

Minutes*

**Senate Research Committee
Monday, September 13, 2004
1:15 - 3:00
238A Morrill Hall**

Present: Gary Balas (chair), Dianne Bartels, Victor Bloomfield, James Cotter, Dan Dahlberg, Sharon Danes, Kathy Ensrud, Steven Gantt, David Hamilton, Michael Hughey, Paul Johnson, James Luby, Ryan Lukas, James Orf, Charles Spetland, George Trachte, Barbara VanDrasek, Jean Witson

Absent: Aleksa Babic, Christopher Cramer, Robin Dittman, Mark Paller, Virginia Seybold, Thomas Schumacher, Maria Sera, Michael Volna

Guests: Associate Vice President Stephen Cawley, Ken Hanna (Director of Security and Assurance), Bernard Gulachek (Office of Information Technology), Mark Bohnhorst (Office of the General Counsel), Winifred Schumi (Office of the Vice President for Research), Ed Wink (Sponsored Projects Administration)

Other: none

[In these minutes: (1) data security; (2) welcome/introductions/report of the chair (searches, research secrecy, etc.); (3) major issues and trends affecting research]

1. Data Security

Professor Balas convened the meeting at 1:15, welcomed everyone to the first meeting of the year, and turned to Messrs. Cawley and Hanna to lead a discussion on data security.

Mr. Hanna began with the background. The University Chief Information Office (CIO) is responsible for "establishing security policies and measures to protect data and systems." As part of carrying out that responsibility, his office has developed both standards and guidelines for data security. The security environment is changing; everyone has seen articles over the last year about infected computers, patches, and so on. A lot has happened, and most of it has been related to desktops. The public has become more aware of risks such as identity theft. There are also increasing legal requirements (HIPPA, Graham-Leach-Bliley, the latter of which deals with financial data). Finally, he said, there has been an increasing scope of incidents such as worm and password attacks; now hundreds of machines are attacked all at once, rather than just one machine. The result of this set of circumstances is a greater need to secure the University's data. The law requires the University to protect them; the evidence demonstrates it must.

There are challenges to securing data. There is a lack of timely security patches, inadequate security configurations from vendors (e.g., computers are insecure when they are shipped and vendors say

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nothing about security), and there is inadequate attention to protecting private data on desktop computers. There are now large databases on desktop computers and the University has not paid as much attention to the security of those databases as it should have, Mr. Hanna said. There is also risky behavior when it comes to passwords, such as 3-character passwords or words taken from the dictionary. Everyone hates passwords, Mr. Hanna agreed, but they are essential. Maintaining adequate security is too difficult and time-consuming, it is believed, so many people have not done it.

The University is providing new tools to increase security. One is a web site that applies most security settings with one click (the drawback is that some people may have to change their password). This is not a solution to a theoretical problem, Mr. Hanna pointed out: The University had an attack last year that tried to crack passwords that went on for hours; these security settings prevent such attacks. The University has a software update server for Windows and provides Symantec anti-virus software for desktop computers.

Mr. Hanna distributed copies of new standards on Protecting Private Data and on Information Technology Support. With respect to the first one, the standard is directed to protecting LEGALLY private data (e.g., medical records, financial data defined by law as private, contractually-private data), not simply something that might be embarrassing. The second standard defines the professional support required for information technology security. These are drafts, Mr. Hanna said, and they would like to hear suggestions from the Committee.

From a research perspective, and research contracts, do faculty know if data are private and the guards and constraints they need to have in place to meet the contract requirements, Professor Balas asked? That is a case-by-case decision, Mr. Cawley said; some contracts are stricter and others are more general. He noted that Vice President Hamilton has said there is always an obligation to protect research data in order to ensure their integrity. Professor Balas said he was thinking about the more general case: If he has a contract, what are his obligations? It is perhaps necessary to educate the faculty on data security so they know what is required. They try to make known to faculty what is required when the grant is awarded, Mr. Wink reported, in the terms and conditions.

