Recommendations for Fostering Research Productivity and Creating a Research Culture at the University of Texas at San Antonio

UTSA Research Advisory Board - Sub-Committee on Macro Research Issues

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Background
As part of the Research Advisory Board’s (RAB) mission, a sub-committee was formed to explicitly focus on macro issues related to research productivity at UTSA. This document represents the RAB’s current assessment of the issue and offers suggestions and recommendations to improve the existing research environment to facilitate the University’s stated goal of becoming a Tier I research institution. These initial pages provide a summary of our assessment and recommendations and are supplemented with a more thorough description and discussion of each issue throughout the remainder of the document.

Executive Summary
The overarching requirement for reaching Tier I status is the development and continued fostering of a research culture at UTSA. Faculty members hold the principal responsibility for the quality and volume of research at UTSA. While faculty members are central to the research process, the institutional infrastructure, leadership, and related processes should interact with and support faculty in all aspects of research processes and productivity. Moreover, UTSA must recognize faculty intellectual pursuits and productivity as central to the institution’s growth and focus on facilitating and advancing their creation, transfer, and application of new knowledge.

While faculty members must hold the principal responsibility for the volume, quality, and type of research infrastructure and related processes must support faculty in all aspects of research productivity. Moreover, UTSA must recognize faculty productivity as the key and focus on facilitation of advancing the creation, transfer, and application of knowledge.

Three core elements should drive a strategic effort to advance research/creative productivity. They are 1) metrics for assessment and evaluation of research productivity and the infrastructure supporting research, 2) research infrastructure improvement, and 3) development and maintenance of University, college, and department policies and procedures that support and enable research productivity across the range of disciplines represented within UTSA. Developing and implementing strategic efforts to advance research/creative productivity should be founded upon identification and assessment of metrics appropriate for different domains of a research productive organization. By assessing baseline metrics, changes in policies and procedures and infrastructure can be targeted to specific research goals and needs. Thereafter, policy, procedure, and infrastructure needs should be periodically assessed to ensure they are aligned with the goal of research productivity.

Recommendations
1. Develop an ongoing strategic research planning process that defines measurable objectives and establishes clearly stated actions and responsibilities. Specifically, colleges, departments, centers, and institutes should engage in ongoing strategic planning efforts that emphasize
measureable objectives, clearly stated actions and responsibilities, and accountability for progress.

2. Planning efforts should address both infrastructure and policy and process related issues tied to metrics that will permit assessment and monitoring of progress.

3. Assessment using metrics should become an ongoing and iterative process that occurs centrally at UTSA while incorporating input from colleges, departments, institutes, and centers and while encouraging these sub-units to conduct their own efforts to collect and review their own relevant metrics.

Below, the above three core elements are described in detail (i.e., metrics, infrastructure, and policies/procedures) and are delineated and presented as a strategy to systematically improve the research productivity of UTSA faculty members. Finally, examples of strategies that have potential to advance the culture of research at UTSA are offered.
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Overview
UTSA is advancing toward Tier 1 research university status. The overarching need for UTSA is the development and fostering of a culture of research and scholarship. The core outcomes or products of UTSA as an organization are based upon faculty efforts to create, transfer, and apply knowledge. In this manner, research productivity should include the advancement of knowledge through funded and non-funded products. As with other preeminent research institutions, strategic planning must embrace and support a cultural milieu that is woven into activities at all levels of UTSA (e.g., teaching, service, research). Growth of academic productivity-- in terms of quality, quantity, and impact-- is at the heart of creating and transferring knowledge that has real world implications. As we define and work toward our potential --to improve the discovery and application of knowledge--, our efforts will bring positive, value-added contributions to the state of Texas and society at-large. Increased scholarly productivity by faculty members will also allow for greater national and international stature and visibility.

The most important element in transitioning to a Tier 1 research university is the ability of faculty members to be productive in research and disciplined inquiry by providing exceptional encouragement and support for the growth of these activities broadly and within given disciplines. Faculty members hold the principal responsibility for the quality, volume, and type of research outcome or product. This fact should be generally recognized across UTSA with an understanding that the institution’s infrastructure and processes must be focused on the facilitation of advancing the creation, transfer, and application of knowledge. Leadership and support for advancing this must come from all areas and levels within the University, from the President, Provost, and Vice-President for Research, to the Deans, the Department Chairs, and center and institute directors, and administrative staff members. All leadership must embrace advancing our scientific/creative activity toward nationally and internationally ranked status in areas where the University is strong and in areas where there is potential for the University to be strong and grow.

