

# Content Analysis of the I/UCRCs' Faculty and Industry Questionnaires

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# Method

- Processes
  - The raters, Tim Michaelis and Lena Leonchuk, coded independently faculty and industry responses.
  - Differences were discussed and eliminated.
  - Single codes were agreed upon.
  - Denis Gray provided guidance.
- Response Rate
  - Faculty:
    - Q3: 197 of 290 or 68%
    - Q7: 160 of 290 or 55% (more than one category was chosen)
  - Industry:
    - Q3: 210 of 391 or 54%
    - Q6: 154 of 391 or 39%
    - Q10: 151 of 391 or 39%

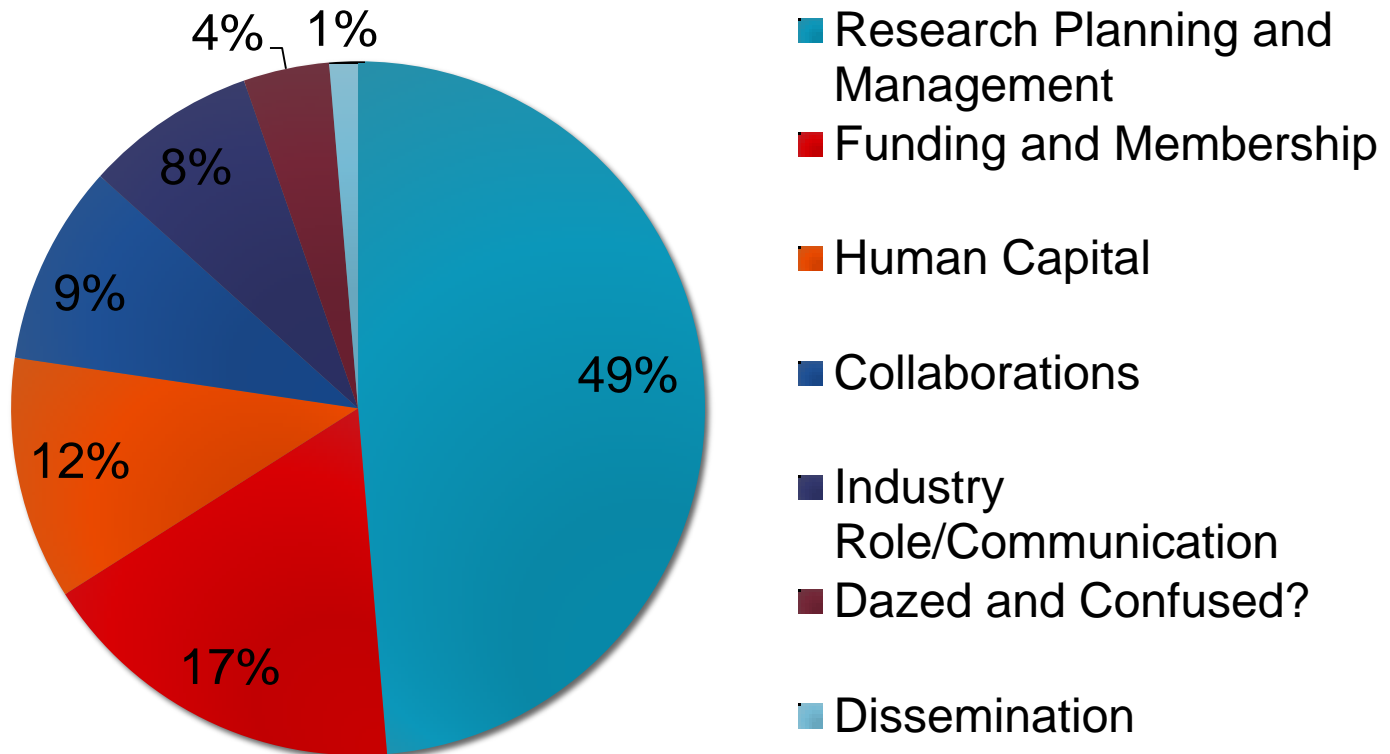
# Faculty Questions

- Q3. How can center improve its research?
- Q7. How can the center improve its administration and operations program?

