Minutes*

Senate Research Committee
Monday, September 13, 2010
2:15 - 4:00
238A Morrill Hall

Present: Melissa Anderson (chair), Mustafa al'Absi, Margaret Catambay, Anna Clark, Seung-Ho Joo, Frances Lawrenz, Jennifer Linde, Timothy Mulcahy, Kola Okuyemi, Federico Ponce de Leon, LaDora Thompson

Absent: Arlene Carney, Paul Cleary, Jerry Cohen, Donald Dengel, Robin Dittman, Demoz Gebre, Maria Gini, Tucker LeBien, Toni Leeth, Thomas Vaughan, Karen Williams, Lynn Zentner

Guests: Anne-Francoise Lamblin (Director, Research Informatics Support Systems), Professor Jorge Vinals (Director, Minnesota Supercomputer Institute)

Other: none

[In these minutes: (1) introductions and comments from the chair; (2) Bioinformatics Initiative (or RISS, Research Informatics Support Systems); (3) risk tolerance; (4) Research Infrastructure Initiative]

1. Introductions and Comments from the Chair

Professor Anderson convened the meeting at 2:15, noted that she would begin the meeting on time, called for a round of introductions, and then made comments about the conduct of meetings. She will ask Committee members to introduce themselves each time there is a guest visiting the meeting; she asked that people not speak in acronyms (and said that any Committee member should feel free to interject if acronyms or terms are used that he or she does not understand); she will have lunches during the year to have conversations with Committee members; this may be the largest committee in the Senate, including the ex officio members, and the latter have full privileges of participation except that they may not vote on matters put to a vote; because of the charge to the Committee, it works very closely with the Office of the Vice President for Research; the theme for discussions at least during fall semester will be risk tolerance in various forms at the University; and the major items on the agenda for the year include the National Research Council rankings, clinical research and the Clinical and Translational Science Awards, the upcoming financial cliff, and issues the Committee believes should be brought to the attention of the presidential search-advisory committee. The Committee has representation on other committees (sustainability, IRB, Faculty Consultative Committee, the Provost's Research Council, the Council of Research Associate Deans, the International Risk and Liability Committee and the Conflict of Interest Education Committee.

In his comments introducing himself, Vice President Mulcahy said he regards himself as an advocate for research, and not just research funded by grants but all scholarship. He added that this Committee has been a great resource for him and he values the relationship he has with it.

* These minutes reflect discussion and debate at a meeting of a committee of the University of Minnesota Senate; none of the comments, conclusions, or actions reported in these minutes represents the views of, nor are they binding on, the Senate, the Administration, or the Board of Regents.

2. Bioinformatics Initiative (or RISS, Research Informatics Support Systems)

Professor Anderson next asked Associate Vice President Lawrenz to introduce the next item and the two guests. Dr. Lawrenz explained that Dr. Anne-Francoise Lamblin and Professor Jorge Vinals are heading up the Bioinformatics Initiative named RISS (Research Informatics Support Systems) that is part of the Office of the Vice President for Research. The Committee received a handout explaining RISS.

Dr. Lamblin explained that the Initiative came about because of the recognition of the increasing importance of informatics in research and the needs for infrastructure to support interdisciplinary informatics research. RISS is the product of the University of Minnesota Interdisciplinary Informatics (UMII) program in the Office of the Vice President for Research. The UMII goal is to create an interdisciplinary research and informatics community by fostering the development of the informatics infrastructure and the use of that infrastructure by providing informatics user support.

RISS was developed in consultation with the UMII Advisory Committee members and with consideration of the community comments gathered during the course of the different Office of the Vice President for Research infrastructure consultative task forces. RISS's aim is to use an integrative approach to developing the informatics infrastructure and user support, leveraging University resources, avoiding duplication, and creating a collaborative infrastructure. To illustrate this, RISS program will be implemented as part of MSI, where it will leverage its computational expertise and hardware. The program will be implemented over five years, in concert with the Minnesota Supercomputer Institute, and will develop a human infrastructure by hiring people with expertise in specific research subject domains, starting with the life sciences.

Professor Vinals said the University has a tremendous array of high-performance computational resources; RISS is an effort to reach out to units that have not been as well-served by those resources as they could be. They will add personnel to allow RISS to get closer to the units in order to facilitate research.

Vice President Mulcahy added that if proven successful, this RISS integrative approach and philosophy of designing for a specific community needs and culture would be expanded to support other research communities such as social sciences and the humanities, among others.

