CHANCELLOR'S
BLUE RIBBON COMMITTEE ON RESEARCH

University of California, Davis

FINAL REPORT

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Executive Summary

In December 2009, the UC Davis Blue Ribbon Committee on Research was formed by Chancellor Linda Katehi. The committee's charge was to make recommendations regarding the Chancellor's goal of increasing grant and contract revenue over the next five years. The recommendations were to include specific strategies for strengthening and expanding the university's research enterprise. The committee was specifically asked to:

Charge

1. Identify strategies to help the university fully leverage its research strengths and expand its research programs in alignment with national and state needs and indexes.
2. Identify key processes and resources that must be in place, and barriers that must be removed, if the university is to achieve its goal of substantially increasing research funding within five years.
3. Evaluate UC Davis's approach to stimulating interdisciplinary research, including through centers and Organized Research Units, noting how our strengths and weaknesses compare with those of exemplary research universities.
4. Recommend a financial model for optimizing research success, including funding for core research resources, infrastructure and support, from inception through maturity, for centers and Organized Research Units.
5. Identify opportunities for to improve 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 or ineffectiveness of current relationships with funding agencies, foundations, corporations and philanthropists, and recommend approaches to expand on and optimize these relationships.

Overview

As a framework for our recommendations, the committee considered the three critical missions of a research university: teaching, research and service. As a public university, we are intended to educate, discover new knowledge and disseminate and apply that knowledge for the betterment of humanity. To achieve our goal of fully realizing excellence in research, the committee believes we should follow certain principles:

- The University is a mission-driven, nonprofit, land grant institution. We produce knowledge and educate people. We are not a business; yet we need to adopt best practices from both academia and business to achieve our mission.
- UC Davis is a research-intensive university with great academic breadth, quality, and diversity, and we make highly visible research contributions that have important scholarly and societal impact.
- Advancing knowledge and solving urgent societal problems require both disciplinary excellence and interdisciplinary, collaborative approaches, both of which are historic strengths of UC Davis.
- The excellence of our university resides in the quality of our faculty, students (undergraduate, graduate, and postgraduate), staff, administrators, and extramural partners and supporters.

The committee celebrated the rapid growth of our research enterprise and also recognized that this rapid growth often precluded a consistent, coherent, and strategic approach to institution building. We are proud that UC Davis has doubled extramural research support over the past 8 years to nearly $650 million, but to achieve further growth and optimal development we should be guided by a vision that matches our strengths and expertise to society's needs, within a framework of fiscal responsibility.

The committee was greatly concerned that UC Davis, including its research administration, has become overly bureaucratic and risk-averse, and is too narrowly focused on compliance with rules and constraints. This risks frustrating creative researchers and reducing the level of scholarly creativity and productivity. The volume and rapidity of our research growth has increased the workload on staff who support research administration, both centrally and at the departmental and researcher level, and budget reductions have hampered the delivery of timely support and service. Federal regulations and increased expectations for fiscal and regulatory accountability have accentuated the need for service-oriented administrative infrastructure. We need to establish a "best practices" research administration focused

on researcher success. We seek a research administration that views its mission as enabling faculty and research teams to thrive in their research endeavors, that streamlines administrative processes, and that changes its focus to research success and mitigation of compliance risk rather than trying to completely eliminate risk.

Furthermore, we need to ensure that our culture encourages and celebrates the highest level of excellence. We should expect all faculty, staff and administrators to function at their highest level with accurate, timely and transparent evaluation processes, incentives for those who significantly exceed expectations, and stringent mechanisms to correct and eliminate underperformance. We must also provide adequate research space, core facilities and staff support, in addition to competitive faculty salaries, so that we can recruit and retain the highest quality researchers.