# Faculty

Q3. How can center improve its research?

## Response Categories



# Faculty

## Q3. How can center improve its research?

| Response Category  | N  | Examples   |
|--|----|--|
| <b>Research Planning and Management</b>                            | 73 |  |
| ○ <b>New area of research/expand portfolio</b>                     | 24 | “We need to continue addressing industry hot topics in research.”  |
| ○ <b>More cooperative/less one-member focused/more fundamental</b> | 18 | “The center can continue to build consensus among the members in order to pursue longer term fundamental research. Certainly companies are concerned with shorter term problems, however, some percentage of projects should be higher risk, long horizon problems.” |
| ○ <b>IAB involvement</b>   | 12 | More industry participation/involvement. “Help to identify ways to make Industry engagement easier. That goes for sustaining existing relationships, and brokering new relationships.”   |
| ○ <b>Project-specific</b>  | 11 | More longer-term projects & better project selection. “I would like to see the center emphasize more long-term projects (2+ year) as well as higher budget projects that would result in better quality research and address more substantial research questions.”   |
| ○ <b>Coordination</b>  | 8  | Better center coordination. “The center should ask more inputs from the faculty involved to determine what projects can be performed and these projects better satisfy both industrial and academic needs.”  |
| <b>Funding and Membership</b>                                      | 26 |  |
| ○ <b>Recruitment</b>   | 17 | More members and better recruitment. “Acquire more members/funding.”   |
| ○ <b>Funding</b>   | 9  | More funding. “Have more funding so that we can support more graduate students.”   |

# Faculty

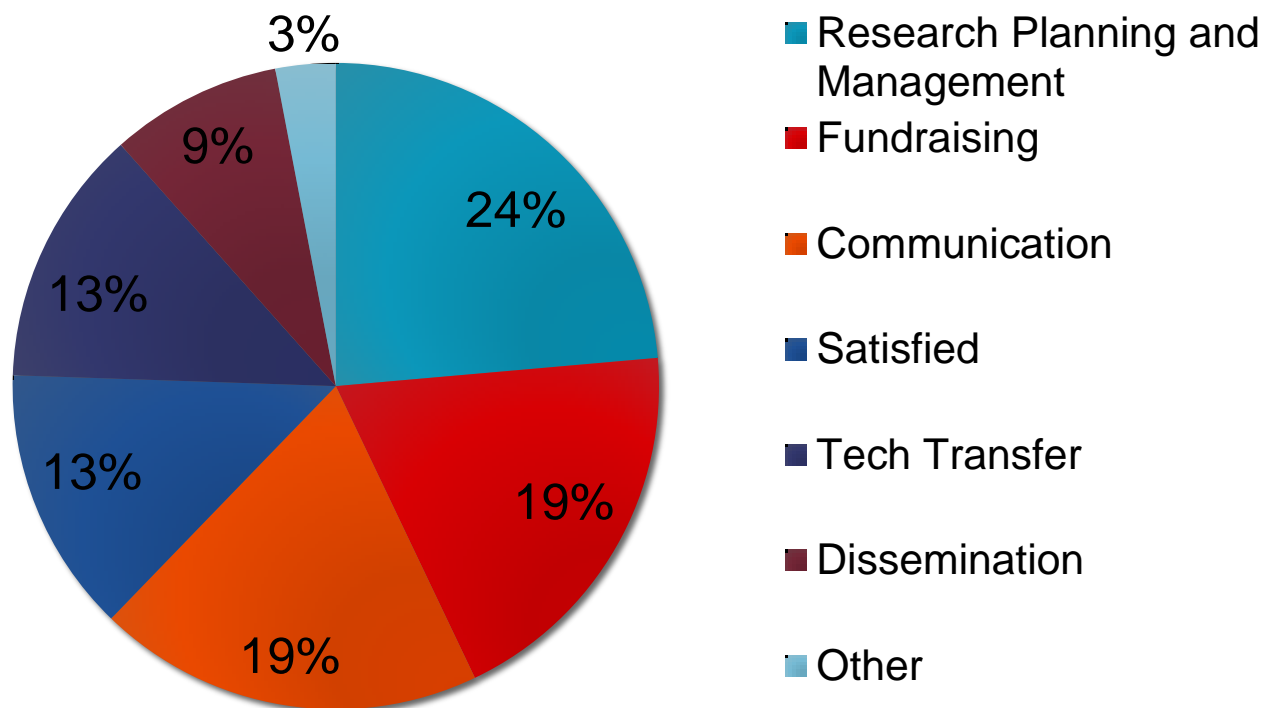
## Q3: How can center improve its research? (continue)