If the assumption is that data must be protected, Mr. Cawley said, it is a good idea to adhere to the standards for protecting private data even if there is no contractual or legal obligation to do so, if only to protect research integrity. Beyond the legal requirements, one gets into a gray area that his office is willing to help with. If a unit does not have the necessary technical support, that is a problem, and they encourage the deans to think about the support that can be offered to researchers.

Dr. Hamilton concurred with Professor Balas's comment that there is need for a more active mechanism to inform faculty. It would be better if the Office of Information Technology and the Office of the Vice President for Research can be more active in getting information out. They can do that, Mr. Cawley agreed, and they do identify contacts in the colleges to help people in the college; those contact people can bring in his office as needed. As he visits the deans, he talks with all of them about support available in the college and how his office can help.

With respect to notifying faculty about their obligations through the grant notice of terms and conditions, Dr. Hamilton commented, that presupposes they read the terms and conditions. In the future, the University will require a (an electronic) signature affirming that they have read the terms and conditions (which, he agreed, would still not necessarily mean that they read them).

Many security problems the University faces are due to the use of Windows, Dean Bloomfield said. Has any thought been given to switching to Apple or Linux, which have better security? Mr. Hanna said he gets that question frequently. If any one vendor has a large share of the market, which Windows has, that vendor is the one that will be attacked. There are also security issues with Linux and with Macintosh; if Linux were the desktop software of choice, this discussion would be about Linux. The attacks would happen no matter the system if that system had 80-90% of the market share.

There are two kinds of security issues, Dean Bloomfield said. One is the general susceptibility of Microsoft, which could be dealt with by changing to another operating system (especially if the rest of the world did not change!). A second is someone going after University information. As far as spammers are concerned, the change in operating system would address most of the problems. The cost of changing might be less the cost of the software and hardware to protect the existing systems. The University has a contract with Dell, Professor Balas observed; can it say it wants all security systems in place? That will be in place as a requirement for students, Mr. Cawley said, and there is a service pack that, once installed, makes the machines reasonably secure. But a lot of machines have been around the University a long time and are not protected.

What is key in the operating standards, Mr. Cawley told the Committee, in terms of service and productivity improvements, is that automating the management of desktops and keeping them locked actually lowers operating costs. Unmanaged desktops have higher costs and are less secure. Once a unit achieves the standards, they will see significant savings. The University could use Apple computers, but they also have significant security holes that need patches. The change would reduce hacking, at least in the short term, because there are not as many people who exploit Macintosh.

Their concern is how to improve data security most effectively, Mr. Cawley said. They do not want to push costs out on stretched research budgets; they want to provide help to achieve the goal in the most cost-effective way. Units will have more trouble when they have more private data, and there are a number of small units that have large private data sets that do not meet the standards. They are looking first at the larger data operations, in order to reduce the University's risk, and will work their way down the list over time. The technical staff in the units are very supportive of the effort—they are stretched but are taking the problem seriously; Mr. Cawley said he gives them good marks.

What they would like from the Committee, Mr. Cawley said, is for Committee members to check with their security staff members about changes that may be desired in the standards or guidelines. Mr. Hanna pointed out that the standard for Protecting Private Data does require changing a password every 180 days. That is the only provision that has been controversial, Mr. Cawley added; if people are forced to change every 180 days, they may pick bad passwords. They are working on the issue and do not know where it will end up. In terms of password complexity, there is a program that will check passwords to be sure people are not using words in the dictionary, Professor Balas observed. That reasons for that are sound, Mr. Hanna said (e.g., calling for upper case and lower case letters, and so on). He commented that there is a program on a web site one can use to try to crack your own password, and for some it takes less than two seconds. This is not theoretical, he repeated; there are attacks on passwords through the network but the system itself is silent when they occur.

