UNIVERSITY OF MINNESOTA

Office of the President

202 Morrill Hall
100 Church Street S.E.
Minneapolis, MN 55455-0110

612-626-1616
Fax: 612-625-3875

May 7, 1993

To Interested Parties:

Enclosed is a copy of the report of the Task Force on Supercomputing, which was appointed jointly by the two of us. The report is now under review by the Faculty Consultative Committee and the Board of the Supercomputer Center. Action in response to these recommendations is expected to be taken before the end of this academic year. We invite any reactions you may have. Please feel free to share them with either of us.

Cordially,

Mario Bognanno
Chair, Senate Consultative Committee

Nils Hasselmo
President

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Department of Forest Resources
College of Natural Resources

115 Green Hall
1530 North Cleveland Avenue
St. Paul, MN 55108-1027
U.S.A.
Fax: 612-625-5212

May 4, 1993

President Nils Hasselmo
President's Office
202 Morrill Hall

Professor Mario Bognanno, Chair
Faculty Consultative Committee
Industrial Relations Center
537 Management & Economics

Dear President Hasselmo and Professor Bognanno:

With this letter we submit the report of the task force on supercomputing that you appointed on March 4, 1993. You asked that we try to answer four questions arising from the informal proposal that the University Foundation purchase the University's equity interest in the Minnesota Supercomputer Center, Inc. In addition to responding to those four questions, we were presented with a number of issues and have concluded that it is critical they be addressed as soon as possible if the health of the supercomputing enterprise at the University is to be retained and improved.

The body of the report, and its appendices, explain how we conducted our business and with whom we spoke. The task force held 11 meetings and spent many hours attempting to integrate and make sense of all that we heard. The recommendations that emerged from those discussions and meetings, in brief, are as follows:

1. The University should not sell its interest in the Center to the University of Minnesota Foundation. It should, instead, strengthen the relationship it has with the Center.

2. A joint Institute/Center Steering Committee responsible to the Center Board of Directors and the University Board of Regents for defining and overseeing Institute/Center interaction should be formed immediately.

3. The President of the University should recommend to the Board of Regents individuals to replace the two Senior Vice Presidents on the Center Board of Directors. These individuals should be interested in and knowledgeable about academic supercomputing.

4. The Center must be held accountable to the University by requiring that it annually provide a full confidential disclosure of its financial and programmatic activities to the Chair and Vice Chair of the Board of Regents and to any other individual Regent who might request it.

5. The Legislative Auditor must be invited to complete his full financial audit of the Center.

6. The President of the University should insist that an external review of the management performance of the President of the Center be completed by September 1, 1993. Members of the review team should be from outside the University and the Center and should include experts in the management of large organizations or businesses, individuals knowledgeable of the needs of academic supercomputing users, and experts in advanced supercomputing technologies.

Our overriding objective, in making these recommendations, is to preserve and enhance the quality of supercomputing at the University of Minnesota. We hope that the University administration, and its governance system, are able to act expeditiously to implement our recommendations. We firmly believe, on the basis of the evidence presented to us, that if these recommendations--or steps similar in result--are not taken, the University runs the risk of losing one of its centers of excellence.

The report will be presented to the Faculty Consultative Committee on Thursday, May 6. We would welcome an opportunity to meet, at your convenience, to discuss the report.

With all good wishes,

Thomas E. Burk

Thomas E. Burk, Chair
Senate Committee on Computing and Information Systems
Task Force Co-Chair

Irwin Rubenstein

Irwin Rubenstein, Chair
Senate Committee on Finance and Planning
Task Force Co-Chair

Report of the Task Force on Supercomputing

04 May 1993

Task Force Members

Thomas E. Burk, Co-Chair
Irwin Rubenstein, Co-Chair
Thomas W. Jones
V. Rama Murthy
Anton R. Potami
David J. Weiss
Donald R. Riley, *Ex Officio*
Michael O'Connor, *Ex Officio*
Gary Engstrand, Staff

Executive Summary

Recognizing a decade ago the need to maintain excellence in the increasingly important but capital intensive area of supercomputing, the University of Minnesota in cooperation with the University of Minnesota Foundation created a unique public-private partnership by establishing the company now known as Minnesota Supercomputer Center, Inc. (the Center). The Center was incorporated as a for-profit company to enable the University to establish a supercomputing program beyond its internal financial means through the sale of supercomputer services to commercial users. The intent in establishing the Center was to "acquire and utilize" supercomputer facilities for the benefit of the University's academic mission. In several ways that initiative has been successful. The Center now operates one of the most powerful collections of supercomputers in the world. Its existence at the University enabled the establishment of a successful academic supercomputing research institute (the Institute), and has attracted substantial non-state funding and other important supercomputer-related programs to the University.

Because the Center was established as a private company, the University's service relationship with it has been contractual. Controversies stemming from uncommon secrecy surrounding a new $32 million contract approved by the Board of Regents in early 1992 led the State's Legislative Auditor to evaluate the relationship between the Center and the University. His audit report called for increased accountability in this relationship and better oversight by the University.

Consequent to that audit, the University was presented with an informal proposal by the Chairman of the Board of the Center that would involve sale of the University's equity interest in the Center to the University Foundation. The expressed intent of the proposal was to simplify the ownership relationship. This task force was asked to evaluate the likely consequences to the University from this sale with regard to questions of quantity and quality of service, receipt of fair value for past public investment, representation of its interests, and accountability by the University to the State.

Over the last two months the task force conducted an extensive range of hearings, interviews and other data gathering activities. In doing so, it found not a

single individual who unambiguously supported the proposed sale, nor could it find any evidence that the sale would benefit the University.

In the process of carrying out its investigations, the task force found that serious problems have existed for a number of years in the relationship between Institute faculty and the Center. These problems spring from divergent missions being pursued by the University academic community on the one hand and the management of the Center on the other. Despite the original intent to establish the Center for the benefit of the University's academic mission, top Center management has apparently placed University interests at a low priority. Policies and attitudes of the Center's management toward University researchers have reportedly discouraged initiatives to develop major research programs and to establish outreach from the University to private industry. The University computing community is frustrated by what it sees as a longstanding general lack of cooperation and understanding by the management of the Center of the distinct needs of supercomputing in an academic environment.

Our discussions with individuals within the University, representatives of the State Legislature, and the public made clear that the health of the Institute/Center relationship is the primary matter of concern, rather than specifics of ownership. Long-existing problems in this relationship, affirmed by the task force, must be addressed promptly and firmly by the administration of the University.

From our efforts to understand these associated histories and issues we offer the following recommendations, explained in our report, and urge that they be acted upon immediately.

1) The University should not sell its interest in the Center to the University of Minnesota Foundation. It should, instead, strengthen the relationship it has with the Center.

2) A joint Institute/Center Steering Committee responsible to the Center Board of Directors and the University Board of Regents for defining and overseeing Institute/Center interaction should be formed immediately.

3) The President of the University should recommend to the Board of Regents individuals to replace the two Senior Vice Presidents on the Center Board of Directors. These individuals should be interested in and knowledgeable about academic supercomputing.

