CHANCELLOR'S
BLUE RIBBON COMMITTEE ON RESEARCH

University of California, Davis

DRAFT REPORT
April 28, 2010

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Executive Summary

In December 2009, the UC Davis Blue Ribbon Committee on Research was formed by Chancellor Linda Katehi. With an objective of substantially growing the university's research expenditures over the next five years, the committee was given the task of providing advice to the Chancellor that included specific strategies to strengthen and expand the UC Davis research enterprise. The committee was formally charged with producing a report that would:

Charge

1. Identify strategies to help UC Davis more fully leverage its research strengths and expand its research program in alignment with national and state needs and indexes.
2. Identify key success factors that must be in place and barriers that must be removed in order to achieve our goal of substantially expanding research funding within five years.
3. Evaluate UC Davis' approach to stimulating interdisciplinary research, including Centers and Organized Research Units, with attention to strengths and weaknesses as compared to exemplary research universities.
4. Recommend a financial model for optimizing research success, including funding for core research resources, infrastructure and support for Centers and Organized Research Units from inception through maturity.
5. Identify opportunities for improvement in the efficiency and effectiveness of research administration including the Institutional Review Board, Institutional Animal Care and Use Committee and grant submission and management at UC Davis.
6. Identify the effectiveness of current partnerships with funding agencies, foundations, industry and philanthropists. Recommend approaches to expand on and optimize these relationships.

Overview

Central to the committee's charge, and as the basic foundation for its report, are the three legs of academia: teaching, research and service. As a public university, our mission is to educate, discover new knowledge and disseminate and apply it for the betterment of humanity. To realize excellence in research, the committee assessed its task in light of the following:

- The University is a mission-driven organization; we are not a business. We produce knowledge and educate people. We should adopt best practices from both academia and business to optimally achieve our mission.
- UC Davis is an intensive research university with great academic breadth, quality, and diversity that is making high-impact, high-visibility research contributions.
- Many opportunities for the advancement of knowledge and solution of urgent societal problems require interdisciplinary or multidisciplinary approaches, an historic strength of UC Davis.
- The strength of the university resides in the quality of its faculty, students (undergraduate, graduate, and postgraduate) staff, administrators, and partners.

The committee recognized that our rapidly-growing research enterprise was not planned strategically and is concerned that we have become overly compliance-driven. We celebrate that UC Davis has doubled sponsored program expenditures over the past 8 years to nearly $650 million, but emphasize that further growth should be guided by a vision to match our strengths and expertise with societal need. The volume and rapidity of our research growth has increased the workload on staff supporting research administration, and budget reductions have further hampered the delivery of timely support and service. During this time federal regulations and increased expectations for fiscal and regulatory accountability have accentuated the need for service-oriented administrative infrastructure. The committee expresses significant concern that the current research infrastructure is overly bureaucratic and risk adverse. We need to establish a "best practice" research administration infrastructure focused on encouraging faculty input into the research administration process and committed to the goal of ensuring that faculty become even more successful in achieving grant support and performing excellent research.

We seek a research culture and administration support structure that streamlines campus administrative processes, changes its goal to be mitigation of compliance risk rather than seeking to eliminate risk, and views its mission to be enabling faculty and research teams to thrive in their research endeavors.

The committee approached its task in two ways. First, data were collected that provided a snapshot of the history of research at UC Davis as compared to other UC campuses. Information was also collected that allowed the committee to better understand how research is conducted at our campus. Second, discussion and interviews with outside constituencies were held.

While formalizing the recommendations, the committee went to great lengths to be inclusive of individual viewpoints. At times, committee members' opinions on the final recommendations diverged; these instances are reflected in the report.

From the committee's work, came eleven distinct recommendations. There are unavoidable areas of overlap in the recommendations and actions. The committee members worked diligently to limit redundancy as much as possible, and the text indicates sections that are similar. It should be noted that the committee felt strongly about the importance of graduate students to our research endeavors. While graduate student support is specifically mentioned in Section VIII, the committee felt graduate students affected each of the recommendations and they were taken into consideration through the entirety of the process.

Recommendations

Each recommendation has specific actions associated with it that are intended to help achieve our goal of strengthening research at UC Davis.