| Response Category                      | N  | Examples   |
|--|----|--|
| <b>Human Capital</b>                   | 17 | More industry mentoring, support for postdocs and additional skills/expertise. “While training of graduate students is a mission of ..., postdocs are generally able to accomplish far more. How do we balance the need to train graduate students with the productivity expected by members.”   |
| <b>Collaborations</b>                  | 14 | More cross-site, multidisciplinary or international collaborations. “I would like to see international and domestic university partners brought into the Center.”  |
| <b>Industry Role and Communication</b> | 12 | “It would be helpful to have presentations from the industry partners explaining their goals and needs and challenges to us, so that the academic labs can do a better job of aligning their work with industry needs.”  |
| <b>Dazed and Confused?</b>             | 6  | “The biggest need is improved recruiting of new graduate students, and perhaps help from industry sponsors (IAB) on identifying and incentivizing potential students. Not clear if this is possible, but it could help.” “Maybe I am dense, but I don't really see the center as offering me any particular opportunities for research grants and contracts ... I don't view the center as a significant potential source of direct funding for my research. “ |
| <b>Dissemination</b>                   | 2  | “More substantive presentation of the results and discussion.”   |

# Faculty

Q7. How can the center improve its administration and operations program?

## Response Categories



# Faculty

Q7. How can the center improve its administration and operations program? (more than one category could be chosen)

| Response Category                       | N  | Examples  |
|---|----|---|
| <b>Research Planning and Management</b> | 55 |   |
| ○ <b>Research Program</b>               | 35 | Planning and Development  |
| ○ <b>Project Selection</b>              | 20 | "I believe that votes for projects should be public."   |
| <b>Fundraising</b>                      | 45 | Comments are not available.   |
| <b>Communication</b>                    | 45 | "Notify researchers shortly after the showcase (perhaps within 1-2 weeks) whether or not the new proposals will be funded."                           |
| <b>Satisfied</b>                        | 31 | "I am particularly pleased with the help provided by the center in establishing connections with companies for joint research projects or proposals." |
| <b>Tech Transfer</b>                    | 30 | Comments are not available.   |
| <b>Dissemination</b>                    | 20 | "Proposals and Publications"  |
| <b>Other</b>                            | 7  | "The main problem is that a "high level of interest" for proposed center projects often does not translate into funding for their execution."         |