The committee approached its task in two ways. First, data were collected to provide an overview of the history of research at UC Davis as compared with other UC campuses, as well as information about how research is conducted here. Second, we interviewed outside and internal constituencies. After committee members synthesized this input, we posted a draft report on the SmartSite website for campus community comment. Feedback was reviewed by the committee and incorporated if deemed appropriate. In most cases, we were able to achieve consensus. In a few instances, committee members' opinions on the final recommendations diverged, and these instances are reflected in this report.

From the committee's work came eleven distinct recommendations, each with associated specific action steps. There are unavoidable areas of overlap in the recommendations and actions. The committee worked to limit redundancy as much as possible, and the text indicates sections that overlap. Finally, we note that although graduate student support is mentioned specifically in Section VIII, the committee included a graduate student, and students' interests and contributions to the university were considered all through our deliberations.

Recommendations

I	Sustain a culture of research excellence
II	Align UC Davis expertise with societal needs/opportunities
III	Incentivize research and researcher excellence
IV	Build on disciplinary excellence to enhance interdisciplinary collaboration
V	Optimize the functioning 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 metrics for monitoring and reporting UC Davis's research activities
XI	Enhance capacity and visibility of UC Davis research

During the data gathering and discussion that preceded this report, committee members often heard that *"UC Davis is less than the sum of its parts."* The process of creating this report provided committee members a "big picture" view of research at UC Davis that many had not seen before. Our deliberations revealed UC Davis's 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 reach its fullest research potential and impact.

Introduction

Mission

As a public, land grant university, UC Davis has the broad mission of educating our citizens, discovering new knowledge, and disseminating and applying 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 better our performance in all three areas. When seeking excellence in research, the following basic principles apply:

1. The university is a mission-driven organization. We produce knowledge and educate people. As a nonprofit, land grant, academic institution, we are not a business driven by the profit motive, yet we can learn from best practices in both business and academia to achieve our mission. Although research excellence is reflected in part by external research funding, quality and scholarly and societal impact are not synonymous with money. There are major differences in funding levels and styles and sizes across the university, not just between the science-engineering-medicine fields and the humanities-and-social sciences fields, but also within these categories. These differences must be recognized and respected, and incentives should be created to encourage cross-fertilization and mutual respect across disciplines.

2. UC Davis is a research-intensive university with great academic breadth, quality, and diversity; we make highly visible contributions to research and knowledge that have important scholarly and societal effects. Research at UC Davis spans basic physical science, engineering, biology, agriculture, human and veterinary medicine, humanities and social sciences, the arts, law, education and business. Despite current budgetary 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 produces new fundamental knowledge, helps solve short and long term technological and societal problems, and enriches the quality of intellectual and cultural 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 graduate to professional to postdoctoral. Research keeps our faculty members creative, innovative, and intellectually alive and in turn makes them better teachers. It brings value to science through creating innovative solutions to society's problems and challenges.

3. Advancement of knowledge and the solution of urgent societal problems require both disciplinary excellence and interdisciplinary, collaborative approaches, and both are historic strengths of UC Davis. Disciplinary excellence is the foundation for our research excellence. We need to encourage and support interdisciplinary efforts, recognizing that such approaches encourage innovation at the interfaces of different but related fields of study. We believe that expanding the research enterprise at UC Davis should be done in a strategic, planned way, while encouraging individual creativity. We anticipate that interrelated topics such as energy, environment (including climate change), and mental and physical health will be at the forefront of research and funding for the foreseeable future. We need to position ourselves strategically in these and other areas of scholarly and societal impact. The social, historical, political, and cultural aspects of society both shape and are shaped by our technological evolution. Studying these relationships, participating in society in various ways, and enriching our students and our wider society through the arts and humanities are essential to the university.

4. The excellence of our university resides in the quality of our faculty, students (undergraduate, graduate, professional, and postgraduate), staff, administrators, and partners. All must be empowered and supported and must play active decision-making roles in setting research directions and 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; industry; and the communities we serve are key to leveraging our research skills and investments.

