STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCES

SUMMARY OF MEETING DATES AND TOPICS

1.	January 25, 2006	The Role of Technology Transfer at the University – Key Objectives
2.	February 8, 2006	Overview of the Technology Transfer Process and Benchmarking of Key Metrics
3.	February 22, 2006	Overview of Office of Corporate Alliance
4.	March 15, 2006	ORPA's Role in Sponsored Research
5.	March 22, 2006	Key Issues with Start-Ups at Research Universities
6.	April 5, 2006	Key Issues in University Equity in licensees
7.	April 27, 2005	Conversation with Chris Christoffersen of Morgenthaler Ventures
8.	May 10, 2006	Conversations with Paul Wettenhall of HTR and Theresa Mazzullo of Excell Partners
9.	May 24, 2006	Conversation with Buzz Brown – Baylor College of Medicine on Technology Transfer at Research Universities
10.	June 7, 2006	Conversation with Jose Coronas of Trillium Group and Christine Whitman of the Rochester Angel Network
11.	June 21, 2006	Conversation via VideoConference with Lloyd Armstrong on USC's interactions with the Mann Foundation
12.	July 12, 2006	UR Panel on Entrepreneurship Activities (Chiverton, Knox Hansen) and Review of Faculty and Licensee Survey Results
13.	July 19, 2006	Discussion with Duncan Moore on Kauffman Grant and WIRED Grant Discussion with local entrepreneurs involved in UR Start-Ups – Rick Richman and Tom Fitzgerald
14.	July 26, 2006	Discussion of key policy issues for Report
15.	August 2, 2006	Review of Initial Draft of Report and "Straw Man"

		Structures Review of technology transfer structures at 14 other private research universities
16.	August 9, 2006	Discussion of economic development initiatives
17.	August 23, 2006	Discussion of Revenues and Expenses related to OTT And OCA, Discussion of Possible Metrics and Discussion key issues on policy coordination
18.	August 30, 2006	On-going discussion on key issues on policy coordination and structure recommendations for Report
19.	September 13)	
20.	September 18)	
21.	September 27)	Review and revisions of Report
22.	October 11)	
23.	October 18)	
24.	October 25)	

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 1 – January 23, 2006
The Role of Technology Transfer at the University;
Mission Alignment

The technology transfer function helps to fulfill the University's mission of using its education and research for public benefit.
Technology transfer at the University has academic and scholarly components as well as business and finance components. As a result, it has more of a hybrid function and assortment of roles than many other areas with the University. In addition, resource and budget limitations serve as the biggest restraint on the breadth of technology transfer's mission. It is critical, therefore, to reach some consensus on the relative priorities of its various roles before other key decisions can be made.

AGENDA

1. Review charge of Steering Committee, expected agendas and report and recommendations development.
2. Discuss technology transfer missions - the purpose of the activity at the University (not the specific structure or mission of either Office of Technology Transfer)
3. What happens when the missions of technology transfer are in conflict?

Potential Technology Transfer Missions: (1) advancing innovative scientific research, (2) disseminating knowledge, (3) recruiting, retaining and rewarding faculty, (4) contributing to institutional prestige, (5) commercializing discoveries, (6) spurring economic growth in our community, (7) establishing relationships with industry as potential research sponsors and donors, (8) optimizing/maximizing the public use of new technologies, and (9) generating additional revenue for the University to support additional research.

Questions to be Considered:

1. How can and should the technology transfer function assist other parts of the University in meeting their missions and objectives?
2. Are there potential new missions/objectives for the University that can or should be furthered by technology transfer (e.g. Entrepreneurialism? Leadership in local economic development? Relationship-building with industry?)
3. When, if ever, should one mission be compromised for another?
4. How do legal compliance requirements (e.g. Bayh Dole regulations) impact some of these missions?
5. To what extent should technology transfer be faculty-centered?
6. To what extent do the roles of technology transfer and corporate alliance and relationship-building overlap?
7. As missions pull in different directions, how will directional decisions be made and by whom?

Examples of Potential Tensions Among Missions:

1. Freedom of faculty to publish/ ..... University control of IP
   Knowledge dissemination

Researcher wants to publish his invention at an upcoming conference and doesn't want to patent his work.

2. Freedom of faculty inquiry ..... University investment in an invention

Faculty member developed an invention for which the University has invested in patent protection, and Faculty member now wants to abandon his/her work and change direction.

3. Economic Development ..... Academic mission, conflicts of interest
   Corporate Alliance

Inventors want new technology to be placed in a start-up which they control, and there are established companies interested in licensing the technology.

4. Economic Development ..... Resource limitations/ Maximizing revenues/ Optimizing public use

New technology cannot be licensed to existing companies, but a local entrepreneur is interested in developing it if a business plan can be created and basic corporate structure can be established.

5. Service to faculty ..... Optimizing public use of new technology/ Maximizing revenue
   (incl. CDAs, MTAs)

Faculty member wants University to file a patent on his/her invention but University staff assess the commercial viability of the invention as being less valuable than other technologies

6. Maximizing revenues ..... Resource and budget limitations

A significant % of patented technologies are not under license or other commercialization efforts. There are Insufficient resources to pursue how to make these technologies available for public use.

7. Maximizing revenues ..... Maximizing pubic use of New technology

A corporation is interested in paying significant revenues to license a technology so that it can prevent the technology from being used by a competitor.

8. Economic Incentives to faculty/ ..... Conflict of interest,
   Recruitment and retention Resource/budget limits

A prominent researcher with many federal grants wants University to pursue licensing his invention to a corporation for whom he consults. Other technologies are viewed by OTT as having more potential.