Leadership and faculty members must be focused on identifying and addressing obstacles that operate at multiple levels throughout the University. Some of these obstacles have to do with the continuation of past cultures that no longer serve the goal of Tier I status. Interaction and collaboration are key elements of scientific/creative productivity and leadership need to assess and address barriers to collaboration and ways of enhancing collaboration. Offices and infrastructure under the VPR, and colleges and departments, must be oriented toward supporting faculty (individuals and groups) efforts to achieve research/creative production goals. The staff members should be oriented to identifying and addressing needs of faculty members who are striving to be scientifically/creatively in research

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1 The concept of “research productivity” is discipline specific and must be assessed in terms of discipline specific standards. Whether or not research is funded is also variable across disciplines and topics within and interpretation of supported research needs to be within the context of discipline specific standards.
production. In this regard, the language used to describe elements of an organization is an important indicator of the purpose and function of the organization.

It is important that we recognize that some faculty research will bring immediate, valuable outcomes, while other research efforts will require more sustained work over time. Faculty will also be developing research skills and knowledge needed for new findings that will require support, encouragement, and seed funding. The institution will need to invest in the faculty and support talent.

**A key factor in promoting a research culture is to ensure accountability at all levels from faculty to administration.** This can be facilitated by having good communication between administration and faculty, clearly defined expectations and criteria for success and a regular review system that ensures evaluation and subsequent actions based on these criteria. Finally, reward structures for research contributions, sustained inquiry, and various stages of productivity should be developed.

**Factors that appear to be consistently related to high performance research environments include** (see **Figure 1**): clear goals for coordination, research emphasis, distinctive culture, positive group climate, decentralized organization, participative governance, frequent communication, resources (particularly human resources), group age, size and diversity, appropriate rewards, recruitment emphasis, and leadership with both research skill and management practice (Pratt, M., Margaritis, D. & Coy, D. 1999²).

**Figure 1: Factors related to high performance research environments**

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Strategy
To develop a strategic plan for growing and nurturing the research culture at UTSA, some baseline information about the research culture at UTSA would provide insight into aspects of research culture where UTSA is excelling as well as for those aspects that require attention. Toward this end, the committee suggests consideration of a framework comprised of research productivity metrics, research infrastructure support, and policies and procedures related to research productivity.

1. **Research productivity metrics**
   - Develop a system for defining current levels of research productivity and for monitoring change in productivity for the university, colleges, department (including centers and institutes), and faculty members. Consider additional information for interpreting such as seniority and other relevant characteristics (i.e. presence of graduate students, non-faculty research staff, and department size).
   - Standards for faculty level productivity in each discipline should be identified as a reference point for assessing faculty productivity.
   - Standards for research productivity at the university, college, and department level should be identified as a reference point for assessing productivity.

2. **Research infrastructure support**
   - Elements of infrastructure support should be assessed and shortcomings addressed at the university, college, and department levels.
   - At the department level, issues such as the adequacy of research space, graduate student support, equipment, administrative support, use of F&A, travel resources, and mentoring programs should be assessed and shortcomings identified and addressed. Department chairs should be research/creatively active or have significant background and experience being research/creatively productive.
   - At the college level, issues such as the availability and administration of seed grants, and administrative support (including Research Service Centers) for procuring next-step funding, should be assessed and shortcomings identified and addressed.
   - At the university level, issues such as the availability and administration of seed grants, administrative support, compliance support, mechanisms to establish and manage collaborations across units within and outside of UTSA, etc. should be assessed and shortcomings identified and addressed.

3. **Policies and procedures supporting research productivity**
   - Policies and procedures in place at the university, college, and department levels should be assessed and shortcomings addressed.
• Workload policies should be systematically assessed across colleges and departments with consideration for discipline-specific differences. Information about exceptions (i.e. lower teaching and service load for junior faculty; one model that has been successful elsewhere is to give incoming junior faculty 1 course per year and no service for the first three years then gradually increasing responsibilities) should be standardized whenever possible. \textit{This should include information about “research intensive” and “teaching intensive” options.} In effect, all contributions should be valued (i.e. great teachers should be valued, encouraged, and rewarded in the same way that great researchers are). UTSA should consider “teaching buy-out options” for those who have grants, in some cases lowering classroom teaching load for a period of time to 0-1 course per semester.

• Strategic plans for advancing research (i.e., research/creative product standards/expectations) at all levels (university, college, and department) should be assessed for existence and how plans are utilized and evaluated. Consequences for unfavorable assessments should lead to explicit changes.