The handout provided this information:

RISS will be composed of hubs of expertise staffed with analysts whose expertise and activity-focus reflect the communities they support. To address modern biology's acute needs for informatics user support, the inaugural hub will focus on the life sciences communities and the management and analysis of high-throughput molecular data, such as encountered in genomics. The life sciences RISS's hub will provide technical expertise in bioinformatics, biostatistics as well as software and database development.

RISS will be implemented as a new 5-year program within the Minnesota Supercomputing Institute for Advanced Computational Research (MSI). This symbiotic relationship will leverage MSI's significant computational resources, data storage capabilities, analysts and software developers with RISS's in-depth understanding of the bioinformatics practices, needs and systems

approaches to informatics-intensive biological research. This will enable a quick ramp-up of RISS services, and will provide near-term access to computational and informatics infrastructure in support of research and education.

RISS will establish and provide researchers with technical expertise in four areas: PROJECT PLANNING, DATA ANALYSIS, DATA MANAGEMENT and EDUCATION. In addition to project assistance and participation, RISS will also provide free "Minute Clinic"-style access to planning and quick informatics consultation. More complex projects will involve additional partnership arrangements based on the unique needs of the project and the informatics resources already available in participating laboratories.

While initially focusing on the intensive informatics needs of current biological research, the capacity and types of informatics-intensive research that will be served by the RISS "hub" approach to informatics support will evolve as the University's need for informatics increases over time and the research communities needs develop.

Professor Anderson thanked Dr. Lamblin and Professor Vinals for joining the Committee.

3. Risk Tolerance

Professor Anderson turned next to Vice President Mulcahy to lead a discussion of risk tolerance. Dr. Mulcahy distributed copies of a set of slides he had used to present "A Case for Recalibrating Risk Tolerance" to the Board of Regents Audit Committee in June.

The proposal contained in the presentation, Vice President Mulcahy told the Committee, was the culmination of a lot of work and interest across the University. A small group started to work on the issues and realized that the theme resonated across the campuses. Where is the University in terms of risk tolerance? Conservative? Risky? The overwhelming consensus was that the University is conservative and risk-averse. What he is presenting is a different vision, a recalibration of the institution's risk tolerance. Dr. Mulcahy emphasized that this is not a criticism of what has been the University's position but is a set of evaluations and recommendations on how to change in order to retain its status as a major research university.

Dr. Mulcahy said the group looking at risk tolerance surveyed the literature and discovered a 2010 paper, "Weathering the Storm, Strategic Risk Management and Nonprofit Accountability," by Adam Oswald, a graduate student in the Humphrey Institute. Written for nonprofit organizations (not higher education specifically), it was directly on point. Dr. Mulcahy quoted a line from the paper: "One reason organizations may want to strategically take on more risk is related to existential risk—in this case, the risk of invisible losses due to inaction while the world changes around them." The group concluded the University needed to change its approach to risk tolerance because its current approach is wrong and agreed that if the University did not change as the world changes (in the evaluation of risk), it would be in trouble. The biggest concern is inaction.

The presentation to the Regents' Audit Committee was more focused on financial concerns, but he has expanded the concept of risk tolerance to include productivity, Dr. Mulcahy said. He had several points. "(1) The BOR Audit Committee identified "Calibrating the University's Appetite for Risk in the Current Economic Environment" as an important theme for its work this year. (2) Re-examination of the

University's "Appetite for Risk" was identified as a priority topic by the President's Advancing Excellence Committee. (3) Various University groups have expressed opinions that the University's low tolerance for risk poses significant impediments to its mission."

The "Risk Tolerance Working Group" was composed of senior administrators and faculty leaders; the latter group included Professors Jeff Kahn, Judith Martin, and Gary Balas and the former included Vice President Mulcahy, Auditor Gail Klatt, Jay Kiedrowski from the Humphrey Institute, and Vice President Pfutzenreuter. Their objective—and the most important message, Dr. Mulcahy added—is to "transform the U's prevailing risk-averse culture to one that is more risk tolerant, leveraging the positive aspects of its current "culture of compliance" to enhance a more productive "culture of performance with responsibility." They want to improve performance and productivity while retaining responsible risk tolerance.

The Working Group offered its impressions of the University's current tolerance for risk:

-- Very conservative
-- A pervasive culture of risk aversion; bordering on risk-intolerant
-- Over reliance on a legal perspective to define acceptable risk
-- A prevailing view of "risk" as only having negative consequences
-- NIH "Exceptional Status" has created a lasting legacy with positive and negative attributes
-- Most risks are treated as being equivalent
-- A large proportion of the problem is "self-inflicted."

By treating risks as equivalent, the solution is always the same, no matter the magnitude. Because many of the problems are self-inflicted, the University can do something about them.