I	Create a culture of research excellence
II	Align UC Davis expertise with societal needs/opportunities
III	Incentivize research and researcher excellence
IV	Build on existing strengths in interdisciplinary collaboration
V	Optimize function of Centers and Organized Research Units
VI	Encourage "large" grants, including infrastructure, core, center and training grants
VII	Facilitate knowledge transfer
VIII	Expand resources for research and researcher support
IX	Remove administrative barriers and increase transparency
X	Standardize reporting of UC Davis research metrics
XI	Enhance visibility of UC Davis research, including high-impact public relations campaign

During the data gathering and the discussion that preceded this report, committee members heard from others that *"UC Davis is less than the sum of its parts."* The process of creating this report allowed the committee members a "big picture" view into research at UC Davis that many had not seen before. It reveals UC Davis' clear potential to be greater than the sum of its parts. We feel strongly that the recommendations and actions outlined in this report will help guide UC Davis to its fullest research potential and realize its stated goals.

OVERARCHING THEMES

Mission

As a public university, our mission in the broadest sense is to educate our citizens, discover new knowledge, and disseminate and apply it for the betterment of humanity and the sustainability of our planet. The three legs of our academic stool, teaching, research, and service, are intimately connected and we seek to further excellence in all. For excellence in research, the following basic principles apply.

1. The university is a mission-driven organization. We produce knowledge and educated people. We are not a business and are not driven by the profit motive. We must be careful not to over-apply business models to our operations. We should adopt best practices from both business and academia to optimally achieve our mission. Though excellence is in part reflected by external research funding, quality and impact are not synonymous with money. There are major differences in funding levels and styles and sizes of research programs, not just between the science- engineering-medicine fields and humanities-social sciences fields, but also within these groupings. These differences must be recognized and respected, and incentives to encourage cross-fertilization should be created.

2. UC Davis is an intensive research university with great academic breadth, quality, and diversity that is making high-impact, high-visibility research contributions. Research at UC Davis spans basic physical science, engineering, biology, agriculture, human and veterinary medicine, humanities and social sciences, law, and business. Despite current budget challenges, we believe that this breadth should be maintained and interactions among the different disciplines fostered. There must be flexibility in supporting many different styles of research and individual metrics for evaluating it in the context of the different disciplines. Research discovers new fundamental knowledge, helps solve short and long term technological and societal problems, and enriches the intellectual and cultural quality of life. It provides essential education in critical and creative thinking and problem solving, as well as technical skills, for students at all levels from undergraduate to Ph.D. to postdoctoral scholars. It keeps our faculty creative, innovative, and intellectually alive and in turn makes them better teachers. It brings value to science through creating innovative solutions to meet society's challenges and needs.

3. Many opportunities for the advancement of knowledge and solution of urgent societal problems require interdisciplinary or multidisciplinary approaches, an historic strength of UC Davis. We need to better encourage and support interdisciplinary efforts, recognizing that such approaches encourage innovation at the interfaces of the fields of study. We must not forget that to be successful in interdisciplinary endeavors we must continue to be strong in our disciplines. We firmly believe that expansion of the research enterprise at UC Davis should be done in a strategic, planned way, while encouraging the creativity of the individual. We anticipate that the interrelated topics of energy, environment (including climate change), and health will be at the forefront of research and funding for the foreseeable future. We need to position ourselves strategically in these areas. At the same time, the social, historical, political, and cultural aspects of society both shape and are shaped by our technological evolution. Studying these relations, participating in the social process, and being enriched by the arts and humanities are essential to the university.

4. The strength of the university resides in the quality of its faculty, students (undergraduate, graduate, and postgraduate) staff, administrators, and partners. All must be empowered and supported and the best must play active decision-making roles in setting research policy. Excellence in research and a deep understanding of the research enterprise are essential traits for upper administration. Expansion of partnerships with other campuses in California and around the world; government; foundations; and industry will be key to leveraging our research skills and investments.

These principles directly lead to a number of overarching goals, reflecting both opportunities for advancement and needs for improvement, enumerated below. Within this framework, specific goals were identified and action items recommended in a subsequent section.

Overarching Goals

The committee believes that achievement of our university's ambitious vision for our research programs will require a) new administrative leadership, b) culture change, c) removal of administrative barriers, d) more effective public relations and advocacy for research, and, e) improved incentives for research and researchers.

