

**UNIVERSITY OF CALIFORNIA AT DAVIS  
REVIEW OF INNOVATIONACCESS**

**FINAL REPORT  
April 8, 2011**



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## Executive Summary

The University of California, Davis engaged Huron and The Advisory Group at Huron (collectively “Huron”) to conduct a program review of UCD’s InnovationAccess and technology transfer capabilities to help identify opportunities to enhance alignment with the University’s strategic direction and improve the service to the research community. This Final Report highlights the overarching issues that UC Davis management should consider urgent and requiring their attention.

### Observations

- The staff of InnovationAccess is knowledgeable, professional and highly dedicated to its mission of protecting, disseminating, utilizing and commercializing discoveries made in UC Davis’ research efforts. However, there is tension between this group and the research community that, in part, is a result of an insufficient understanding of conflicting missions, and existing administrative rules, regulations, and culture.
- The tensions between the research community and InnovationAccess can be linked to its reductions in budgets, staff and administrative expenditures at a time when its workload increased, new responsibilities were added to its mission, and technology transfer increased in strategic importance.
- At the same time, InnovationAccess seems to have not become more efficient and effective to compensate for its reduced resources. A rigorous examination of case management and workload analysis, based on users input and the existing “in process” obligations has been lacking. The insufficient involvement of its associate directors in strategy and budget discussions was also less than helpful.
- InnovationAccess has no detailed and documented understanding of its workload. A substantive analysis that tracks changes in the workload from the past to the present and anticipates future increases in research support has not been done.
- The addition of an Associate Vice Chancellor for Technology Management and Industry Relations will increase the focus on the InnovationAccess group and has the potential to improve its relationship with the research community.
- The relationship with UCOP has improved since UCOP has transferred many of the responsibilities for technology transfer to the campuses, but this process needs to continue. UCOP as a system needs to focus on strategy and oversight and delegate all day-to-day operations to the respective campuses.
- There is no comprehensive office management database on a single platform for InnovationAccess but rather multiple repositories of data that exist today.

## Recommendations

1. Develop a new unit within InnovationAccess called the New Ventures group to enhance the ability of InnovationAccess and UC Davis to start new companies and to create much needed links to business and other users of the developments at UC Davis.
2. Establish a national advisory board to advise UC Davis on best practices and opportunities related to industry partnering and commercialization.
3. Add three IP Officers and three IP Analysts to InnovationAccess to increase staffing to a level that supports the research base at Davis.
4. Seek delegated authority to enter into agreements that are exceptions to UC policy.
5. Develop a strategic plan for data management that addresses the storage and retrieval of data. UC Davis should assess its needs for a comprehensive database and evaluate the commercial options for database platforms.
6. Create a dashboard of metrics to measure and track the performance of InnovationAccess. The following metrics should be included:
  - a. Invention disclosures received
  - b. Licenses and options completed
  - c. Start-ups initiated
  - d. Percent of patent expenses reimbursed
  - e. External sponsored research per invention disclosure
  - f. External sponsored research per FTE devoted to licensing
  - g. Licenses and options completed per FTE devoted to licensing

## Next Steps

It is important to note that none of the recommendations above will solve the current issues if InnovationAccess and the research community do not have a more open and cooperative relationship than has been the case in the past.

This assessment is the first step in what should be an ongoing and iterative process to improve the technology transfer function at UC Davis. Successful implementation of the recommendations contained in this report will be dependent on many diverse factors, including investments in personnel, new technologies and a cultural evolution that enables the central and academic units to work as partners to achieve performance objectives. Extensive coordination will be required to ensure the implementation efforts meet the needs of the research community.

## Background

### Purpose of review

The University of California at Davis (UC Davis) engaged Huron Consulting Group and the Advisory Group at Huron (collectively “Huron”) to review InnovationAccess, its technology transfer unit and assess the effectiveness of any changes that result from recommendations made as a result of this review.

The UC Davis Blue Ribbon Committee on Technology Transfer and Commercialization has recommended changes to the technology transfer operation at the University. Huron considered the Committee’s recommendations when completing the following tasks related to a review of InnovationAccess:

1. Reviewed the mission statement of the office and recommended changes to better reflect the overall purpose of the office.
2. Reviewed the organization and reporting structure of InnovationAccess and recommended changes based on the revised mission statement.
3. Developed a position description for the technology transfer leadership position based on the revised mission statement.
4. Reviewed current technology transfer business processes.
5. Recommended performance metrics for technology transfer function.

### Approach and charge to review team

Huron’s activities in conducting this engagement included interviews with key stakeholders, including faculty inventors; document review and data analysis; and benchmarking of UC Davis InnovationAccess against peer institutions. Interview subjects included the senior leadership team, many day-to-day collaborators with InnovationAccess, faculty with knowledge of InnovationAccess, and InnovationAccess professional and support staff. Appendix 2 lists the individuals Huron interviewed. Interviews were conducted between January 11 and January 13, 2011, and between February 7 and 11, 2011.

In addition, Huron requested documents for review that included policies, operational assessments, reports, and other documents (Appendix 3). In a previous report on the research enterprise at UC Davis, the Washington Advisory Group, now the Advisory Group at Huron, used the following universities as peer comparisons: Cornell University, University of Wisconsin, University of North Carolina-Chapel Hill, University of Arizona, and the University of California at San Diego. For consistency, we used these same universities as the peer institutions for the analysis of performance metrics.

Finally, Huron synthesized the learning it gained from the interviews, documents, benchmarking



and the firm's collective experience in the higher education domain to formulate specific recommendations to improve InnovationAccess operations. The remainder of this report will discuss those results.

### **Huron and Advisory Group review team**

The Huron team assembled for this project consisted of Erich Bloch of The Advisory Group at Huron, and Dr. James Severson of Pinnacle Reach LLC. Biographical information on each is provided in Appendix 1.

## Observations and Recommendations

### I. *Mission, Vision, and Strategy*

#### Observations

The mission statement of InnovationAccess is:

*To provide service to UC Davis and its faculty in order to develop mutually beneficial research-based relationships with industry for public benefit.*

Our primary objectives are to:

- *Effectively manage UC Davis intellectual property assets.*
- *Promote entrepreneurship and new business development in the UC Davis community.*
- *Enhance collaborations between UC Davis and industry.*
- *Support regional economic development.*
- *Provide a communication and customer service framework that enhances internal and external participation in UC Davis-industry relationships.*

The mission is typical for a large, public research university. However, our impression is that there are limitations to the ability to execute the mission due to staffing constraints, staff deployments, and the relationship of staff with faculty.

There is a general lack of understanding, even among experienced faculty users, about InnovationAccess and how priorities are set and decisions are made.

In our interviews with the staff of InnovationAccess and faculty we inquired about outreach to campus. There has been some effort to provide education about technology transfer, but it has been sporadic and inconsistent. Relationship building with faculty is essential and has long-term positive benefits for identifying faculty who are candidates to work with InnovationAccess, explain decision-making, and for fostering a partnering environment. **Improved outreach and communication go hand-in-hand with a more business-focused approach to the operation.**

#### Recommendations

**Mission, Vision and Strategy 1.** **Develop and adopt a revised mission statement for InnovationAccess that better positions it to execute its responsibilities.** The announcement of the new mission statement should include an endorsement of the revised mission statement by Chancellor Katehi, Vice Chancellor Lewin and other campus leaders, and a statement that emphasizes the expertise and professionalism of InnovationAccess staff. We recommend the following mission statement.



*InnovationAccess is a catalyst for the creation of partnerships that advance the dissemination, utilization, and commercialization of discoveries made in research at UC Davis.*

*We work in close collaboration with researchers to identify and protect discoveries that have value for commercialization, or may be the foundation for further research and development partnerships.*

*We enable partnerships that facilitate the development of discoveries either through new businesses created by entrepreneurs or through existing businesses. Our activities result in resources that advance research at UC Davis and products that benefit the public.*

This revised mission statement reflects the transformation of InnovationAccess to a proactive, enabling organization that works in close collaboration with the UC Davis research community, and as a value-added partner with faculty for the commercialization of discoveries made on campus.

The Chancellor has already signaled the importance of technology commercialization by the appointment of the Blue Ribbon Committee to Review Technology Transfer and Commercialization (hereafter, the Blue Ribbon Committee). In our view, a further strong signal for the future of technology commercialization at UC Davis is the support of a revitalized mission statement by the Chancellor, Vice Chancellor for Research and other senior management at UC Davis.

**Mission, Vision, and Strategy 2.** Develop a strategic communications plan that prioritizes and improves outreach to campus, and creates networking opportunities. Traditional approaches such as seminars, department meetings, and one-on-one meetings with key faculty are valuable, but, electronic communications vehicles such as an improved web presence, an electronic newsletter, blogs and social media are also useful and increasingly accepted tools to communicate with clients and users. Outreach should be incorporated as part of goals for all staff in InnovationAccess, including the leadership.

## ***II. Organization, Structure, and Leadership Positions***

### **Observations**

The Huron team found the staff of InnovationAccess to be highly professional with a strong understanding of the role of the office. Staff members have the experience and skills necessary to complete the tasks required to be successful.

It must be said however that InnovationAccess was set back in its operation and its overall relationship with the UC Davis research community when the business development staff was laid off in response to budget cuts. This group was a primary connection to industry and conducted most of the outreach and marketing of inventions. When this group was eliminated,



staffing of InnovationAccess dropped from a high of 29 FTEs in 2007 to the current 19.5 FTEs. However, following this drop of staff the workload has increased: research funding at Davis has increased nearly 40%, new invention disclosures and requests for MTAs have increased, legacy cases have been transferred from UCOP to the campus, and an increased emphasis has been placed on technology transfer and innovation. In addition, travel funds were eliminated in budget cuts several years ago, which has prevented staff from traveling for professional development at external seminars and conferences.

It was clear from our interactions that faculty members expect a more flexible and problem solving approach from this office. Staff needs to be active problem solvers and focus on outcomes, as opposed to a legalistic approach focused on protection and rules. InnovationAccess needs to adopt a business development orientation and approach to projects. Consistent with statutory constraints, there should be more “here are ways to accomplish what you want”, rather than “here is why we can’t do this.”

We found that InnovationAccess does not have a firm understanding of its workload. For example, it did not appear that it had conducted a thorough analysis of workload and distribution of effort or has a quantitative understanding of changes in workload from year to year.

Internally to the unit the associate directors should have a more active role in the management of the office. For example, we were told that associate directors had not been involved in the budget development process. This seems to inappropriately disenfranchise senior staff and ignores their perspective on staff, needed technical and other support.