Vice President Mulcahy said that in his view, productivity is one casualty of risk-aversion. Any institutional culture produces a burden on faculty, and as the burden increases, productivity decreases. There are factors beyond the University's control, such as compliance obligations imposed by the federal government, accountability pressures, accreditation, and so on. But there are institutional policies and procedures that are under institutional control, such as public-relations concerns, escalation of standards, institutional attitude, aspirational goals, and operational preferences. The institutional policies and procedures can make the compliance obligations better or worse, and in his view, much has been done to make them worse.

Dr. Mulcahy noted a recent statement by the Senate Committee on Finance and Planning:

> The Senate Committee on Finance and Planning has consulted numerous times in recent years both with administrators responsible for risk management and with those responsible for financial management. We have also heard from numerous faculty and staff on issues related to administrative mandates and the workload involved in the University's internal business processes.
>
> A common theme in most of the conversations is that the University has been in a risk-averse mode. We are now concerned that this risk-averse stance has been too severe for too long, and as

> a result is creating unwarranted administrative burdens on colleges, departments, faculty, and staff--a particularly serious problem during this time of reduced funding.

The statement from faculty leadership appears to reflect a widely-held opinion similar to that of the Working Group.

So there is a need to take a more strategic approach to risk, Dr. Mulcahy said. He again cited Mr. Oswald: "Strategic risk refers to tolerance for 'risk-taking that is systematically expanding the organization's risk portfolio with the goal of maximizing the effectiveness of resources in the deliberative pursuit of mission.'" Such an approach is critical to the mission but not done very well at the University.

There is a risk continuum, Dr. Mulcahy explained, from risk-avoidance to strategic risk management to recklessness. Those on the risk-avoidance end of the continuum view risk as "damaging, irresponsible, costly, negative, and to be avoided." The Working Group believes that this is where the University has been, more or less. Their suggestion is that the University needs to shift more toward the middle of the continuum, to strategic risk management. Mr. Oswald suggested that ". . . a culture shift must take place in the nonprofit sector to support the development of a more rounded perspective of risk, one in which both negative and positive outcomes are possible. This paradigm re-casts deliberative, strategic and systematic risk taking, also called opportunity seeking, as an important and desirable part of mission-driven growth or program development, rather than the common equation of 'risky' with irresponsible." With respect to the last clause, that is where the University has been, Dr. Mulcahy said.

If one moves to the middle of the continuum, and takes a more strategic approach to risk, one views it as a potential gain, providing opportunity and advancement, and something to be managed rather than avoided. A strategic approach is responsible and deliberative, sees strategic risk management as characteristic of good governance; engages in risk-versus-benefit assessments; and leverages existing strengths. It requires effective systems, better information, accountability, and an outcomes focus, Dr. Mulcahy said, and while "'systems' can enhance confidence and provide approaches to monitor progress," they are not sufficient. They are not saying the University abandon consideration of all the consequences of risk (damaging, irresponsible, costly, negative) but that it should take the best of what it has (good support systems and a culture of compliance), which should enable it to take more risk. He commented that he would not make these kinds of recommendations at some institutions, where the appropriate systems are not in place.

Melanie Lockwood Herman, "Culture Shock 2009: Embracing Risk Management is Necessary, But Never Easy" [Risk Management Essentials, Jan/Feb 2009]: "The hardest part of effectively managing risk is *changing the culture* of your organization." This is something the University needs to start addressing, Dr. Mulcahy said.

The Working Group took a look at the requirements for strategic risk management and scored the University on each of them (where the scale is 0 = weak and 5 = strong):

2	Knowledgeable leadership
2	Informed leadership; effective communication
1	Integrated compliance networks
4	Effective support systems
3	Adequate resources

1 Clear understanding of roles and responsibilities
1 Effective strategic risk management plan
1 Entrepreneurial culture

The low numbers on the first two items are not a criticism of University leaders, Dr. Mulcahy said; he would say the same about virtually all of higher education. "Informed Leadership" means informed about the systems so that they know what is going on. The "integrated compliance networks" are almost non-existent, although there are good paper and personal networks. The fact there are effective support systems is a legacy of the University's NIH exceptional status. As for the last, "entrepreneurial culture," that means people understand how risk relates to their daily professional life.

Dr. Mulcahy turned next to a draft set of examples of risk-tolerance principles for future consideration by the Board of Regents. He emphasized that this was not a complete list, that he welcomed comments from the Committee, and that there may be seven or eight such high-level principles that he would take to the Board for approval.