1. Ensure highest quality of leadership
   a. Recruit and retain administrators who are effective collaborators, visionary leaders, and strategic managers with rigorous research agendas, both for themselves and for the university.
   b. Administrators must have the vision and interpersonal skills necessary to build strong service-oriented teams in the Office of Research and to effectively communicate and receive input from internal experts and external constituencies.
   c. These excellent leaders must be adequately staffed in both the administrative and research areas to excel and achieve this ambitious vision.

2. Foster a culture of success
   d. Create a campus environment wherein research decisions are made by those who value risk-taking, entrepreneurship, transparency, collaboration, expedience, and success.
   e. Encourage and reward major individual research programs, innovative and interdisciplinary research initiatives, and program building in an effective and transparent manner.
   f. Make improving research business administration a top and on-going priority.

3. Support and leverage our research strengths
   g. Engage in campus-wide strategic planning for research that matches national needs and interest (including both understanding and helping to define agencies' and philanthropies' current and proposed funding directions) with areas of current and potential research strength at UC Davis (including the sciences, engineering, health professions, education, social sciences, and humanities) and use this plan to determine areas for central investment in research.
   h. Support the full range of applied and fundamental research in diverse fields of study.
   i. Identify and invest in strategic disciplinary excellence through appropriate pivotal faculty appointments at all levels.
   j. Recruit top-level staff and faculty and retain them.
   k. Incubate and support (from conversation to grant proposal to outcome) interdisciplinary research across departments, schools and colleges in areas of strength.
   l. Emphasize special strengths and resources such as proximity to the State Capitol and to national labs and other government, state, and private research centers, and UC Davis-based institutes and research consortia.
   m. Assess Organized Research Units and centers and develop mechanisms to provide appropriate central support.
   n. Improve key infrastructure, including space, facilities, core resources, and staff support.

4. Maximize research visibility and impact
   o. Create differentiating effective branding and marketing strategies and campaigns.
   p. Use communications to ensure that our research influences stakeholder (government, alumni and friends, industrial partners, peers) perceptions and decisions.

5. Develop research funding models that appropriately attract and allocate research funds to both assure research success and ensure campus financial viability
   q. Assess and optimize campus decision-making approach to allocation of research funds (indirect cost recovery, cores, recharges, Organized Research Units, matches, bridge funds, etc.).

r. Effectively advocate with UC Office of the President to apportion funding (indirect cost recovery, state general funds, FTE, etc) and scope of centralized vs. decentralized authority and responsibility.

s. Facilitate attraction of new external research funding from government, foundations, industry, philanthropists, and others.

RECOMMENDATIONS

RECOMMENDATION	ACTIONS
I. Create a culture of research excellence	1) Through administrator and faculty statements and actions, create a culture of creativity, inquisitiveness, entrepreneurship, collaboration, and risk-taking that encourages the full-range of research and scholarship of discovery, empowering staff at all levels. 2) Emphasize strategic hiring of faculty with research excellence that are the "best" for the university as a whole, not just the individual unit. 3) Endorse the "Target of Excellence" approach for hiring (a small number of) senior faculty who will be expected to lead campus research strategic initiatives. 4) Expect senior faculty to mentor younger faculty, in order to develop and retain a generation of mid-career leaders. Unit specific programs should be developed that teach senior faculty how to mentor more effectively, matching senior and junior faculty and programs. 5) Research staff at all levels should have training opportunities (career ladders) and be empowered to work to the full scope of their training. 6) Highlight success in research, including track record of extramural funding, acquisition and management as a prominent factor in merits and promotions. 7) Hire administrators with demonstrated history of personal excellence and use the criterion that their commitment is to support faculty success; require a complete and appropriate level and open search. 8) Remove any stigma associated with self or unit specific promotion, and indeed celebrate such accomplishments. 9) Redesign Office of Research to support the new culture (see also IX. below) and ensure that these parameters are used by Chancellor/Provost to evaluate Office of Research and Vice Chancellor for Research. 10) Move Office of Research to a central Davis campus site to emphasize its central role in campus life. 11) Provide appropriate training to allow administrators to fully implement job duties thereby reducing redundancy (e.g., multiple signatures required for approval of one item).
RECOMMENDATION	ACTIONS
II. Align UC Davis expertise with societal needs /opportunities **See also XI.6**	1) Develop a system/program for continuous identification of groups of faculty and administrators that align campus expertise with societal needs and current or upcoming funding priorities. Develop a plan for launching such efforts that includes annual reevaluation. 2) Identify groups of faculty and administrators who are charged with developing a strategic plan, (vision, strategies and implementation); framework for faculty growth (including potential Target of Excellence recruitments) and identification of infrastructure enhancement needs for a path to research success. These groups would regularly update and submit their report to the Chancellor/Provost; the process should be periodically refreshed. Prepare white papers in specific areas that can easily be transferred into funding proposals with rapid turn-around times. 3) Include in the Vice Chancellor for Research position description an expectation of active participation in national research agenda creation including identification of faculty representatives in specific areas of expertise; communication to faculty about these agendas. 4) Organize topical sessions in UC Davis' areas of competitive strength at national and international meetings and bring such meetings to campus.

