

Summary Subcommittee 2: Enhancing Interdisciplinary Research (IDR)

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Statement of the Issue

Interdisciplinary research (IDR) teams improve output, reduce errors, and are more competitive in obtaining and sustaining federal funding as indicated by a wealth of published data. Nevertheless, we have identified challenges in building and sustaining IDR teams across the Texas A&M System that currently limit effectiveness and productivity.

This white paper provides an overview of the main barriers to collaborative research at Texas A&M and contains recommendations to overcome those barriers as identified by the IDR subcommittee of the Council of Principal Investigators. The attached Appendix summarizes the overall discussions and includes a more detailed report with additional comments on needs and recommendations.

Barriers to IDR

1. Lack of Recognition, Incentives, and Support of IDR at All Levels
2. Administrative Obstacles

1. Lack of Recognition, Incentives, and Support of IDR at All Levels

Barriers

- **A reward system** for Faculty participation in IDR is not part of the tenure or promotion process. For example, there is no clear mechanism to **recognize** or **credit individual contributions**.
- **Few incentives encourage IDR** at the college and departmental levels. Although participation in IDR may be valued within large “center-level” efforts, participation in and especially leadership of smaller multi-investigator teams is undervalued. Moreover, faculty members are hired at the Department level and consequently faculty participation in IDR can be viewed as not contributing to or even competing with Department needs.
- **Junior faculty** may not have the training to be successful in IDR and/or may be discouraged from participating in IDR because there are difficulties in recognizing individual faculty contributions in tenure and promotion decisions.
- **Established and mid-career scientists** who spent much of their career in academic environments that value independent research to secure tenure and promotion may not have developed skills to compete effectively in IDR.
- **Difficulty in identifying colleagues for IDR** and few opportunities for organic spontaneous collaboration exist.
- **Few incentives for faculty to advise graduate students participating in IDR.** In fact, faculty may be discouraged from advising graduate students participating in IDR due to competition between department and IDR graduate programs.
- **There are few incentives for graduate students to participate in IDR.** Graduate students may experience negative consequences for working across departments. For example, graduate students who engage in IDR may not have access to the same resources (e.g., mentoring, financial resources) as students within departmental graduate programs. Graduate students participating in IDR may have redundant requirements and not receive appropriate credit for filling redundant requirements.

Recommendations

1. **Develop broader recognition that establishing an independent research program and participating in IDR are not mutually exclusive.** CPI believes faculty members are able to develop independent research programs while working in an interdisciplinary field on collaborative IDR.
2. **Develop and disseminate** guidelines and training through the Dean of Faculties to faculty, mentoring committees, and Departments and Colleges P&T committees. There is a need for more precise guidelines to **convey and recognize the impact of IDR and individual contribution, including revising the format** of annual reviews and P&T packages.

3. **Provide broader recognition of existing IDR information and training**, especially through the Division of Research and the Office of the Vice President for Research using CPI connections.
4. **Conduct a GAP analysis with** representatives of Division of Research, Dean of Faculties, University Research Council, TAMU Library Office of Scholarly Communication, and CPI to identify gaps in training related to developing effective IDR teams. This would include project management and “team science” skills targeting initiation and management of effective IDR teams and projects.
5. **Develop IDR training and mentoring programs and workshops targeting faculty at ALL stages** of their careers run by the Division of Research and with support of the Dean of Faculties. The Division of Research could also offer clinics and professional workshops that issue certificates of completion.
6. **Develop guidelines for recognizing individual contribution at IDR project initiation.** Collaborate with the Provost and Dean of Faculties to assist faculty in clearly delineating individual contributions to collaborative work that include: definition of project roles, responsibilities, contributions, and how this relates to authorship on manuscripts and distribution of resources on future grant proposals. This could become a tool for evaluating individual contribution as part of IDR training, especially for junior faculty.
7. **Continue to foster a culture change that values IDR** and an interdisciplinary and collaborative culture through mechanisms such as the X-Grants and T3 grants, and continue emphasis on value of IDR by top University administrators.
8. **Provide university/agency-wide software** for joining speaker series and colloquia listservs of departments and schools to facilitate participation in intellectual communities.
9. **Develop faculty scholar programs** that include: faculty relocating for a specified period of time to another college, department, or interdisciplinary teams in a joint site to plan or progress IDR. Programs should also be developed to **relocate industry scholars** into multiple departments as part of their paid sabbatical to TAMU.
10. **Connect researchers through an opt-in electronic form** where researchers could post potential projects and look for partners. This should be developed with Scholars@TAMU (scholars.tamu.edu), the researcher profile system developed by the TAMU libraries.
11. Discuss incentives and **remove barriers to graduate student participation in interdisciplinary programs and IDR** with the Office of Graduate Studies that includes the long-term goal of **creating a Graduate College**. Initiate conversations at the University and College level to **alleviate competition between department and IDR graduate programs**, including discussion of CIP code problems, where appropriate.
12. **Work with OGAPS to evaluate its policies** to ensure that they enable the broadest possible engagement of graduate students in research being conducted outside of the student’s home department. For example, the rule that limits supported doctoral students to nine hours of paid work currently constrains engaging in interdisciplinary research