1. High tolerance for risks in the pursuit of research and scholarship.
2. High tolerance for strategic risk-taking that promotes productivity, creativity and reputation.
3. Moderate risk tolerance for rewarded financial risk.
4. Low tolerance for risks arising from inappropriate discharge of fiduciary responsibilities.
5. Zero tolerance for intentional non-compliance with laws or regulations.

Dr. Mulcahy concluded by saying that "the willingness and capacity to take strategic risks will distinguish organizations that will survive from those that will stagnate – or worse" and "the Board and Executive team must collaborate in defining risk tolerance, must ensure that the principles are effectively communicated and must champion the progression to a more strategic approach to risk." If the leadership does not drive the change, it will not happen. He went on to say that the University's "current risk-averse culture took many years to evolve. Reshaping a culture conducive to strategic risk-taking will also require time. This re-calibration must be accompanied by development and implementation of operational principles and procedures supportive of strategic risk-taking."

There is already some evidence of progress toward a more risk assessment-based approach to policy, Dr. Mulcahy commented, and that is in the evolution of the administrative conflict-of-interest policy. He referred to a "heat map" of risk management, one that typifies the "one-size-fits-all" approach. If risk is on the Y axis (low to high) and impact is on the X axis (low to high), those activities in the lower left part of the quadrant (low, low) present little risk, in a green zone. Trademarks and copyrights are of moderate risk but low impact. Those activities in the upper right (high, high), in a red zone, include such things as environmental health and safety, grants administration, IT security, clinical research, and conflict of interest.

But there can be a separate heat map for conflict of interest itself, Dr. Mulcahy observed, rather than identifying all potential conflicts of interest (COI) as high risk, high impact. He presented such a heat map, in which, for example, zero-dollar faculty consulting with a nonprofit organization in his/her area of expertise presents low risk and low impact. In the red zone, high impact and high risk, one finds potential conflicts in such activities as clinical care, human-subjects research, and clinical research. Technology commercialization conflicts one might categorize as high impact but moderate risk.

Purchasing decision conflicts might be moderate risk and moderate impact. The point, Dr. Mulcahy said, is that not all potential COIs are at the same level.

The first draft of the administrative COI policy, however, treated all potential COIs as the same and imposed the same requirements. The faculty pushed back on those requirements, Dr. Mulcahy recalled, and the current draft acknowledges that there are three levels of potential COI: those with great risk, those with low risk, and those that can be left up to the units to deal with. This is movement in the right direction, he said. Given the number of University policies that exist, however, it cannot take two and one-half years to deal with each one. The review of policies for their impact on risk tolerance has to be done in a more efficient fashion and policy owners have to look at their policies, Dr. Mulcahy said.

Professor Anderson said she was impressed that the University could be a leader in dealing with risk tolerance because it has such a strong culture of compliance. She asked, however, in what way risk tolerance might increase outside of financial areas. Vice President Mulcahy said he was very aware that this is a sensitive issue for some, such as the units responsible for compliance, which could be concerned that he is criticizing what they have done. He is not, he emphasized; the change in approach will allow them to discriminate between situations when risk is acceptable and when it is not. There are seven or eight categories of risk, including financial, reputational, scholarship, etc. The Working Group will identify them, and risk tolerance will be different in each domain. The University should WANT to be seen as taking risks in scholarship; it does NOT want to be seen as taking risks in finance offices. Right now, however, every activity is judged very conservatively, and that needs to change. But without a mandate from the top, offices responsible for evaluating risk will not change. One concern he has heard is that people in the offices responsible for compliance would be uncomfortable evaluating risk without guidelines; when people are unsure what they should do, they will take the most conservative path. They need to be able to see the principles that are enunciated translated into operational terms.

Professor Clark said she liked the general idea, and the ability to do controversial scholarship, but the question is "who benefits?" or "who profits?" There is still a lot of risk in clinical research and taking money from pharmaceutical companies; the University could receive a lot of money and a lot of risk. She said she would like to see in the principles a very low tolerance for risk to human subjects.

Vice President Mulcahy noted that the heat map of COI identifies human-subjects research as high-risk, which is why it is necessary to define different domains of risk. No one individual should be able to make the decision himself or herself, without an institutional perspective being brought into play. It is incumbent on the University to have the right systems in place. In other areas, however, the University should not waste time on administrative procedures (e.g., a faculty member consults pro bono with a non-profit organization related to the faculty member's area of expertise). The University needs to spend an adequate amount of time on high-risk activities. Some institutions, for example, have decided not to pursue stem-cell research or select-agents research because they are too controversial and come with too many federal rules. The University has decided to do that work, which is why there must be an institutional commitment to have the systems in place to manage the risk. The University needs to address exactly the kind of question that Professor Clark has raised.