• Cross-unit collaborations should be assessed for existence, nature, and success at the faculty department, college and university levels.

• Faculty members’ perceptions and experiences of the research environment in their department, college, and the university should be assessed regularly.

• Faculty assessment of academic administrative and staff support for research should be conducted periodically.

• Research reward structures at multiple levels of the institution should be reviewed periodically.

• Timeliness, accuracy, and ease of administrative management of proposals, contracts, purchasing, travel, budgets, hiring, and other key administrative functions should be assessed periodically.

• Research productivity incentives should be assessed for existence, nature, and effectiveness at the departments, college and university levels

• Faculty should develop short and long-range plans that are part of their yearly review. Short range planning should reflect achievable goals agreed upon by faculty and their Department Chair and used as a metric of success. A five year plan should reflect a plan relative to research productivity, a central theme for research and achievement of extramural funding to support research.

• Incentives should be provided for bringing international researchers, visiting scholars and cross-university projects to UTSA whereby faculty, graduate, and undergraduate researchers can advance their research trajectories.

These three elements need to be considered within the framework of the University structure. \textbf{Figure 2} presents a visual representation of how these elements may mesh with the various units within the University and how each of these goals may manifest at each level.
Figure 2. Conceptual matrix for organizing a strategy to advance scientific and creative efforts
Specific Examples
Below are descriptions of macro level strategies that have potential to advance the culture of research at UTSA associated with specific scientific and creative endeavors. Implementing some or all of these strategies is likely to advance the quality and quantity of scientific and creative endeavors at UTSA. These are presented as examples of potential strategies that could be employed in a strategic plan to advance scientific and creative productivity at UTSA and are not intended as prescriptive solutions.

1. Increase the number of UTSA departments that have achieved national and international recognition and improve the ranking of UTSA as leader in national and internationally significant areas.
   a. Assess the ranking of UTSA and departments nationally and internationally
   b. Identify and support departments that already are or are emerging as leaders in their disciplines or fields. These departments will provide a model for systematically targeting the fostering of research in other departments that have not been as involved in the research process at UTSA but that have potential for growth.
   c. Develop better data, criteria, and procedures for evaluating and tracking the quality of research, scholarship, and creativity of faculty, departments (centers and institutes), and colleges.
   d. Require departments (centers and institutes) to develop strategic plans for enhancing or achieving academic distinction and leadership. Chairs (and directors) would have key leadership responsibilities for advancing such plans. Such plans should be consistent with the UTSA strategic plans and policies for research.
   e. Selectively invest in faculty groups, programs, and departments (including centers and institutes) that demonstrate the greatest capacity to build on current strengths and advance research, create efforts, and graduate education and disinvest in those with the lowest capacity.

2. Build and maintain leadership in a select set of departments.
   a. Create and use internal advisory groups for topics such as the life sciences and social sciences, humanities and the arts, physical sciences and engineering drawing on internal expertise and knowledge to develop new academic initiatives and direction for fields for strategic investment or disinvestment.
   b. Consider cross-college-departmental structures of coordination (in disciplines or fields where these would significantly enhance academic excellence and reputation and/or improve the utilization of faculty resources). For example, faculty from two different colleges or departments could jointly direct relevant research institutes. Such an approach may lead to more inter-disciplinary collaboration. Eliminate, consolidate, or downsize academic departments or programs that are not of central strategic importance to the university’s research culture, or are lacking quality with limited potential to become strong in a reasonable period of time.

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3 Select elements and ideas presented in this section taken or derived from Cornell and Duke Universities’ planning documents.
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c. Promote and support new initiatives that develop pioneering research and scholarship across academic groupings (e.g., life sciences, physical sciences, and engineering; humanities and social or life sciences; life sciences and social sciences).

d. Attract the best graduate students nationally and internationally and fully engage them in the creation and transmission of knowledge toward creating noticeable contributions to developing leaders in each field.

e. Develop and expand undergraduate experiences that deeply engage students and faculty in a way that enables students to respond to the rapid changes in knowledge production, transmission, and application.