These principles lead directly to several overarching goals, reflecting both opportunities for advancement and needs for improvement, enumerated below. Our committee identified eleven goals and specified action items for each.

Overarching Goals

Achieving our university's ambitious vision for research programs will require 1) a change in local culture, 2) new research administration leadership and the removal of administrative barriers, 3) specific plans to support our research strengths, 4) effective public relations and advocacy for research to achieve visibility and community support, and 5) research funding models that incentivize research excellence and ensure campus financial viability.

1. Foster a culture of success
    a. Sustain a campus environment in which research excellence is supported and risk taking, entrepreneurship, transparency, collaboration, and success are valued.
    b. Encourage and reward major individual research programs and interdisciplinary research initiatives.

2. Ensure the highest quality of leadership in research administration
    c. Recruit and retain administrators who are effective collaborators, visionary leaders, and strategic managers with rigorous research agendas.
    d. Research administrators must have the vision and interpersonal skills necessary to build strong service-oriented teams in the Office of Research and to communicate effectively and receive input from internal experts and external constituencies.
    e. These excellent leaders must be adequately supported by staff so that they can excel and achieve this ambitious vision.
    f. The goal of this leadership must be to support the success of faculty researchers and design service-oriented administrative processes to foster research excellence. The processes should enhance, not interfere with, creative, high-impact research.

3. Support and leverage our research strengths
    g. Engage in campus-wide strategic planning for research that connects national needs and interests (including both understanding and helping to define agencies' and philanthropists' 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, management, law, the arts and humanities). This planning process should be used to determine areas for central investment in research.
    h. Support the full range of fundamental and applied research in diverse fields of study.
    i. Identify and invest in both disciplinary excellence and innovative interdisciplinary initiatives through appropriate pivotal faculty appointments and the development of appropriate physical facilities and core resources for research.
    j. Recruit and retain staff and faculty who are invested in research excellence.
    k. Incubate and support (from conversation to grant proposal to outcome) disciplinary and interdisciplinary research areas of strength and impact.
    l. Emphasize special strengths and resources such as proximity to the State Capitol; relationships with national labs and other government, state, and private research centers; and the prominence of UC Davis-based institutes and research consortia.
    m. Assess Organized Research Units and centers and develop mechanisms to provide appropriate central support in a transparent manner. The goal of ORUs and centers should be to move from their initial central funding support to acquisition of external funding.
    n. Improve key infrastructure, including space, facilities, core resources, and staff support.

4. Maximize research visibility and impact
    o. Create effective and differentiating branding, marketing strategies and publicity campaigns.
    p. Use communications to ensure that our research influences stakeholders' perceptions and decisions (including those of government agencies and leaders, alumni and friends, industrial partners, and peer institutions).

5. Develop research funding models that attract and allocate research funds to simultaneously facilitate research success and ensure campus financial viability.
    q. Effectively influence the UC Office of the President to apportion funding (indirect cost recovery, state general funds, FTEs, etc.) in an equitable manner, with attention to centralized vs. decentralized authority and responsibility.
    r. Assess and optimize the campus decision-making approach to allocating of research funds (indirect cost recovery, cores, recharges, Organized Research Units, matches, bridge funds, etc.).
    s. Facilitate the attraction of new external research funding from government, foundations, industry, philanthropists, and others.