9. Freedom of faculty to publish/ ..... Corporate sponsor req'mt for exclusivity confidentiality, IP control
   Knowledge dissemination

UCBerkeley accepted $25 million from Novartis in exchange for first rights to negotiate licenses on 1/3 of a department's discoveries as well as 2 of the 5 seats on the department's research committee

10. Freedom of faculty inquiry/ ..... Corporate sponsor req'mt to control or join research efforts
    Academic mission

Corporate sponsored research agreement calls for a five year commitment for specific investigators to continue to pursue a specific line of research, which will be set by the sponsor.

11. Corporate Alliance/ ..... Independent inquiry Tax limits, freedom to Publish
    Sponsored research

Corporation would pay significant $$ to fund animal research on its developmental drugs, but corporation must control ability to publish and all IP directly relating to research.

Others?

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Meeting 2 – February 8, 2006

The Technology Transfer Process

Meeting Objective: (1) To understand the basics of the technology transfer process and the tasks performed within each Technology Transfer Office, and (2) to discuss the current process and resources along with the desired objectives of the technology transfer function discussed at Meeting 1.

AGENDA

1. Overview of technology transfer process
    a. G. Norris - aggregate overview (Powerpoint attached)
    b. M. Hunter and M. Coburn - each office's approach to the process
2. Discussion
    a. Line up the current process and staffing against desired Technology Transfer Objectives (**listed below).
        i. What are we adequately resourced to accomplish?
        ii. Based on the statements made by President Seligman regarding the University's commitment to economic development, what should we recommend about how the technology transfer function fulfills that commitment?
        iii. Assuming there is a gap between what we currently have resources to do and what we want to do, how do we close it?

    b. Discuss current structure of the technology transfer process and how economic development and corporate alliance efforts should fold in.
        i. How do we ensure that adequate time is allocated to all tasks that need to be done/objectives that must be met?
        ii. Examples (intended to generate discussion – not all of these ideas are necessarily good ideas)
            1. Place economic development/corporate alliance in separate University-wide function?
            2. Patent less?
            3. Collaborate with other Universities to achieve efficiencies in some functions?
            4. Create for-profit subsidiary to commercialize?
            5. Increase resources within existing structure? If so, how funded?
            6. Adopt policies that prefer no full patent application without licensee/corporate sponsor.

    c. Wrap Up – Are we moving as we should be to meet President's charge?

**Potential Technology Transfer Missions: (1) advancing innovative scientific research, (2) disseminating knowledge, (3) recruiting, retaining and rewarding faculty, (4) contributing to institutional prestige, (5) commercializing discoveries, (6) spurring economic growth in our community, (7) establishing relationships with industry as potential research sponsors and donors, (8) optimizing/maximizing the public use of new technologies, and (9) generating additional revenue for the University to support additional research.

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 3 – February 22, 2006
Medical Center Office of Corporate Alliances

Meeting Objective: (1 to understand the role and objectives of the Office of Corporate Alliance at the Medical Center; and (2) to discuss how the OCA function should liase with tech transfer and ORPA.

AGENDA

Per separate invitation from Doug Phillips, there will be an opportunity for those interested to tour the Extreme Materials Exhibit at the Gallery from 5:00-6:00.

1. Presentation by Claudia Stewart on the Office of Corporate Alliance (20 minutes)
2. Discussion
    a. Line up the current process and staffing against desired Technology Transfer Objectives (**listed below).
        i. What are we adequately resourced to accomplish?
        ii. Based on the statements made by President Seligman regarding the University's commitment to economic development, what should we recommend about how the technology transfer function fulfills that commitment?
        iii. Assuming there is a gap between what we currently have resources to do and what we want to do, how do we close it?

    b. Discuss current structure of the technology transfer process and how economic development and corporate alliance efforts should fold in.
        i. How do we ensure that adequate time is allocated to all tasks that need to be done/objectives that must be met?
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            1. Place economic development/corporate alliance in separate University-wide function?
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            6. Adopt policies that prefer no full patent application without licensee/corporate sponsor.

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STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 4 – Industry Sponsored Agreements Collaborations and Sponsorship from Industry

Meeting Objective: (1) to discuss the current policies and practices of industry sponsored agreements along with the desired objectives of the technology transfer function. (See discussion questions below); (2) to understand the role and objectives as these relate to the negotiation of industry sponsored agreements of ORPA, OTT and the Office of Corporate Alliance at the Medical Center; and (3) to either affirm current policy/practices or to suggest future changes or initiatives.

AGENDA

1. Presentation by Gunta Liders on Industry Sponsored Agreements – discussion encouraged (40 minutes)

2. Follow-on Discussion
    a. Are the policies and principles of industry sponsored agreement negotiation in support of our technology transfer mission?
        i. Do we agree that our publication policies are appropriate?
        ii. Do we need a written policy on openness in research?
        iii. What should we agree to hold confidential?
        iv. What resources/policies need to be put in place as we do more applied research?
        v. Are UR's policies/practices with respect to license provisions in sponsored research appropriate?
        vi. How willing are we to work in the "grey" areas? Who should be making these interpretations?
        vii. Are exceptions/decisions made at the right levels?

    b. Discuss the merits and pitfalls of corporate funded research
        i. Are we seeking a "mega" sponsored relationship with industry (e.g. Scripps/Sandoz, Berkeley/Novartis)
        ii. What are the issues associated with multiple industry sponsors? How do we manage these relationships appropriately? Do faculty understand the boundaries?
        iii. How does the prospect of <u>significant</u> industry funding affect our decisions?
        iv. How do we prioritize industry partnerships?

    c. Case Study: The Mann Foundation

**<u>Potential Technology Transfer Missions</u>: (1) advancing innovative scientific research, (2) disseminating knowledge, (3) recruiting, retaining and rewarding faculty, (4) contributing to institutional prestige, (5) commercializing discoveries, (6) spurring economic growth in our community, (7) establishing relationships with industry as potential research sponsors and donors, (8) optimizing/maximizing the public use of new technologies, and (9) generating additional revenue for the University to support additional research.