4) The Center must be held accountable to the University by requiring that it annually provide a full confidential disclosure of its financial and programmatic activities to the Chair and Vice Chair of the Board of Regents and to any other individual Regent who might request it.

5) The Legislative Auditor must be invited to complete his full financial audit of the Center.

6) The President of the University should insist that an external review of the management performance of the President of the Center be completed by September 1, 1993. Members of the review team should be from outside the University and the Center and should include experts in the management of large organizations or businesses, individuals knowledgeable of the needs of academic supercomputing users, and experts in advanced supercomputing technologies.

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Appendix A – Documents and Correspondence Received by the Task Force

Appendix B – Summaries and Minutes of Task Force Meetings

I. Background

The University of Minnesota is a world leader in supercomputing. We are now challenged more than ever before to maintain and enhance the quality of this program. Beginning as a technology used primarily by researchers in the physical sciences and engineering, high speed and large-memory-based computing (supercomputing) is becoming an essential tool in many disciplines. A dramatic increase in supercomputing applications has occurred in the past decade; good access to supercomputing is likely to be a central characteristic of universities that are identified as "first rank" in the next decade. Supercomputers enable the simulation of vital experiments that would be at best prohibitively expensive, or even impossible, to carry out directly. For example, supercomputers allow researchers to "build" engineering structures, model the earth's atmosphere and the sun, "construct" medically important molecules to see how they might work as drugs, or simulate the behavior of our State's economy.

The demands of cutting edge supercomputing can be best met by use of facilities close to the investigator, due to the need for rapid transfer of data and for close working relations between the researcher and technical personnel who know best how to make supercomputers perform at their limits. Effective supercomputing involves much more than mere access to machine time; it is inherently an activity pushing the bounds of technology.

Recognizing the importance of on-site supercomputing as well as its expense, the University in 1982, in cooperation with the University of Minnesota Foundation, formed a private, for profit company, the Minnesota Supercomputer Center, Inc. (MSCI, commonly termed Center in this report). In several respects, the resulting "public-private" partnership has been very successful.

The supercomputer facilities of the Center are among the best in the world. The presence of the Center and its excellent technical support staff at the University has been instrumental in recruiting top faculty talent, attracting and training graduate students and educating undergraduates, and enabling successful competition for a significant amount of non-state funds. The Army High Performance Computing Research Center (AHPCRC), funded by a five year, $67 million contract, is an

excellent example of the federal funding obtained due, in part, to the presence of the Center.

Approximately 650 University researchers currently obtain supercomputer services and use the facilities of the Center through an academic unit of the University, the Minnesota Supercomputer Institute (MSI, commonly termed Institute in this report). A limited number of faculty (now 32) who are major users of the Center are elected to be Fellows of the Institute. Last year, exclusive of the AHPCRC, faculty supercomputer-based research proposals to federal agencies brought $18 million of non-state funds to the State, a significant contribution to Minnesota's economy. The presence of the Institute has spawned a wide range of research and educational activities, including an undergraduate internship program in supercomputing and a proposed Ph.D. program in Computational Science.

The Center's current business operation enjoys a significant contribution from the State and University (now $8 million per year, exclusive of the AHPCRC), but also depends upon major support from commercial customers. Commercial business has undoubtedly led to an enhancement of the computational capacity of Center facilities. The success of this commercial venture notwithstanding, the primary purpose for the creation of the Center has been clearly stated. As noted in its State of Minnesota Articles of Incorporation, "The purpose for which this Corporation is formed is to engage in the acquisition of assets of all types, alone, or in association with others, and the utilization of such assets, by lease, purchase or otherwise, directly, or indirectly, primarily or secondarily for the benefit of or use by the Regents of the University of Minnesota" (Appendix A). Thus, the Center exists to support the teaching, research, and outreach missions of the University of Minnesota.

Despite important successes, recent events have brought to light long-standing problems in the relationship between the University and the Center. In part, these difficulties result from conflicts between the Center's efforts to conduct itself strictly as an independent company with the University as "one customer," and the University's efforts to carry out its academic mission. The management of the Center sees its mission to be primarily driven by the need to make a profit. In contrast, the University community, many in the public, and members of the State Legislature see closer attention to the originally stated purpose of the Center to be a requirement for continued public support.

In March, 1992, the State of Minnesota Legislative Audit Commission directed James Nobles, Legislative Auditor, to evaluate the relationship between the University of Minnesota and the Center. This audit resulted in part from a $32 million, four-year contract approved by the University Board of Regents in February 1992. The contract was controversial because the Center was unwilling to provide information about the services it would be providing the University for these funds; their unwillingness stems from concerns about relations with commercial customers. The Auditor's report in October 1992 concluded that "the University has not achieved an adequate level of accountability in the way it has organized its supercomputer services" (p. 47). This lack of accountability is a result of the "extraordinary level of secrecy, which prevents the Board of Regents, the Legislature, and other key decision makers from acquiring adequate information about what the University is spending and obtaining in return" (Auditor's summary 10/1/92). The Auditor furthermore recommended that the University not end its association with the Center, but that "if the University is to continue its relationship with the Minnesota Supercomputer Center, there needs to be more openness and better oversight by the University" (Auditor's letter to Regents 9/29/92).

In the fall of 1992, Mr. Stephen R. Pflaum, Chair of the Center's Board of Directors, made an informal proposal designed to address the issue of the University purchasing services from a company which it partially owns. At present the University owns 10% of the Center's common stock shares along with $4.5 million in preferred stock. The University of Minnesota Foundation owns 90% of the Center's common stock and thereby currently is the owner of the major portion of the assets of the Center. The proposal Mr. Pflaum forwarded was that the University sell its preferred stock plus accrued interest and its small amount of common stock to the Foundation. The value of the 10% of the Center's common stock to be sold would be determined by a brokerage house. The Center would then repurchase and retire the University's preferred and common stock over a period of 10 to 12 years. At the conclusion of these purchases the Foundation would own all of the outstanding common stock and would be the sole owner of the Center.

On March 4, 1993, President Nils Hasselmo and Professor Mario F. Bognanno, Chair of the Senate Consultative Committee, appointed a task force to consider the proposal and to advise them on what the University should do

(Appendix A). The task force is led by Dr. Thomas E. Burk, Chair, Senate Committee on Computing and Information Systems, and Dr. Irwin Rubenstein, Chair, Senate Committee on Finance and Planning, as co-chairs; other task force members are: Dr. Thomas W. Jones, Astronomy, Minnesota Supercomputer Institute Fellow; Mr. Anton R. Potami, Associate Vice President, ORTTA; Dr. V. Rama Murthy, Geology and Geophysics; and Dr. David J. Weiss, Psychology, Chair of the College of Liberal Arts Computing Committee. Dr. Donald R. Riley, Acting Associate Provost, Computing and Information Services, and Mr. Michael O'Connor, Acting Assistant Vice President, Finance and Operations are *ex officio* members of the task force.

The task force has completed its exploration of the ramifications of the proposal and its implications for the University. To consult with the University community, the task force held a series of meetings (Appendix B) with the individuals involved in supercomputing at the University, the Institute, and the Center, as well as the broader University community and representatives of State government.