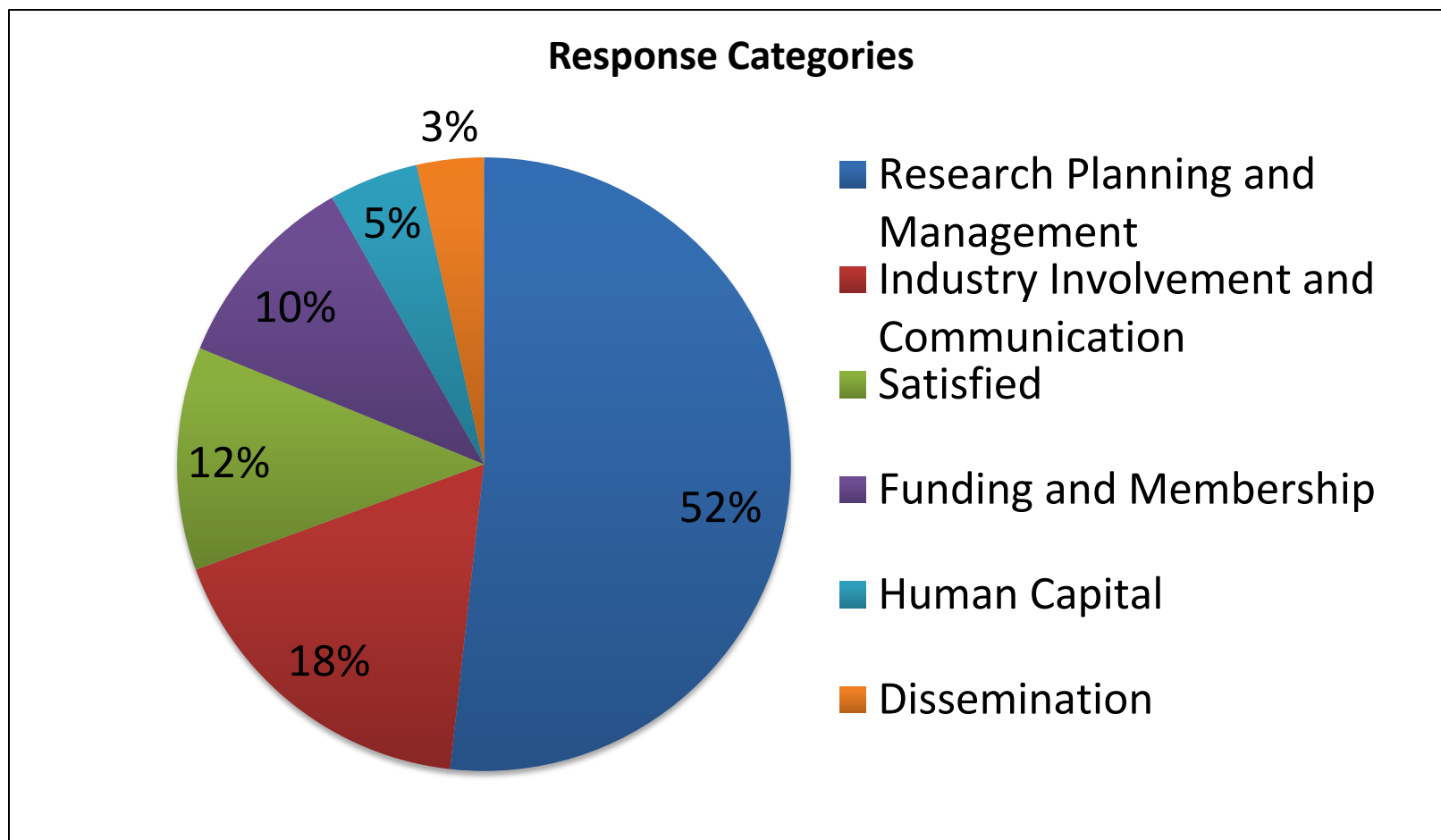


# Industry Questions

- Q3. How can the Center improve its research program?
- Q6b. If your organization has benefited commercially from participating in the Center, please describe below in what way (e.g. research advance or product/process improved) and provide a quantifiable measure of the economic value of that benefit (e.g., \$s saved, waste/scrap reduced, etc.). *Note: this information is helpful for member recruitment and continuing government sponsorship.*
- Q10. What can the Center do to make your renewal more likely?

# Industry

Q3. How can center improve its research program?