STEERING COMMITTEE ON TECHNOLOGY TRANSFER
AND CORPORATE ALLIANCE
Meeting 5 – March 22, 2006
START-UPS AND UNIVERSITY EQUITY OWNERSHIP

Why should we even put technology in start-ups?

1. Start-ups translate academic inventions into commercial goods and services that benefit the public. This is consistent with the mission of UR.
2. A track record of successful start-ups helps during discussions about recruitment and retention of high quality faculty.
3. Start-ups are an engine for local economic development and job creation, and success in this area demonstrates value of university research to the broader community.
4. Start-ups are sometimes the only alternative. In some cases, individual technologies cannot be licensed piecemeal. A great deal of work needs to be done to identify, package, and present a basket of technologies that cohesively offer a commercialization opportunity. In effect, a start-up can act like an intermediate development organization.
5. Start-ups make money -for the inventor, the university, and the business and investment community.

When should we put technology in start-ups?

1. If the invention is a "platform technology" or one that has a broad range of possible applications with clear market potential.
2. If the inventor's experience and personal expertise in working with the technology is critical to development.
3. If the commercial market for the technology is sufficiently undeveloped such that no established firm is an appropriate licensee.
4. If complementary assets (marketing, distribution channels, supplier networks, etc.) are reasonably accessible to entrants in the industry.
5. If the invention is a "disruptive technology" -- one that could fundamentally change the way an industry operates.
6. If customers in the industry have relatively low switching costs to adopt a new technology.

What should we be careful about?

1. Conflict of interest issues.
2. Perceived "fairness" of licensing terms.
3. Disagreement between start-up and University equals issues.
4. Investors/potential investors often fuel the fire.
5. Should there be some mechanism for an objective review?
6. Equity ownership, board seats (see below)

What role should we play in the start-up and what requirements should we impose?

1. Should we require certain minimum standards before we'll park our technology there? (e.g. business plan, financial resources to ensure technology can be taken forward, etc.)?
2. Is there a minimum "diligence" review we should have (and document)?
3. Should we be a catalyst – prepare business plan, run company until management can be identified, recruit management, solicit investment, etc.
4. Should we ever invest cash?
5. Should we require receipt of a minimum cash payment to at least cover patent costs? Can we defer these payments until minimum level of financing is achieved?
6. Should there be any differences in our approach if a faculty member is, or isn't, involved?

Equity ownership

1. When should we accept equity?
2. Should there be a limit on how much of stake we'll take in a company?
3. What should we require re: dilution through initial rounds of financing?
4. Should we allow University board positions?
5. How do we manage the equity ownership over time?
6. What do we do with inventors share when we take equity (netting of costs, investment decision)?
7. Complications arise with Sponsored Research arrangements and clinical trials because we have individual AND institutional conflicts now.

List of UR Start-Ups

Vaccinex (appreciation right)	1998		
Rtek Medical Systems		1999	
Socratech			2000
VirtualScopics		2001	
Truth-N-Beauty			2002 (ceased)
LAGeT LLC		2002	
Koning Corp		2002	
Cerebral Assessment Systems		2002	
Amplivex			2003 (ceased)
X-Tel-e-Atrics		2003	
WiseMed			2003
Pathologics		2004	
Hematex			2004
George, Gabel & Conners Imaging		2004	
Sydor Instruments		2004	
XactData			2004
Oyagen			2004
VDC Gateway		2004	
Diffinity Genomics		2005	
Physiologics Communications		2005	
Permedsys			2005 (ceased)
Millenial MRI Corporation		2005	

Additional Equity Holdings through Licensing:

Androscience Corp
Prolifa
GeneOhm Sciences
ADVantage Imaging Systems
Progenitech

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE
Meeting 6 – April 5, 2006
START-UPS AND UNIVERSITY EQUITY OWNERSHIP
Part II

A. Equity ownership

1. When should we accept equity?
2. Should there be a limit on how much of stake we'll take in a company?
3. What should we require re: dilution through initial rounds of financing?
4. Should we allow University board positions?
5. How do we manage the equity ownership over time?
6. What do we do with inventors share when we take equity (netting of costs, investment decision)?
7. Complications arise with Sponsored Research arrangements and clinical trials because we have individual AND institutional conflicts now.
8. What does our policy say? How does that compare/contrast with other benchmarked research universities?

