,582
c Average project cost of projects At Least One Project (N of members = 122, N of Centers = 32)				95,406	47,680	163,943

- a. These figures were calculated using aggregate center level data.
- b. Calculation only includes respondents that reported funding one or more projects, all others were excluded from the analyses.
- c. These figures were calculated by dividing the dollar amounts and the number of projects calculated in step b. These only include respondents that reported supporting one or more research projects.

TABLE 4: TECHNICAL BENEFITS

7) During the past year, to what extent has participation in the Center contributed to the following 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		Not Applicable N/A		MEANS	S. D.
<u>Research and Development</u>	N	%	N	%	N	%	N	%	N	%	N	%		
a Increased our general technical awareness and/or capabilities	6	2.4	28	11.0	112	43.9	77	30.2	28	11.0	4	1.6	3.33	0.50
b Accelerated or improved existing research projects	25	9.8	80	31.5	80	31.5	47	18.5	11	4.3	11	4.3	2.74	0.63
c Stimulated new research projects	55	21.6	60	23.5	89	34	33	12.9	7	2.7	11	4.3	2.52	0.59
d Contributed to development of intellectual property within my organization	77	30.3	71	28.0	67	26.4	21	8.3	5	2.0	13	5.1	2.20	0.49
<u>Commercialization</u>														
e Improvements to <i>existing</i> products, processes or services	63	24.8	74	29.1	60	23.6	30	11.8	4	1.6	23	9.1	2.33	0.61
f Development of <i>new</i> products, processes, or services	70	27.5	71	27.8	57	22.4	31	12.2	4	1.6	22	8.6	2.30	0.66
g Improved sales and/or profitability	109	42.9	52	20.5	30	11.8	13	5.1	4	1.6	46	18.1	1.79	0.56
h Created or helped maintain jobs in your organization	119	46.7	47	18.4	30	11.8	14	5.5	4	1.6	41	16.1	1.74	0.57

TABLE 5: OTHER BENEFITS

10) During the past year, to what extent has participation in the center contributed to the following other benefits for your organization?

	<u>INDIVIDUAL FREQUENCIES</u>										<u>CENTER LEVEL</u>			
	No Impact 1		Slight Impact 2		Moderate Impact 3		High Impact 4		Very High Impact 5		Not Applicable N/A		MEANS	S. D.
	N	%	N	%	N	%	N	%	N	%	N	%		
a Enhanced your ability to recruit talented students	83	32.9	38	15.1	45	17.9	33	13.1	17	6.7	36	14.3	2.17	.76
b Improved cooperation with scientists and technical resources outside your organization	24	9.4	35	13.8	97	38.2	72	28.3	22	8.7	4	1.6	3.03	0.60
c Improved cooperation with other Center members	29	11.4	50	19.7	87	34.3	61	24.0	19	7.5	8	3.1	2.80	0.58
11) During the past year, how many students trained in the Center research projects were hired by your organization?												0.32	0.45	
	students hired:													

TABLE 6: CENTER ADMINISTRATION & OPERATIONS

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

	<u>INDIVIDUAL FREQUENCIES</u>										<u>CENTER LEVEL</u>	
	Not Satisfied 1		Slightly Satisfied 2		Somewhat Satisfied 3		Quite Satisfied 4		Very Satisfied 5		MEAN	S. D.
	N	%	N	%	N	%	N	%	N	%		
a Communication between Center staff and your organization	6	2.4	12	4.7	55	21.7	124	48.8	57	22.4	3.75	0.63
b Center-related proposals, reports, and publications (e.g. quality and timeliness)	7	2.8	20	7.9	79	31.2	114	45.1	33	13.0	3.64	0.42
c Planning and development of the research program (e.g. new projects, changes in research areas)	7	2.8	34	13.5	83	33.1	104	41.4	23	9.2	3.43	0.46
d Management of ongoing research projects	7	2.8	34	13.5	83	33.1	104	41.4	23	9.2	3.67	0.39
e Project selection process	5	2.1	25	10.3	66	27.3	122	50.4	24	9.9	3.50	0.62
f Technology transfer activities	12	5.4	39	17.6	91	41.2	68	30.8	11	5.0	3.20	0.53
g Center fundraising (e.g. member recruitment, grant-writing)	4	1.8	23	10.2	80	35.4	94	41.6	25	11.1	3.48	0.55
h Management of intellectual property issues	5	2.4	27	12.7	69	32.5	92	43.4	19	9.0	3.39	0.55