Other matters also were mentioned in our discussions:

- The relationship between InnovationAccess and the University of California Office of the President (UCOP) needs revision. As more responsibilities for technology transfer are delegated to the campus, appropriate authority to act within UC policy should be delegated accordingly. InnovationAccess often needs to seek the approval of UCOP to enter into agreements that are exceptions to University of California (UC) policy. Requests for exceptions are routinely granted. This implies that InnovationAccess is well aware of the policies of UC and the limitations of terms that can be negotiated with sponsors and other external partners and providers. It also implies that InnovationAccess is exercising good judgment in the transactions that it negotiates since UCOP regularly concurs with the requests for exceptions. While InnovationAccess staff noted that the relationships with UCOP are good and that UCOP staff respond promptly to their requests, there is still time and energy expended to prepare a request for an exception to policy and seek appropriate approvals. This is an impediment to the efficient completion of agreements and a source of frustration for InnovationAccess staff and their clients. We were informed that other UC campuses have expanded authority from UCOP.
- Staff are not appropriately deployed for the licensing opportunities that might result from the research at UC Davis. For example, the staff of the Life Sciences group is small for the research portfolio that they serve. There should be more effort devoted to the

School of Medicine, including deploying staff on site rather than having one staff member have office hours one day per week. This comment directly relates to the need of analysis of the workload that we mentioned before.

With regard to organization, UC Davis leadership has proposed the creation of a position reporting to the Vice Chancellor for Research that will be responsible for industry relationships and the formation of significant strategic research partnerships with industry. This new research leadership position will implement and lead a comprehensive model of university-industry relationships that is integral to the goals of Chancellor Katehi for the growth and impact of research at UC Davis. This newly created Associate Vice Chancellor position will identify current and emerging research strengths at UC Davis and market these capabilities to prospective corporate partners. The Associate Vice Chancellor will work closely with University Development, and will have InnovationAccess and Corporate Research Relations directly reporting. In our view, to be successful in this role, the Associate Vice Chancellor must have significant experience working in senior level management positions in industry, government, or not-for-profit organizations and have a track record of establishing strategic alliances. Further, the Associate Vice Chancellor must have strong partnering skills to bring together faculty groups to foster collaborations within the university that have the potential to lead to strategic partnerships. A description for this position is provided in Appendix 5.

The creation of the position of Associate Vice Chancellor for Tech Management & Corporate Research Relations reflects the new direction in technology commercialization and industry partnering that was recommended by the Blue Ribbon Committee. While this position will report, rightly, to the Vice Chancellor for Research and not the Chancellor as recommended by the Blue Ribbon Committee, this position will have a central role in fostering new approaches for partnering with industry. Many of the observations made by the Blue Ribbon Committee mirror the observations of the Huron team, and many of the recommendations made in this report reflect specific implementations of recommendations made by the Blue Ribbon Committee (Appendix 6).

Task #2 of the engagement asked Huron to comment on the formation of an oversight board that was recommended by the Blue Ribbon Committee. With the creation of the position of Associate Vice Chancellor for Tech Management & Corporate Research Relations, we feel that an advisory board, consisting of Davis and outside experts in this area of strategic partnerships would be a valuable resource. This board would be comprised of faculty representatives, prominent UC Davis alumni, and experts in partnering and technology commercialization who do not have a direct UC Davis link to provide UC Davis with a broad perspective and could serve as a valuable source of advice and contacts for the Vice Chancellor and Associate Vice Chancellor. Other universities, such as the University of Michigan, have successfully utilized similar boards to expand the scope of reach of the university.

## Recommendations

**Organization, Structure and Leadership 3.** Develop a more business development

orientation to InnovationAccess activities. InnovationAccess staff should strive to be seen as a positive, enabling group - problem solvers, not roadblocks. Position descriptions should be reviewed and modified to incorporate this expectation. Training should be implemented to instill partnering and problem solving skills. Lastly, personal traits and professional experiences that demonstrate partnering and problem solving should be highly sought in the recruiting and hiring of new staff.

**Organization, Structure and Leadership 4.** Conduct an analysis of future licensing opportunities. The research portfolio of units should be reviewed and an assessment made of the potential for future licensing opportunities. Staff should be deployed based on the results of this assessment. We recommend an approach that consists of (1) a review of funded projects and a ranking of each based on the likelihood for the generation of intellectual property, (2) the commercial interest in intellectual property resulting from this general area of research, product opportunities, and investment interest, (3) the past involvement of the investigator with technology transfer, (4) a staff assessment of the investigator's interest in technology transfer and entrepreneurial activities.

**Organization, Structure and Leadership 5.** Seek delegated authority to enter into agreements that are exceptions to UC policy. UC Davis staff should compile a list of agreement types where exceptions are routinely sought and the Vice Chancellor for Research and the Executive Director of InnovationAccess should seek delegated authority to enter into these agreements. A reasonable proposal could include that the Vice Chancellor regularly inform UCOP of cases where exceptions were taken and commit to a periodic review to allow UCOP oversight of these activities.

**Organization, Structure and Leadership 6.** Finalize the position description for the position of Associate Vice Chancellor for Tech Management & Corporate Research Relations. Recruitment of this key position should begin as soon as possible.

**Organization, Structure and Leadership 7.** Form a national advisory board for industry partnering and commercialization. Create an advisory board to advise the Vice Chancellor for Research and the Associate Vice Chancellor for Tech Management & Corporate Research Relations on best practices, and trends in industry partnerships, and to provide contacts in industry to facilitate partnering.

**Organization, Structure and Leadership 8.** Adopt a new organizational structure that is consistent with the new mission statement and emphasizes creating external partnerships. Specifically:

1. A new unit called New Ventures should be created to be responsible for an entrepreneur-in-residence program (recommendation Process 17), to coordinate networking and outreach, and to manage relationships with an incubator (recommendation Process 18). For clarity, New Ventures is not a rebuilding to the past unit called Business Development, but instead is a unit that is focused on the creation of relationships that will enhance both the number and quality of companies that start from UC Davis.
2. Invention marketing which was previously the responsibility of the Business Development

unit should be continued by the Life Sciences Team and the Agricultural, Physical Sciences and Copyright Team.

3. Responsibility for material transfer agreements should be transferred to the Life Sciences Team, with two IP Analysts assigned to this function.
4. Three IP Officers should be hired immediately to increase staffing to a level that supports the research base at UC Davis. Two of these IP Officers should be in the Life Sciences Team and the third in the Agricultural, Physical Sciences and Copyright Team. An additional 3 IP Analysts should be hired to provide support for the IP Officers.
5. An administrative position should be hired to assist the IP Analysts in routine administrative tasks (recommendation Process 9).

### **III. Processes**

#### **Observations**

##### 1. Patent process

New ideas developed at UC Davis come into InnovationAccess in a manner that is typical for most university technology transfer offices. These new ideas, or invention disclosures, are submitted either electronically or in hard copy on a form that faculty and other researchers download from the InnovationAccess web site.

Upon receipt, submissions are logged into a Microsoft Access database maintained by InnovationAccess and case files are created. InnovationAccess makes two files – one for local use and another for use by UCOP in Oakland.

Following are our observations on the patent process:

- IP Analysts are limited in their ability to support the IP Officers because of the administrative duties that they perform. Because of staff reductions, IP Analysts at InnovationAccess perform a significant amount of routine administrative work, such as creating files and copying. This administrative work detracts from other tasks that support the IP Officers. The addition of one administrative position could accomplish much of these administrative tasks and would permit IP Analysts to focus on activities that directly support invention evaluation, patent case management, marketing, and licensing.
- InnovationAccess does not have a comprehensive office management database. There are multiple data repositories on different software platforms that are maintained by various staff members. By our count there are seven separate databases in use:
  - A. Record of Invention Log In - a Microsoft Access database to record the receipt of new cases. We were informed that at one time this database would sync daily with PTS (see below), but the IT staff position that was responsible for this function was eliminated. As a result, there is redundant data entry in

InnovationAccess and in PTS at UCOP for most new cases.

- B. Patent Tracking System (PTS) – a comprehensive database housed at the UCOP. InnovationAccess staff have access to this system for most case-specific data, but rely on a declining staff at UCOP for data entry.
- C. Plant Patents – InnovationAccess has a separate partition in PTS for its test agreements for plant varieties.
- D. Strawberry Database – a separate database is maintained to manage the releases of strawberry varieties and licenses.
- E. Material Transfer Agreements – the MTA group maintains a Microsoft Access database for material transfer agreements.
- F. Marketing Database – an out-of-date, web based system to track companies and marketing opportunities. This system is poorly maintained, again, because staff that were responsible for it were laid off due to budget cuts.
- G. Copyright – a Microsoft Excel spreadsheet for data for copyright cases.

The multiple databases and systems do not meet the needs of the university for data storage, and convenient retrieval of information. Multiple systems result in poor data security, and redundant data entry. It is very difficult and time consuming for InnovationAccess to respond to requests for operational data. These requests often require manual counts to obtain summary statistics.

In our view, the status of data management at InnovationAccess reflects not only the budget constraints that they have operated under, but also the slow, ongoing transition of technology transfer in the UC System from a sole central office to the campus.

Some activities, such as accounting and the payment of patent expenses are still managed at UCOP. Thus, there is no financial management at InnovationAccess, and data requests that are not available through PTS must be made to UCOP.

For many new cases, InnovationAccess must review documents from the sponsor of the research to comply with any obligations that UC Davis may have to the sponsor, including the ownership and management of inventions, and publication restrictions. In the past InnovationAccess had access to the database in Sponsored Projects for this purpose, but access is not currently available. Currently, IP Analysts must make a request for a file, physically get the file, and then manually make copies of required documents.

InnovationAccess has a weekly meeting to review new cases and to update staff on the state of pending cases. This is an excellent approach to case management and creates not only a shared approach to review, but also is important for team building and information exchange.

The decision to seek a patent on a case is driven by licensing opportunity. Staff not only review the patentability of a case, but also seek to understand its potential to be

licensed. Other factors that may be included in the evaluation include public benefit and dissemination. For example, cases in the medical sciences may be useful vaccines and drugs for orphan diseases, and for humanitarian use. The minimum criterion for filing a patent application on a case is to recover the out-of-pocket expenses of obtaining patent coverage.

There are three basic decisions that are made by InnovationAccess in the evaluation of a new case. These are:

- **Keep and Protect** – The case has value and should be protected by appropriate means to facilitate licensing;
- **Drop** – The case is determined to not have significant commercial value, or meaningful patent coverage is not possible. No further action will be taken. If requested, InnovationAccess will initiate the steps required to return ownership to the inventor; or
- **Hold** – No action will be taken at this time because the invention is just a concept, it needs additional data to define its scope or utility, or it requires a prototype. In its current state, the case does not meet criteria for “Keep and Protect”, but may reach this status in the future if additional action is taken by the inventors.

This third category, termed “in abeyance” in the UC technology transfer lexicon, is problematic and is the source of significant difficulty for InnovationAccess. Many faculty consider “in abeyance” to be no decision. To the contrary, this is a valid decision in the review of inventions that often occurs for university technology transfer offices.

