

Minutes*

Senate Research Committee
Monday, October 11, 2004
1:45 - 3:00
238A Morrill Hall

- Present: Gary Balas (chair), Dianne Bartels, (George Green for) Victor Bloomfield, James Cotter, Dan Dahlberg, Sharon Danes, Kathy Ensrud, Steven Gantt, Michael Hughey, Paul Johnson, Ryan Lukas, James Orf, Virginia Seybold, Thomas Schumacher, Maria Sera, Charles Spetland, George Trachte, Barbara VanDrasek
- Absent: Aleksa Babic, Christopher Cramer, Robin Dittman, David Hamilton, James Luby, Mark Paller, Michael Volna, Jean Witson
- Guests: Doug Johnson (Office of Business Development); Peggy Sundermeyer (Office of the Vice President for Research)

[In these minutes: (1) research infrastructure funding; (2) Office of Business Development; (3) update on coordinating groups to respond to government initiatives]

1. Research Infrastructure Funding

Professor Balas convened the meeting at 1:45 and turned to the subject of funding for the research infrastructure. He said he would like this to be an ongoing topic for the Committee this year and hoped that eventually the Committee could develop a report or recommendations or a resolution that can be used. The libraries can be watched as an example of spending for the research infrastructure.

The University has requested \$11 million from the state in recurring funds for the research infrastructure. Professor Balas said he did not recall the Committee being asked for its views on what is needed, support for the request, what should be in it. It seems that few were involved in the development of the request. The Committee has a lot to offer, he said, and could advise on how to spend the money as well as help bolster the case in the future.

A number of points were made in the ensuing discussion.

- It is not clear yet whether the libraries are specifically mentioned as part of the \$11 million request, although they are being considered part of the research infrastructure. Should this Committee, perhaps in concert with the Senate Library Committee, argue that the libraries should be prominent in anything the University brings forward? They are a very important part of the research infrastructure and cut across all fields.
- The use of indirect cost recovery (ICR, or now Facilities and Administration, F&A) funds and whether or not they are used for the libraries was the subject of extended discussion. ICR funds

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- do not flow to the libraries directly; the libraries receive a flat rate of \$1.5 million (that has not changed since 1997) that is used for collections. Mr. Wink explained that a large part of central ICR funds are used for facilities--debt service and utilities and operating costs. The big issue is that ICR funds do not cover all indirect costs. The University's indirect costs are 53%, part of which is administration. Administration costs are about 30%, but the payment is capped at 26%, so the University loses money on every grant. Moreover, many sponsors do not pay full indirect costs. Committee members discussed what goes into the ICR rate negotiated with the federal government, the rate the University then tries to use with other funders as well.
- One question is whether there is a plan to distribute ICR funds with the understanding that they should pay for components of the research infrastructure or if they go into a pool to be distributed based on University needs. One big component of the ICR rate is college and department administration, which is the rationale for returning some of the money to the colleges and departments. That cost, plus equipment depreciation, is what comprises the 49.5% of ICR funds that are returned to colleges and departments.
 - The 26% cap on administrative costs is set by Congress and has been in place for a long time. It is in essence an unfunded mandate because administrative costs are higher than 26%. Universities have talked about trying to get it raised for some time but the effort has not gone anywhere.
 - Rather than focus on ICR funds, which has a recipe in place that will not change and which the Committee could spend all year on, it should focus on elements of the research infrastructure. One element is the libraries, which many would agree are threatened and which are key to research; the Committee needs to have more than anecdotal information.
 - Another element is networking, how information is transferred and how people gain access to the libraries. There is not the needed support for networking between groups inside the University; how is it managed and how are costs transferred? The University needs to maintain access to technology that is needed for each field; how are funds used to keep all up to the same level, cut human time requirements, and manage compliance? There was a question about whether internet access/connectivity is provided centrally or if units are (still) being charged for it. One department has been told it must begin paying in November.
 - Centralized licensing of software could reduce costs considerable. The common software is centrally licensed (Microsoft Office, etc.).
 - The Committee should focus less on financing and more on what is needed for faculty to do good research/scholarship. The Committee knows there are costs; perhaps it could help identify priorities.
 - Another element of the research infrastructure is equipment, especially large pieces of equipment that can be shared among departments. Those purchases could be coordinated centrally. Everyone wants the equipment in their building, but these items become obsolete quickly. Could the University provide access to equipment to the private sector in order to help depreciate costs? More importantly, is there an effective mechanism to amortize and replace large equipment? That should be in place when the equipment is purchased, just as the University should do the

same for its buildings. Has there been a survey of the major equipment at the University (there was a few years ago). As far as outside users go, there needs to be a business plan in place; it is easy to misjudge the market for users. The University cannot charge industry for use of equipment the government paid for.