RECOMMENDATIONS AND ACTION STEPS

RECOMMENDATION	ACTIONS
I. Sustain a culture of research excellence **See also VII and IX**	Through administrator and faculty statements and actions, ensure a culture of creativity, inquisitiveness, entrepreneurship, collaboration, and risk-taking that encourages the full range of research and scholarship. 1) Emphasize strategic hiring of excellent faculty members who are the "best" for the university as a whole, in addition to enhancing the excellence of the individual unit. 2) Endorse the "Target of Excellence" approach to hiring (a small number of) senior faculty who will be expected to lead campus research strategic initiatives. 3) Expect senior faculty to mentor younger faculty, 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, across different programs where appropriate. 4) Research staff at all levels should have opportunities for additional training (career ladders) and be empowered to work to the full scope of their training. 5) Within each discipline, highlight success in research and scholarship, including impact, productivity and track record of extramural funding, with grant acquisition and management being a prominent factor in merits and promotions. 6) Hire research administrators with a demonstrated history of research excellence and a clear commitment to support faculty success; require a completely open search and provide appropriate resource packages. 7) Remove any stigma associated with self or unit-specific success and visibility; indeed, celebrate people's accomplishments. 8) Redesign the Office of Research to support the new culture (see also IX. below) and ensure that this support is considered by the Chancellor and Provost to evaluate the Office of Research and the Vice Chancellor for Research. 9) Move the Office of Research to the central Davis campus to emphasize its significant role in campus life. 10) Provide appropriate training to allow administrators to perform well including designing processes that reduce redundancy (e.g., multiple signatures required for approval). 11) Improve researchers' ability to enter into partnerships with industry, foundations, and international organizations (see also VIII).
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), a framework for faculty growth (including potential Target of Excellence recruitments), and a list of key infrastructure enhancements to increase research excellence. These groups would regularly report to the Chancellor/Provost, and the process should periodically be refreshed. Such groups should prepare white papers in specific areas that can easily and rapidly be transferred into funding proposals. 3) Include in the position description for the Vice Chancellor for Research an expectation that he or she will participate actively in setting the national agenda for research, including identifying faculty representatives in specific areas of

	expertise and communicating research agendas to the faculty. 4) Encourage faculty and administrators to organize topical sessions in UC Davis's areas of competitive strength at national and international meetings and to bring such meetings to campus. 5) Host national and international meetings on campus in areas of identified research strength and priority.
RECOMMENDATION	**ACTIONS**
III. Incentivize research and researcher excellence **See also VIII.4 and .9, IX**	**Indirect costs:** 1) Develop a transparent, simplified, and fair approach to indirect cost recovery distribution that is communicated to all constituents. Designing an improved and transparently equitable system for ICR is beyond the purview of this committee. But we believe strongly that ICR funds should be used for research endeavors, not to bolster or support the general fund. It is critical that prior to any change in allocation processes, a thorough cost/benefit analysis is conducted so that everyone understands the effects of the proposed process on the campus's financial viability. 2) Reexamine/negotiate indirect cost recovery distribution at the federal, UC Office of the President and campus levels, with the goal of returning more indirect cost dollars to investigators (we recommend 10%) and to the units (we recommend an additional 10%). 3) Use indirect cost recovery to first cover research-related expenses and primarily to support the programs that generate the ICR funds, rather than subsidizing programs that are capable of but fail to generate indirect cost recovery. 4) Institute policies on campus that support research infrastructure and cover departmental expenses associated with acquiring research funding that will in turn generate new ICR for the university. **Matching and bridge funds:** 5) Formalize and make transparent the methods used by the Office of Research and groups like the Administrative Coordinating Council of Deans to award matching funds (including obtaining formal consensus and agreement of involved deans). 6) In order to facilitate deans' willingness to commit matching funds, formulate a mechanism by which indirect cost recovery dollars (incremental) can be used to help pay for matches if the success rate is unexpectedly high. 7) Prioritize bridge funding as an important use of indirect cost recovery and increase the maximum award to $100,000 for those who have previously generated ICR in this amount or higher. 8) Establish a review committee to prioritize bridge funding requests on the basis of chances for future funding (the committee did not reach consensus on whether this group should be managed by faculty members or the Office of Research). 9) Formally assess and publicly report proposal outcomes for faculty receiving bridge funding and require faculty reports on success from those who receive bridge funding. 10) For investigators who receive bridge funding, allocate a portion of subsequent investigator-assigned ICR (see III. 1 above) to the bridge fund program to pay it back. Faculty members who have repaid ICR in an equivalent amount should be eligible for future bridge funding. **Faculty workload policies:** 11) Deans, department chairs, and faculty should work together to create 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, probably via mechanisms such as "trade-out" or "buy-out" systems. The goal should be equal work loads, not equal numbers of particular kinds of tasks. 12) Include the effectiveness/fairness of this policy in the Chancellor or Provost's performance evaluations of deans. 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 allocations, etc.) and provides mechanisms for "trade-out" or "buy-out" between Schools, or to recommend a suitable alternative. The committee supports the graduate group structure and recognizes the need to provide adequate resources for their continuation. **Merits and promotions (see also I.5, IV.4)** 14) In order to reduce bureaucratic workload, emphasize formal review of promotions over merits. Accelerate the current efforts to streamline the merit and promotion process while maintaining Academic Senate control of the process. Some members thought routine merits could be reviewed by the chair and college committee and not require faculty review (unless requested by the candidate for a merit), but accelerated merits, promotions, and appeals would be subject to the full, current process. Others felt this could be accomplished by not requiring the college personnel committees to reiterate what the department letter says, which is then followed by an Associate Dean writing the same thing again. The goal should be to avoid redundant and unnecessary cribbing and rewriting. 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 also IX. below.) 16) In the merit and promotion process, incentivize and recognize research done in conjunction with community partners and research having a positive impact on the region and state.
RECOMMENDATION	**ACTIONS**
IV. Build on disciplinary excellence to enhance interdisciplinary collaboration **See also III.2 and V.9 and 10**	Research success will require both continued disciplinary excellence and support of our current strengths in interdisciplinary collaboration. Disciplinary excellence is the foundation of successful interdisciplinary research. UC Davis has a tradition of successful centers and Organized Research Units (ORUs) that should be celebrated and supported. Improved administrative policies should facilitate, not hinder, expansion of these collaborative programs, a distinctive feature of the UC Davis research vision. 1) Office of Research should periodically convene groups of faculty (including centers, ORU directors, 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. 2) Database systems such as Collexis, which provides data on faculty expertise, should be used to foster connectivity and to support faculty seeking interdisciplinary colleagues and research opportunities. 3) The Vice Provost, the Committee on Academic Personnel and faculty personnel committees should ensure that all departments and schools provide credit in merit and promotion processes for interdisciplinary creative activities, including multi-author papers and non-traditional creative products. In addition, merit and