InnovationAccess should adopt terminology that better conveys a “Hold” determination. Some new terms might be, “Needs Data”, “Needs Reduction to Practice”, or “Needs Prototype”. Regardless of the terminology that is adopted, InnovationAccess should convey a “Hold” determination in terms that are routinely used in other aspects of research management, such as the submission of manuscripts for publication, or the submission and review of grant applications.

A change in the terminology in the review of new invention disclosures provides an opportunity for InnovationAccess to educate faculty about its processes and what constitutes a fully formed invention disclosure. Furthermore, InnovationAccess can communicate what additional information it would need to change the status of a disclosure from “Hold” to “Keep and Protect”. InnovationAccess staff already try to have one-on-one meetings with investigators when a new invention is disclosed. These meetings would be an appropriate opportunity to explain how the review will be conducted, and explain that within a certain time period that they will receive one of three responses, and what each will mean.

## 2. Marketing and Licensing

The business development group was a key intermediary for connections and relationship building to companies. This group developed materials to market

inventions, such as non-confidential disclosures, and made contacts with companies that are candidates for licensing inventions, a critical link in the movement of ideas from the lab to the marketplace.

In the current staffing configuration, company outreach is greatly reduced and marketing is the responsibility of the IP Officers, a group that is already strained by the evaluation of new inventions and case management. In addition, feedback from industry is an important source of information in the evaluation of new inventions. Thus, with the loss of the business development group, staff members are making decisions on new cases with reduced feedback from the marketplace.

Others have picked up some of this outreach role – e.g. David McGee is a member of the board of SARTA (Sacramento Area Regional Technology Alliance), and Barbara Boczar is a member of a SARTA board committee on medical technology.

Licensing decisions attempt to strike a balance between an opportunity for income and a public mission for broad utilization. Several staff referred to a UCOP directive on the licensing of inventions that encouraged staff to develop licensing strategies that broadly license research tools on a nonexclusive basis.

A current case provides an example of how this plays out. InnovationAccess is currently licensing an invention made in the Department of Plant Sciences for a research tool that has the potential to accelerate plant breeding. The inventors initially preferred an exclusive license to a major company in the field that would include a significant upfront licensing fee. However, because of the guidance from UCOP, InnovationAccess proposed and developed a nonexclusive license strategy that includes upfront fees and annual maintenance fees. It was felt that this strategy was consistent with UC guidelines, would encourage smaller companies to use the technology, and would stimulate broader use of the technology.

Staff limitations also have not permitted InnovationAccess to more broadly license plant varieties. These are cases where broad protection has already been obtained, but additional effort is required to make contacts overseas and complete agreements for distribution and sales. This is an immediate opportunity to enhance revenue with the change in focus of an IP Analyst who is prepared to take on this responsibility.

### 3. Start-up Companies

There is an increasing interest in start-ups, especially in the life sciences. However, local investors are primarily interested in software, healthcare delivery, IT and green technology. There is not a critical mass of local investors or entrepreneurs for therapeutic opportunities.

The College of Engineering at UC Davis has recently launched an incubator on campus to foster faculty-led start-ups. The College has also hired an experienced entrepreneur to advise faculty on these ventures.

As part of the process for entering into a license for a start-up, InnovationAccess requests that the company complete a commercialization plan which is a vehicle for the company to inform UC Davis on how it views the development of the technology, the market, and the financial aspects of the technology, including projected sales. Once the commercialization plan is completed, InnovationAccess will compare the plan and projections to those of comparable start-ups. A consideration of whether the technology best fits in a start-up or as a license to an existing company is the dependence of the company on the technology. This is a test of the commitment and focus of the potential commercialization partners. For example, in faculty-led start-ups there may be significant know-how involved that may not be transferred if a license is done. A consideration is how important is the know-how to successful commercialization.

InnovationAccess has several external links that they use to advise start-ups. For example, entrepreneurs and executives in the region have been helpful, as well as the CEO Forum in SARTA where companies make presentations to the Forum and receive feedback about the business opportunity. In addition, the College of Engineering has a paid consultant to mentor companies that are part of the incubator program in that college. In addition to these local resources, there is a program offered through the Graduate School of Management called Angels on Campus that provides advice and mentoring to start-ups and emerging companies.

When InnovationAccess had its business development group it was more visible at events, and also staged an event called Entrepefest which offered a venue for start-ups and early stage projects to mix with potential investors. In addition, the business development group would also visit venture capital firms Sand Hill Road in Palo Alto for presentations and to develop relationships with the funds. Like many activities, this was discontinued when the business development group was disbanded.

An emerging trend for start-ups is to be less interested in having the university take equity in the company. InnovationAccess has trended away from taking equity in its start-up agreements. Instead InnovationAccess prefers to use a concept called index milestones in which a milestone payment is tied to the value of the equity of the company. If certain conditions are met, such as an IPO or a sale of the company, this payment is made. The advantage of this approach is that it requires no stock registration and no "lock out" if there is an IPO - overall it is easier to manage, and still provides a success payment, just as would happen with equity. Companies also like the concept because they can plan for it, and it is also easier for them to manage. InnovationAccess will still do equity deals with start-ups, but it will enter into these arrangements more to accommodate the founders than a desire on their part to have equity participation in the company.

InnovationAccess provides flexibility to licensees for financial terms. There are no fixed, mandated fees or royalty rates that must be included in a licensee. Revenue from the license may be from a combination of license fees and royalties. The amount of fees and royalties negotiated are based in large part on the company's own



commercialization plan and include the maturity of the university's invention (e.g., time to commercial product completion), the market size for the field of use, anticipated market penetration and product life, regulatory hurdles, competition and cost of goods. InnovationAccess is very willing to negotiate each and all financial terms to arrive at an overall fair and workable license for each licensee.

InnovationAccess feels that the royalty rate on product sales is not much different for a start-up license *versus* a license to an existing company. Royalties are in the future after product development has been successful and sales are occurring. Any benefit that the university can provide to the company through deferred payments or through equity or index milestones is no longer an issue and the company should pay market rate royalties.

For faculty start-up companies, it is UC policy that InnovationAccess obtain a license decision review. In this process an outside reviewer is asked to review the commercialization plan and the term sheet and comment on the appropriateness of the relationship and the fairness of the terms. In some cases the external reviewer may query the IP Officer about the negotiation and the extent of marketing of the technology.

#### 4. Material Transfer Agreements

InnovationAccess processes a large number of requests for incoming and outgoing materials. Considerable staff effort is devoted to the initiation and negotiation of these agreements, which are very important to the research community and often provide access to novel reagents that enable research.

InnovationAccess staff have been innovative and have made great strides to automate the requests and transfer of frequently requested materials. For example, in collaboration with the College of Veterinary Medicine they developed a web based MTA for transgenic mice and developed a "shrink-wrap" MTA to streamline transfers from the neuronal monoclonal antibody project.

Despite significant automation, there is still a significant backlog to initiate requests. Staff informed us that it may take up to six weeks to provide a draft document in response to a request by faculty for an MTA. We also learned that "The Queue" as it is called usually involves challenging, complex agreements that require significant staff time to develop.

We believe that at least part of the delay to initiate MTAs can be relieved by a preliminary scientific review of the scope of work of the MTA so that simple agreements with minimal risk can be disposed of quickly and not contribute to the workload queue.

In some departments administrative staff are involved in assisting faculty with the initiation and tracking of MTAs. These people seem to be knowledgeable and could serve as a key intermediary in the initiation of MTA requests using an approved template. In addition, InnovationAccess could provide broad access to its MTA template

by placing it on its web site to allow providers and recipients to initiate requests by downloading the forms.

InnovationAccess has a new challenge emerging for the completion of MTAs which will add to their workload. The California Institute for Regenerative Medicine (CIRM) is now requiring that the recipient of funds for stem cell research must have an IP management agreement in place with a collaborating institution before funds are released for research. As currently configured, the MTA group would be responsible for negotiating these agreements.

## Recommendations

**Process 9.** Hire administrative support for routine administrative work. Currently the IP Analysts do much of the routine office administrative work to support the IP Officers such as file creation, data entry, and copying. This detracts from the value-added tasks that support the IP Officers. Hiring one position to conduct these routine tasks would free up the IP Analysts to provide greater support for invention assessment, patent case management, marketing and licensing.

**Process 10.** Develop a strategic plan for record keeping and data management. The storage and retrieval of data is a critical need for InnovationAccess and should be addressed as a high priority. We recommend that InnovationAccess embark immediately to assess its needs for a comprehensive database and evaluate the commercial options for database platforms. Any new system should sync with PTS to reduce redundant data entry. Commercial options include:

- InfoEd - <http://www1.infoed.org/modules/intellectualProperty.cfm>
- Inteum - <http://www.inteum.com/>
- Knowledge Sharing Systems - <http://www.knowledgesharing.com/>
- Knowligent - <http://www.knowligent.com/knowligent/Knowligent-Intellectual-Property-Management-Software.html>
- MyIP Ltd - <http://www.easydatabase.co.uk/home.html>
- Pro-TTO - <http://www.pro-tto.com/>
- Wellspring - <http://www.wellspringworldwide.com/index.php>

**Process 11.** Reestablish access to Sponsored Projects database. InnovationAccess should get access to Sponsored Projects database to assist with the evaluation of cases. As UC Davis moves forward with its electronic document management system, InnovationAccess should also ensure that it continues to have appropriate access in the new system for data and documents.

**Process 12.** Clarify decision-making for new cases. InnovationAccess currently uses the term “in abeyance” to characterize cases that do not yet meet criterion for patent filing either because the case is too early or does not have sufficient data to support a patent filing. The perception of faculty is that this is not a decision and InnovationAccess is criticized as being slow to make decisions. InnovationAccess should adopt terminology that better conveys a “Hold” determination, such as “Needs Data”, “Needs Reduction to Practice”, or “Needs Prototype”. InnovationAccess should convey a “Hold” determination in terms that are routinely used in other aspects of research management, such as the submission of manuscripts for publication, or the submission and review of grant applications. InnovationAccess should clarify the decisions that it makes and communicate these categories to the research community at UC Davis.

**Process 13.** Initiate a preliminary, scientific review of MTAs. The backlog to initiate MTAs can be reduced by a preliminary scientific review of the scope of work of MTAs that will permit the early disposition of the less complex agreements.

**Process 14.** Enable department administrators and PIs to initiate MTAs. Disseminate an approved MTA template to department administrators and investigators, and after appropriate training regarding key issues and a reinforcement of signature authority permit them to prepare and disseminate the document in response to requests for materials.

**Process 15.** Enable more web-based MTAs. InnovationAccess already conducts a significant number of MTAs through web-based requests and through the innovative “shrink wrap” MTA. Additional transactions should be initiated and handled through this approach which has the potential to free up staff for the more challenging agreements.