outside of the student's department even when such research serves the student's dissertation.

13. **Create graduate student IDR programs** that require involvement of faculty from different colleges/departments, such as a T3 graduate student grant program and degree programs not housed in one college or program (e.g., Honors, McFerrin Center, I School).

Initial Steps: We contacted Research and Development Services in the Division of Research and the Dean of Faculties about developing training programs. Representatives from the Dean of Faculties initiated a meeting with CPI to discuss needs, including ensuring that instructions/guidelines for each faculty, mentors, and evaluators are coordinated.

2. Administrative Obstacles

Barriers

- The **additional skill sets (e.g., communication across traditional disciplinary boundaries) required to conduct IDR increases complexity** of the entire research project process for researchers and project administrative staff.
- **Low staff support** with necessary tools within departments increases cost, time, stress, and errors for faculty and department support staff, and SRS staff.
- **Other administrative barriers include:**
 - **SR1501** requires faculty in ENG to submit grants through TEES, faculty in COALS to submit grants through AgriLife, and all others through TAMU.
 - Multi-investigator grants with faculty in COALS and ENG may have **sub-contracts** requiring substantial paperwork (and convoluted signoff process) by both faculty and SRS, especially if the grant is not initiated in the university (i.e. originates within the agencies). These barriers create disincentives for faculty to work with others at TAMU versus other institutions since the subcontracting process is no different.
 - There is **no single Bryan-College Station entity with which corporate partners can establish cooperative agreements** when expertise crosses colleges.
 - **Some Federal granting agencies** view TAMU, AgriLife, and TEES as three independent institutions. Faculty who move across organizational units within the university have lost grants or are required to resubmit applications when grants are relinquished by one system component.
 - **Some Federal regulatory agencies** view TAMU, AgriLife, and TEES as one entity. These agencies have voiced concerns over compliance issues for TAMU faculty grants managed by TEES or AgriLife.

- **Federal agencies** are increasingly requiring academic institutions to file **mandatory reports** on any faculty or staff member accused of sexual harassment or scientific misconduct. Many requirements are centered on students, for which TAMU is specifically responsible. TAMU is required to report events in agencies over which they have no oversight.
- **The mechanism to split PI return** when working with multiple TAMU and TAMU System entities (e.g., TEES, AgriLife, or HSC) is complex. This issue has been especially problematic for Extension.
- Impacts may differ across grant types: large grants versus small and short term grants with little or no IDC.

Recommendations

1. **Conduct a survey** of PIs “now” and 2-years post-implementation of changes to assess impact, barriers and outcomes.
2. **Develop and support existing** training/support/services at the Department/College level to streamline administration of IDR grants and help PIs and project administrators effectively work together.
3. **Support ongoing GAP analysis** by multiple groups to anticipate training/services needed to streamline IDR project administration by support staff.
4. **Develop additional opportunities for IDR administrative support trainings with certificates of completion** to include: best practices for streamlining administration of IDR grant, managing collaborative projects, personnel management, data management, budget and resource management, and project conclusion and transition.
5. **Continue to raise issues related to specific administrative barriers** with appropriate administrators, such as talking directly to AgriLife Research.
6. **Continue to provide CPI membership feedback** and survey data on barriers in project administration.

Initial Steps: AgriLife Research initiated a meeting with CPI to discuss relevant concerns.