	promotion evaluations in "non-primary" departments, especially when they are without compensation, should be significantly streamlined. 4) Provide incentives (e.g., time, funding, and recognition) for faculty who 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 normative. 5) Each center and Organized Research Unit director should present an annual strategic plan and budget to his or her oversight committee.
RECOMMENDATION	**ACTIONS**
V. Optimize the functioning of centers and Organized Research Units **See also IV.6, 7 and 8**	The campus has many centers, and some of these are formal Organized Research Units (ORUs). Different policies apply to the governance and financing of centers versus ORUs. For example, ORUs report to the Vice Chancellor for Research whereas centers report to the lead dean. In addition, policy requires unit ICR return to go directly to ORUs. Clarification of the strategies for determining which units are ORUs versus centers is recommended. For the purposes of this report, the recommendations are divided into recommendations that apply to both centers and ORUs (1-5) and ORU-specific recommendations (6-10). 1) Use centers/ORUs to highlight research areas of excellence (see II. above), provide one-stop shopping for potential funders, and serve as a basis for public relations initiatives to improve the visibility of UC Davis research (see XI. below). 2) Require centers/ORUs to publicize their activities to ensure that all campus faculty and students are able to take full advantage of the resources. 3) Improve transparency to the campus community of central funding support for each center and ORU. 4) Employ appropriate assessments for centers that are predominantly service units, whose mission may not necessarily encompass or focus on acquisition of extramural support, such as some facilities that focus on supporting campus research. 5) The goal of ORUs and centers should be to move from their initial central funding support to acquisition of external funding. Some committee members recommended that the usual expectation be sunsetting of central funding support (above ICR) after 3 years, with an extension only if there is strong evidence of applying for and successfully acquiring extramural support. Longer periods of central funding should be the exception rather than the norm (the goal would be to ensure that no single ORU receives large central funds from the 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 ORUs would competitively apply for appropriate central maintenance support every 5 years. 6) Establish and periodically assess the proportion of centers and institutes that should be designated as ORUs, taking into account the ICR and evaluation implications. 7) Establish clear goals, including academic impact, financial plans, and timelines for "sunset plans" for each ORU. 8) Separate the academic evaluation of ORUs from the assessment of whether to continue central funding support. 9) After an initial limited start-up phase, ORU budgets should not exceed that of direct costs + a portion of negotiated ICR + unit-specific funds approved by deans. 10) The academic evaluation of ORUs should be significantly streamlined, especially when limited central funding is being received. Ensure appropriate and streamlined