**Process 16.** Conduct a thorough analysis of current workloads and assign cases into categories that reflect status and need for action. For example:

**Active Cases** - cases with strong potential for licensing and active marketing;

**On Hold** – cases with significant potential to become Active Cases, but are waiting for additional data, or some other action; and

**Inactive** – old cases that are assigned to a staff member that are legacy cases that require monitoring. Inactive cases should be regularly reviewed to determine if any cases in this category should be dropped.

**Process 17.** Develop an entrepreneur-in-residence program. Many universities are successfully utilizing entrepreneur-in-residence (EIR) programs to facilitate start-up formation. In this program experienced entrepreneurs who are looking for a start-up opportunity become part of the team at InnovationAccess and have the opportunity over a 6 to 12 month period to review opportunities, meet with faculty, and start the planning for a new venture based on university technology. An added benefit of EIRs is that they often interact broadly with faculty and start to provide a commercial perspective to a range of research programs beyond the specific projects that are candidates for company starts. EIRs can be matched with developing start-up activities and the targeted recruiting of EIRs can compensate for a lack on local entrepreneurs in specific technology areas.

**Process 18.** Partner to develop an incubator. Incubator space is essential for the development of early-stage companies. In conjunction with our recommendation to form an entrepreneur-in-residence program, incubator space would help develop the ecosystem for start-ups in Davis, and would attract investors to the area.

### **III. Benchmarking**

#### **Observations**

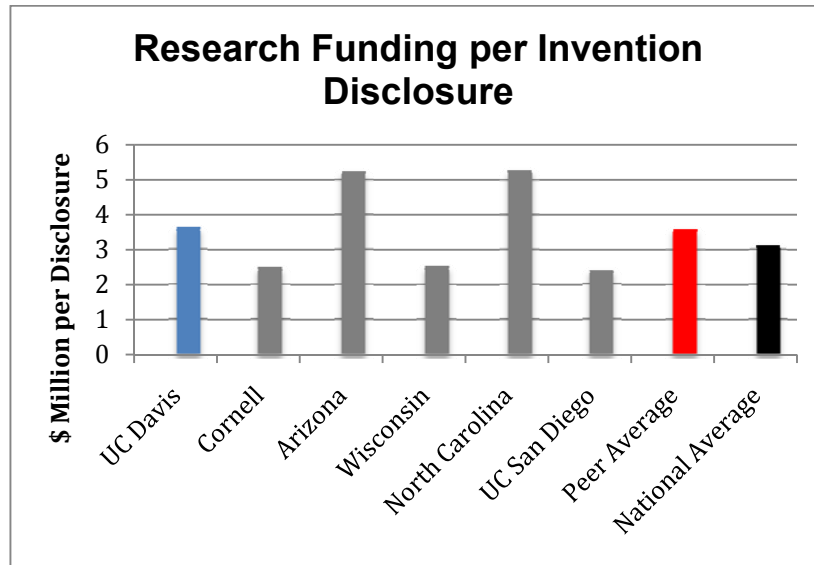
Operational metrics for UC Davis and peer institutions were derived from either the Annual Survey of Licensing Activity conducted by the Association of University Technology Managers (AUTM), or the University of California System-Wide Annual Report on Technology Transfer Activities. Metrics for fiscal years (FY) 2006 to 2009 were selected for comparison. FY2009 is the most recent year when complete data are available, and a four-year period was selected to give an indication of trends.

It should be noted that there is a limitation to what can be inferred from the survey data. The overall performance of a university in technology licensing is dependent on multiple factors including the location of the institution, which may influence access to venture capital, the vitality of the local entrepreneur community, and the support systems that are available to support entrepreneurial activity. The culture and history of the institution also can have a profound effect on these metrics.

One measure of the productivity of a research enterprise in generating intellectual property is the relationship between research support and the number of invention disclosures reported to the technology commercialization office. Benchmarking data can shed some light on UC Davis' historical performance in this regard. The metric "research support per invention disclosure" is used to compare UC Davis' performance to that of the peer institutions in this analysis. A lower value for this metric represents a greater number of new ideas per research dollar, and thus means better "conversion" of research into reported ideas.

For the period examined, UC Davis averaged \$3.6 million for each new invention disclosure (Figure 1). During this same period, Cornell University was the lowest of the peer group with \$2.5 million per new invention disclosure, and the University of North Carolina was the highest with \$5.3 million per new disclosure. The average for the peer group was \$3.6 million per new disclosure. For FY 2009 the national average for this metric was \$3.1 million per disclosure.

**Figure 1. University of California, Davis Sponsored Research per Invention Disclosure Relative to Peer Institutions<sup>1</sup>**



While UC Davis performed near the average of the selected peer group for this metric, performance lagged significantly behind the leader of the peer group, Cornell University. For example, the four-year average for UC Davis is \$3.62 million of sponsored research expenditures per invention disclosure received (Figure 1). For the same period, Cornell reported \$2.5 million of sponsored research expenditures per invention disclosure. If in FY 2009, UC Davis performed at the same rate as Cornell, 270 new inventions would have been reported at UC Davis, instead of the actual number of 172. The difference is striking and supports our belief that increased outreach and improved decision-making have the potential to substantially increase the number of new ideas that faculty disclose to InnovationAccess.

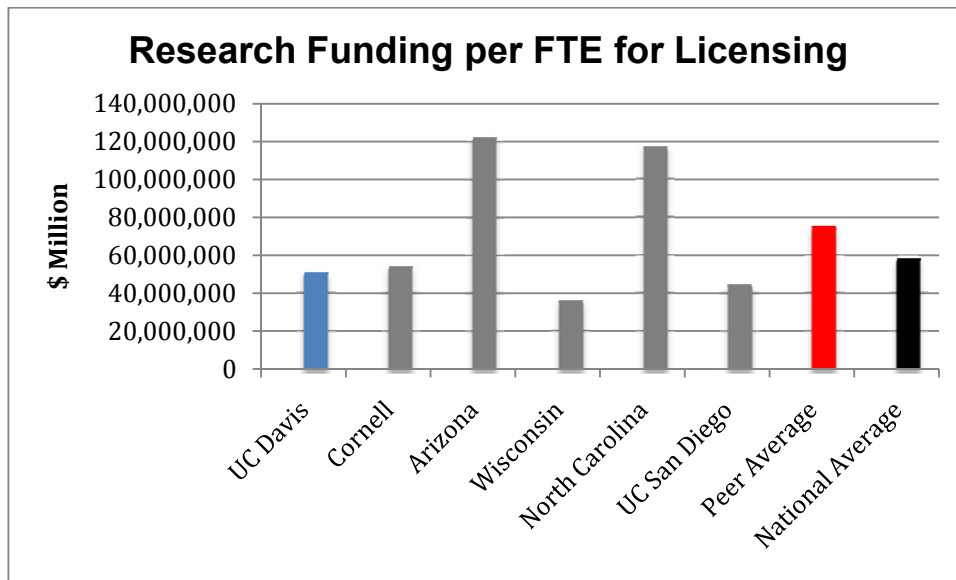
Measuring the staffing levels relative to the research base can provide insight to the adequacy of staff coverage of the research at UC Davis.

For the period examined, UC Davis averaged about \$51 million of research support per licensing FTE (Figure 2). During this same period, the University of Wisconsin was at the low end of the range at \$36 million per FTE, and the University of Arizona was at the high end at \$123 million. The average for the entire peer group was \$75 million per FTE. For FY 2009 the national average for this metric was \$58 million.

<sup>1</sup> In this figure and all subsequent figures of this report, the term “peer average” refers to the average of all five (5) peer institutions with UC Davis’ value excluded from the metric. The term “national average” refers to the average of all U.S. universities that reported in the FY 2009 Association of University Technology Managers Licensing Survey.

It should be noted that for this metric a lower number reflects a smaller research base for each FTE that is devoted to licensing activity.

**Figure 2. University of California Davis Sponsored Research Support per FTE Devoted to Licensing Relative to Peer Institutions**



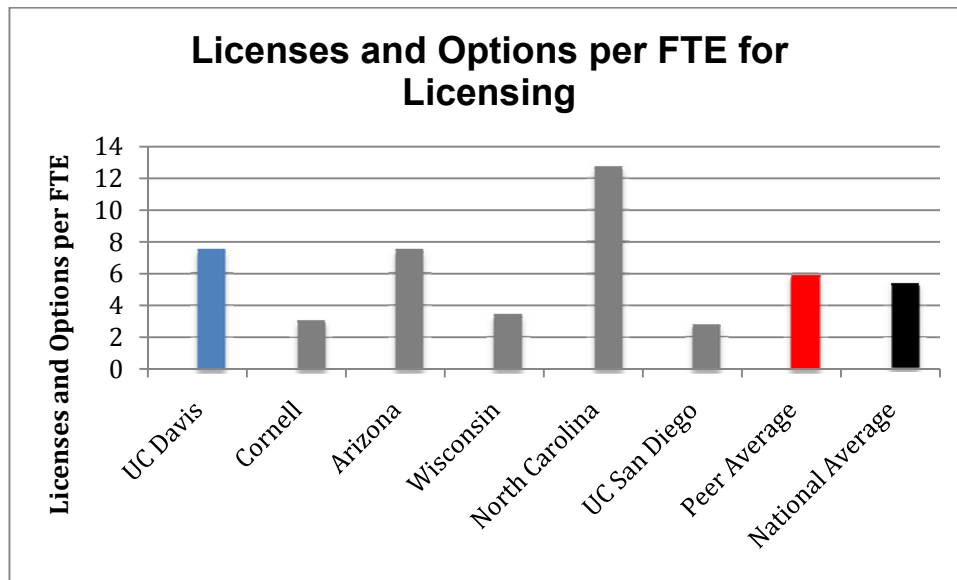
While UC Davis is below the average of the peer group, it also lags behind both the University of Wisconsin and the University of California San Diego in this measure. In our view, adequately staffed offices have one FTE for licensing per each \$35-\$40 million in sponsored research expenditures. To reach this level of licensing staff relative to the sponsored research, InnovationAccess should have as many as 19 licensing staff instead of the current 12. Staffing for InnovationAccess will become increasingly acute as the research base grows.

The ability to enter into agreements to transfer technology and to create partnerships for the development of products from discoveries made at UC Davis is a critical measure for any technology transfer office. Revenue, and societal impact are created by the successful development and commercialization of products that result from research. Thus, licensing productivity, the number of license agreements completed per licensing staff member, is an important metric.

For the period examined, UC Davis averaged 7.5 licenses and options completed for each FTE devoted to licensing (Figure 3). During this same period, Cornell University was the lowest of the peer group with 3.1 licenses and options completed, and the University of North Carolina was the highest at 12.8 options and licenses completed. The average for the peer group was

5.9 licenses and options per FTE. For FY 2009 the national average for this metric was 5.44 licenses and options per FTE. Thus, UC Davis was above the average of the peer group and the national average.