II. Task Force Response to Questions Addressed to It

The task force was asked to address the following questions. Our answers follow each of the questions:

1. How will the quality and quantity of supercomputing service the University receives from MSCI change under the proposed new relationship?

   The task force concluded that the sale outlined in the proposal would not lead to improvements in service received by the University; rather, existing tensions and service problems would almost certainly be exacerbated. Furthermore, the competitive advantage enjoyed by the University through ownership of the Center would be lost.

   The basis for this conclusion comes from the special requirements of University researchers. Academic supercomputing is a rapidly changing research activity that demands novel approaches, as opposed to production computing based on packaged services. A purely arms-length, business relationship with a company that sees as its primary mission the sale of packaged services is not compatible with the University's supercomputing requirements. Sale of the University's interest in the Center would not enable the University to "shop around" for best service; to suppose that the University could fulfill all its supercomputing needs through a contract with a remote computing center is unrealistic.

   All of those in the University community who spoke with us said that past decisions and attitudes of management at the Center have seriously limited the ability of University researchers to make effective use of an outstanding supercomputer facility and excellent technical staff. Many in that community spoke of the absence of a cooperative attitude in the top management of the Center. Considerable effort has been required of University officials, over the years, to obtain services for its researchers comparable to those provided the Center's commercial customers. Researchers felt that their efforts to work with

the Center to foster strong working relationships between the University and private industry were frequently thwarted.

The universal opinion of the Fellows of the Institute and a number of others who spoke to us was that the proposed new relationship would further weaken their association with the Center since the University would no longer be part owner of the Center. The quality and quantity of service the University receives, correspondingly, could only be diminished.

2. Under the terms of the relationship is the University getting a fair value for its past investment in MSCI?

The task force concluded that the widely-perceived answer to this question is a definite "no."

The State and the University have infused tens of millions of dollars into the Center. While many of these funds were used to purchase supercomputing services, the task force found that the redemption of the University's common stock would not represent a "fair" price for the Center in the view of a number of legislators, members of the University community, or the general public. Beyond monetary considerations, many University faculty feel the sale would reduce the Center's academic value; this significant, though intangible, value that results from having the Center associated with the University would be adversely affected.

3. What management/governance structure should the University put in place to ensure that its interests are appropriately represented under the new relationship?

The task force believes that the present management/ governance structure ill serves the University community's desire to maximize effectively faculty, student, and staff use of the supercomputer facilities of the Center. Selling the University's share would only exacerbate this situation by weakening the University's role. Later in

the report we recommend changes in structure and process to enhance the participation and role of the University, thereby to ensure that the research, teaching, and outreach missions of the University are best served.

4. With respect to obtaining supercomputing services, will the University be sufficiently accountable to the State under the new relationship?

The University's accountability to the State would decrease under the conditions of the proposed sale. The Center would be freed of the dictates of the University since the University would no longer be an owner. Nothing about the proposed new relationship would reduce the present secrecy that surrounds the Center, which is the main contributor to the problem of accountability. The letter sent to the task force by Mr. Pflaum (Appendix A) states that the sale is not intended to address the issue of accountability.

RECOMMENDATION 1

The University should not sell its interest in the Center to the University of Minnesota Foundation. It should, instead, strengthen the relationship it has with the Center, as described in the remainder of this report.

III. Issues, Discussion, and Additional Recommendations

Although the task force's primary charge was to address the four questions related to the proposal, during the conduct of our work we sought and were offered considerable, more general information pertinent to supercomputing at the University. From discussions with the principals involved and deliberations among ourselves, the task force has identified critical problems that place this valuable enterprise at risk. These problems need to be addressed if the University is to maintain its excellence in supercomputing. If these problems are not addressed, and addressed promptly, the University will likely not be a significant player in supercomputing into the next century and will have lost a true center of excellence.

The following issues, for the most part, relate to the manner in which the University and the Center maintain their relationship. The overwhelming sentiment expressed by representatives of the State Legislature, as well as the majority of the University community, was a deep concern over the health of that relationship. Concerns over ownership were of secondary importance.

A. Institute/Center Cooperation: The presence of the Center at the University has had positive impacts on supercomputing research at the University. Several nationally and internationally renowned research programs are in place that require the computing capability of the Center. This capability has fostered both undergraduate and graduate education in important ways, and has enhanced the ability of the University to contribute to the State's economy. While a majority of the researchers involved in supercomputing programs are satisfied with the computing power the Center provides, they are at the same time frustrated by the feeling that current Center management has not allowed the potential of this world-class facility to be fully realized.

A large number of specific areas where essential cooperation is lacking were brought to the attention of the task force. We outline some of the more important ones as a means to identify the nature of existing problems and to introduce a recommended way to deal with them.

Conduct of cutting edge research in any discipline requires the existence of special circumstances. For supercomputing-based research this includes on-site access

to state-of-the-art equipment and associated support staff. Opportunities to attempt demanding computations requiring special access to machines are also important. Barriers, both physical and administrative, have been erected by the Center, reducing the delivery of service that would enable ground-breaking research at the University. The application of these policies over the years has substantially discouraged University researchers from attempting "grand challenge" class computational research, despite the major impact and significant funding those efforts would bring. Others feel, even so, that researchers should have been more aggressive in organizing to capture available "grand challenge" grant opportunities.

Center management has often responded slowly or reluctantly to support needs expressed by individual researchers or University officials. This has even occurred where the needs have been represented by the Institute as essential to researchers, and have involved basic issues related to the contract between the University and the Center. University researchers feel that their efforts to work with the Center staff to develop or foster working relationships with private industry counterparts have been forestalled by Center management. On the other hand, the task force's impression is that staff at the Center provide the best possible service within the constraints placed upon them by management.

The President of the Center has indicated to the task force that the Center's responsibility, as far as the University is concerned, is to provide researchers access to the most advanced machines available. Yet, University researchers have generally been excluded from long range planning activities at the Center; University researcher needs are not appropriately represented in major decisions about future purchases of supercomputers or machine use. There have been instances where researchers were informed only on very short notice that computers central to their research were to be removed or that new, and sometimes unexpected, machines would be available. This makes it extremely difficult to plan future research programs and seek necessary support for the programs.

The Director of the Institute is responsible for maintaining operational-level, administrative contact with the Center, including negotiating all service details not included in the contract. This places tremendous responsibility on the Director to resolve matters of concern to University researchers and to communicate the results of discussions and negotiations with the Center to these researchers. There currently

exists a "Joint Advisory Committee" consisting of middle management from the Center and representatives from the governance structure of the Institute. But this committee is very large (36 members) and has no authority to resolve issues or make plans. The President of the Center has voiced a concern to the task force that the present means of communicating with the University user community has been problematic from his perspective as well.

How could these difficulties arise? A fundamental problem is the absence of mechanisms to ensure that the Center is accountable for the outreach, teaching and research missions it is meant to help the University serve. Just as a great research library depends upon more than the books it contains–it can be truly great only if those books can be used creatively–so it is with a great computational research facility. The University community understands that commercial business by the Center is vital to the maintenance of a world class facility. But, mechanisms do not currently exist or are inadequate to ensure that the Center is responsive to the needs of University researchers.