TABLE 7: GENERAL EVALUATION

		<u>INDIVIDUAL FREQUENCIES</u>										<u>CENTER LEVEL</u>	
		Not Satisfied 1		Slightly Satisfied 2		Somewhat Satisfied 3		Quite Satisfied 4		Very Satisfied 5		MEAN	S. D.
N	%	N	%	N	%	N	%	N	%				
14) To what extent are you generally satisfied with the operation and activities of the Center?		1	0.4	17	6.6	63	24.6	143	55.9	32	12.5	3.69	0.46

		<u>INDIVIDUAL FREQUENCIES</u>										<u>CENTER LEVEL</u>	
		Definitely Not 1		Probably Not 2		Uncertain 3		Probably Yes 4		Definitely Yes 5		MEAN	S. D.
N	%	N	%	N	%	N	%	N	%				
15) Will your organization renew its membership?		0	0.0	8	3.1	43	16.7	139	54.1	67	26.1	3.97	0.40

TABLE 8: MEMBERSHIP INFORMATION18) Which one of the following industrial categories best describes your division's *primary* research area?

			<u>INDIVIDUAL FREQUENCIES</u>					
	N	%	N	%	N	%		
Food	10	4.2	Primary metals	2	0.8	Electrical, electronic, or communication equipment	72	30.3
Textiles or apparel	1	0.4	Fabricated metals	3	1.3	Professional or scientific instruments	4	1.7
Lumber, wood, or furniture	0	0.0	Machinery	10	4.2	Surgical or medical supplies	10	4.2
Paper	1	0.4	Motor vehicles	8	3.4	Other manufacturing	20	8.4
Chemical	22	9.2	Other transportation	2	0.8	Health services	8	3.4
Petroleum	3	1.3	Aircraft or missiles	13	5.5	Mining	2	0.8
Rubber	1	0.4	Munitions	1	0.4	Building or construction	5	2.1
Stone, clay, or glass	14	5.9	Other military equipment	12	5.0	Other non-manufacturing	14	5.9

TABLE 9: MEMBER DESCRIPTIVES

19) Years organization has been a member of the Center:

	<u>INDIVIDUAL FREQUENCIES</u>	
	N	%
1) 0-1 years	45	18.5
2) 2-3 years	78	32.1
3) 4-5 years	48	19.8
4) 6-7 years	25	10.3
5) 8 or more years	47	19.3

20) Organization is:	<u>INDIVIDUAL FREQUENCIES</u>	
	N	%
1) For-Profit – Large (> 500 employees)	190	76.9
2) For Profit – Small (< 500 employees)	36	14.6
3) Non-Profit / Government	21	8.5

21) Which functional group pays for your organization's membership in this Center?: [multiple responses allowed; N reflects responses not respondents]	<u>INDIVIDUAL FREQUENCIES</u>	
	N	%
1) Corporate	71	28.6
2) Research	124	50.0
3) Development	37	14.9
4) Engineering	37	14.9
5) Product Development	27	10.9
6) Manufacturing	16	6.5
7) Marketing/Sales	8	3.2
8) Other	11	4.4

22) Which of the following best describes your estimate of your division/organization's financial status for next fiscal year?:	<u>INDIVIDUAL FREQUENCIES</u>	
	N	%
1) Significant budget cuts	19	7.9
2) Modest budget cuts	68	28.5
3) Stable budget	102	42.7
4) Modest budget increases	41	17.2
5) Significant budget increases	9	3.8

FACULTY RESULTS: 1998-99

TABLE 10: RESEARCH PROGRAM

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

INDIVIDUAL FREQUENCIES											<u>CENTER LEVEL</u>	
<i>Much more basic</i>		<i>More basic</i>		<i>Same</i>		<i>More applied</i>		<i>Much more applied</i>				
1		2		3		4		5				
N	%	N	%	N	%	N	%	N	%	MEAN	S. D.	
a)	2	1.0	18	8.6	89	42.6	87	41.6	13	6.2	3.45	0.40
<i>Much broader in scope</i>		<i>Broader</i>		<i>Same</i>		<i>Narrower</i>		<i>Much narrower in scope</i>		<u>CENTER LEVEL</u>		
1		2		3		4		5				
N	%	N	%	N	%	N	%	N	%	MEAN	S. D.	
b)	8	3.8	39	18.7	92	44.0	61	29.2	9	4.3	3.07	0.46
<i>Much longer time frame</i>		<i>Longer</i>		<i>Same</i>		<i>Shorter</i>		<i>Much shorter time frame</i>		<u>CENTER LEVEL</u>		
1		2		3		4		5				
N	%	N	%	N	%	N	%	N	%	MEAN	S. D.	
c)	4	1.9	30	14.4	79	38.0	81	39.0	14	6.7	3.28	0.48