	evaluation methodologies for ORUs and ORU directors. All ORUs should have an advisory committee of faculty and appropriate senior administrators as current UC guidelines and policy require. This committee should advise, support, and coach the director, and advise the Vice Chancellor for Research if the ORU director's performance is sub-standard.
RECOMMENDATION	**ACTIONS**
VI. Encourage "large" grants, including infrastructure, core, center and training grants **See also II.13, III.1 and 2**	1) Incentivize faculty to prepare, submit and administer large grants by providing release time for the preparation and, if an application is successful, allocate 10% of ICR 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 give them time to administer the grant. 3) Optimize the use of Interdisciplinary Research Support services in the Office of Research. An Interdisciplinary Research Support administrator should be assigned to assist with the preparation of these grants (budgeting, collecting biosketches, creating resource descriptions, etc.). 4) The Office of Research should right-size the Interdisciplinary Research Support unit in order to provide support to any investigator preparing a large programmatic grant or training grant.
RECOMMENDATION	**ACTIONS**
VII. Facilitate knowledge transfer	The committee recognizes that a separate Blue Ribbon Committee has been charged to address technology transfer. These recommendations are provided in the spirit of synergizing the two reports. 1) Expand the campus's concept of technology transfer to include "knowledge transfer." 2) Recognize and reward knowledge transfer in merits and promotions. 3) Reorganize UC Davis's technology licensing organization, including expeditious evaluation of faculty-invented technologies to determine the ones for which the campus will pursue intellectual property rights. 4) Increase entrepreneurship training of 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) such as SARTA, SACTO, and the Bay Area Council. 6) Establish a joint faculty-administrator task force to explore the feasibility of establishing a physical facility (e.g., technology/innovation park) 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. *Note: we defer to the Blue Ribbon Committee on Technology Transfer and the Chancellor as she prepares the Vice Chancellor for Research job description 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 it is meeting all researchers' needs. 2) Develop mechanisms that support research and research applications with high impact for faculty working in fields where staff support and resources are limited. **Facilities and Cores:** 3) Actively involve Facilities Administration representatives early in all 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 systems, instrumentation rooms, and performance areas). 5) Create a database of past facilities projects that includes a listing of responsible deans who can then be used (by facilities and other administrators, and faculty) as consultants 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, with the goal of providing immediate solutions to the serious research space shortages facing our faculty. 8) Provide and disseminate transparent policies and procedures concerning new research space construction and renovations, including campus cost-sharing, fund-raising for capital projects, expected cost-sharing 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 ICR funds (see III. above) for renovations, especially those that directly support the project that generated the ICR. **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., a data center). 12) Ensure that all planned capital projects and programmatic expansions include identification of information technology needs (networks, power, cooling, etc). **Faculty salaries:** 13) To improve transparency and consistency across campus, determine if/how faculty salaries can be adjusted to recognize and reward exceptional success in extramural funding (including analysis of extra stipends paid from "salary savings" generated by extramural funding). 14) Reward all faculty members for scholarship and societal benefit within the norms of the field or discipline. 15) Remove disincentives for grant success in disciplines where salary and/or teaching release is not typically fully covered by funding agencies (including enhancing