RECOMMENDATION 2

A joint Institute/Center Steering Committee responsible to the Center Board of Directors and the University Board of Regents for defining and overseeing Institute/Center interaction should be formed immediately.

To be effective, the joint Institute/Center Steering Committee must be given full authority to generate and oversee policies regarding the interactions between the Center and the Institute. The steering committee should be charged with developing an unambiguous mission statement for supercomputing activities and supercomputing operations at the University and Center. The mission statement must effectively integrate supercomputing into the overall computing strategy of the University. That integration will require members of the steering committee to interact with the Information Technology Planning Process group. The steering committee should also outline and maintain plans and strategies to set criteria for identifying computational "grand challenge" grants to be sought, promote interactions with industry leading to technology transfer, and purchase of future supercomputing technologies. Finally, the steering committee should regularly seek independent examination of the Institute's

and Center's efforts; such an assessment must involve outside supercomputing experts of national prominence.

B. Center's Board of Directors: The Board of Directors is the governing body of the Center. It is accountable to its shareholders (the University and the Foundation) for the financial survival of the Center, BUT ALSO for ensuring that the Center is adequately fulfilling its mission with regard to the academic needs of the University. That is its mission, after all, as stated in the articles of incorporation and in its original agreement with its stockholders. The importance of that mission was made clear to the task force by nearly all groups from which it sought counsel.

The Board has been conscientious in attending to its financial role, and for this deserves thanks from the University. However, policies and mechanisms are not in place to ensure that the Board is equally attentive to the academic mission of the Center. This situation requires prompt and clear changes if the University is to be adequately served by the Center.

The University's representatives on the Board include the two Senior Vice Presidents, a Board of Regents appointee and a University Regents' Professor. The University Senior Vice Presidents' membership is problematic and generates perceptions of conflict of interest. In addition, their very heavy schedules make it virtually impossible for them to devote the time necessary to understand a complex technological enterprise. Having University representatives at such a high level also creates a huge gap between governance and the faculty and staff who are affected by their decisions. The recent appointment of a Regents' Professor to the Board is a positive step but does not go far enough. The University representatives should include other individuals who understand the special requirements of University supercomputing researchers.

The current role of the President of the Center on the Board, as a representative of the Foundation, also seems to be a conflict of interest, especially insofar as he participates in the evaluation of Center performance and financial behavior. The Legislative Auditor earlier criticized his selection as one of the University representatives on the board.

RECOMMENDATION 3

The President of the University should recommend to the Board of Regents individuals to replace the two Senior Vice Presidents on the Center Board of Directors. These individuals should be interested in and knowledgeable about academic supercomputing.

C. Dichotomy of Interests the Center Must Serve: Keeping supercomputing capability current is an expensive proposition, beyond what is reasonable for the University or State to support on its own. Selling services to commercial customers is a means of supplementing University and State funding for supercomputing. The Center was originally envisioned as an appropriate organizational structure for marketing that service. In fact, few would disagree that the Center has been successful in that sense.

When the Center was constituted, it was envisioned that this activity would be carried out primarily to benefit the mission of the University through the Institute. The distinctly different needs of the Center and the Institute have led to many of the existing conflicts identified during our investigations. A new balance that takes into account the different needs of these two entities must be promptly found and maintained.

In the past, performance of the Center has apparently been evaluated almost entirely on a financial basis. Financial viability is certainly necessary for the Center's survival. Still, the Center's only stockholders are the University and the Foundation. Neither of these two organizations has reason to expect more than that the Center protect their investment and provide the services to the University its teaching, research, and outreach missions require.

Insufficient consideration is given to evaluating the extent to which the needs of University faculty and students have been met. This evaluation must go beyond whether access to computing cycles as outlined in the contract are provided. Evidence for the perspective held by Center management is provided by the Annual Report by the Center to the Board of Regents on April 15, 1993, which mentioned only the finances and "level" of service units delivered, along with some commercial ventures

by the Center. No direct mention of cooperative relationships between the Center and the Institute, or joint ventures by the Center and the Institute with industry were made.

The handling of the contract between the University and the Center has also contributed to the problem. A long-term contract for academic supercomputing services cannot specify all that is required to define an ongoing working relationship. The need is to establish a means and a will to foster cooperation. The secrecy surrounding the contract adds further to the problem. That members of the Board of Regents were not privy to the instrument defining such a large expenditure is of legitimate concern to the state officials to whom the University is accountable.

RECOMMENDATION 4

> **The Center must be held accountable to the University by requiring that it annually provide a full confidential disclosure of its financial and programmatic activities to the Chair and Vice Chair of the Board of Regents and to any other individual Regent who might request it.**

D. Accountability to the State: While the Center is legally separate from the University, considerable State funds have been channeled into the Center through special appropriations to the University. The University must be accountable to the State for those funds. While certain information concerning Center operations is clearly proprietary, including rates charged commercial customers and purchase agreements with equipment vendors, the Center cannot continue to stand in the way of the University's financial accountability to the State for funds the State has provided. The Auditor is bound by law to hold proprietary information confidential and has demonstrated that he does so in audits more sensitive than the one of the Center.

Accountability and control are linked. At present the University either does not have, or does not exercise, the control required to satisfy concerns over accountability. Regardless of the source of the problem, structural or personnel, the problem must be resolved.

Some argue that the University cannot exercise control due to its minority ownership interest in the Center. This argument falls short on two accounts. The Foundation's original 90% stock purchase for $90 represents its total investment in the Center while the University has contributed tens of millions of dollars to the Center. And, second, the Foundation's sole purpose is to benefit the teaching, research, and outreach missions of the University. Neither owner of the Center benefits when the University is maligned for lack of accountability.

Given the importance of accountability, keeping the relationship between the Center and the University straightforward is paramount. Since the Center is separate from the University, the University, as pointed out by the Auditor, must be careful not to make inappropriate special arrangements for the Center that confuse the boundaries of the relationship and make accountability more difficult.

The task force acknowledges concerns expressed to it over the potential short term risks associated with a request for appropriate accountability from the Center. The Center has steadfastly maintained that public disclosure of even basic information about its services to the University would damage its business position. We are confident that mechanisms exist to protect genuine and necessary proprietary information of import to commercial customers of the Center, while allowing the University to demonstrate to its supporters that it is concerned about proper use of scarce public funds. The Audit report pointed out examples at other universities where similar situations had existed but were resolved, without major problems, in favor of accountability.

RECOMMENDATION 5

The Legislative Auditor must be invited to complete his full financial audit of the Center.

E. Center Management: As has been mentioned, current Center management has been effective in securing commercial supercomputing clients, recruiting an excellent support staff, and establishing a high quality supercomputing facility. However, that management has at the same time not acted as the friendly and supportive partner of the University that was originally envisioned.

The Center appears to be run as a highly secretive business venture, certainly more secretive than its competitors. While proprietary information must be respected, the culture of secrecy created by the Center appears to be extreme and is–and should be–unacceptable to the State Legislature and the University.