**Figure 3. University of California Davis Licenses and Options Completed per FTE Devoted to Licensing Relative to Peer Institutions**



By this metric, licensing productivity is high at UC Davis. While this measure may reflect a high number of nonexclusive licenses and high number of plant licenses, it shows that staff members are actively licensing discoveries, in spite of the layoffs in staff that have limited their ability to conduct adequate outreach and marketing.

Appendix 4 provides a detailed analysis of a number of metrics that provide some insight into staffing performance and the emphasis on start-ups. Metrics for UC Davis are compared against a peer group and against national averages. To summarize these data, UC Davis lags behind both the peer group and the national average for the number of new invention disclosures per FTE devoted to licensing. This is a measure of new caseload and suggests that InnovationAccess staff manage fewer new cases than its peers. This measure only assesses new cases and does not take into account cases retained from previous years and legacy cases that were transferred to UC Davis from UCOP. To some extent this low number of new cases may be a reflection of the relatively low rate of invention disclosures to InnovationAccess. The licensing to start-ups is comparable to the peer institutions, but is low relative to national averages. The formation of start-ups is dependent on a number of factors that include the local entrepreneurial environment, state and local support for start-ups, and the relationship between start-up opportunities that emerge from university research and the investment climate. License revenue would rank 28<sup>th</sup> if ranked independently against other U.S. universities. Licensing

revenue is low relative to peer institutions and against national averages when expressed as a percentage of the sponsored research. At least 50% of the license revenue is provided from the licensing of strawberry varieties.

## Recommendations

**Metrics 19.** Create a dashboard of metrics to measure and track the performance of InnovationAccess. The following metrics should be included:

- Invention disclosures received
- Licenses and options completed
- Start-ups initiated
- Percent of patent expenses reimbursed
- External sponsored research per invention disclosure
- External sponsored research per FTE devoted to licensing
- Licenses and options completed per FTE devoted to licensing

As part of the benchmarking, these metrics should be annually tracked against the peer group used in the analysis for this review.



## Next Steps

This assessment is the first step in what should be an ongoing and iterative process to improve the technology transfer function at UC Davis. Successful implementation of the recommendations contained in this report will be dependent on many diverse factors, including investments in personnel, new technologies and a cultural evolution that enables the central and academic units to work as partners to achieve performance objectives. Extensive coordination will be required to ensure the implementation efforts meet the needs of the research community.

To implement the recommendations outlined in this report, we recommend that UC Davis:

- Step 1. Obtain consensus to proceed with the implementation of a prioritized list of recommendations contained in this report. We have categorized our recommendations in the table below as Immediate, Near Term (2-3 months), Intermediate (4-6 months), and OnGoing.**

<i>Recommendation</i>	<i>Immed.</i>	<i>Near</i>	<i>Intermed.</i>	<i>Ongoing</i>
MSV 1 – Adopt revised mission statement	X			
MSV 2 – Strategic Communications Plan			X	
OSL 3 – Business development orientation				X
OSL 4 – Analysis of future licensing opportunities		X		
OSL 5 – Seek delegated authority from UCOP		X		
OSL 6 – Position description for AVC	X			
OSL 7 – Form National Advisory Board			X	
OSL 8 – Adopt new org structure	X			
P9 – Administrative support	X			
P10 – Strategic plan for data management			X	
P11 – Access to SPO database	X			
P12 – Clarify decision-making		X		
P13 – Scientific review of MTAs		X		
P14 – Department administrators initiate MTAs			X	
P15 – Enable web MTAs			X	
P16 – Analysis of caseloads				X
P17 – Entrepreneur-in-residence program			X	
P18 – Partnership for an incubator			X	
M19 - Metrics				X

- Step 2. Develop a project implementation model that will ensure effective coordination among key initiatives.**

- Step 3. Develop individual project plans for those areas considered highest priority. These work plans should describe more specific tasks, responsibilities, timelines and deliverables. They should also identify necessary resources.**

- Step 4. Appoint project teams and begin execution of prioritized work plans.**

The contract with UC Davis provides for a return visit by Huron at a later time to assess the effectiveness of changes that will have been implemented.

## APPENDIX 1 - TEAM BIOGRAPHIES

**Erich Bloch** is a founding member of The Advisory Group and he advises on corporate R&D management and strategic planning for academically based research enterprises and other not-for-profit organizations. He is the Distinguished Fellow at the Council on Competitiveness, and recently served as a member of the President's Council of Advisors on Science and Technology (PCAST).

As Director of the National Science Foundation (NSF) from 1984–1990, Mr. Bloch oversaw the Foundation's \$3 billion annual budget and the award of 12,000–14,000 research grants in natural, physical, and social sciences, education, and engineering.

Previously, Mr. Bloch was IBM Corporate Vice President for Technical Personnel Development. His earlier work at IBM included Engineering Manager of the Stretch supercomputer system, head of the Solid Logic Technology Program, Vice President of the Data Systems Division, and General Manager of the East Fishkill development and manufacturing facility.

Mr. Bloch was awarded the National Medal of Technology for his role in the IBM System 360 "developments that revolutionized the computer industry" and is a recipient of the IEEE Founders Medal and NSF's Vannevar Bush Award, and the National Academy of Engineering's Arthur M. Bueche Award. He is a member of the U.S. National Academy of Engineering, the Swedish Academy of Engineering Sciences, a Fellow of IEEE, and a foreign member of the Engineering Academy of Japan. He serves on several boards and a variety of non-profit advisory boards.

Mr. Bloch received his education in electrical engineering at the Federal Polytechnic Institute of Zurich and earned a Bachelor of Science degree in electrical engineering from the University of Buffalo.

**James A Severson** is the owner and Principal of Pinnacle Reach, a consulting company that specializes in assisting organizations in the commercialization of early-stage technologies.

Jim was the Vice Provost for Intellectual Property and Technology Transfer at the University of Washington where he was responsible for UW TechTransfer, the unit of the University that sought to commercialize discoveries made at the UW. Units reporting to Jim included Invention Licensing which licensed inventions and patents, and Digital Ventures which licensed software, related inventions, databases, and information products and projects, including associated copyrights, trademarks, and patent rights. Jim also was the President of the Cornell Research Foundation where he was responsible for technology transfer from Cornell's Ithaca campus and the Weill Medical College of Cornell University in New York City. Jim also held technology transfer positions at the University of Minnesota, and held positions in new technology assessment and market development at Amersham Corporation.



Jim received a B.S. in zoology and a Ph.D. in physiology from Iowa State University, and did postdoctoral research at the University of Southern California. He also held a faculty appointment in the University of Southern California School of Medicine.

Jim is a Past President of the Association of University Technology Managers (AUTM), a national organization of university technology transfer professionals. In 2005, AUTM awarded Jim its highest honor, the Bayh-Dole award, "in recognition of untiring efforts to foster and promote intellectual property activities on behalf of the university and nonprofit community". Jim has served as member of the Board of Directors of the Council on Governmental Relations (COGR), a Washington-based association of over 170 research universities and research institutes that focuses on the policies and issues of federally sponsored research programs at universities, and he chaired its Contracts and Intellectual Property Committee from 2005 to 2008.

## APPENDIX 2 - INTERVIEWS

**Stan Nosek** Interim Vice Chancellor, Office of Research  
**Steven Drown**, Campus Counsel

**Bennie Osburn**, Dean, School of Veterinary Medicine  
**Kent Lloyd**, Associate Dean, School of Veterinary Medicine

**Bruce White**, Executive Associate Dean, College of Engineering

**Neal Van Alfen**, Dean, College of Agriculture and Environmental Sciences

**Kit Lam**, Chair, Biochemistry and Molecular Medicine, UC Davis Health System (by telephone)

**Fern Tablin**, Professor, Anatomy, Physiology and Cell Biology

**Deborah Golina**, Director, Plant Foundation Services

**Gerhard Bauer**, Director, UC Davis GMP Laboratory

**Jan Nolta**, Director, UC Davis Stem Cell Program and Director, UC Davis Institute for Regenerative Cures

**Jeralyn Annette**, Chief Administrative Officer, UC Davis Stem Cell Program

**Frank Sharp**, Professor Neurology, MIND Institute

**Raymond Rodriguez**, Professor, Molecular and Cellular Biology

### **Blue Ribbon Committee to Review Technology Transfer and Commercialization**

**Andrew Hargadon**, Professor, Graduate School of Management

**Martin Kenney**, Professor, Human and Community Development

**Bill Lacy**, Vice Provost, University Outreach and International Programs

**Doug Shaw**, Professor, Plant Sciences

**Fred Gorin**, Professor, Neurology

**Ian Kennedy**, Professor, Mechanical and Aeronautical Engineering

**Claude Meares**, Professor, Chemistry

### **InnovationAccess**

**David McGee**, Executive Director,

**Barbara Boczar**, Associate Director

**Rafael Gacel**, Associate Director

**Clinton Neagley**, Associate Director

### **Agricultural, Physical Sciences and Copyright Team**

**Clinton Neagley**, Associate Director

**Jan Carmikle**, IP Officer

**Michael Carriere**, Business Development and IP Manager

**Andrei Chakhovskoi**, IP Officer

**Samina Hitch**, IP Analysts

**Denise Meade**, IP Analyst



**Nancy Rashid**, IP Officer  
**Curt Gaines**, Plant Licensing Field Representative

**Life Sciences Team**

**Barbara Boczar**, Associate Director  
**Raj Gururajan**, IP Officer  
**Stacey Finney**, IP Analyst  
**Randi Jenkins**, IP Officer  
**Sharron Thompson** – IP Analyst

**Material Transfer Agreements Team**

**Rafael Gacel**, Associate Director  
**Gina Melville**, IP Analyst  
**Madhu Sharma**, IP Associate  
**Pakou Vang**, IP Analyst

## APPENDIX 3 - DOCUMENTS REVIEWED

### 1. Mission Statement

### 2. Statistics

#### A. Annual Reports

- UC Davis Office of Research Annual Report
- UCOP Annual Reports
- Link to UC System Financial Reports

#### B. UC Davis InnovationAccess (UCDIA) Additional Statistics and Reports

- UCDIA Statistics for FY2005 – FY2010
- 2010 Records of Inventions and Startups Statistics
- 2009 UCDIA Profile for Chancellor

#### C. UCDIA Faculty Service Information and Data

- UC Davis College of Engineering Pilot Industry Corporate Affiliate Partnership Agreement and Appendix A, Intellectual Property Agreement
- Faculty Roadmap for Startup Companies
- 2008 Value Added Report – Services Provided by UCDIA
- 2006 Campus Survey (Appendix to June 2006 UCDIA (formerly TIA) Administrative Review Report)

#### D. UC Davis Campus Reports

- Two-Year Goals Statement
- Chancellor Katehi's Individual Work Plan
- Strategic Plan
- UC Davis Foundation Supporting Startups