	resources for faculty research release time in appropriate divisions, especially in the humanities and social sciences). 16) Explore ways to allow retirement benefits to accrue on "supplemental" salary (e.g., summer salaries or /Z components of School of Medicine compensation). **Graduate student support:** 17) Recommend a campus study to understand graduate student funding, including the amount and use of non-resident tuition; graduate students versus post doc ratios; and expenses of graduate students. 18) Encourage academic plans that provide an appropriate balance of graduate student and post-doctoral training opportunities; ensure that tuition policies support this goal. 19) Perform a formal analysis of the costs and benefits of the MD-PhD and VMD-PhD programs. 20) Increase the number of graduate student training grants (ideally they should 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 an Office of Graduate Studies analyst dedicated to training grants (see also VI.4); support potential principal investigators travel to visit with training grant funders. 21) 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 for researchers and their grants.
RECOMMENDATION	**ACTIONS**
IX. Remove administrative barriers and increase transparency **See also VI.4**	Reorganize and re-staff the Office of Research to ensure a culture that establishes service to faculty as the top priority and emphasizes appropriate mitigation, rather than elimination, of compliance risks. **Office of Research:** 1) 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. 2) Study the Interdisciplinary Research Support unit as a model for the Office of Research and determine whether additional resources or support are needed to ensure that all campus constituencies benefit from their services (see also VI.4). 3) 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, and level of commitment by program staff to faculty research success. Identify technology solutions that streamline and expedite the operations of the Sponsored Programs Office, Institutional Review Board, Institutional Animal Care and Use Committee, Biological Safety Administrative Advisory Committee, Material Transfer Agreement and other Office of Research units; move from paper forms to electronic formats. 4) Continue the clinical contracting initiative on the Sacramento campus and establish a clinical trials branch office on that campus. 5) Establish procedures using project management approaches that eliminate non-value-added steps in grants management, with a focus on timeliness and efficiency,

including establishing metrics that are routinely monitored with results reported to the faculty. Standardize and expedite the handling of routine proposals, including removal of unnecessary steps and approvals in the grant submission process. Connect Sponsored Programs Office funding to research expenditures.

6) Develop a special projects office within the Sponsored Programs Office to handle non-routine submissions.
7) Delegate sponsored program functions to the colleges whenever possible (including decentralization of resources commensurate with decentralization of workload) 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.
8) Conduct a thorough review of the research administration pre-and post-award processes to define and optimize efficiencies in the Office of Research, extramural accounting, deans' offices and departmental offices.
9) Review the current interpretation of human resource policies at the Office of Research.
10) Enhance coordination between the Office of Research and the Office of Graduate Studies, including developing strategies to better support post-docs and graduate students and training grants.
11) Advertise more funding opportunities to campus using the same mechanism as for limited submissions.

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

12) Change human resources policies for both staff and academic personnel to enhance support of and reduce barriers and bureaucratic burdens for staff and academic "soft-funded" positions. Streamline the hiring of research academic staff (Project Scientist, etc.) from a 9-month to a 2-month process. Reinstate the PGR 'postgraduate researcher' title to increase flexibility and timeliness in hiring researchers for 'soft money' positions.
13) Optimize staff performance by setting clear expectations for performance that are assessed through the annual review process.