During its deliberations the task force was told repeatedly that current Center management has an unfavorable attitude, if not disdain, toward University researchers. Cooperation between Center staff and University users is not encouraged–and has reportedly been discouraged. Center management has reportedly competed against University units seeking participation in certain national initiatives.

The fostering of University/industry cooperation was one of the original objectives of establishing the Center. Center management policies and actions have precluded the development of this type of cooperation. Industry users are physically separated from their academic counterparts. Center support staff are reportedly discouraged from initiating or facilitating joint efforts between commercial and academic clients.

Problems with Center management are not new or isolated events. As long as six years ago the current President of the Center was threatened with removal by the University Board of Directors representative, who was serving as Chairman of the Board. An Institute evaluation committee pointed out severe problems in 1990. Yet management problems persist. University negotiations with Center management continue to be confrontational. The University community has lost trust in Center management. That the Center Board of Directors has recently issued a vote of confidence for its President based on the financial well-being of the Center (Appendix A), in no way changes the situation.

RECOMMENDATION 6

The President of the University should insist that an external review of the management performance of the President of the Center be completed by September 1, 1993. Members of the review team should be from outside the University and the Center and should include experts in the management of large organizations or businesses, individuals

knowledgeable of the needs of academic supercomputing users, and experts in advanced supercomputing technologies.

IV. Conclusion

Forward thinking and creative actions by the University and the Foundation over a decade ago led to the establishment of the Center and Institute as two arms of a program that has made the University of Minnesota a major force in the growing field of supercomputing. Despite clear successes, policies and actions by top management of the Center, including a focus on acquisition of commercial business and development of a culture of extreme secrecy, have led to a number of difficulties for the University. Foremost among these difficulties are strained relations with the academic community and lack of appropriate accountability to the public. The ability of the University to take greatest advantage of its investment of money and faculty effort has also been adversely affected.

The task force examined a proposal from the Chairman of the Center Board of Directors to resolve some of these issues by increasing the separation between the University and the Center. Given the rapid and unpredictable pace and nature of supercomputer technology and research, the task force concluded that increased separation would not serve the best interests of the University. Means must be found for the University and the Center to work more cooperatively so that the University is adequately served and public investment has the desired impact. This point, above all others, was emphasized by nearly every voice the task force heard.

A lack of cooperation has persisted through time because inadequate attention has been paid to ensuring that the Center be accountable to the academic mission of the University. Despite the private, for-profit corporate status of the Center, its ownership rests entirely with the University and the Foundation, both of which exist to serve the people of Minnesota through higher education.

Considerable good has come from this enterprise, and the originally envisioned potential still exists. The importance of success to the University and the State is even greater now than it was ten years ago. The University must act at once to reaffirm the "partnership" intended when this unique relationship was initiated.

Appendix A

Documents and Correspondence Received by the Task Force

- Letter of charge
- Statement of the proposal
- Letter from Mr. Nobles, Auditor
- Letter from Senator Merriam
- Response to Merriam letter from Senior VP Erickson
- Institute Planning Committee resolution
- Center Board of Directors' statement
- CLA Computer Committee resolution
- Center Articles of Incorporation (abstracted from)

UNIVERSITY OF MINNESOTA

Office of the President

202 Morrill Hall
100 Church Street S.E.
Minneapolis, MN 55455-0110

612-626-1616
Fax: 612-625-3875

March 4, 1993

Dr. Thomas E. Burk, Chair
Senate Committee on Computing and Information Systems
35A Natural Resources Administration

Dr. Donald R. Riley
Associate Provost
160 Morrill Hall

Mr. Michael O'Connor
Assistant Vice President, Finance and Operations
301 Morrill Hall

Dr. Irwin Rubenstein, Chair
Senate Committee on Finance and Planning
220 Biological Sciences

Dear Colleagues:

The Supercomputing Services Audit conducted by the Legislative Audit Commission has identified a number of issues that the University should study. We are writing to ask for your assistance in these matters. Specifically, we have developed a short-term task and a longer-term task.

Short-Term Task

The University has been criticized by the Legislative Audit Commission for not being sufficiently open or accountable in its relationship with the Minnesota Supercomputer Center, Inc. (MSCI). In response to this criticism, a proposal has been forwarded by the chairman of the MSCI Board of Directors that would alter important aspects of that relationship. The primary change would involve the University selling its interest in MSCI to the University of Minnesota Foundation.

The ramifications of this proposal must be fully explored, including relevant future implications for the University. We would like to do this with as much consultation from the University community as is possible given time constraints. Toward this end, we are forming a task force that we request you convene and that will be advisory to the two of us. We request that the task force specifically address the questions:

1. How will the quality and quantity of supercomputing service the University receives from MSCI change under the proposed new relationship?

2. Under the terms of the relationship is the University getting a fair value for its past investment in MSCI?

3. What management/governance structure should the University put in place to insure that its interests are appropriately represented under the new relationship?

4. With respect to obtaining supercomputing services, will the University be sufficiently accountable to the State under the new relationship?

Professors Rubenstein and Burk have agreed to serve as co-chairman of the task force. In addition to the co-chairman, we are asking the following individuals to formally participate on the task force:

Professor Thomas W. Jones, Astronomy, Minnesota Supercomputer Institute (MSI) Fellow;
Mr. Anton R. Potami, Associate VP, ORTTA;
Professor V. Rama Murthy, Geology and Geophysics; and
Professor David J. Weiss, Psychology, Chair of College of Liberal Arts Computing Committee

The task force should gather the information it needs by meeting with appropriate members of the Board of Directors of MSCI, key individuals associated with the Legislative Audit Commission, legislators, and affected members of the University community. Wherever appropriate, meetings should be publicized and open to the public so that the full diversity of opinions can be obtained and documented.

Further, task force efforts should be coordinated with those of the Vice President for Research who is currently studying University participation in public - private relationships more generally. We would like to stress that the inquiry should be limited to seeking and documenting assessments of the proposal. Task force costs will be covered by the office of the Senior Vice President for Academic Affairs.

Given the Legislative Audit Commission's interest in this issue, we ask that the task force submit a written report of its findings to us during the first week of April 1993.

Longer-Term Task

Many members of the University community perceive supercomputing resources as being inaccessible; some question the worth of supercomputers to the University at large. Therefore, coincident with the above request we are asking Messrs. O'Connor and Riley, leaders of the University's Information Technology

Planning Process, and Anne Petersen, Vice President for Research, organizer of the team that will review MSI and the University's supercomputer-based research agenda, to include the following issues among those examined by their respective teams:

1. No comprehensive assessment has been made of the present or future demand for supercomputing at the University. Clearly, existing supercomputing capability opens new research horizons for University faculty and students and favorably positions the University in the competition for contracts and grants. Nevertheless there are some areas that need exploring. Among them are tradeoffs between investments in supercomputing and other forms of computing; anticipated needs for different kinds of computing; the hardware choices that will best serve these needs; the roles of different computing technologies in inspiring new research; and the role of the University in inventing new computing technologies and further helping to develop the computer, hardware and software industries in Minnesota.