# Industry

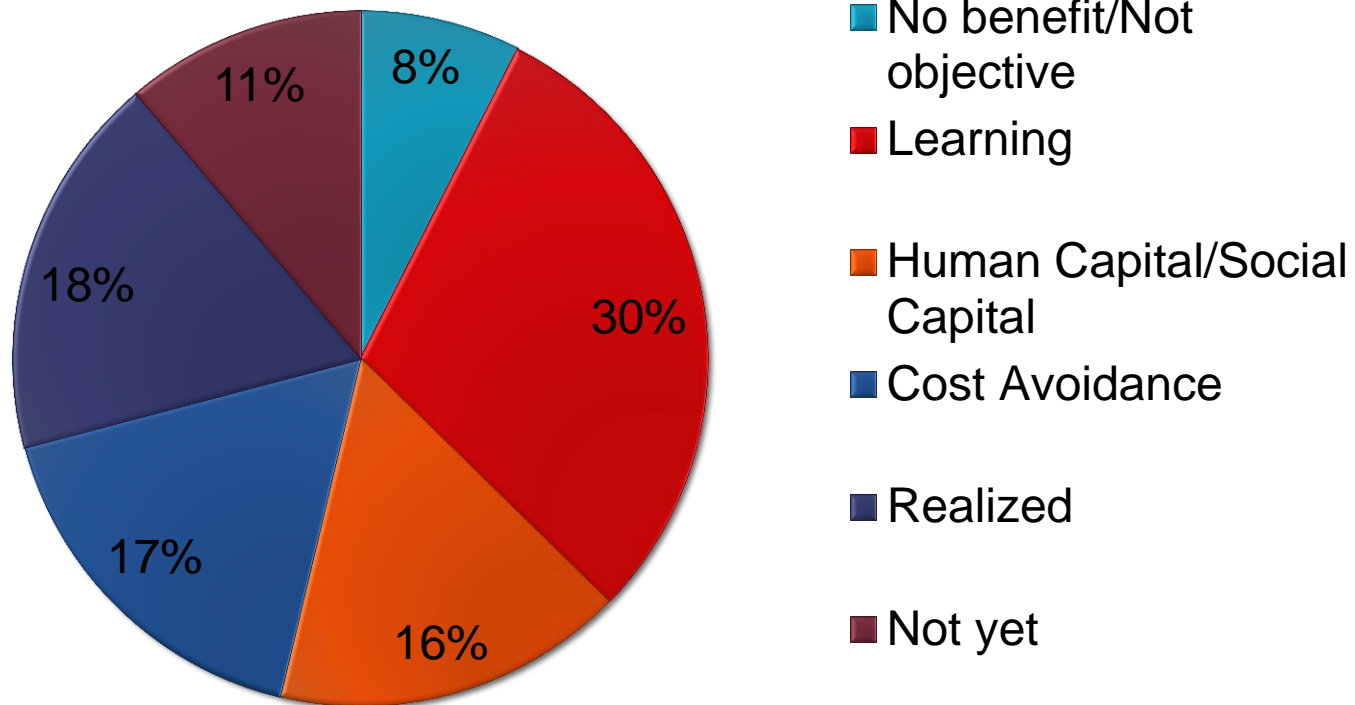
## Q3. How can center improve its research program?

| Response Categories                           | N  | Examples   |
|---|----|--|
| <b>Research Planning and Management</b>       | 88 |  |
| ○ <b>Fundamental</b>                          | 9  | "By focusing on the research of the basic science that can be applied widely."   |
| ○ <b>More applied/Industry-tailored</b>       | 23 | "Incorporate more industry needs in research identified and based more projects around industry needs"   |
| ○ <b>Standard operating procedures</b>        | 22 | "Improved project management in terms of focus, timeline, communication and deliverables."   |
| ○ <b>Extend scope</b>                         | 18 | "Broaden its' research portfolio to tackle longer-term, higher risk projects"  |
| ○ <b>Collaborations</b>                       | 16 | Multi-site and cross-disciplinary. "More synergy and collaboration between the sites."   |
| <b>Industry Involvement and Communication</b> | 30 |  |
| ○ <b>Project Selection</b>                    | 6  | "Survey to collect the research ideas before the meeting"  |
| ○ <b>In-between meetings</b>                  | 24 | Regular updates (from PI or students), IAB mentoring of students and IAB/PI communication. "More involvement with the focus group members between meetings is needed." "Work with the IAB for industry knowledge at the conceptual phase for guidance and so as not to re-invent the wheel." |
| <b>Satisfied</b>                              | 20 | " The center is doing a good job weaving between both research and application investigations. "   |
| <b>Funding and Membership</b>                 | 18 | New funding sources, more funding transparency and new members: "Look for more funding to be able to conduct more research projects."  |
| <b>Human Capital</b>                          | 8  | Hiring (good and bad), more students involvement. PI knowledge about industry. "Utilize student researchers that will be staying with the project for more than the current academic year." "Increase the number of American graduate students (we can't hire foreign persons easily)."      |
| <b>Dissemination</b>                          | 6  | "We would benefit from better packaging of results for the research projects."   |

# Industry

Q6. If your organization has benefited commercially from participating in the Center, please describe below in what way.