RECOMMENDATION	ACTIONS
	5) Host national and international meetings on campus in areas of identified research strength and priority.
III. Incentivize research and researcher excellence **See also VIII.4 and .9**	**Indirect costs:** 1) Develop a transparent, simplified, and fair approach to indirect cost recovery distribution that is communicated to all constituents. 2) Re-examine/negotiate indirect cost recovery distribution at the federal, UC Office of the President and campus levels, with the goal of returning more indirect cost recovery to investigators (recommend 10%) and to the units (recommend an additional 10%). 3) Use indirect cost recovery to primarily support the programs that generate the indirect cost recovery funds, rather than subsidizing programs that fail to generate indirect cost recovery. Modify campus funding approach to decrease use of indirect cost recovery for general campus operations. 4) Institute policies on campus providing budgetary incentives to the departments for acquiring research funding and increasing overhead generation for the university. **Matching and bridge funds:** 5) Formalize and make transparent methodologies for awarding matching funds by Office of Research and by groups like Administrative Coordinating Council of Deans (obtain formal consensus of involved deans). 6) To facilitate dean willingness to commit matching funds, in advance formulate a mechanism by which indirect cost recovery dollars (incremental) can be used to help pay for matches if success rate is unexpectedly high. 7) Prioritize bridge funding as an important use of indirect cost recovery and increase maximum award to $100,000 for those who have previously generated indirect cost recovery in this amount or higher. 8) Establish review committee to prioritize bridge funding requests on the basis of chances for future funding (committee did not reach consensus on whether this should be a faculty or an Office of Research managed group). 9) Formally assess and report out on future proposal outcomes for faculty receiving bridge funding and require faculty reports on success from those receiving bridge funding. 10) For investigators who receive bridge funding, allocate a portion of subsequent investigator-assigned indirect cost recovery (see III. 1 above) to the bridge fund program to pay it back. Faculty who have repaid indirect cost recovery in an equivalent amount should be eligible for future bridge funding. **Faculty workload policies:** 11) Assign each dean the responsibility of creating a unit specific transparent policy that appropriately allocates workload (teaching vs. research vs. service). This policy should ensure lower teaching/service loads as research productivity increases (funding, awards, unit specific impact) and vice versa, likely via mechanisms such as "trade-out" or "buy-out" systems. 12) Include effectiveness/fairness of this policy in performance evaluations of deans by the Chancellor/ Provost 13) The Provost should charge the Office of Graduate Studies to create a plan that sets graduate group teaching load expectations (e.g. in proportion to graduate student numbers, FTE allocation, etc)and mechanisms for "trade-out" or "buy-out" between Schools, or to recommend a suitable alternative.

Merits and promotions (see also I.5, IV.4)

14) In order to reduce bureaucratic workload, emphasize formal review of promotions over merits. Streamline the merits and promotion process while maintaining academic senate control of the process. Some members thought <u>routine</u> merits could be reviewed by the chair and college committee and not require faculty review (unless requested by the candidate for merit), but accelerated merits, promotions, and appeal would use the full, current process. Others felt this could be accomplished by not requiring the college personnel committees to reiterate what the department letter says that is then followed by the Associate Dean writing the same thing again.

15) Merit/promotion applications should be shorter and use electronic review modalities when possible; fewer letters should be solicited for routine merits; approvals should require only a few sentences. (see IX. below also).

16) Incentivize and recognize in merits and promotions research done in conjunction with community partners and research having a positive impact on the region and state.