B. Distribute and Discuss: Proposed future meeting topics and Draft Outline of Report

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE
Meeting 7 – April 27, 2006
Conversation with Chris Christoffersen of Morgenthaler Ventures

Discussion with Chris Christoffersen of Morgenthaler Ventures:

- What is Morgenthaler Ventures looking for when it considers and investment
- What kind of deal flow does Morgenthaler handle each year
- What do you view as the major obstacles to VC capital coming into the Rochester community
- What kind of ideas can we generate that would lower these obstacles

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Meeting 8 – May 10, 2006

Conversations with Paul Wettenhall of High Technolgy Rochester and Theresa Mazzullo of Excell Partners

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE
Meeting 9 – May 24, 2006
Conversation with Buzz Brown
Baylor College of Medicine

Topic: **Discussion regarding what other research universities are doing with technology transfer, economic development and commercialization of technologies**

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 10 – June 7, 2006

Conversations with Jose Coronas of Trillium Group and Christine Whitman of Rochester Angel Investors Network

Topic: Discussion regarding what the University can do to improve the level of venture investment funding of our technologies.

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE
Meeting 11 – June 21, 2006
Conversation via VideoConference with Lloyd Armstrong, Former Provost USC

Topic: Discussion regarding USC's experience with the Mann Foundation

Alfred E. Mann Biomedical Foundation Commits $100 Million to establish USC Research Institute dedicated to Technology Transfer

4/1/1998

Biomedical industry entrepreneur and University of Southern California trustee Alfred E. Mann has committed $100 million through his foundation to the USC School of Engineering to establish the Alfred E. Mann Institute for Biomedical Engineering. It will be known as AMI-USC. The institute, a nonprofit organization, will be dedicated to the development of medical devices to improve human health and well-being. "This new institute creates an extraordinary opportunity for USC and for Southern California," said USC President Steven B. Sample. "Speaking as an engineer who has been in industry as well as academe, I can say that nothing spurs the creative process as much as the prospect of bettering people's lives and improving society as a whole. Moreover, AMI-USC holds great promise for stimulating the bio-tech and biomedical industries in this region. "I am thrilled about this gift for another reason," Dr. Sample continued. "As one of Southern California's most successful entrepreneurs, Alfred Mann has made life better — in some cases even possible — for millions of people all over the world. To have his name on this institute says something important about what AMI-USC is intended to accomplish." AMI-USC will have a strong emphasis on the development of next-generation devices, such as neural prostheses, that will be able to take the place of damaged nerves in eyes, ears and even brains. Other ongoing research thrusts in the USC department of biomedical engineering that may be developed at AMI-USC include speech recognition, new medical imaging

systems, improved implants and biomaterials, and other new therapeutic technologies. "Creating a bridge between a pre-eminent research university and private industry will enable the superb basic science created in academia to be developed relatively quickly into useful medical products," Mann said. "By carrying the research through to engineering designs for actual commercial products, this institute will be able to make new medical devices available to doctors and the public faster than is currently feasible. Those products will then be licensed to various companies so that live-saving and life-enhancing medical devices can get to those who need them in a timely way. "USC is a great university with strengths in biomedical, bio-engineering and extensive basic research," he continued. "And it has the kind of entrepreneurial spirit it takes to bring private industry and higher education together in common purpose." The Mann donation, one of the largest gifts in the history of U.S. higher education, is the second nine-figure donation to be received in USC's current Building on Excellence fund-raising campaign. The first was the $120 million received in 1993 from Ambassador Walter H. Annenberg, the gift that launched USC's Annenberg Center for Communication. USC is the first university in history to receive two gifts of more than $100 million in a single campaign. The new institute is expected to create hundreds of jobs in the Los Angeles area, with more jobs likely to result as AMI-USC fulfills its mission of bringing new technology to the health-care industry. Plans for the institute facility, slated for groundbreaking in 2001, call for a four-story building to house the School of Engineering's biomedical engineering department on the lower two floors and the institute on the upper two floors. Mann is the founder and current chairman of two biomedical companies — MiniMed Inc., a $100 million company that is the world's largest maker of insulin pumps, and Advanced Bionics Corporation, a $20 million manufacturer of devices to restore hearing to the profoundly deaf. In 1985 he sold Pacesetter Inc., which he had founded, to Siemens AG, but he remains chairman emeritus of the concern, the second largest heart pacemaker manufacturer in the world. Considered one of Los Angeles' most successful entrepreneurs, Mann founded seven high-technology companies. His first, Spectrolab, was established more than four decades ago to provide the U.S. Army with guidance equipment for antitank missile systems and then to provide the U.S. Air Force with a solar cell power array for America's first space probe. Spectrolab went on to become the world's leading supplier of space power systems. Mann serves as chairman of the Southern California Biomedical

Council, an organization working to foster growth in the region's biomedical industry, which currently includes some 2,500 firms. A native of Portland, Ore., Mann attended Reed College, matriculating at age 16, and went on to earn bachelor's and master's degrees in physics from UCLA in 1949 and 1951, respectively. His honors include the Ernst and Young Entrepreneur of the Year award and the introduction of his company, MiniMed, into the U.S. Space Foundation's Space Technology Hall of Fame. A member of numerous associations and professional organizations, Mann was elected to the USC board of trustees in January 1998. The USC School of Engineering's department of biomedical engineering, established in 1971, is the third largest undergraduate program in the school (more than 250 students are currently enrolled). The department includes an extensive basic research program with particular strength in applications of computers to a wide range of biomedical problems, including medical imaging and the design of artificial organs and tissues. "In Southern California, USC has historically been an intellectual motor driving growth in new high-technology industries," said Leonard Silverman, dean of the School of Engineering. "USC Engineering has done this in aerospace technology, in petroleum engineering and, most recently, in the new field of multimedia. Thanks to this generous gift, we are now poised to play this role yet again in the expanding field of biomedical technology." The biomedical engineering department also maintains strong interdisciplinary ties with other departments in the School of Engineering, including electrical engineering and computer science, and with other schools and departments conducting research in related fields, including the extremely active neurosciences program in the USC College of Letters, Arts and Science. Biomedical engineering faculty also collaborate intensively with colleagues in the USC medical, dental and pharmacy schools. One USC biomedical engineering cross-disciplinary project that has attracted international attention is led by Theodore Berger, who is attempting to create a silicon "brain chip" that may someday be used to replace damaged or diseased areas of the brain. Berger's team includes researchers from electrical engineering, neurosciences, and pharmacy in addition to his home department of biomedical engineering. "For the past four decades, Mr. Mann has pioneered the development of biomedical device technologies." said David D'Argenio, chair of the biomedical engineering department. "His most recent innovative vision for an institute of biomedical engineering at USC is certain to catalyze new biomedical research and development." Through its Building on Excellence