## Response Categories



# Industry

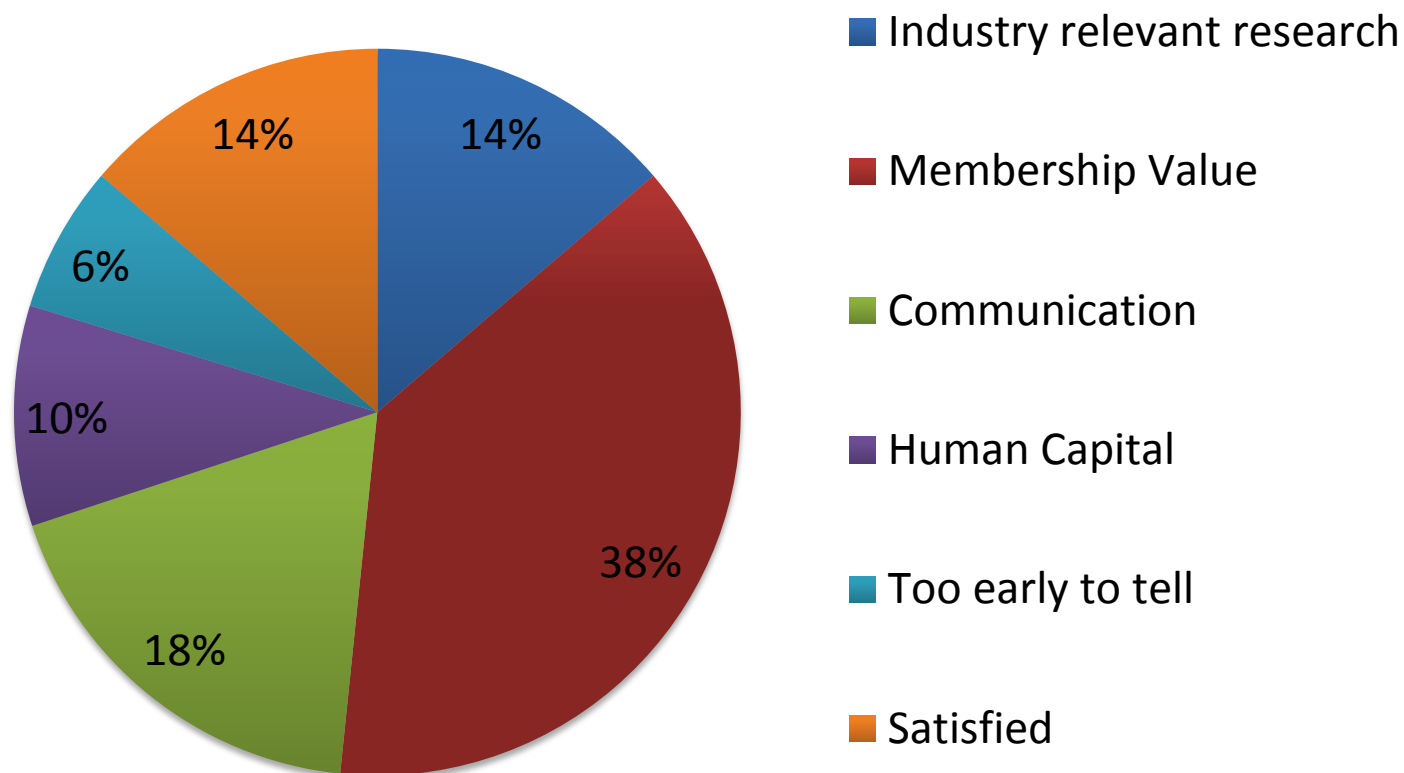
Q6. If your organization has benefited commercially from participating in the Center, please describe below in what way.