RECOMMENDATION	ACTIONS
IV. Build on existing strengths in inter-disciplinary collaboration **See also III.2 and V.9 and 10**	1) Create (by a joint group of faculty and administrators) and distribute UC Davis campus policies to reward interdisciplinary research as recommended here. 2) Office of Research should periodically convene Center and Organized Research Unit directors and groups of faculty (including program graduate and graduate group chairs) across schools and colleges to proactively identify interdisciplinary teams, especially in the areas of strategic focus identified in I.1-2 and II. above). 3) Database systems such as Collexis that provide data on faculty expertise should be used to foster connectivity and support faculty seeking interdisciplinary colleagues and research opportunities. 4) Vice Provost, Committee on Academic Personnel and faculty personnel committees should provide credit in merits and promotion for interdisciplinary creative activities, including multi-author papers and non-traditional creative products. In addition, merits and promotion in "non-primary" departments, especially when they are without compensation, should be significantly streamlined. 5) Provide time, funding, and merit/promotion credit for faculty to participate in interdisciplinary research; special attention should be given to this issue in the humanities and social sciences where single-author publications and independent graduate student research are frequently the norms. 6) Interdisciplinary centers and Organized Research Units should each have an interdisciplinary oversight committee that is expected to advise the director, coordinate interdisciplinary collaboration, and advocate for them in their home unit. 7) Each interdisciplinary center/Organized Research Unit director should present an annual strategic plan and budget to his or her oversight committee.
RECOMMENDATION	ACTIONS
V. Optimize function of Centers and Organized Research Units	1) Use Centers/Organized Research Units to highlight research areas of excellence (see II. above), provide one-stop shopping for potential funders, and as a basis for public relations initiatives to improve UC Davis research visibility (see XI. below). 2) Establish and periodically assess proportion of centers and institutes that should be designated as Organized Research Units, taking into account the indirect cost recovery and evaluation implications.

See also IV.6, 7 and 8	3) Establish clear goals, including financial ones, metrics, and timelines for Organized Research Units.
	4) Separate the academic evaluation of Organized Research Units from the assessment of whether to continue central funding support.
	5) Tie continuation of central funding support to written goals and metrics, with an emphasis on acquisition of external funding. Some committee members recommended that the usual expectation be sunsetting of central funding support (above indirect cost recovery) after 3 years, with an extension only if there was strong evidence of applying and success in extramural support and that longer periods of central funding should be the exception (the goal would be to ensure that no single Organized Research Units receives large central funds from Office of Research for more than 5 years, except in rare cases). Other members thought the sunsetting should be for the start-up support; then after 3 years, successful Organized Research Units would competitively apply for appropriate central maintenance support every 5 years.
	6) After an initial limited start-up phase, Organized Research Unit program growth funding should not exceed that of direct costs + a portion of negotiated indirect cost recovery + unit-specific funds approved by deans.
	7) The academic evaluation of Organized Research Units should be significantly streamlined, especially when limited central funding is being received. Clearly communicate reporting lines for each center (responsible dean) and Organized Research Unit (Vice Chancellor for Research). Ensure appropriate and streamlined evaluation methodologies for Organized Research Units and Organized Research Unit directors. All Organized Research Units should have an oversight committee of faculty and appropriate senior administrators per current UC guidelines and policy. An Organized Research Unit oversight committee should advise, support, and coach the director, and advise the Vice Chancellor for Research and the Dean if the Organized Research Unit director's performance is sub-standard.
	8) Require Centers/ Organized Research Units to publicize their activities to ensure all campus faculty and students are able to take full advantage of the resources.
	9) Improve transparency to the campus community of central funding support for each Organized Research Unit.
RECOMMENDATION	**ACTIONS**
VI. Encourage "large" grants, including infrastructure, core, center and training grants **See also III.1 and 2**	1) Incentivize faculty to prepare, submit and administer these grants by providing release time to participate in the preparation and, if the application is successful, allocating 10% of indirect cost recovery directly to the "working" principal investigator as unrestricted funds.
	2) Reduce teaching/service loads of faculty who are principal investigators of these grants (per the unit specific workload policy-see III. above) in order to allow them time to administer the grant.
	3) Optimize use of Interdisciplinary Research Support services in Office of Research. An Interdisciplinary Research Support administrator should be assigned to assist with the preparation (budget, collect biosketches, resource descriptions, etc) of these grants.
	4) Also, Office of Research should right size the Interdisciplinary Research Support unit. To do this, Office of Research should conduct a study of the number and type of applications that the Interdisciplinary Research Support unit had to turn down and large grants submitted without support from the Interdisciplinary Research Support unit to delineate true need, with appropriate increased Interdisciplinary Research Support funding if supported by study results. A survey of individuals