2. It is not clear that the University has captured all that it can from the supercomputing resources currently available to it. While this may be explained in terms of supply exceeding demand, it may also suggest that changes should be made in the structure of supercomputing research organizations or, more generally, computing at the University. This question needs to be explored.

3. Opportunities exist to broaden the application of supercomputing in fulfilling the University's teaching and research missions. While current MSI leadership has taken great strides in this direction, more must be done if supercomputing is to gain the broad support it needs from the University community. Again, this question needs to be explored.

We ask that the referenced planning teams and their advisory bodies (e.g., the Senate Committee on Computing and Information Systems, and the Senate Committee on Research) take the necessary steps to seek input and make recommendations regarding these issues. Results of the investigations should be reported as part of the two teams' established time schedules. Support for augmenting the planning teams so that they may meet this additional obligation will be provided by the offices of the Senior Vice Presidents and Vice President for Research.

Although on different time scales, it is our hope that the two efforts we are requesting will provide the means by which many of the issues surrounding the University's obtaining of supercomputing services can be resolved. We trust that we will have your support and assistance in these important activities.

Cordially,

Nils Hasselmo

Nils Hasselmo
President

Mario F. Bognanno

Mario F. Bognanno
Chair, Senate Consultative
Committee

cc: Ettore Infante, Senior Vice President for Academic Affairs and Provost
Robert Erickson, Senior Vice President, Finance and Operations
Anne Petersen, Vice President, Research and Dean, Graduate School

LAW OFFICES
LEONARD, STREET AND DEINARD
PROFESSIONAL ASSOCIATION

SUITE 2300
150 SOUTH FIFTH STREET
MINNEAPOLIS, MINNESOTA 55402
TELEPHONE (612) 335-1500
FACSIMILE (612) 335-1657

March 12, 1993

WRITER'S DIRECT DIAL NUMBER

(612) 335-1546

Dr. Thomas E. Burk, Chair
Senate Committee on Computing
and Information Systems
35-A Natural Resources Administration
University of Minnesota
College of Natural Resources
115 Green Hall
1530 North Cleveland Avenue
St. Paul, MN 55108

Dear Tom:

You have asked for an explicit statement of the "MSCI proposal". I shall try to accommodate you.

First, an initial caveat: I am writing you in my capacity as Chairman of the Board of Directors of the Minnesota Supercomputer Center, Inc. However, I cannot speak to you on behalf of that Board, nor communicate to you a formal "proposal", because that Board has not yet been asked to officially adopt such a proposal. What follows are my thoughts on the matter.

At the time the University of Minnesota and the Minnesota Supercomputer Center, Inc. each formally responded to the Minnesota Legislative Auditor's report, I, speaking on behalf of the Board of Directors, and with their authority, endorsed the recommendations made by Jim Infante, regarding the steps the University and the Supercomputer Center individually and jointly proposed to take to enhance further accountability of the relationships between the two entities. In the course of my remarks, I noted that the public impression of the Supercomputer Center was that it occupied the middle ground between a fully integrated department of the University, on the one hand, and a purely private, for profit corporation, with no relationship to the University at all, on the other. I stated, on behalf of the Board,

that if either the University or the Legislature so desired, the Board of the Supercomputer Center would be fully supportive of a decision to move toward either end of the spectrum.

In particular, to address this perception, I stated, "The Supercomputer Center could operate as a purely private, for profit corporation. We can, if either the University or the Legislature desired, redeem all of the University's stock in the Supercomputer Center and continue operations as a purely private, for profit company. This action would limit the University's financial involvement to that of a purely contractual relationship".

I went on to state, "Such a relationship would obviously be easier for you (the Legislature) to monitor. That option is available, and I want to stress that the Board will cooperate to achieve that goal expeditiously if either of you so desires".

In response to my remarks, James R. Nobles, the Legislative Auditor, wrote a letter on October 2, to Ann H. Rest, Chair of the Legislative Audit Commission, encouraging exploration of the offer to facilitate a sale of the University's ownership interest in the Minnesota Supercomputer Center. A copy of Mr. Nobles' letter of October 2 is attached for your reference. You will note that Mr. Nobles asked that a more detailed proposal be prepared, and that the University be asked to respond, by year end.

In order to be responsive to the Legislative Auditor's suggestion, the Board of the Supercomputer Center created an Ad Hoc Committee chaired by Fred Friswold, a Board member, to recommend possible ways the University's ownership interest could be purchased from the University.

Mr. Friswold and I met with an Ad Hoc Committee of the Board of Trustees of the University of Minnesota Foundation, which was convened by its Chair, Duane Kullberg, to study the matter.

The Foundation's Ad Hoc Committee reported to the Executive Committee and then to the full Board of the Foundation, at separate meetings, that it concluded that, inasmuch as the University of Minnesota was the sole beneficiary of the Foundation, if (a) the terms and conditions of a proposed purchase met the Foundation's "prudent man" test for a business investment by the Foundation acting in its fiduciary capacity, and (b) the University of Minnesota independently determined that it wished to proceed with such a transaction, and communicated that fact to its own faculty, Board of Regents, and the Foundation, the Foundation should be

willing to assist the University by participating in such a transaction.

In response to the Foundation's decision, President Hasselmo formed an Advisory Committee of University administrators to review, on behalf of the University, the issues involved in, and the positive and negative implications of, a change in the relationship that would result, should the University decide to sell its interests in the Minnesota Supercomputer Center. It is my understanding that you have agreed to chair a task force to advise the administrative committee on these matters.

In that capacity, you have asked that I communicate to you the sale proposal as it has evolved to date.

I should start by saying that the issue that is sought to be addressed by a sale of the University's interests is the apparently conflicting role the University occupies by, on the one hand, being a major purchaser of services from the Minnesota Supercomputer Center and, on the other, owning a substantial equity interest in the Center. The proposal attempts to address only the existence of a significant economic interest in the Supercomputer Center, owned by the University.

The proposal does not attempt to deal with other issues relating to accountability. The University and the Supercomputer Center have attempted to address other accountability issues raised by the Legislative Auditor to the extent each individually and the two jointly have deemed feasible, by such steps as the election of a member of the faculty and a representative of the Board of Regents to the Board of the Supercomputer Center, and the publication by the Supercomputer Center of a five year financial summary and data current to the end of the most recent fiscal year on actual University usage of the Center.

The University currently owns all of the preferred shares of the Minnesota Supercomputer Center, for which it paid $4.5 million in 1987. The preferred shares pay a 5% dividend, if and when authorized by the Board of Directors. No such dividends have been declared in recent years. The preferred shares are redeemable at any time after July 1, 1988, at the election of the Board of Directors, at a price equal to the original issue price thereof, plus any accrued but unpaid dividends.

The University, in addition, owns 10% of all of the common stock of the Supercomputer Center, for which it paid a nominal

price. The University of Minnesota Foundation owns the remaining 90%, for which it likewise paid a nominal sum.

The proposal is designed to permit purchase of the University's interests for fair value in an arm's length transaction, and, at the same time, to avoid impairing either the Foundation's assets, on the one hand, or the working capital and net worth of the Supercomputer Center, on the other.