3. **Strengthen support for core and emerging interdisciplinary areas, while ensuring excellence in disciplines as a foundation.**

   a. Encourage departments to recruit faculty who may have an impact beyond the hiring unit, and include faculty from more than one discipline or college on search committees.

   b. Ensure untenured faculty whose work extends beyond their department are supported and set clear expectations that interdisciplinary or cross-departmental research will be fairly and positively evaluated in tenure and promotion decisions. Measures and procedures for doing so must be formulated as these do not presently exist and there is great variance in how cross-disciplinary appointments are managed.

   c. Promote development of new interdisciplinary initiatives by improving the capacity of colleges and the VPR and Provost’s offices in conjunction with faculty who are already successful at the Tier 1 level to identify, set priorities among, and nurture interdisciplinary efforts emerging from the faculty.

   d. Establish more effective procedures for encouraging and supporting the preparation of interdisciplinary proposals for external grants, traineeships, or contracts with a broad impact across departments and colleges.

   e. Regularly assess interdisciplinary programs to ensure that they involve faculty from multiple academic units and are magnets for excellence; and phase out those that do not meet rigorous standards.

   f. Evaluate whether existing seed funds across campus are being used effectively to stimulate major new interdisciplinary initiatives—at faculty junior, mid-career, and senior levels.

   g. Department chairs should currently be an active researcher or have a solid research history and should be expected to develop initiatives to flourish research, build a community of researches in their department.

   h. Deans and colleges have a significant responsibility to create, nurture, and grow an environment that is conducive to research. Toward fulfilling this responsibility, deans should develop and implement strategies to encourage and reward research and scholarly productivity and should closely monitor indicators of productivity.
4. **Ensure institution-wide services for the administration and support of research grants (including government, foundation, and industry funding) meet standards consistent with other research-intensive universities.**

UTSA needs to minimize administrative burdens on researchers and work to better facilitate capacity to compete for research funding. University-wide efforts and practices should foster and sustain a culture of proactive, solution-oriented, collaborative, customer-focused administrative services where actively consulting and partnering with researchers is the norm.

- a. Examine whether existing seed funds across campus are being used effectively to stimulate major new interdisciplinary initiatives and that they lead to increased potential to promote interdisciplinary research and attract extramural funding.
- b. Identify and eliminate administrative barriers to successful competition for external funding (e.g., reduced teaching loads).
- c. Develop and successfully implement financial accounting and research administration systems in a manner that identifies and meets the needs of all stakeholders: administrators, faculty, and support staff both in units as well as centrally.
- d. Develop and maintain current knowledge of external regulatory trends (and proposed changes) and ensure that the regulatory requirements are adequately met, while avoiding imposition of unnecessary bureaucratic constraints on investigators.
- e. Develop and maintain efficient staffing structures for research administration across campus in order to handle the administrative aspects of the research process as much as possible (e.g., for proposal development, financial management, contract management, protocol administration, human subjects review, data stewardship, and hiring).
- f. Establish clear expectations, qualifications, and competencies for research administrators and train or hire highly qualified individuals to serve in these roles in all colleges.
- g. In support of excellence in research, review performance of research administrators with established performance standards, including customer satisfaction and assessment by researchers and college research officers.
- h. Effectively participate in advocacy directed at funding agencies in support of the needs of higher education, principles of academic freedom, and capacities to conduct fundamental research.

5. **Encourage productive, mutually beneficial collaborations between faculty and students on the Main Campus and the Downtown Campus**

   - a. Identify areas of common and complementary interest between the faculty members at both campuses and nurture these by encouraging joint retreats or joint seminars among interested faculty in both locations.
   - b. Establish infrastructure to enable simple and effective use of video conferencing between the two campuses.
   - c. Assess the main administrative barriers to collaboration across campuses by faculty and students and work to resolve those.
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d. Strengthen graduate programs and more fully integrate and support graduate students within the academic community.
e. Provide concrete support for all levels of collaboration (College, University, Cross University).

6. Maintain and selectively strengthen, in cost-effective ways, the core infrastructures for research, scholarship, and creativity, including libraries and shared research facilities

   Libraries:
   a. Assess how the university libraries are supporting the research and scholarship of faculty.
   b. Develop deeper engagement between faculty and librarians across campuses to identify priorities for collection building and to respond to emerging needs.
   c. Examine and track the library needs of students (undergraduate and graduate) to ensure strong services to support their academic work.

   Shared research facilities:
   a. Selectively maintain and promote core shared facilities in the sciences and social sciences, taking account of the research needs of local, national, and international scientific communities, external funding opportunities, and cost efficiency.
   b. Review the university's investments in shared research facilities on a regular basis to ensure that these facilities maximize impact on the productivity and reputation of the university in national and international domains.
   c. When investing central resources to support shared research facilities, give priority to those facilities that have external matching funds and those that serve multiple research groups.