	using Interdisciplinary Research Support services should be conducted to determine areas of strength and areas requiring improvement.
RECOMMENDATION	**ACTIONS**
VII. Facilitate knowledge transfer	1) Expand campus concept of technology transfer to include "knowledge transfer". 2) Recognize and reward knowledge transfer in merits and promotions. 3) Reorganize UC Davis' technology licensing organization, including expeditious evaluation of faculty-invented technologies to determine the ones the campus will pursue intellectual property protection for and return all others to the investigators. 4) Increase entrepreneurship training to faculty, staff and students (e.g. through activities such as those sponsored by the Center for Entrepreneurship, and others) 5) Deepen partnerships with regional entrepreneurial and business organizations (from Silicon Valley to Sacramento and the greater Bay Area) like SARTA, SACTO, Bay Area Council, etc. 6) Establish a joint faculty-administrator task force to explore the feasibility of establishing a physical facility (e.g. technology park, incubator, etc) for faculty to pursue commercialization of their inventions. 7) Hire a Vice Chancellor for Research with expertise and passion for industry relations and technology transfer. 8) Note: this committee defers to the Blue Ribbon Committee on Technology Transfer and the Vice Chancellor for Research Search Committee regarding recommendations for the structure and reporting relationships of the Technology Transfer Office.
RECOMMENDATION	**ACTIONS**
VIII. Expand resources for research and researcher support **See also IX.17**	**General:** 1) As part of the assessment of the UC Davis library, determine how well all researchers needs are being met. 2) Develop mechanisms that support high-impact research and research applications for faculty working in fields where staff support and resources are limited. **Facilities and Cores:** 3) Involve Facilities Administration representatives in major research planning discussions. 4) Create (with faculty involvement) and disseminate a facilities strategic plan that links academic planning with priorities for new facilities and renovations (including particular attention to common facilities such as major computational needs, instrumentation rooms, performance areas, etc). 5) Create a database of past facilities projects that includes listing of responsible deans who can then be used as consultants (by facilities and other administrators, and faculty) for comparable projects. 6) Create a campus-wide research space allocation model that ensures that space assignments are proportional to the space intensity required for the kind of research being performed and the number of staff supported by extramural funding; apply the model consistently and transparently. 7) If VIII.4 is implemented and does not resolve space shortages, reconsider the campus ban on trailers and other temporary buildings, in order to find immediate solutions to the serious research space shortages facing our faculty. 8) Provide and disseminate transparent policies and procedures concerning new research construction and renovations, including campus cost-sharing, fund-raising

for capital projects, expected cost-share of future operational expenses, etc.

9) Allow employment of off-campus, competitively-bid services for on-campus construction or, alternatively, cap campus costs to open market rates.

10) Encourage deans to use their unit return of indirect cost recovery funds (see III. above) for renovations, especially those that directly support the project that generated the indirect cost recovery.

Cyberinfrastructure:

11) Invest adequately in information technology to ensure availability of competitive cyberinfrastructure; identify funding mechanisms to establish and sustain appropriate computing facilities (e.g. data center, etc).

12) Ensure that all planned capital projects and programmatic expansions include identification of information technology needs (networks, power, cooling, etc).

Faculty salaries:

13) Establish a joint faculty-administrator committee to determine if/how faculty salaries can be adjusted to recognize and reward success in extramural funding (including analysis of extra stipends paid from "salary savings" generated by extramural funding).

14) Explore ways that retirement benefits can be accrued on "supplemental" salary (e.g. summer salaries or /Z components of School of Medicine compensation).

Graduate student support:

15) Encourage academic plans to include recommending goals for graduate student vs. post-doctoral training opportunities; insure tuition policies support those goals.

16) Perform a formal cost-benefit analysis of the MD-PhD and VMD-PhD programs.

17) Increase number of graduate student training grants (?-double over the next 5 years). Form an advisory committee of current training grant principal investigators to mentor new potential training grant principal investigators; hire Office of Graduate Studies analyst dedicated to training grants; support travel of potential principal investigators to visit with training grant funders.