campaign, the university seeks to raise $1 billion by the year 2000. Encompassing all academic units, as well as the athletic programs and key university-wide projects, the campaign will further the four paramount initiatives of USC's strategic plan — initiatives focusing on undergraduate education, interdisciplinary teaching and research, the Southern California region, and global opportunities.

TECHNOLOGY TRANSFER

Universities Find Too Many Strings Attached to Foundation's Offer

The Alfred Mann foundation says professors need help to commercialize their inventions. But some experts say the charity is asking for too much in return

Billionaire entrepreneur and biochemist Alfred Mann, 81, thinks the commercialization of biomedical technologies is too important to be left to academics. He wants to set up multimillion-dollar campus-based R&D institutes to help turn inventions into marketable medical innovations—with the institutes calling the shots.

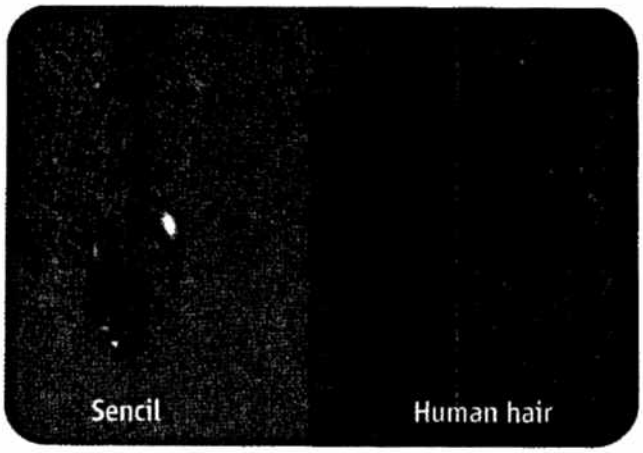
But Mann is having trouble selling the idea. This month, a proposed $100 million deal with the University of North Carolina (UNC), Chapel Hill, and North Carolina State University in Raleigh fell through, and discussions with several other universities have yet to result in agreements. Many technology transfer experts say they aren't surprised: What the Alfred E. Mann Foundation for Biomedical Research is proposing, they say, would force a university to surrender too much control over its intellectual property (IP).

Universities have been trying for the past 20 years to beef up their technology transfer operations, ever since Congress opened the door for them to make money off the fruits of federally funded research. Mann, who made a fortune starting and then selling off several high-tech companies, created his foundation in 1985 to speed the development of university-based biomedical inventions into treatments. In 1998, Mann gave $100 million to the University of Southern California (USC) in Los Angeles to create an Alfred Mann Institute.

A similar-sized gift to the two North Carolina universities was expected to be the first in a second generation of Mann institutes that would commercialize discoveries at a dozen or more campuses. The two universities were hoping the state would finance two $25 million buildings to house the institute; that request has been withdrawn after the talks collapsed and Mann withdrew his offer.

The arrangement Mann is promoting is a novel hybrid that would confer all power to a separate nonprofit institute. The university and the foundation would each appoint half the institute's board members, and the revenues and royalties would be divided among the original inventor, the university, the institute, and the Mann foundation. Although professors and graduate students will participate in the work, the institutes are to be staffed largely by experts in product development recruited from industry.

Tony Waldrop, vice chancellor for research at UNC, says the foundation "wanted much more far-reaching [IP rights] than what we were willing to give." The university "wanted to have some ability to pick and choose" which faculty research products would be licensed to the new institute, he adds, and more freedom for inventors to choose their commercial partners.



In by a hair. A subcutaneous miniprobe is one project at USC's Mann Institute.

CREDIT: ALFRED MANN INSTITUTE FOR BIOMEDICAL ENGINEERING/UNIVERSITY OF SOUTHERN CALIFORNIA

Waldrop declined to be more specific, but a copy of the proposed agreement (obtained by *Science* under the state's open records law) explains that the university would have been required to give the Alfred Mann Institute the first crack at any biomedical technology or drug the institute wanted to develop that wasn't already bound by a prior agreement with the funder. The university would have been allowed two exemptions every 5 years.

IP experts who have seen the proposed agreement expressed surprise at its sweeping IP provisions. "I can't think of a major U.S. research university that would sign" such an agreement, says Karen Hersey of Franklin Pierce Law Center in Concord, New Hampshire, a former IP lawyer at the Massachusetts Institute of Technology. "The university is being asked to abandon its right to decide" what to do with its "uncommitted" IP. In fact, she says, the proposed scheme flies in the face of a host of accepted practices and constitutes a "massive reach" into federally funded research—possibly even violating a federal prohibition on discrimination by universities in making available the results of federally funded research. It's an "aggressive" proposal, agrees Robert Cook-Deegan of the Duke Institute for Genome Sciences & Policy in Durham, North Carolina. "It calls for the university to give the institute pretty much worldwide exclusive rights to anything that hasn't already been licensed to somebody else."