Professor Okuyemi agreed that it is easy to leap into some of this research alone and it is commendable that the University would ask why research is being done in a certain way. There will be differences in culture and it is necessary to ask questions about what needs to be changed. With clinical research, there is increasing recognition that the end users need to be included as early as possible in the

process. Vice President Mulcahy agreed; the challenge is with getting receptivity and interest, although he has been surprised at how receive people are to this proposal, but that means there can now be a richer dialogue with consultation with many others.

Professor Joo noted that there is also risk-taking by the institutional leadership; will they be included? They will, Dr. Mulcahy said. The Board of Regents and administrative leaders must accept the principles; while they will not weigh in on individual research projects, there will be decisions important to the University's future that they must make. It is a little easier at the executive level, where there is authority to make decisions; inside the University, people need guidance. Given the financial realities, and the circumstances of this state university, there will be a need for risky decisions to be taken.

Professor Anderson thanked Dr. Mulcahy for bringing this issue to the Committee.

4. Research Infrastructure Initiative

Professor Anderson asked Associate Vice President Lawrenz to inform the Committee about the Research Infrastructure Initiative (RII).

Dr. Lawrenz noted that everyone should have received an announcement from the President and Vice President for research about the Initiative; it was also presented to the Board of Regents in July. They have just posted the Request for Proposals, from which she read briefly:

> The program is designed to provide needed investment capital at a time when finances are tightest and addresses the following goals:
> -- Enhance UMN research competitiveness by improving the quality and expanding the scope of research through investments in shared infrastructure.
> -- Provide incentive for faculty to join together to improve core facilities enabling and expanding researcher, department, disciplinary and cross-disciplinary unit and multi-unit collaborations.
> -- Respond to areas of greatest need and benefit with investment decisions driven by faculty supporting infrastructure that contributes to or leverages existing investments in infrastructure and expertise while avoiding duplication of services already available.

The RII is the culmination of the strategic-planning process in research (that included town halls and other consultation); they identified four areas targeted by the RFP. There will be $12 million from the Office of the Vice President for Research and a one-third match expected from colleges and centers; they do not see these projects as something emanating from a single department but rather proposals that might come from several colleges.

The four areas that will be provided funding are the arts and humanities ($1 million), imaging (the most expensive, because of the equipment needed, $6 million), the social sciences ($2 million), and systems information and data organization (similar to RISS, $3 million). Proposals can go across categories. The hope is that there will be creative ways to use the money. The process will include a pre-proposal, which will be very simple and reviewed internally, and a full proposal, by the end of April and that will include external review. The funding is to be in place by next July 1 (2011).

Vice President Mulcahy said the intent is to provide infrastructure support broadly defined. It is not just hardware and can also include technical expertise that can help optimize the use of sophisticated equipment. The funding is available for up to five years and they are trying to be maximally flexible. Dr. Lawrenz added that the full proposals need a business plan on how they will survive after five years.

Professor Anderson invited Dr. Mulcahy to note where the funds are coming from. Dr. Mulcahy said that under Regents' policy, his office is responsible for revenues from the commercialization of intellectual property. He has been squirreling away money for a rainy day, and it seems that the rainy day has arrived. The RII is just one benefit of that revenue stream; it has also been used to build a $50-million endowment for graduate fellowships, has supported a number of initiatives, has supported the Provost's Imagine Fund, the Institute for Advanced Studies, and provided grant match support. He said he felt it important to now mobilize support for infrastructure improvements.

Dean Ponce de Leon observed that the University has entrepreneurial faculty; when will there be funding for activities outside the four areas? Dr. Lawrenz said the proposals have to have some connection to the four areas. Vice President Mulcahy said that if there is a high-priority opportunity that they have not envisioned, they would not necessarily say it is ineligible. If something transformational comes along, they would consider funding it.

Professor al'Absi said he did not hear the health sciences as among the four foci; may social sciences within the health sciences apply for funds? Dr. Lawrenz said they may; she emphasized that these are conceptual areas, not limited to specific departments or disciplines. Imaging is not necessarily just microscopes, Dr. Mulcahy added; it ranges from molecules to astronomy. The application needs to make the case for how it fits the category. They had a comprehensive review process to identify the four areas, but if someone comes forward with a tremendous idea, they will consider it. One consideration that will be used in evaluating proposals, he noted, is the number of people/units that will benefit from it. The proposals should not be for a single lab.

Professor Anderson thanked Drs. Lawrenz and Mulcahy and adjourned the meeting at 3:55.

-- Gary Engstrand