18) Modify the UC Davis policy on non-resident tuition for graduate students so that all graduate students (residents, non-resident US, and non-resident international) fees/tuition have identical cost ramifications to researchers and their grants.

19) Recommend a campus study to understand graduate student support funding, including amount and use of non-resident tuition; graduate students versus post doc ratios; and expenses of graduate students.

RECOMMENDATION	ACTIONS
IX. Remove administrative barriers and increase transparency	**Office of Research:** 1) Reorganize and re-staff Office of Research to ensure a culture that emphasizes service to faculty as the top priority, the culture should emphasize appropriate mitigation, rather than elimination, of compliance risk. 2) In the current Vice Chancellor for Research search, emphasize the importance of a leader who prioritizes the creation and protection of a culture of partnership and collaboration between research administration staff and principal investigators and their research staff. 3) Study Interdisciplinary Research Support unit as a model of Office of Research success and determine if additional resources or support are needed to ensure that all campus constituencies benefit from their services. 4) Launch in-depth operational reviews for the Institutional Review Board and

Sponsored Programs Office to address persistent concerns. Explore issues such as: processing time/backlogs, perception of seeking to manage risk to zero, adequacy of skill level in program staff, suitability of technological resources, level of commitment by program staff to faculty research success.

5) Establish operational procedures (using Six Sigma or comparable approaches to project management) that eliminate non-value added steps and focus on timeliness and efficiency, including establishment of metrics that are routinely monitored and results reported to faculty; standardize and expedite the handling of routine proposals, remove unnecessary steps and approvals in the grant submission process, and connect Sponsored Programs Office funding to research expenditures.

6) Indentify technology solutions that streamline and expedite Sponsored Programs Office, Institutional Review Board, Institutional Animal Care and Use Committee, Material Transfer Agreement and other Office of Research unit processes; transition paper forms to electronic format.

7) Develop a special projects office within Sponsored Programs Office to handle non-routine submissions.

8) Delegate sponsored program functions to the colleges whenever possible so that the grants officers are more accountable to the appropriate stakeholders-deans and faculty; use the recent successful move of clinical contracts to the UC Davis Health System contracts office as an example.

9) Conduct a thorough review (project mapping, etc) of the research administration pre-and post-award processes to define and optimize efficiencies in the Office of Research, extramural accounting, dean's office and departmental offices.

10) Review current interpretation at Office of Research of human resource policies.

11) Enhance coordination between Office of Research and Office of Graduate Studies, including developing strategies to better support post-docs and graduate students and training grants.

12) Advertise more funding opportunities to campus using the same mechanism as for limited submissions.

Human Resources: (see also II. and III. and IV.)

13) Change human resources policies for both staff and academic personnel to recognize the realities to enhance support of and reduce barriers and bureaucratic burdens for staff and academic "soft-funded" positions.

14) Explore methods to reward staff for superior performance (e.g., direct incentive pay beyond the job classification).

Other Administrative:

15) Assess effectiveness of MyTravel and MyInfoVault that, although designed to increase efficiency, are perceived by many as actually increasing workload.

16) Streamline processes for establishing and adjusting rates for recharge units; develop a business model that enables use of recharges for education.

17) Establish list of current recharge units and facilities to assist faculty with their research and with obtaining instruments not already on campus.

18) Remove barriers to collaboration between School of Medicine and the rest of campus.

19) Deal with limitations of faculty in Garamendi funded building working on funding from other units; obtain buildings via gifts to avoid such limitations.

20) Eliminate automatic co-funding of programs (such as funding of fees/tuition and benefits from 19900 funds) to be in concordance with other UC campuses. This will reduce hidden and obligatory overhead burden.