TABLE 11: KNOWLEDGE PRODUCTION

3) During the past year:	<u>CENTER LEVEL</u>		<u>CENTER LEVEL</u>		<u>CENTER LEVEL</u>	
	Total number MEANS	S. D.	Number with member scientists MEANS	S. D.	Number with students MEANS	S. D.
a) How many publications in the open literature have you had based on Center research?	2.21	1.23	1.18	1.07	1.91	1.17
b) How many presentations have you made at conferences or professional meetings based on Center research?	2.85	1.69	1.38	1.45	2.12	1.19
c) How many theses/dissertations based on Center research are under your supervision?	Number completed during last year MEAN		Number still in progress MEAN			
	0.51	0.38	1.48	1.13		
2) How long, on average, do you feel that it should take for a new Center research project to yield tangible results?					<u>CENTER LEVEL</u>	
					MEAN	S. D.
					17.34	3.97

TABLE 12: INVESTIGATOR OUTCOMES

4) What impact has participation in the Center had for YOU in the following areas?	INDIVIDUAL FREQUENCIES										CENTER LEVEL	
	Very negative impact 1		Moderately negative impact 2		No impact 3		Moderately positive impact 4		Very positive impact 5		MEANS	S. D.
	N	%	N	%	N	%	N	%	N	%		
a Opportunities for consulting	1	0.5	0	0.0	117	55.7	73	34.8	19	9.0	3.52	0.30
b Opportunities for research contracts	0	0.0	1	0.5	48	22.5	111	52.1	53	24.9	4.04	0.36
c Access to equipment	0	0.0	1	0.5	93	44.1	72	34.1	45	21.3	3.82	0.44
d Trust & confidence in industry	1	0.5	8	3.8	62	29.4	91	43.1	49	23.2	3.85	0.41
e My evaluation of the quality of industrial research	2	1.0	7	3.3	74	35.2	93	44.3	34	16.2	3.73	0.35
f Chances for promotion, tenure, and/or salary increases	2	1.0	4	1.9	102	48.6	70	33.3	32	15.2	3.58	0.41
g Amount of interaction with other faculty	0	0.0	1	0.5	34	16.0	112	52.8	65	30.7	4.12	0.33
h Ability to support graduate student thesis/dissertation research	0	0.0	2	1.0	44	21.1	86	41.1	77	36.8	4.18	0.34
i Amount of autonomy in conducting research	4	1.9	22	10.5	91	43.3	71	33.8	22	10.5	3.40	0.39
j Ability to publish research in a timely fashion	1	0.5	16	7.6	105	49.8	66	31.3	23	10.9	3.43	0.34

TABLE 13: PERCEIVED INDUSTRY BENEFITS

5) During the past year, how much impact do you believe YOUR RESEARCH had on the following technical benefits for Center members?	<u>INDIVIDUAL FREQUENCIES</u>												<u>CENTER LEVEL</u>	
	No Impact 1		Slight Impact 2		Moderate Impact 3		High Impact 4		Very High Impact 5		Not Applicable N/A		MEANS	S.D.
	N	%	N	%	N	%	N	%	N	%	N	%		
a Research and development efforts	15	7.2	38	18.2	75	35.9	46	22.0	27	12.9	8	3.8	3.21	0.49
b Commercialization of products, processes, and/or services	52	25.6	41	20.2	55	27.1	30	14.8	14	6.9	11	5.4	2.60	0.56

TABLE 14: SATISFACTION

7) During the past year, how <i>satisfied</i> were you with the following features of the Center?	<u>INDIVIDUAL FREQUENCIES</u>										<u>CENTER LEVEL</u>	
	Not Satisfied 1		Slightly Satisfied 2		Somewhat Satisfied 3		Quite Satisfied 4		Very Satisfied 5		MEANS	S. D.
	N	%	N	%	N	%	N	%	N	%		
a Quality of the research program	4	1.9	11	5.3	39	18.8	100	48.1	54	26.0	3.97	0.42
b Relevance of the research program to industry's needs	1	0.5	7	3.5	48	23.8	82	40.6	64	31.7	4.05	0.58
c Center administration and operations	10	4.9	12	5.8	35	17.0	85	41.3	64	31.1	3.84	0.59

TABLE 15: FACULTY DESCRIPTIVES

9) What is your academic rank?	INDIVIDUAL FREQUENCIES	
	N	%
1) Assistant Professor	38	17.9
2) Associate Professor	52	24.5
3) Full Professor	97	45.8
4) Other	25	11.8

10a) Are you tenured?	INDIVIDUAL FREQUENCIES	
	N	%
1) Yes	136	64.2
2) No	76	35.8

10b) If NO, are you in a tenure track position?	INDIVIDUAL FREQUENCIES	
	N	%
1) Yes	41	55.4
2) No	33	44.6