Professor Balas reported that at one Big Ten university all desktop computers have a screen lock that automatically goes on if the computer is unattended. It seems to have been well-received and

addressed some security issues. Has it been considered here? Many items in the standard are standards used by many universities, Mr. Hanna said. A screen lock is a local control (so no one wandering by can go into an office and get on a computer). The items in the standard may seem odd but they represent a balance between use and security—a totally-secure machine would be just about unusable. Most of the standards the user will not care about; for most, the largest problem will be password complexity.

Professor Dahlberg asked if the draft standards and guidelines have been sent to all department heads to look at. Mr. Hanna said they have only gone to the University's technical staff thus far; they are now getting views from governance committees and will then take them to a broader list. Mr. Cawley is also bringing them to the deans. Mr. Gulachek reported that there has been a lot of consulting over the summer, including with the administrative staff who need to support the standards. This meeting is the first opportunity to discuss them with faculty, but people in the units know about the drafts.

Professor Balas thanked Messrs. Cawley, Gulachek, and Hanna for joining the meeting.

2. Welcome, Introductions, and Report from the Chair

Professor Balas now called for a round of introductions and said he was glad to see that the Committee had both a graduate and an undergraduate student member. He then reported on a number of issues.

- There is a new provost, who has changed the atmosphere of how things get done.
- There are two searches going on that the Committee will wish to weigh in on, the Vice President for Research and the Dean of the Graduate School. He is serving on both search committees. All Committee members have been invited to participate in the interviews of the candidates for the vice presidency; by the time of the next Committee meeting all candidates will have been interviewed. He asked Committee members who attend to send comments to him; he will then send a Committee letter to the President about the candidates. Review of files for the Dean of the Graduate School will begin September 15. Provost Sullivan will join the Committee at its next meeting to talk about his vision for the position of Dean of the Graduate School.
- The research secrecy subcommittee was established last year but did not meet. This past summer there were two requests for exceptions to the Regents' policy barring research secrecy/publication restrictions; both exceptions were granted. The Committee received emails about one of them. The process made it clear that the current Regents' policy is not workable, requiring the Committee and then the University Senate to make recommendations to the President on whether to grant an exception. The process takes too long. The exceptions that were granted represent a departure from what the University has done in the past in terms of restrictions on data and people who can work on the research.

The second exception that was granted was for an Australian mining company that wanted rock samples sent to Australia for analysis. The data will be shared with University researchers but the company wanted publication restrictions for two years in case they wanted to pursue mineral rights.

Ms. Witson said she understood the urgency of the requests in the summer and that the process cannot take months, but whatever changes are made should include group discussion. She said she did not believe rushing these decisions through set good precedents and that voting by email is not an effective discussion process. If there is need for an emergency meeting, then one should be called; face-to-face meetings are important. There was a small subset of the Committee that discussed the requests, Professor Balas said, some of the faculty members on the subcommittee, but he agreed that there should have been wider discussion. That is why he is trying to get the subcommittee up and running and to establish guidelines on dealing with the requests. Dr. Hamilton commented that the Department of Homeland Security wanted to clear its books by the end of the fiscal year and would not wait.

Ms. Witson's criticisms are well taken, Professor Balas said, and FCC members made the same criticisms. That is why the subcommittee is going into action. Its recommendations will come to the full Committee.

Professor Dahlberg said he did not recall seeing the final vote on the exception the Committee was asked to vote on. [The final tally was 8 in favor, 2 opposed, and 2 abstentions; the Faculty Consultative Committee vote was 7 in favor, acting on behalf of the Senate.]