The proposal is in two parts. First, the University of Minnesota Foundation would purchase all of the University's preferred shares and all of the University's common shares in exchange for the Foundation's promissory note issued by the Foundation, payable over a term of ten to twelve years. The note would bear interest at 5%, the same rate of the former preferred shares. The note would be secured by a letter of credit issued by one of the principal Twin Cities banks.

Secondly, the Foundation would sell to the Supercomputer Center all of the stock it purchased from the University. The Supercomputer Center would purchase and redeem the same, for the same price and on the same terms, as the Foundation purchased the stock from the University. The Foundation would, in addition, ask the Supercomputer Center to pay all of the Foundation's costs in the transaction, including the cost of the letter of credit.

The total consideration to be paid for the preferred and the common shares would be negotiated between the University, the Foundation, and the Supercomputer Center, should the transaction be decided on. The parties would seek an independent fairness opinion on the transaction from one of the principal investment banking firms in the Twin Cities.

The transaction has been structured to leave the ownership of the Supercomputer Center in the Foundation. An alternative would be to sell the Supercomputer Center outright to one or more unrelated outside investors. An objection to this approach has been that it might place the Supercomputer Center under the control of entities that are not charitably inclined toward the University of Minnesota.

An investment by outside investors remains a possibility as a means to provide future capital to the Supercomputer Center. So long as the Foundation does not need to sell a majority interest in the Supercomputer Center, it will be able to maintain a close relationship between the Supercomputer Center and the University, even though the two would, at that point in time, be institutions

financially independent of each other in all areas except for the contract for computer services, on the one hand, and the building lease, on the other.

If the purchase is decided upon, issues which remain to be discussed are continued representation of University interests in the Supercomputer Center, and maintenance of the Supercomputer Center's policy of treating the University as primus inter pares among the principal users of the Center's services.

The foregoing is the "proposal" as it has been discussed to date. I trust this letter will serve your needs. If you require amplification or clarification of any of the points discussed, please advise.

Sincerely,

Stephen R. Pflaum

SRP/jg
Enclosure
cc: Board of Directors, Minnesota Supercomputer Center
Gerald B. Fischer, President, University of Minnesota Foundation
Duane Kullberg, Chair, University of Minnesota Foundation

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STATE OF MINNESOTA
OFFICE OF THE LEGISLATIVE AUDITOR
CENTENNIAL BUILDING, ST. PAUL, MN 55155 · 612/296-4708
JAMES R. NOBLES, LEGISLATIVE AUDITOR

October 2, 1992

Representative Ann Rest, Chair
Legislative Audit Commission
439 State Office Building
St. Paul, Minnesota 55155

Dear Representative Rest:

First, I want to thank you and members of the commission for your serious attention to our supercomputing report. With your support, I think we are making some progress.

I am also writing to highlight the response made by Stephen Pflaum, MSC's Board Chair. He put forth two options that were not in our report. He said that MSC would cooperate with efforts to make the Center a department of the University or to redeem the University's investment.

Our recommendations were more limited and aimed at strengthening accountability within the current structure. But, Mr. Pflaum's offer deserves serious consideration, especially his offer to facilitate a sale of the University's ownership interest in MSC.

A sale of the University's ownership interest would clearly establish MSC's status as a private company and free it from the public accountability obligations it says impede its competitive position. Also, if it sold its ownership interest in the company, the University could establish a more business-like, arm's-length relationship with MSC. It would also be more free to search for the "best deal" available in the market place.

The changes that my office recommended, and which MSC and the University have partially accepted, should still be implemented. They are needed as long as the current ownership arrangements remain, and a sale of the University's interest may take a year or more to complete. But, now that the sale option has been suggested, it should, in my opinion, be seriously pursued.

I think MSC and the University should at least begin to develop a detailed plan for a possible sale of the University's ownership interest in MSC. The plan should provide a valuation for the University's stock and a schedule for repayment of all outstanding obligations (including any past-due rent or payments for other building costs by the University on behalf of MSC).

I know that this is a very busy time for you and the other members of the commission, and I know that you cannot pursue this issue any more for several weeks. But, possibly, later this year the commission could ask Mr. Pflaum to present a more detailed proposal and ask the University to respond.

Sincerely,

James R. Nobles
Legislative Auditor

cc: Members, LAC
Steve Pflaum
Bob Brickson
Jim Infante

STATE OF MINNESOTA
OFFICE OF THE LEGISLATIVE AUDITOR
CENTENNIAL BUILDING, ST. PAUL, MN 55155 • 612/296-4708
JAMES R. NOBLES, LEGISLATIVE AUDITOR

February 4, 1993

Ms. Kathy O'Brien, Assistant
to the President
University of Minnesota

Mr. Larry Redmond, Representative
Minnesota Supercomputer Center, Inc.

Dear Kathy and Larry:

This week both of you called to ask what I thought about the University Foundation and Minnesota Supercomputer Center, Inc. (MSCI) working on a proposal to purchase the University's ownership interest in MSCI. I want to reiterate what I said to both of you.

- In our report on supercomputing services at the University, my office did not recommend that MSCI should redeem the University's ownership interest in the Center, nor did we suggest that the University should in any other way sell its interest in MSCI.

- The idea was first put forth by MSCI's Chairman, Stephen Pflaum, when he appeared before the Legislative Audit Commission on October 1, 1992, to respond to our report.

- In response to Mr. Pflaum's suggestion, I wrote to Representative Ann Rest on October 2, 1992, (copy of letter attached) and said that Mr. Pflaum's idea had merit and should be "seriously pursued." In fact, I went further and said: "I think MSCI and the University should at least begin to develop a detailed plan for a possible sale of the University's ownership interest in MSCI. The plan should provide a valuation for the University's stock and a schedule for the repayment of all outstanding obligations (including any past-due rent or payments for other building costs by the University on behalf of MSCI)."

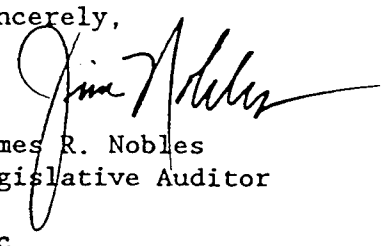
- I continue to think that Mr. Pflaum's idea is worth serious discussion. But I have also tried to emphasize to both of you that, at some point, a sale will have to be more than a "good idea," it will also have to be a "good deal;" and, there are many factors that could make a sale of the University's ownership interest in MSCI either a good deal or a bad deal.

- I also said that, since I have not seen a detailed proposal, "I have a lot of questions about what is being proposed."

- But, I have also tried to make it clear that my aim is not to "endorse" a proposal even when the details are made available for review. The decision to sell or not to sell is the University's. My October 2, 1992, letter and other involvement in this issue should not be interpreted as an attempt to pressure the University to sell or even to discuss the idea of a possible sale. The idea should only move along by mutual consent and because both sides see some benefit to be gained.

I hope this makes my thoughts on the subject clear.

Sincerely,



James R. Nobles
Legislative Auditor

enc.