Other Administrative:

14) Assess effectiveness of MyTravel and MyInfoVault, which, although designed to increase efficiency, are perceived by many as actually increasing workload.
15) Streamline processes for establishing and adjusting rates for recharge units; develop a business model that enables use of recharges for education.
16) Establish a list of current recharge units and facilities to assist faculty with their research and with obtaining instruments not already available on campus.
17) Remove academic personnel/compensation plan barriers to collaboration between health sciences and general campus units, as well as intercampus and campus-national lab barriers.
18) Deal with limitations of faculty in Garamendi-funded buildings working on funding from other units; obtain buildings via gifts to avoid such limitations.
19) 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 burdens.
20) Enable separate limited submissions from all 501(c) 3 nonprofit entities controlled by the university. At present we are allowed only one submission from the university as a whole, which puts us at a disadvantage compared with universities that view main campus, medical school, etc. as separate 'corporations'.

RECOMMENDATION	ACTIONS
X. Standardize metrics for monitoring and reporting UC Davis's research activities	1) The Office of Research should routinely monitor and transparently report, in standardized formats, information concerning research awards (total, by unit, by field, etc.), award/funding per FTE-funded faculty, award/funding per faculty member, award/funding per sq. ft. of assigned research space), trends in awards, funding, rankings, and research impact (publications, etc.). 2) The Office of Research should routinely monitor comparisons between research metrics for UC Davis and for benchmark institutions, and transparently and consistently report the results. 3) These reports on research should be made available to deans and faculty to use in academic and other planning. 4) These reports should also be made available to the media and general public to inform external constituencies about research excellence at UC Davis. 5) The campus should provide sufficient funding to the Office of Research to produce these reports.
RECOMMENDATION	**ACTIONS**
XI. Enhance capacity and visibility of UC Davis research	1) Develop a "Davis brand" that is unique and distinct from that of other UC campuses and benchmark institutions; the brand should accurately reflect 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.) to assign responsibility for and coordinate messages about research at UC Davis (some benchmark institutions, for example, have public relations and fundraisers specifically assigned to particular "research beats"). 3) Enhance the effectiveness of our Washington and Sacramento offices by increasing opportunities for their staff and UC Davis research faculty to interact. 4) The research impact of new hires and the accomplishments of faculty, staff, and students should be enthusiastically and pro-actively communicated to the media, government representatives, other academic and funding organizations, and news outlets. 5) Faculty and students should be encouraged to seek professional awards and to nominate each other and advocate for each other. 6) Remove disincentives that discourage faculty from engaging in time-consuming, high-profile activities that benefit the campus research enterprise, such as serving on major grant review committees, being editors of high-impact journals, and running for offices in their professional organizations. Incentivize faculty participation on national service committees, review panels, workshops, and rotator positions in professional organizations that provide exposure and allow input to the establishment of national research priorities/requests for proposals, etc. This should align with new unit-specific faculty workload policies. 7) Support faculty members who are public intellectuals that communicate research ideas and findings through traditional and new social media. These communications add visibility to the university's scholarship. 8) Explore the 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. This would 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. 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 high-impact research initiatives as foci for philanthropy. 16) The investment in development staff and infrastructure should be proportional to Chancellor's goals for the comprehensive campaign.

Implementation

We 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:

- The committee recommends that the following themes be addressed as priorities:
  - **Culture of excellence** – especially recommendations I. 2, 3, 8
  - **Incentivize research** – especially recommendations III. 1, 11; VI. 4; VIII. 13
  - **Remove barriers** – especially recommendations IX. 1, 2, 3, 5, 8, 12
  - **Enhance capacity and visibility** – especially recommendations IX. 5; X. 1-3
- Create Tactical Group(s) charged with responsibility for the specific action steps listed above, including the development of metrics, timelines, and communication procedures regarding implementation progress.
- Establish a mechanism or oversight process for assessing campus progress in achieving these goals.

The committee requests that the Chancellor continue the charge to this committee to include ongoing quarterly meetings to evaluate progress toward achieving these goals.

Conclusions

If the UC Davis research enterprise is 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 public relations and advocacy regarding research. We believe the recommendations outlined in this report define the pathway to the next level of research impact and 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 guide the hiring of the new Vice Chancellor for Research and the redesign of the Office of Research, and will inspire and celebrate research excellence at UC Davis.