Mann foundation CEO Stephen Dahms, a former chemistry professor at San Diego State University, says that those who would reject the philanthropy's proposal don't know what's good for them. He says the institutes would cherry-pick only "a very limited subset of university IP"—perhaps two projects a year. The North Carolina institutions, he asserts, suffer from a "limited perspective on intellectual property access and other factors. ... The lawyers warned us, but we thought we could overcome their traditional conservative ways of doing things."

"Universities are just not capable of making these business decisions," says Dahms. In a 21 April letter to the *Chronicle of Higher Education*, which reported in March that several universities had bristled at the IP provisions, Mann explained that universities are getting low rates of return on research investments because "professors have no concept of what it takes to bring a product to market" and technology transfer offices "often don't know how to find the right partner." A number of universities, including Johns Hopkins in Baltimore, Maryland, Emory in Atlanta, Georgia, and the University of Minnesota, have held preliminary discussions with the Mann foundation, but Dahms says no formal proposals have been made.

USC's institute, which has received $170 million from the foundation, has several projects nearing the marketing stage, including a noninvasive heart-output monitor and a hair follicle–sized chemical biosensor. But the IP arrangements are less rigorous than those in the proposed North Carolina agreement. "Under no conditions would I undertake something without cooperation of the inventor," says institute director Peter Staudhammer. Although proposed IP policies have become more rigorous since the USC agreement—"Mr. Mann wants to be certain these institutes are kept in an evergreen mode," says Dahms—he emphasizes that the foundation is further revising its policies.

–CONSTANCE HOLDEN

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 12 – July 12, 2006

UR Panel on Entrepreneurship Activities

Pat Chiverton – School of Nursing

Wayne Knox and Jim Zavislan – Optics

Ron Hansen – The Simon School

Review and Discussion of Faculty and Licensee Survey Results

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 13 – July 19, 2006

Discussion with Duncan Moore – Kauffman Grant and WIRED Grant

Discussion with local entrepreneurs involved in University Start-ups

Rick Richman

Tom Fitzgerald

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 14 – July 26, 2006

Discussion of Key Policy Issues for Report to President

Key Issues to be Addressed in Report

Issues relating to Clear Definition of the Role of Intellectual Property Development and Technology Commercialization

1. Clarity of Role of Technology Commercialization to University.
    a. What is the appropriate prioritization of objectives for the technology commercialization function at the University? Is it revenue generation? Is it optimizing number of technologies? Is it service to faculty/schools which make determination? While they are not always mutually exclusive, there needs to be clear priorities.

    b. How do we balance the service function among departments, schools and the larger University community? (e.g. comparative commercialization decisions must constantly be made among technologies generated from different areas).

2. Role of Technology Commercialization in Corporate Relationship-building.
    a. What goals do we have for technology commercialization in corporate relationship-building?
    b. Should a separate function fulfill them?
    c. How does it fit/align with Advancement, Communications, Colleges/Schools/Dept.s/ORPA and Sponsored Research

3. Role of Technology Commercialization in Economic Development.
    a. Should there be an economic development function at the University? If so, how should it be defined and resourced?
    b. What should its role be with respect to start-ups?
    c. What should its role be with respect to liaison with community organizations focused on economic development (including private VC sources)?

Issues relating to Structure

1. Based on answers to Issues outlined above, what is the best structure for the technology commercialization process?
    a. Should we merge some/all of the office functions of the offices in the College and Med Center?
    b. What effect will structure have on function's ability to service faculty
    c. How do we deal with the marked differences in licensing different types of science?
    d. Should we restructure to divide job responsibilities more clearly between patent production and technology marketing?
    e. How can we ensure that marketing continues to get adequate focus?

2. Steering/Oversight committee

a. Needed?
b. What is its role/authority?

3. Accountability and Metrics
    a. What kind of goals/metrics should be set for the technology commercialization function?
    b. What measurements are most appropriate to measure effectiveness of technology commercialization function?

4. Funding
    a. Based on answers to Issues related to structure and goals, what level of funding/staff resources is appropriate to achieve acceptable level of success?
    b. How should the funding resources be generated/allocated?

<u>Issues relating to broader focus on commercialization, economic development and entrepreneurship</u>

1. Should we be exploring mechanisms to incubate the science embodied in a University invention? E.g. Mann Foundation model, incubator, other?
2. Should we be exploring mechanisms to involve faculty, students, OTT, community organizations to be entrepreneurial in the use of our technologies?
3. How does this related to the broader role of UR's designation as a Kauffman Campus?

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 15 – August 2, 2006

Discussion of Initial Draft of Report and potential "Straw Man" Structures for Technology Commercialization

Review of reporting structure of 14 research universities

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE
Meeting 16 – August 9, 2006
Discussion of Role of University in Economic Development

POSSIBLE DISCUSSION QUESTIONS

1. What role should the University have in regional economic development – how should it be defined so that responsibilities and expectations are clear? What types and amounts of resources should we feel obligated to invest? People and their time? Money? Facilities?

2. How do we approach measuring our impact on economic development?

    a. UR employees
    b. UR as consumer of regional goods and services
    c. UR as catalyst for the creation of companies and jobs
    d. UR as catalyst for new industries? New resources such as wet lab space, business park, bio-manufacturing facilities?