- The changes to the Regents' policy on the use of human subjects were sent to the Committee; Professor Balas said he received no comments, which he interpreted to mean that there were no objections to the changes. The changes were presented to the Board of Regents in September and will be voted on in November.
- On a related point, Vice President Hamilton reported that there has been a change in the way Board of Regents' policies will be dealt with in the future, and it appears that the process will now take somewhat longer and will involve the drafting committee (a small group of individuals from various offices, including one faculty member, to review the language in Regents' policies). Dr. Hamilton said he continues to believe that obtaining the views of faculty through the governance process is very important and that if policies must cycle through the process, he wants to know they will have had faculty review.
- He (Professor Balas) has had a request for a faculty member to participate in a working group to examine the role of research safety officers. There will be 4-5 meetings this fall. He asked Committee members to let him know if they are interested; if there are none, there will be no faculty member on the working group.
- The focus of the Committee this year will be, among other things, research infrastructure: what it is, how the University supports it, if there is or should be a planning process to support it.
- Provost Sullivan sent a letter to four committee chairs (and many others) asking for contributions to the strategic planning process. He received one of the letters; the Committee will discuss it and he will communicate its views to the Provost by the September 24 deadline set in the letter.
- Professor Balas said that he had talked with University Librarian Wendy Lougee this summer about serious constraints in the library's budget, which affect its ability to purchase materials (periodicals, monographs, and electronic titles). He provided that information to the Faculty

Consultative Committee, which had earlier in the spring adopted a statement about library funding. In addition to \$200,000 recurring funds provided through the compact process 04-05, Provost Sullivan has allocated an additional \$200,000 in non-recurring funds for the collection. Mr. Spetland reported that the libraries had asked for \$850,000 to sustain current collecting commitments, so they were still \$450,000 short. And the situation would be much worse without the \$500,000 contribution from the Vice President for Research royalty funds, Professor Balas observed. Dr. Hamilton commented that it is shameful that the University does not support its libraries to the extent needed; it will not be a research university unless it supports its libraries.

3. Strategic Planning Process: Major Issues and Trends Affecting Research

Before the Committee got into the discussion of the issues, Dr. Hamilton reported that he, too, had received a letter from Provost Sullivan, and had thereafter called a meeting with Professor Balas and several of the senior staff in the Office of the Vice President for Research. He said it is likely that letters from him and from Professor Balas will be similar in what they say to the Provost.

Committee members turned to a draft that Professor Balas had prepared outlining the major issues and trends in research. Professor Balas cautioned Committee member to keep in mind the impact of these trends on faculty members, graduate students, undergraduate students, staff, and the administration. He asked Committee members for comments and suggestions. One trend he has observed is toward big science, multi-university consortia.

Sponsored Research Issues and Trends

- Interdisciplinary research is growing tremendously and that trend will continue. Issues associated with that are:
 - Does our traditional department/college structure inhibit growth of this research?
 - How is credit, funds, indirect recovery rate (ICR) money, space, etc., shared across colleges/departments? Should there be a standard procedure established to address these issues?
 - Impact of Incentive for Managed Growth (IMG) on interdisciplinary research.
 - Evaluation/tenure of faculty who work in these areas.
- Funding of graduate students, graduate student fringe rates
 - Graduate student training is largely dependent on the faculty's success at attracting research funds. Many principle investigators believe that the cost to research grants for supporting graduate students is excessive. Some of these people are declining to accept graduate students into their research programs and are instead opting to hire technicians and postdoctoral associates. This phenomenon may become more evident as federal research funds decrease. What can be done to decrease the cost of supporting graduate students and maintain vibrant graduate programs at the University?
 - Rapidly increasing stipends for NSF (and NIH?) trainees, which will put pressure on grants that have to pay RAs and departments that have to pay TAs.
 - Inadequate cost-of-education allowances to cover increasing tuition and fringe costs.
- Expansion of Centers (300+) and graduate programs (180) without contraction
 - Administrative support, core infrastructure, overlap
- Support of the research infrastructure