	21) Enable submission of limited submissions separately from all the 501(c) 3 corporations controlled by the university.
RECOMMENDATION	**ACTIONS**
X. Standardize reporting of UC Davis research metrics	1) Office of Research should routinely monitor and transparently report in standardized formats information on research funding (total, by unit, by field, etc), funding per FTE-funded faculty, funding per faculty member, funding per sq. ft. of assigned research space), trends in funding, rankings, research impact (publications, etc), etc. 2) These reports on research should be made available to deans and faculty to use in academic and other planning. 3) Office of Research should routinely monitor and transparently report comparisons between research metrics for UC Davis and for benchmark institutions. 4) Office of Research should set strategic goals for research metrics and routinely assess and report progress toward achieving those goals. 5) These reports should also be used as metrics in the evaluation of administrators and their units. 6) Standardized reports should be made available to the media and general public to inform external constituencies about research excellence at UC Davis. 7) Campus should provide sufficient funding to Office of Research to produce these reports.
RECOMMENDATION	**ACTIONS**
XI. Enhance visibility of UC Davis research, including high-impact public relations campaign	1) Develop a "Davis" brand that is unique and distinct from that of other UC campuses and benchmark institutions that accurately reflects the sophistication and impact of our research enterprise (see also II. above). 2) Effectively coordinate actions of all advancement offices (public relations, Government and Community Relations, alumni, development, etc); with specific assignments to assume responsibility for and coordinate messages about research at UC Davis (some benchmarks for example have public relations and fundraisers specifically assigned to "research beats"). 3) Enhance effectiveness of Washington and Sacramento offices by increasing opportunities for their staff and UC Davis research faculty to interact. 4) New hires and accomplishments of faculty, staff, and students should be enthusiastically and pro-actively broadcast to media, government representatives, other academic and funding organizations, and news outlets. 5) Faculty and students should be encouraged to seek professional awards, nominate each other and advocate for each other. 6) Provide release time or other incentives to encourage faculty to serve on major grant review committees, become editors of major journals, and run for major offices in their professional organizations. Incentivize (with teaching release time, stipends, etc) faculty participation on national service committees, review panels, workshops, rotator positions in professional organizations that allow input and exposure to establishment of national research priorities/requests for proposals, etc. This should align with new unit specific faculty workload policies. 7) Reward/incentivize faculty through the merits and promotions process who are public intellectuals who are communicating research through traditional and social media. 8) Explore feasibility of developing education programs (e.g., Master's programs in Public Policy and Public Administration) that are designed to appeal to the educational needs of state employees and legislative staff in order to enhance

	public awareness of the benefits provided by the UC system and UC Davis in particular. 9) Support the new Awards Committee, designed to support nominations of UC Davis faculty for major awards such as membership in the National Academies, etc. 10) Establish and maintain a creative faculty committee to advise External Relations on publicity opportunities. 11) Create an electronic newsletter about research advances to be distributed to alumni, donors, legislators, and other supporters. 12) Enhance commitment of Government and Community Relations staff to interact with faculty and advance issues. Address UC Office of the President restrictions on UC Davis approaching government officials and requests for earmarks. 13) Enhance fundraising initiatives to attract increased philanthropy for research staff, faculty and projects. 14) Encourage faculty participation in fundraising. 15) Improve coordination between central and unit specific fundraising. Identify big interdisciplinary research initiatives as foci for philanthropy. 16) Investment in development staff and infrastructure should be proportional to Chancellor's goals for the comprehensive campaign.

Implementation

We very strongly recommend the establishment of an oversight process for prioritizing these recommendations and developing and implementing the tactics, benchmarks, timelines, and resource allocation needed to achieve the committee's recommendations. A process for assessing the impact and effectiveness of the recommendations, as well as a plan for ongoing communication to the university community, should also be developed.

Implementation actions:
- Establish a mechanism or oversight process for prioritizing and implementing these recommendations.
- Create Tactical Group(s) charged with responsibility for the specific action steps listed above, including development of metrics, timelines, and communication regarding implementation progress.
- Establish a mechanism or oversight process for assessing campus progress in achieving the goals outlined here.

Conclusion

For the UC Davis research enterprise to become *greater than the sum of its parts*, change is necessary. To achieve our vision of expanded research value, effectiveness, and impact and to compete effectively in a global environment, we must evolve our culture, incentivize excellence, provide adequate resources, remove administrative barriers, and improve research public relations and advocacy. We believe our recommendations are essential if we are to achieve the next level of research success at UC Davis.

Finally, we recognize that our recommendations are complemented by the work of the Blue Ribbon Committee on Technology Transfer and the Committee on Entrepreneurship and Innovation. We hope that our recommendations will serve to guide the hiring of the new Vice Chancellor for Research, and the redesign of the Office of Research, and to inspire and celebrate research excellence at UC Davis.