#### E. Startups

#### F. UC Davis Incubator Information

- UC Davis College of Engineering Press Release regarding Incubator
- Letter from the Dean of the UC Davis College of Engineering regarding Incubator

#### G. 2006 Administrative Unit Review for UCDIA

#### H. 2006 Administrative Unit Review Recommendations and Status Report for UCDIA

#### I. 2010 Blue Ribbon Report on Research

#### J. 2010 Blue Ribbon Committee on Technology Transfer

- 2010 Blue Ribbon Committee Report on Technology Transfer
- Research Recommendations Implementation Committee (Committee Members Listed)
- UCDIA Recommended Priorities of the Blue Ribbon Committee's Recommendations

#### K. Link to 2010 National Academy of Sciences Report on Technology

#### L. 2010 WAG Report for UC Davis

### 3. Organizational Charts and Staffing

#### A. Organizational Charts

#### B. Brief Staff Biographical Information

- C. Position Descriptions
  - D. Number of Staff in Each Position (see organizational chart)
  - E. Workloads per Staff
4. Policies, Procedures, and Business Processes
- A. Major UC/DIA Business Processes
  - B. Major UC Policies
    - Links to Major UC Policies Administered by UC/DIA
    - UC Licensing Guidelines
    - Nine Points to Consider in Licensing University Technology
    - Statement of Principles and Strategies for the Equitable Dissemination of Medical Technologies
    - ANR Handbook of Release of Plants
5. Benchmark Universities
6. UC/DIA Financial Reports
7. Current Fiscal Year Budget
8. Reports from state or city planning agencies related to economic development of relevance to the UC Davis Tech Transfer operation.
9. State programs that support economic development from university research, or that support entrepreneurial activities either within the university or in the community relevant to the UC Davis Tech Transfer operation.
10. Community resources that support economic development - incubators, VC, angels, and entrepreneur groups, and a summary of UC Davis' relationships with these resources.

## APPENDIX 4 - BENCHMARKING

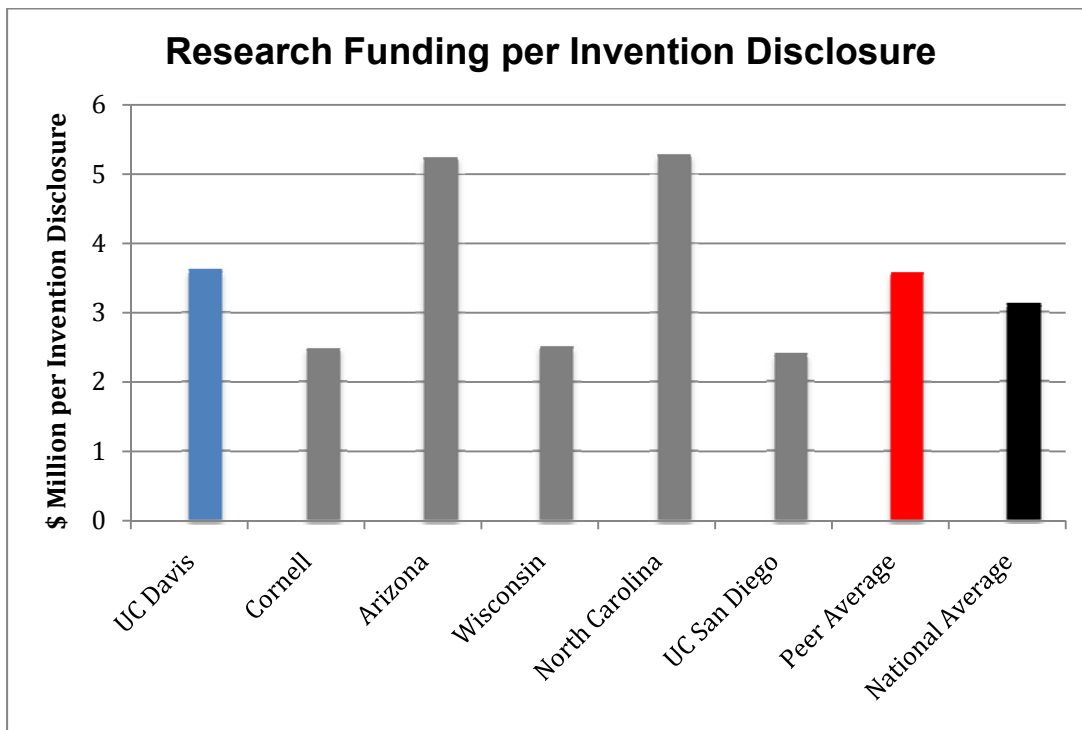
**Metric:** Sponsored Research per Invention Disclosure

**What it measures:** The yield of new ideas from research that revealed to the technology transfer office.

For the period from FY2006 to FY2009, UC Davis averaged \$3.6 million for each new invention disclosure reported. During this same period Cornell University was the lowest of the peer group with \$2.5 million per new invention disclosure and the University of North Carolina was the highest with \$5.3 million per new disclosure. The average for the peer group was \$3.6 million per new disclosure. For FY 2009 the national average for this metric was \$3.1 million per disclosure.

Thus, UC Davis was above the national average.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.





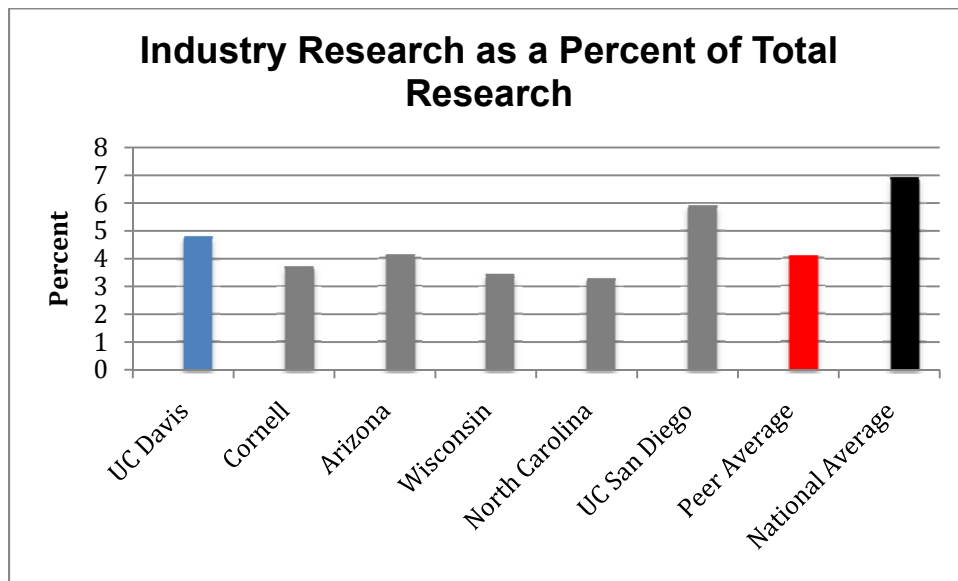
**Metric:** Industry Sponsored Research as a Percentage of Total Sponsored Research

**What it measures:** Industry sponsored research is a measure of the involvement of faculty with industry and may indicate better connections and understanding of the needs of industry. This is a measure of how attuned to industry the faculty are, and could be an indication of receptiveness to industry issues, including technology commercialization.

For the period from FY2006 to FY2009, UC Davis received 4.8% of its external research support from industry. During this same period, the University of North Carolina was the lowest of the peer group with 3.3% of its total research support from industry, and UC San Diego was the highest with 5.9%. The average for the peer group was 4.1% of the research support provided by industry. For FY 2009 the national average for this metric was almost 7% of the research support provided by industry.

Thus, UC Davis was below the national average.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



**Metric:** Research funding per FTE for licensing.

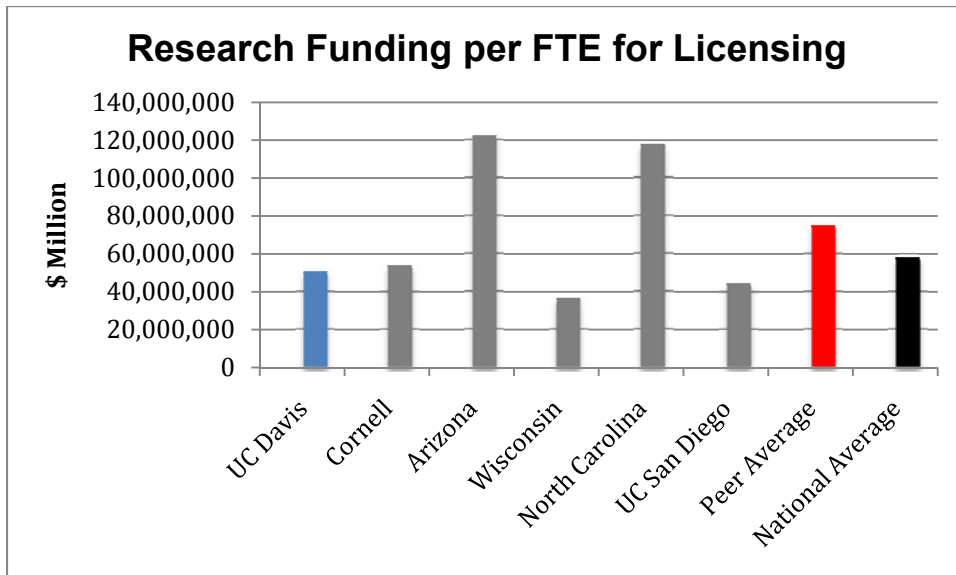
**What it measures:** A measure for the number of staff to cover the research base.

For the period from FY2006 to FY2009, UC Davis averaged about \$51 million of research support per licensing FTE. During this same period, the University of Wisconsin was at the low end of the range at \$36 million per FTE, and the University of Arizona was the high at \$123 million. The average for the entire peer group was \$75 million per FTE. For FY 2009 the national average for this metric was \$58 million.

It should be noted that for this metric a lower number reflects a smaller research base for each FTE that is devoted to licensing activity.