3. Although our technologies can spawn a handful of start-ups a year, that alone will not contribute substantially to local economic growth. Research universities that are located in regions that have more highly developed and denser "clusters" of high tech companies tend to be more effective in contributing to continued growth (success breeds success). Should we be focusing, as a University or as a Region, on certain core technologies to try to start or grow clusters? Is this too ambitious?

4. What should our role be with respect to outreach activities and programs that support and promote high tech entrepreneurship? Mentoring? Build network of financial or business competencies? Provide seed funding?

5. Based on a discussion of the issues above, what kind of economic development service should we form/expand at the University and how should it fit into the technology transfer function?

STEERING COMMITTEE ON TECHNOLOGY TRANSFER AND CORPORATE ALLIANCE

Meeting 17 – August 23, 2006

Discussion of Revenue and Expenses of Technology Transfer Offices

Discussion of Possible Metrics

Discussion of Key Issues on Policy Coordination Between College and Medical Center

Task Force on Technology Transfer and Corporate Alliances
August 23, 2006
Agenda

1. **Review of Financial Data for Offices of Tech Transfer and Corporate Alliances**

2. **Review of Possible Metrics to Measure Productivity**

3. **How to Achieve Coordination if the Offices Continue to be De-Centralized?**

   - **Policy Establishment, Articulation and Coordination**
   - **Uniform Management Matrices**
   - **Ongoing Internal Communication – How to assure?**
   - **Start-up Support Services – who delivers and is there financial support from and availability to both MC and College?**
   - **Corporate Relationships – who delivers, how is there coordination with Advancement efforts, is there financial support from and availability to both MC and College?**
   - **Who makes decisions about revenue and cost sharing when there is collaboration and inventions derive from the efforts of both MC and the College?**
   - **Is there a role for a small Policy Committee?**
   - **Is there a role for a larger Working Committee, similar to the Task Force?**
   - **Is there a need for an Advisory Committee involving alumni and outside funders?**

Ideas for Metrics – Technology Transfer

Measurement Metrics

1. See attached Metrics System presented by University of Virginia – this system uses measurement metrics to track efficiency over time in both elapsed time to license and number of technologies "transferred" through license or other commercial use
2. Number of Invention Disclosures
3. Number of licenses/options executed
4. License income received
5. Number of provisional patent applications filed
6. Number of utility patent applications filed
7. Number of non-US patent applications filed
8. Patent legal expenses incurred
9. Patent legal expenses reimbursed
10. Metrics measuring average cost of patent
11. OTHERS???

Although interim reports may be useful, metrics should be measured at year end with regard to total research dollars available, so as research funding increases or decreases, metrics can be computed on a Per Research Dollar basis. Thus, comparative analysis could still be done year on year.

Performance Metrics

1. Periodic prioritization of top marketing efforts and a "true-up" report at period end of marketing activity conducted on those prioritized technologies.
2. Each technology on which a provisional patent is filed should have a written evaluation of marketing potential and specific marketing steps that should be taken by a licensing manager and/or the inventors. Although some of these may not be among the top priorities, patents should not be converted to provisionals until a marketing analysis is done. Inventor involvement should be a significant factor in commercial potential of invention.
3. Education and outreach metrics for internal customers and external customers.
4. Customer satisfaction measurements (surveys? Other methods of measuring effectiveness of communication, efficiency, timeliness, etc.
5. OTHERS??? (Metrics on iEdison reporting? Other back-office operations?)

Focus should be on OTT's IP creation capacity – where is the intersection of (1) good technology, (2) availability of expenses for patent prosecution, (3) ability of staff to ensure quality patents are issued, and (4) ability of staff/inventor(s) to market the technology for commercial use.

A Powerful New Metric: "Technologies Transferred"

Chris Harris, Alan Bentley, Marie Kerbeshian, Miette Michie, Lynn Pillow, Veena Rao, Todd Huffman, Jeff Wilk, Bob MacWright (UVA Patent Foundation) and Steve Susalka (Wake Forest OTAM)

Abstract

A key statistic reported in the AUTM annual survey is the number of licenses and options executed in that particular fiscal year, more commonly referred to as the number of "deals." Deals can be a good measure of the workload of a given office, since each agreement has a certain amount of overhead and effort attached to it. However, deal flow is an imperfect measure of our efficiency in transferring our inventions and discoveries to the marketplace.

Measuring disclosed technologies actually transferred for commercialization purposes is a more compelling measurement of how we are "moving the merchandise."

All deals are not created equally:

"I did 4 deals!"
(1 invention disclosure licensed 4 times, non-exclusively)

"I only did 1 deal."
(8 invention disclosures licensed in 1 exclusive license)

Clearly, if the 8 disclosures had been licensed under 8 separate agreements, they would have counted as 8 deals, but because of the deal structure, the volume of technologies being transferred is obscured.

It would be useful for TTOs to track the number of disclosures that are being transferred for commercialization purposes, regardless of how they are packaged.

A New Metric is Needed

This new metric is called **"Technologies Transferred"** (or "TT"), which has the benefit of:
- ✓ providing an accurate measurement of how the office is moving the merchandise
- ✓ using the same unit of measurement (invention disclosures) to link the outflow to the inflow

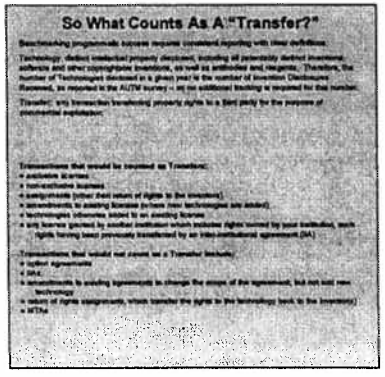
A secondary metric, **"Technologies First Transferred"** (or "TFT") could also be used to track the number of technologies that are being transferred for the first time, and:
- ✓is a subset of TT
- ✓can be used to indicate what part of the volume of TT is not from recurring business.