| Response Categories                 | N  | Examples   |
|-------------------------------------|----|--|
| <b>Learning</b>                     | 40 |  |
| ○ <b>Research</b>                   | 21 | New approaches or research advances. "Research advancement. There are several projects of interest funded by the center that provide valuable research results." |
| ○ <b>New Application</b>            | 10 | " The center has put new topic areas "on our radar screen" for evaluation."  |
| ○ <b>Improved processes</b>         | 9  | " Improvement in modeling process. Refined data and greater level of regional applicability."  |
| <b>Realized</b>                     | 24 |  |
| ○ <b>Products &amp; Services</b>    | 21 | New or improved products and services. "We have improved our commercial process for manufacturing parts"   |
| ○ <b>Raised Capital Investments</b> | 3  | "We believe that our membership in the center has greatly enhanced our ability and potential to raise significant capital investment"                            |
| <b>Human/Social Capital</b>         | 22 |  |
| ○ <b>Access to Students/Experts</b> | 10 | "Students, quality student interns hired are great!"   |
| ○ <b>Networking</b>                 | 12 | "Networking through center meetings lead to the pitch of a new R&D program for my company."  |
| <b>Cost avoidance</b>               | 23 |  |
| ○ <b>Process</b>                    | 17 | Cost avoidance for equipment and R&D. "By replacing research & costs we would have incurred"   |
| ○ <b>Commercialization</b>          | 6  | Fastened commercialization efforts. "Some of the research and development performed by the center has been used to support certain commercial initiatives"       |
| <b>Did not benefit yet</b>          | 15 | "No commercial benefits at this time, but research is continuing to make good progress and maturation towards potential applications"                            |
| <b>No benefit</b>                   | 10 | No benefit or not my objectives." As a national lab, we are not in the commercial space."  |

# Industry

Q10. What can the Center do to make your renewal more likely?

## Response Categories



# Industry

## Q10. What can the Center do to make your renewal more likely?

| Response Categories                          | N  | Examples   |
|--|----|--|
| <b>Membership Value</b>                      | 58 |  |
| ○ <b>Improvements</b>                        | 14 | Better defined funding structure, general cost (e.g. lower/do not increase the fees; more members) or lack of internal business funding. E.g.: "Have NSF collect their funds in a more timely manner."   |
| ○ <b>Adds-on</b>                             | 15 | "Focus the projects on deliverables which can be used directly by the sponsor organization." "Decision based on funding, not quality of experience with this center."  |
| ○ <b>More of Existing Strengths</b>          | 29 | "Stability and a stronger and integrated view of the technology development, plus a broader set of industrial partners." "Find more companies. Allow them to initiate research in areas of interest." "Add more technical personnel to conduct research/testing. Add technicians." |
| <b>Communication</b>                         | 28 |  |
| ○ <b>About project selection &amp; rules</b> | 12 | E.g. survey to collect the research ideas before the meeting; standard way to vote. "Improve communication at the meetings, ability to clearly articulate objectives and milestones."  |
| ○ <b>Collaborations</b>                      | 9  | Multi-site and cross-disciplinary projects, increase company interaction at meetings (e.g. attendance). "Send technician and/or senior researchers to stay at members' site for couple days to transfer/share new technology."   |
| ○ <b>In-between meetings</b>                 | 7  | Regular updates (from PI or students), IAB mentoring, IAB/PI communication. "Providing updates on research and its relevance to our industry."   |
| <b>Research</b>                              | 21 | Research more relevant to industry. "Selection of research projects more applicable to commercial real world problem solving."   |
| <b>Satisfied</b>                             | 21 | "Great working relationship with our academic institution, so expect to renew." "We are committed, Both students and collaborative membership is very valuable to us."   |
| <b>Human Capital</b>                         | 15 |  |
| ○ <b>Students</b>                            | 11 | Hiring, more student involvement (e.g. poster sessions). "One of the long-term purposes of our membership is the generation of future ... employees"   |
| ○ <b>PI</b>                                  | 4  | PI knowledge about industry. "Work at a much faster pace to make the large membership fee worthwhile for an industry. Be less academia focused"  |
| <b>Too early to tell</b>                     | 10 | "Interested to see the next round of projects, including our first year project." "Not clear."   |