Thus, UC Davis was slightly below the national average

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



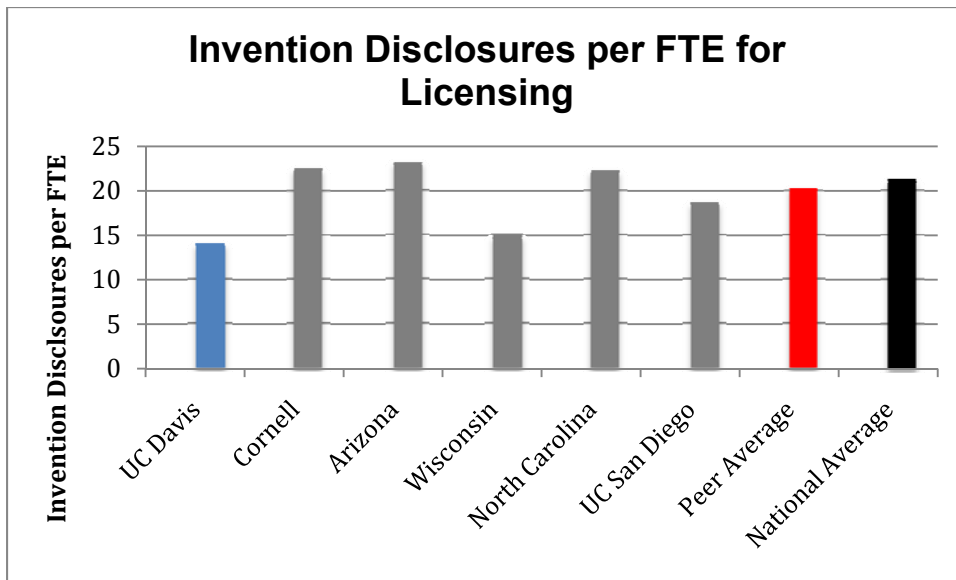
**Metric:** New invention disclosures per FTE.

**What it measures:** A measure of the new cases for each member of the licensing staff.

For the period from FY2006 to FY2009, UC Davis averaged about 14 new invention disclosures for each FTE devoted to licensing. This was the lowest of the universities in the peer group. During this same period, the University of Arizona was the high of the range at 23 new disclosures per FTE. The average for the peer group was 20 new disclosures per FTE. For FY 2009 the national average for this metric was 21.25 disclosures per FTE.

Thus, UC Davis was below the national average.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



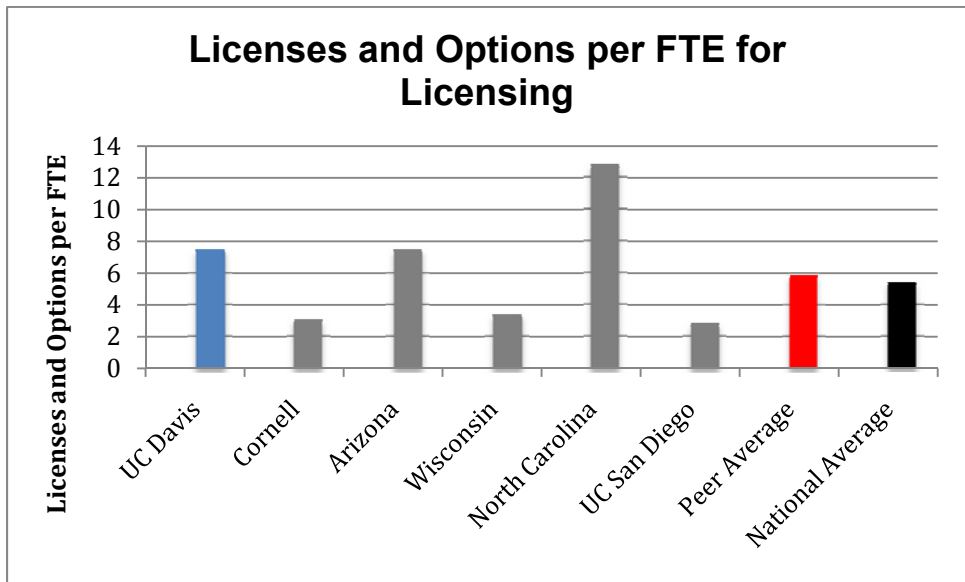
**Metric:** Number of licenses and options completed per staff member.

**What it measures:** Licensing productivity per licensing staff.

For the period from FY2006 to FY2009, UC Davis averaged 7.5 licenses and options completed for each FTE devoted to licensing. During this same period, Cornell University was the lowest of the peer group with 3.1 licenses and options completed, and the University of North Carolina was the highest at 12.8 options and licenses completed. The average for the peer group was 5.9 licenses and options per FTE. For FY 2009 the national average for this metric was 5.4 licenses and options per FTE.

Thus, UC Davis was above the national average.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



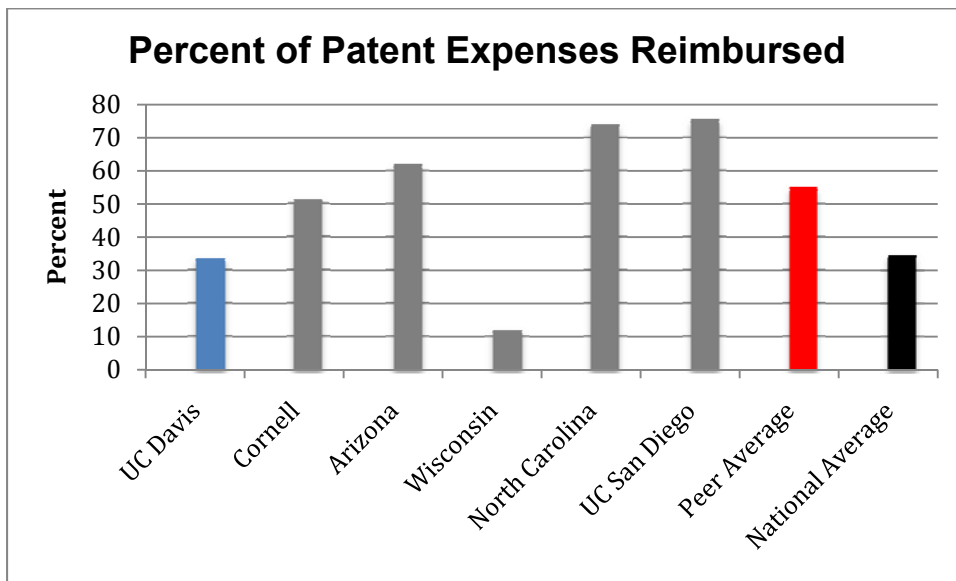
**Metric:** Percentage of patent expenses reimbursed.

**What it measures:** Management of the patent budget, using license negotiations to leverage resources and file more cases, and also a measure of the active cases that are under license.

For the period from FY2006 to FY2009, UC Davis averaged 33.7% of its patent expenses reimbursed by third parties. During this same period, the University of Wisconsin was the lowest of the peer group with 12.1% of its patent expenses reimbursed, and UC San Diego was the highest at 75.5% of its patent expenses reimbursed. The average for the peer group was 55.1% patent expenses reimbursed. For FY 2009 the national average for this metric was 34.7% of patent expenses reimbursed.

Thus, UC Davis was near the national average for this metric.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



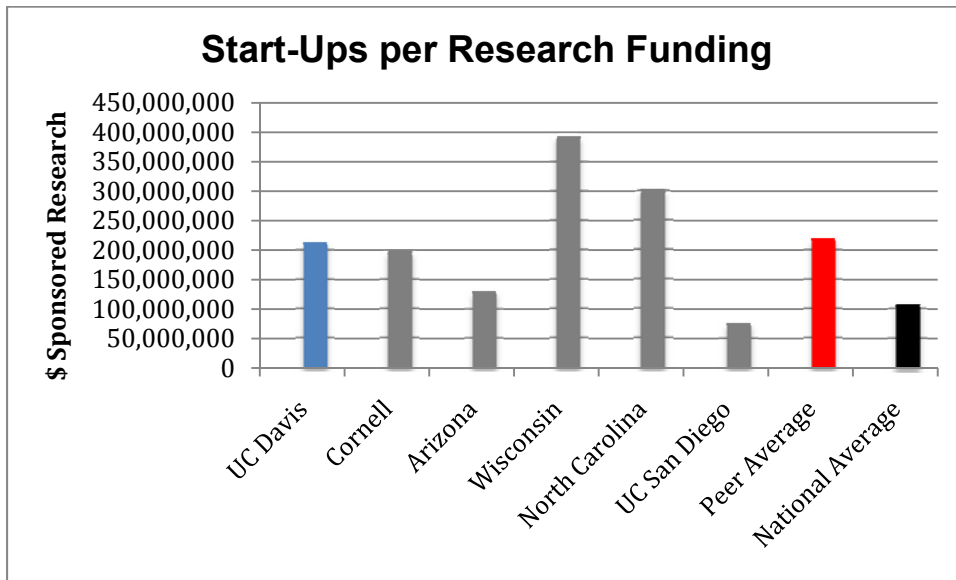
**Metric:** Start-ups per sponsored research.

**What it measures:** Conversion of research into new companies - reflects not only the number of deals completed, but also reflects any past emphasis on start-ups.

For the period from FY2006 to FY2009, UC Davis averaged \$214 million of research funding for each new start-up formed. During this same period, UC San Diego was the lowest of the peer group with \$76 million per start-up, and the University of Wisconsin was the highest at \$395 million per start-up. The average for the peer group was \$220 million per start-up. For FY 2009 the national average for this metric was \$108 million per start-up.

Thus, UC Davis was over twice the national average for this metric.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



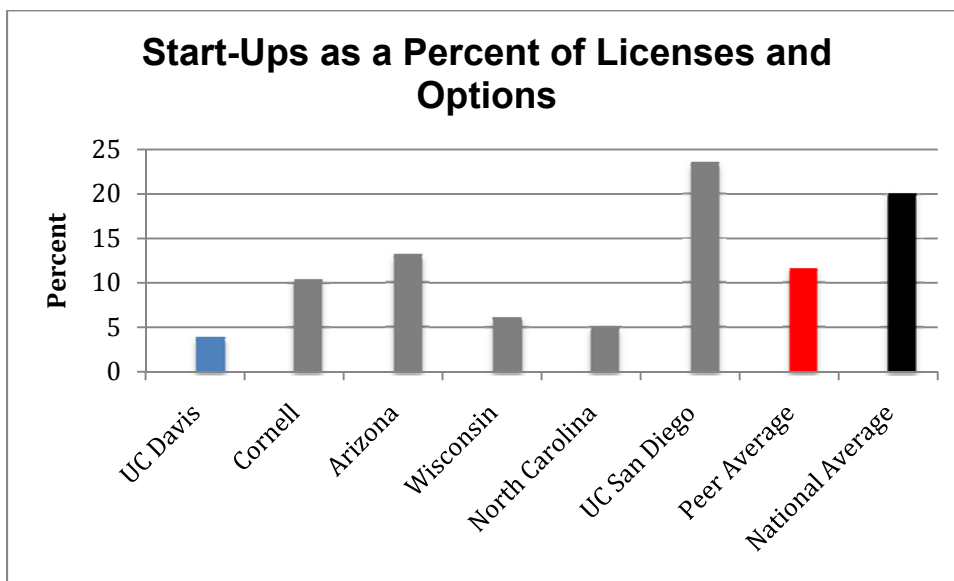
**Metric:** Number of start-ups initiated as a percentage of the total number of licenses and options executed.