- Limited ability to purchase/replace expensive equipment
 - What expensive equipment should be invested in? Their location?
 - Funding of its operation, staff, training, selling of services
- Strategic plan for funding the research infrastructure
- At one time, the Minnesota Supercomputing Institute was the most powerful such academic resource in the nation (3 machines on the top-500 list). It is now good, but not great (1 machine and that number 441 out of 500). This slippage has affected the ability of PIs to leverage their computing resources into outside funding support. It would be nice to see the Institute remain a symbol of excellence at the U.
- State financial support for the University is waning, yet in many ways we count on that support to for the infrastructure that makes our research grant proposals nationally competitive. Do we need to generate non-state funds to maintain the University's research infrastructure?
- Allocation and reallocation of space
- Differences in ICR rates recoverable in individual research areas
- Gap in indirect cost paid by contract and incurred by the University
- Funding of applied versus basic research in the different areas, trends
 - NIH funds mostly basic research with little translational research funding
 - DOD funds mostly applied research with little basic research
 - Federal government has increasingly decided to devote the vast majority of basic research dollars to biology/human health. With real dollars declining in other areas, will the University be able to maintain excellence in non-biological fields that are resource intensive?
- Start-up packages and retention packages for faculty with wet labs
- NIH funding is likely to be reduced or at least reined in over next 5 years.
- Growth of federal contracts with publication and data restriction clauses
- Matching requirements required by agencies
- Big Science: Multi-investigator/Multi-university consortia
 - NIH Roadmap
 - Up front costs
 - Management, administrative overhead
 - Logistics, credit
 - Organizing of teams, planning, quick reaction
- Support for libraries
 - Need to maintain competitive libraries -- as part of this task, need to support drive to destroy low quality-to-cost ratio journals and defy publishers who insist on selling them as part of a package to access useful/important journals.
- Setting of the University Research agenda
 - Presidential initiatives and their relationship to the University strategic plan
 - Different expectations/contracts from industry/federal government/state/foundations
- Research for profit
 - Patents and technology transfer
 - Expectations of the faculty, institution, state for economic development
- Upcoming areas of research
 - Setting of University research vision
 - UMN strengths
 - Collective alignment of researchers around topics vs. areas

- Role of the VP for Research
- Role of the Graduate School and the Dean of the Graduate School
- Abrupt leveling of NIH funding after near doubling of NIH.
 - Likely to lead to many non-renewal of grants
 - Federal government budget deficit will effect federal spending on research. How can the University position itself to minimize the effects of what might be a drastic decrease in federal research funding?
- Increasing demand, particularly by NSF, for community and K-12 involvement in large research projects
- Improved Electronic Grants Management
 - EGMS has developed well (in spite of worst expectations!) Kudos to all involved in effort certification, electronic BA-23s, etc. Finding ways to further streamline grant applications (there must be a better way to upload the bio-info and pending/current support sections that we all have to do again and again...) will be welcome.
- What will be (should be) the University's objectives and role in commercializing technologies developed as a result of research?
- How do we keep compliance manageable? (Is compliance becoming so frustrating that researchers are avoiding certain research that they could be/should be/ would like to be doing?)
 - Increased time/energy spent dealing with issues of accountability.
- Encroachment on academic freedom from all levels
- Political environment increasingly influencing the research agenda

Implications/Impact on Faculty

Compliance, effort certification
Electronic systems
Team science: adjustment of promotion and tenure regulations?
Workload
Funded vs. unfunded research

Implications/Impact on Graduate Students

Compliance, effort certification
Team science: adjust degree requirements?
Funding and support

Implications/Impact on Undergraduate Students

Research experience for each student?
More/less contact with faculty researchers?

Implications for the Administration

Reduce barriers for interaction
Strategic plan for research infrastructure support
Set aside space for interdisciplinary researchers
Provide faculty support to better balance workload/research/teaching
Size of undergraduate/graduate programs
Commitment to Focus? Play to the strengths?
Picking the winners?