- Those in more low-tech fields need personnel (e.g., the IRB form used to be 3 pages; now it is 30) for testing, technicians, secretarial help with paperwork, and so on. They also need efficient structures to hire such people (and not have to wait two months). Major equipment is also not run by faculty; it requires skilled technicians, often with advanced degrees, who must also be paid for—and whom the University wants to keep. There need to be arrangements for support if there is a lull between grants.
- Institutions need a way to promote face-to-face interactions in order to further multi-disciplinary research.
- There is the issue of dual-use equipment, such as the computer used for research that is also used for teaching; it is frequently not recognized that the research infrastructure is also used for instruction.
- A related issue is support for graduate students and the issue of the cost of postdocs versus graduate students. Some have said it costs about the same to hire a technician and a graduate student, but the technician works 40 hours per week and doesn't have to go to class. Data from last year, however, suggest that faculty are not replacing graduate students with postdocs or technicians. Faculty grouse about graduate student costs but understand that part of their mission is to train graduate students; they pressure the administration to reduce graduate student costs but they are not going to get out of the business of graduate education. The same pressures exist at other institutions; Minnesota is not an outlier in the cost of its graduate students. But it is the third-most expensive school in the Big Ten and the changes have been very fast; researchers have not seen such changes in cost so quickly. The changes are hardest on the multi-year grant recipients who can't budget for these kinds of changes. At other Big Ten schools, however, health costs are going up faster than at Minnesota (because Minnesota got a handle on them in the past).

Is there any prospect that the funding of graduate students will change, with the new task force report or a change in IMG, Dr. Van Drasek asked? Professor Balas said he did not know; the task force said the University had to get more money from the state or from private sources but did not identify inventive ways to change the structure. All talk of cutting the burden of graduate student costs was unappealing to the deans because reducing tuition would mean forfeiting millions of dollars each year from federal and other sources, Dean Green reported. To abolish thesis credits, for example, would cost the University \$10 million per year; abandoning non-resident tuition at the graduate level would cost \$3 million. But many times grant funding is not formulaic, it is fixed, Professor Dahlberg said; the University would not be throwing away thesis tuition dollars, it is just a question of how the money will be used.

Professor Balas said the Committee would try to focus on individual topics at future meetings and try to produce a document that could be used to advance the cause of research infrastructure funding.

2. Office of Business Development

Professor Balas now welcomed Doug Johnson, Director of the Office of Business Development (OBD). Mr. Johnson distributed copies of his presentation and then walked the Committee through it. Professor Balas asked Mr. Johnson where OBD is housed; it is the new University Enterprise Laboratories facility on the transitway.

The problem they are trying to fix, Mr. Johnson explained, is that there are not enough spin-offs from University technology and the success rate of the spin-offs is too low (2% at the University, 8% nationally, 18% at MIT). But spin-off gains exceed licensing gains at most universities (primarily through the ownership and sale of equity in the spin-off companies).

The current process at the University is that an innovation is disclosed and there are then three things that Patents and Technology Marketing can do to realize value and promote adoption of the innovation: license it to a big company (with an upfront fee that is a small part of the return to the University and royalties on sales that is a large part of the return), license it to a spin-off (with equity upfront that is a big part of the return and royalties on sales which is a small part), or decline to patent it (because it has insufficient value or because it needs to be modified).

Creating University spin-offs is more profitable than licensing. There are about 23,000 university technology licenses across the country; only 123 generate more than \$1 million per year in royalties. The issue with spin-offs is equity versus royalties on sales: there are low odds on receiving royalties, there is a good probability a licensee will design around the patent, the equity value depends on the firm value, not just one intellectual property value, and equity can increase long before there are royalties. Big companies will not pay a lot for licenses—few attract multiple bidders, most licenses are early-stage, and many commercial products require multiple licenses. Finally, start-ups invest more in commercializing intellectual property than do big companies.

Mr. Johnson described the Bayh-Dole Act of 1980, designed to promote commercialization and adoption of technology developed in universities on federal funding, and to use small businesses to do so.

An 11-year study in the United Kingdom made it clear that creating University spin-offs is more profitable than licensing. Licensing earnings were about £16 million while equity earnings were about £180 million. Carnegie-Mellon had an arrangement that netted \$1 million in royalties but the equity was finally valued at about \$80 million. United States university studies show that there is a 3-20 times higher spin-off return than there is from licensing. The "problem" at the University is clearly worth fixing, Mr. Johnson concluded, because spin-offs generate economic value. They generate jobs (more than from licenses), promote economic development, are effective for uncertain technologies (which big companies are reluctant to underwrite), and they help to attract and retain faculty (a phenomenon that is reasonably well documented). If the University spin-off rate increased to 10 per year, and if the success rate increased from 2% to the national average of 8%, and if the average value were \$10 million per spin-off (which is typical), the University would see about \$8 million per year. If it had an MIT-like success rate, the total would be about \$15 million. If it hit a Yahoo, the value would be upwards of \$75 million.