**What it measures:** Measure of the focus of the office on start-ups as opposed to licensing to existing companies.

For the period from FY2006 to FY2009, UC Davis averaged 3.8% of its licenses and options to start-ups. This was the lowest of the peer group. During this same period, UC San Diego was the highest of the peer group with 23.5% of its licenses and options to start-ups. The average for the peer group was about 12% of licenses and options to start-ups. For FY 2009 the national average for this metric was 20% of licenses and options to start-ups.

Thus, UC Davis was significantly below the national average for this metric.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



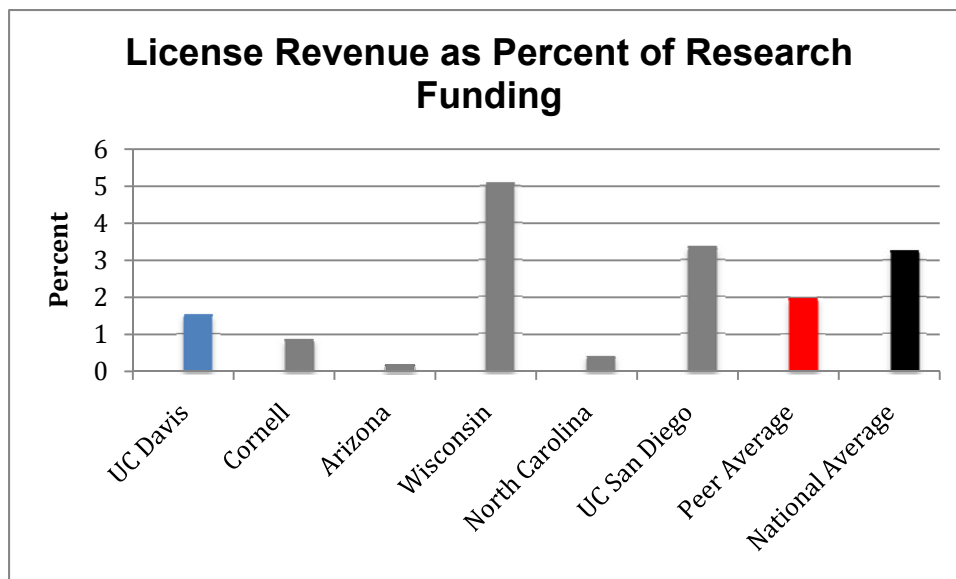
**Metric:** License revenue as a percentage of the sponsored research.

**What it measures:** This is a measure that is often used by companies to compare revenue with the expenses of R&D. While external support for research at a university may be analogous to a product development expense, there are limitations to the metric, and license revenue is not the same as sales revenue in the corporate model.

For the period from FY2006 to FY2009, UC Davis averaged 1.5% of its license revenue expressed as a percent of external research support. During this same period, the University of Arizona was the lowest of the peer group at 0.2% of its license revenue as a percent of research support, and the University of Wisconsin was the highest of the peer group with 5%. The average for the peer group was about 2% of license revenue as a percent of research support. For FY 2009 the national average for this metric was 3.3% of license revenue as a percent of research support.

Thus, UC Davis was below the national average for this metric. If UC Davis reported its license revenue independently instead of the aggregated UC System metrics reported by UCOP, UC Davis would rank 28<sup>th</sup> among all U.S. universities reporting in the AUTM Survey in FY2009, compared to its rank of 16<sup>th</sup> in sponsored research expenditures.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.





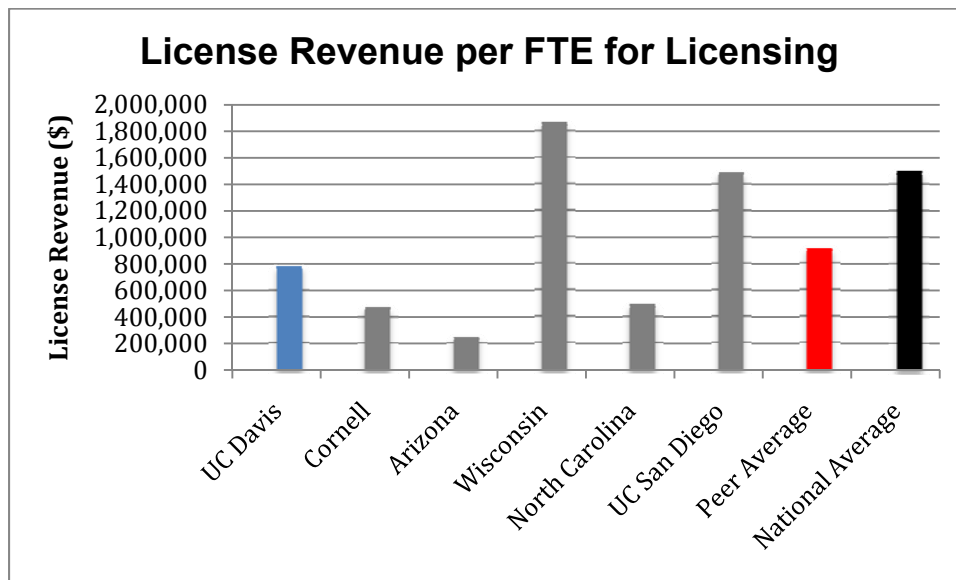
**Metric:** Licensing revenue per FTE devoted to licensing.

**What it measures:** A measure of revenue per licensing staff, which is analogous to corporate measures of sales revenue per employee. This measure also has its limitations since license revenue in a current year typically is derived from a license that was executed years previously.

For the period from FY2006 to FY2009, UC Davis averaged \$788,000 per FTE devoted to licensing. During this same period, the University of Arizona was the lowest of the peer group with \$250,000 per FTE, and the University of Wisconsin was the highest of the peer group with \$1,866,000 per FTE. The average for the peer group was \$916,000 per FTE. For FY 2009 the national average for this metric was \$approximately \$1.5 million per FTE.

Thus, UC Davis was about half of the national average for this metric.

The term “peer average” refers to the average of the metric for all five (5) institutions reviewed with UC Davis’ metric not included in the average. The term “national average” refers to the average of all U.S. universities that reported data in the FY2009 Association of University Technology Managers Licensing Survey.



## **APPENDIX 5**

### **Associate Vice Chancellor for Tech Management & Corporate Research Relations**

The University of California at Davis seeks a talented leader for the position of Associate Vice Chancellor for Tech Management & Corporate Research Relations. This is a senior administrative position that reports to the Vice Chancellor of Research.

The Associate Vice Chancellor will implement and lead a comprehensive model of university-industry relationships that is integral to the goals of the Chancellor for the growth and impact of research at UC Davis. The Associate Vice Chancellor will identify current and emerging research strengths at UC Davis and market these capabilities to prospective corporate partners. Reporting directly to the Associate Vice Chancellor will be InnovationAccess (technology transfer at UC Davis) and Corporate Research Relations. To achieve the goals of the position, the Associate Vice Chancellor is expected to collaborate closely with University Development.

The Associate Vice Chancellor must have significant experience working in senior level management positions in industry, government, or not-for-profit organizations and have a track record of establishing strategic alliances. Further, the Associate Vice Chancellor must have strong partnering skills to bring together faculty groups to foster collaborations within the university that have the potential to lead to strategic partnerships.

Minimum requirements for the position:

- B.S. degree;
- Senior management positions in industry, government, or not-for-profit organizations;
- Demonstrated leadership, marketing, and administrative skills; and
- A track record of establishing strategic partnerships with universities.

Preferred qualifications include:

- Ph.D. degree or equivalent professional degree;
- Broad knowledge of university sponsored research;
- Knowledgeable about university development fundraising;
- Experience with university technology transfer;
- Experience with university policies; and
- Experience and interest in entrepreneurship.

**APPENDIX 6 – COMPARISON OF HURON RECOMMENDATIONS WITH THE RECOMMENDATIONS OF THE BLUE RIBBON COMMITTEE ON TECHNOLOGY TRANSFER AND COMMERCIALIZATION.**

UC Davis Blue Ribbon Committee Recommendations	Huron Recommendations
<p>1. Establish and communicate clear objectives and priorities for the role of technology transfer and commercialization.</p>	<p><b>Mission, Vision and Strategy 1.</b> UC Davis should adopt the new mission statement for InnovationAccess.</p> <p><b>Process 12.</b> InnovationAccess should clarify its decision-making for new cases.</p>
<p>2. Create a new office combining InnovationAccess with Industry Research Agreements and reporting into the Office of the Chancellor.</p>	<p><b>Organization, Structure and Leadership 6.</b> The Vice Chancellor for Research should finalize the position description for the position of Associate Vice Chancellor for Strategic Partnerships.</p> <p><b>Organization, Structure and Leadership 7.</b> Form a national advisory board for industry partnering and commercialization.</p>
<p>3. Concentrate decision-making authority within this new office for all technology licensing and industry research agreements.</p>	<p><b>Organization, Structure and Leadership 5.</b> InnovationAccess and the Office of Research should seek delegated authority to enter into agreements that are exceptions to UC policy.</p>
<p>4. Prioritize strategy and structure of new office with a primacy on fostering those long-term relationships with industry that uphold the university's mission.</p>	<p><b>Organization, Structure and Leadership 4.</b> InnovationAccess should conduct an analysis of future licensing opportunities.</p>

UC Davis Blue Ribbon Committee Recommendations	Huron Recommendations
<p>5. Establish standards for transparency, timeliness, and accountability of patenting, licensing, and processing industry research agreements.</p>	<p><b>Organization, Structure and Leadership 3.</b> InnovationAccess should develop a more business development orientation to its activities.</p> <p><b>Process 9.</b> Hire administrative support for routine administrative work.</p> <p><b>Process 10.</b> Develop a strategic plan for data management.</p> <p><b>Process 11.</b> Reestablish access to Sponsored Project database.</p> <p><b>Process 13.</b> Initiate a preliminary, scientific review of MTAs.</p> <p><b>Process 14.</b> Permit department administrators and PIs to initiate MTAs.</p> <p><b>Process 15.</b> Enable more web-based MTAs.</p> <p><b>Process 16.</b> InnovationAccess should conduct a thorough analysis of current workloads and assign cases into categories that reflect status and need for action.</p> <p><b>Metrics 19.</b> InnovationAccess should create a dashboard of metrics to measure and track the performance of its operation.</p>
<p>6. Create a space within the culture on campus to enable faculty to increase their involvement in and commitment to technology transfer and commercialization.</p>	<p><b>Process 17.</b> Develop an entrepreneur-in-residence program.</p> <p><b>Process 18.</b> Partner to develop an incubator.</p>
<p>7. Provide educational and networking opportunities for faculty, staff, and students to develop and demonstrate the commercial value of their inventions.</p>	<p><b>Mission, Vision, and Strategy 2.</b> InnovationAccess should develop a strategic communications plan that prioritizes and improves outreach to campus, and creates networking opportunities.</p>