Mr. Spetland suggested that the support for libraries bullet on the draft outline be moved to be a piece of the Support for Research Infrastructure section, and that the specific point regarding journal pricing was one component, but that the fundamental need was to devise a new model of support for the Libraries that would bring us in line with our peer institutions. There seemed to be agreement on this around the table. The Libraries will offer revised wording for the planning document that is consistent with the strategic planning document that Wendy Lougee is writing for the Libraries.

Professor Johnson said that scattered through the document is the theme of the need to invest in interdisciplinary research. He asked about a program that was in place several years ago that awarded funds to proposals from the faculty for interdisciplinary centers. He recalled that he had been a member of the committee that awarded these grants and felt that it had many benefits (though probably only a modest long-term success rate). There was discussion of the program, and the effect its grants had; Dean Bloomfield said that today if there is a big project, it should be included in a college's compact, which is the way to go if a college is serious about building a program. Dr. Hamilton said that USC does a superb job with interdisciplinary research and promised an article to the Committee about how USC works in this respect.

There has been a change in start-up packages for assistant professors, Professor Dahlberg commented. Departments must provide a significant portion of the cost, which could influence research directions. For example, his department offered a \$900,000 start-up package but lost the candidate to a school that offered \$1.2 million. The department had to come up with 1/3, which was difficult to do, but this was a significant area of research in the field; these costs can make it hard for a department to develop research initiatives. His package, by contrast, involved no money from the department. Dr. Hamilton said that in his years as a department head, he never had any outside money for start-up packages but also never lost anyone he wanted to hire. Dean Bloomfield said that each college does start-ups differently. When IMG was adopted, start-up money was transferred to the colleges; some kept it and dole it out to departments while others gave the money to the departments and expected them to manage their affairs. The central administration is out of the picture when it comes to funding start-ups. So IMG will affect investments, Professor Balas observed. That is where identification of pooling funds comes into play as well, Dr. Bloomfield added.

At the national level, more and more grants in his area are targeted narrowly, Professor Orf reported (e.g., to rice, not soybeans), which makes it more difficult to work in an area. A faculty member must either switch areas or not participate in grants.

The University also needs to identify a strategy to partner with external organizations, Professor Johnson said. There can be abuse, to be sure, but there are also places where such partnerships have worked well, and those partnerships are a trend. They are needed for the University to generate resources as well as opportunities for research, and they can also help with service learning, which has become an important aspect of the University's outreach agenda. Do the University's policies and contracts allow interaction with outside entities, Professor Balas asked? The procedures must also allow it, Dr. Hamilton said, such as recognizing work by an assistant professor when he or she may be one of many investigators on a project. In addition, NSF now asks for public involvement so there are broader impacts, Dean Bloomfield said; the University started a partnership with the Science Museum of Minnesota.

The expansion of centers is linked to increased interdisciplinary research, Professor Bartels said.

Will there be any talk of the state context, and of the conflicting demands of the state, Dr. VanDrasek asked? The impact of the state economy should also be mentioned, Vice President Hamilton said; the University's state grants declined by 50% last year.

With respect to the research infrastructure, who is responsible for things like the Supercomputer Center, Professor Johnson asked? In his first year of office, it was him, Dr. Hamilton said, and then it was transferred to the Dean of the Institute of Technology. So is all support for research infrastructure in the colleges, Professor Johnson inquired? It is, Dr. Bloomfield said, but IT takes the broad view and has moved away from "big iron" supercomputing to distributed networks of workstations, which (among other things) serve biological computing better. Dr. Hamilton said he believed that supercomputing was a University-wide activity that should not be in one college, and while he has had complete confidence in Dean Davis, there is a danger in this kind of arrangement. Professor Johnson agreed and emphasized that that some elements of the research infrastructure should probably be University-wide and not in a single unit.

It was agreed that Dr. VanDrasek and Professor Balas would work together to draft a statement by September 22 for the Committee to review before it is forwarded to Provost Sullivan. Professor Balas thanked everyone for coming and adjourned the meeting at 3:00.

-- Gary Engstrand

University of Minnesota