How will the University fix the problem? Mr. Johnson said he could offer his perceptions based on his work with start-up companies (15 years in venture capital and investment in 25 early-stage companies). The basic problems are recognizing commercially-valuable intellectual property, lack of

assistance to faculty in starting a new company, lack of strong connections with the "entrepreneurial community," lack of capital for early projects, lack of understanding of the start-up process, and lack of capacity to provide good business plans at an early stage. To address these issues OBD is starting a faculty education program and will provide much more start-up assistance from OBD staff.

Carlson Ventures Enterprise, a unit of the Carlson School of Management, will provide a report on a spin-off potential. It will evaluate the value of the invention, the markets, customers, and financing, review technology and industry factors, and provide a summary and recommendation. This report will be completed 4-6 weeks after the disclosure of a potential start-up company is made.

Mr. Johnson said OBD intends also to have a GAP non-profit fund of \$10-20 million to provide capital for very early projects. The "GAP" is between the end of federal research funds and any investor willing to put money into a project. The money will come from medical device companies and foundations external to the University. All they get is a write-off, but it will allow them to look at early-stage technologies. They will have no control over who gets funded but will obtain knowledge about the reports. The GAP fund will be a blind pool granting \$100,000-150,000 with the expectation that enough of the projects will mature that they can put the money back. The investors will be provided confidential reports. The goal is to maximize the value of inventions to the University and to make them available to the public. This seems to be going in the opposite direction from the spin-offs, Professor Balas commented—big companies are on the board waiting to buy inventions. Mr. Johnson said that the problem with uncertain technologies is that they are usually very different and can't be developed to the point companies want to invest in them. If there is a GAP fund, technologies may be developed to the point that companies want to invest in them. He noted that while spin-offs have the biggest potential for the University, right now most of the intellectual property money comes to it from a license.

The vision of OBD, Mr. Johnson summarized, is to provide start-up assistance, provide a "front door" to the University, provide gap funding, and provide faculty education. In terms of the latter, they will help faculty recognize valuable intellectual property, protect and evaluate it, advise them on the role they should play in a new company, and what expectations they should have about time commitment and equity ownership. He said he hoped that OBD could become self-sufficient within two years or less through its membership program with outside firms and GAP fund investment earnings.

Professor Dahlberg commented that the quality of the faculty, and the students they attract, is the most important factor with respect to successful spin-offs, and that obtaining those faculty is a tough battle in very competitive fields. Mr. Johnson agreed that universities more highly-ranked have an increased probability of success.

Professor Balas invited Mr. Johnson to return to the Committee when he has a more developed idea about the faculty education effort. He asked if there has been any thought given to assisting faculty who consult (such as not signing legal agreements that give away their rights). Mr. Johnson said that OBD cannot give legal advice, but it can help identify the value of intellectual property so that faculty do not give it away. The University could be more active on this point, Professor Balas said, so that faculty are not tempted to hide their intellectual property.

Where did the idea for OBD come, Professor Cotter asked? Mr. Wink said that Vice President Hamilton has been working on it for some time. Professor Balas said that it came out of an evaluation of Patents and Technology Marketing.

Professor Balas thanked Mr. Johnson for joining the meeting.

3. Update on Coordinating Groups to Respond to Government Initiatives

Professor Balas next welcomed Ms. Sundermeyer to the meeting to provide an update on the coordinating groups to respond to government initiatives.

Ms. Sundermeyer said that there are two initiatives in the Office of the Vice President for Research to meet concerns about "big science" or big grants coming down the pike. One is a grant opportunity to travel to pre-application sites which was announced last summer. Ms. Sundermeyer was asked to send the information to the Committee. The website with information about the program is <http://www.grad.umn.edu/faculty-staff/funding/ovpr/intercollegiate.html>

Professor Balas asked who served on the groups that decide who receives the money. Ms. Sundermeyer said they pulled together reviewers from existing Graduate School review groups. There have been about half a dozen applications thus far and they have been able to meet demand. There is no deadline. The key is that the applications be intercollegiate and have a community partner, where appropriate.

The other initiative is working with University Relations to get federal agency representatives to come to campus to meet with faculty so that the faculty think about different agencies they might apply to for grant support. The Council of Research Associate Deans would also like to see trips the other way: faculty going to (or already in) Washington to meet with program directors and others. Those faculty would need to be briefed on what is already happening at the University. The only condition of support for such trips is that the faculty member must share with colleagues the information learned.

Professor Balas suggested that they host a lunch to provide information. He encouraged wide dissemination of the information about these initiatives. He said he knows that faculty visit federal agencies and would gladly visit another if there is a contact established.

Professor Balas thanked Ms. Sundermeyer for providing the information and adjourned the meeting at 3:00.

-- Gary Engstrand

University of Minnesota