With these two new metrics, our previous example becomes:

1 invention disclosure licensed 4 times, non-exclusively = 4 deals, 4 TT and 1 TFT

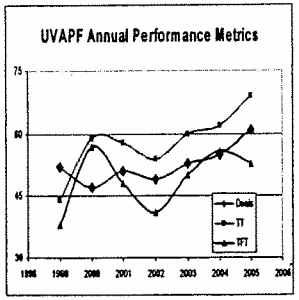
8 invention disclosures licensed in 1 exclusive license = 1 deal, 8 TT and 8 TFT

Combining these scenarios, the office's report would include 5 deals, 12 TT and 9 TFT. The fact that many technologies were licensed under one deal is not hidden when all three metrics are reported.



Tracking Annual Performance

Tracking TT and TFT will give a clearer picture of how we are performing on an annual basis. TT includes the number of transfers of technology, but also takes into account multiple technologies in deals. TFT adds a dimension to this analysis by allowing you to gauge the number of technologies that were licensed more than once or have also been licensed previously.



When TT is high but TFT is low, several of your transfers were repeat business.

When TFT is almost equal to TT, a substantial portion of your deals were transferring technologies not previously licensed.

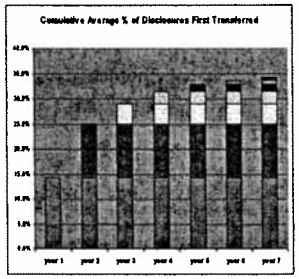
From this chart of Annual Metrics for UVAPF, TT tracks deals fairly closely, while TFT seems to be more variable.

Tracking Efficiency Over Time

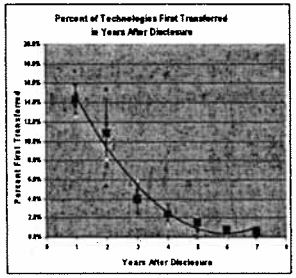
Another benefit of linking a metric to the technology, rather than to the transaction, is that it not only reveals how *many* technologies are being transferred, but also how *long* it takes for that technology to be transferred.

It is not uncommon for many of this year's licenses to cover inventions disclosed in prior years. The reported number of deals gives no information regarding the time lag between disclosure and transfer of technologies. The TT and TFT metrics provide an easier mechanism by which to track program efficiencies.

The following graphs, generated from TFT data from the UVA Patent Foundation, show the cumulative percent of invention disclosures transferred over time and illustrate how long after disclosure they are licensed.



Our internal statistics show that nearly 35% of inventions and discoveries disclosed to us are eventually licensed.



TFT statistics reveal that of the 35% of inventions we license, nearly three-quarters are licensed within the first two years after disclosure.

Data Tables for TT and TFT

Keeping track of TT and TFT by Disclosure Year and Transfer Year is relatively simple using the following format. Highlighted fields indicate the number of transfers that occurred in the year of disclosure.

Disclosure Fiscal Year	Number of Disclosures	TT by Fiscal Year of Transfer					
		2000	2001	2002	2003	2004	2005
<2000		42	21	16	6	6	1
2000	124	17	59	6	3	4	6
2001	134	-	17	16	9	2	5
2002	135	-	-	18	19	4	8
2003	180	-	-	-	23	20	6
2004	191	-	-	-	-	27	8
2005	184	-	-	-	-	-	27
Totals		59	93	54	60	63	60

Tables tracking TT by Fiscal Year of Transfer quickly and easily show the numbers of disclosures from a given fiscal year that are transferred in subsequent years.

Tables tracking TFT by Fiscal Year of Transfer show the time lag between disclosure and the eventual transfer, and can demonstrate success ratio over time.

Disclosure Fiscal Year	Number of Disclosures	TFT by Fiscal Year of Transfer							
		2000	2001	2002	2003	2004	2005	Total	% of Disc.
<2000		40	12	9	3	3	2	-	-
2000	124	17	59	6	2	1	1	47	37.9
2001	134	-	17	11	6	3	3	41	30.6
2002	135	-	-	18	14	3	4	42	31.1
2003	180	-	-	-	22	20	7	49	27.2
2004	191	-	-	-	-	28	6	34	17.8
2005	184	-	-	-	-	-	27	27	14.7
Totals		57	88	44	47	58	50	-	-

Summary

- **TT and TFT metrics provide information regarding a TTO's *efficiency* in licensing inventions – information not available from the deals metric.**
- **The TFT metric allows one to track the number of disclosures that are actually licensed by the TTO, as well as the average time between disclosure and transfer of technologies.**
- **Metrics that accurately represent the outflow of technologies may be useful in illustrating the impact of programmatic changes.**
- **These metrics can be used in annual performance appraisals to more accurately represent productivity.**
- **Faculty will appreciate knowing the statistical chance of success in your office for their new discovery.**

"What are the chances my invention will get licensed, and how long will it take?"

Many inventors are interested in hearing your success rate for licensing new invention disclosures, and chances are, you might not know the statistic. If your office only tracks the statistics reported to AUTM, then you won't have that figure readily available.

Comments? Questions? Want a copy? Interested in trying this at *your* institution? Contact us: patents@virginia.edu (434) 924-2175
www.uvapf.org