GENE MERRIAM
Senator 49th District
Room 122, State Capitol
St. Paul, Minnesota 55155
Phone: 296-4154
10451 Avocet Street
Coon Rapids, Minnesota 55433

Senate

State of Minnesota

March 23, 1993

Mr. Robert Erickson
Senior Vice President
Finance and Operations
University of Minnesota
301 Morrill Hall
100 Church Street SE
Minneapolis, MN 55455

Dear Vice President Erickson:

I am writing to state my concern about the University of Minnesota and its relationship with Minnesota Supercomputer Center, Inc. (MSCI).

Throughout the past year as discussions have occurred about MSCI, my primary concern has been, and continues to be, the lack of accountability for the public funds that the University of Minnesota spends on supercomputer services. I have not been convinced that the current structure of MSCI inherently precludes accountability.

I do not want my criticism of the current ownership structure of MSCI to imply that I am encouraging the University to sell its interest in MSCI. While this is an option, it should only be considered under the condition that the University receive full value for 100% of the company valued on a going-concern basis. It would be cheating the University and the citizens of this State to only compensate the University for 10% of the book value of MSCI.

Regardless of the ownership structure of MSCI and its relationship with the University of Minnesota, I will continue to pursue full disclosure of all information needed to ensure the accountability of the public funds spent on supercomputer services.

Very truly yours,

GENE MERRIAM
State Senator

GM/mc

cc: Jim Nobles
Irvin Rubenstein
Tom Burk
Steve Pflaum

UNIVERSITY OF MINNESOTA

Office of the Senior Vice President
for Finance and Operations

301 Morrill Hall
100 Church Street S.E.
Minneapolis, MN 55455
612-625-4555

April 7, 1993

The Honorable Gene Merriam
Senator 49th District
Room 122, State Capitol
St. Paul, Minnesota 55155

Dear Senator Merriam:

I received your letter of March 23, 1993, relating to your concerns about the University of Minnesota's relationship with the Minnesota Supercomputer Center, Inc. The issue of whether or not the Foundation should redeem the University's shares is being discussed with a committee composed of faculty and staff representation to provide their recommendation to the Administration. I anticipate this recommendation will be forthcoming within the next several weeks.

I will keep you informed as events progress and would like to visit with you after we have received their recommendations.

Sincerely,

Bob Erickson
Senior Vice President for
Finance and Operations

BE/pj

cc: Jim Nobles
Irwin Rubenstein
Tom Burk
Steve Pflaum

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Minnesota Supercomputer Institute

1200 Washington Avenue South
Minneapolis, MN 55415

612-625-1818
Fax: 612-624-8861

Date: January 19, 1992

To: Robert O. Erickson, Senior Vice President for Finance and Operations and University of Minnesota member of the Board of Minnesota Supercomputer Center, Inc.
Richard Goldstein, University of Minnesota member of the Board of Minnesota Supercomputer Center, Inc.
E. F. Infante, Senior Vice President and Provost for Academic Affairs and University of Minnesota member of the Board of Minnesota Supercomputer Center, Inc.
Lester Krogh, University of Minnesota member of the Board of Minnesota Supercomputer Center, Inc.

From: Donald G. Truhlar

Subject: unsatisfactory performance of Minnesota Supercomputer Center, Inc.

The attached resolution was passed unanimously by the MSI Planning Committee today. The Planning Committee wishes to meet with the University representatives on the Board of Minnesota Supercomputer Center, Inc. to discuss this as soon as possible.

cc: Anne C. Petersen, Vice President for Research

that the performance of the top management of MSC Inc. has been very detrimental to the success of the supercomputing program at the University of Minnesota. At this point we cannot support continuing the contract under the present top management.

The provision of supercomputing resources to the University faculty and students is essential to many of our research, educational, and training programs. The University administration has shown vision in providing these resources, and University faculty have complemented this vision by attracting approximately $30 million per year in non-State funding, including the Army High Performance Computing Research Project, for projects involving supercomputing, as well by innovative interdisciplinary efforts in graduate education and undergraduate training in the area. We should not let the poor performance of the top management of the contractor continue to prevent this vision and faculty initiative from reaching its full promise.

On June 20, 1990, George Wilcox, Chair, and H. Ted Davis, Tayfun Tezduyar, and David Yuen, members, of The MSI Director's Evaluation Committee, appointed by Vice Provost for Academic Affairs V. Rama Murthy, recommended to him and to Senior Vice President and Provost Leonard Kuhi that "Minnesota Supercomputer Center, Inc. should be converted into a service center of the University." MSI was told that the issue was reviewed and that such a move was inadvisable for financial reasons. The University administration elected to continue its unique private/public relationship with MSC Inc., in which the University of Minnesota and the University of Minnesota Foundation fill all nine seats on the Board of Minnesota Supercomputer Center, Inc., and special cooperative efforts are required on both sides to make the program work. We are convinced that a change in top management at Board of Minnesota Supercomputer Center, Inc. is required in order to provide the management and cooperation needed to make this arrangement serve the University's needs.

Therefore, we resolve that

1. The contractor is not providing acceptable management of resource delivery to the University, i.e., the implementation of the contract by MSC, Inc. is unacceptable. MSC, Inc. has failed to manage our account a minimally acceptable level.

2. We recommend that the University of Minnesota members of the Board of MSC Inc. and the University of Minnesota Foundation members of that Board should implement an immediate change in the top management of MSC Inc. In particular we recommend that an interim chief executive officer be appointed as soon as possible to manage ongoing delivery of resources and technical support to the University and to other customers of MSC Inc. and to cooperate with the University on planning for acceptable management of our contract in the future.

3. We recommend that the University of Minnesota members of the Board of MSC Inc. and the University of Minnesota Foundation members of that Board should begin a search for a new permanent chief executive officer. At least one member of the Search Committee should be nominated by the MSI Planning Committee. There should be input from the MSI Advisory Committee on Supercomputer Services and from the information resources planning project in the search and selection process.

Resolution
passed unanimously by the MSI Planning Committee
Jan. 19, 1993

present and voting: Jeffrey Derby, David Ferguson, Thomas Jones, Youcef Saad, Charles C. S. Song, Tayfun Tezduyar, Donald G. Truhlar, David Yuen

This resolution concerns the supercomputing resources agreements reached with Minnesota Supercomputer Center, Inc. (MSC Inc.) in February, 1992. These agreements form the basis for $32 million contract signed by Vice President Erickson with MSC Inc. on June 30, 1992.

Whereas

Many of us at the University had high hopes that the new contract with MSC Inc., with its unprecedented long-term commitment of University spending and its unique private/public elements, would provide unparalleled research resources to the University in the critical area of scientific computation, an area in which the University has assumed a number of very significant research, educational, and training responsibilities involving both graduate and undergraduate education. The implementation of the contract requires interpretation of service unit agreements in terms of new supercomputing technology being provided by MSC Inc. It also calls for a high level of technical support for University researchers. In addition, the University has a special obligation, as a public institution, to show the people of the State that this unique initiative is fully accountable and represents a wise investment of public funds, and this requires a special sensitivity on the part of the private contractor. All of these aspects call for an appropriate level of management and customer service.

The University faculty was and is greatly appreciative of the extraordinary efforts of the University administration in putting this unique initiative in place. They anticipated that MSC Inc. would work with them cooperatively to make this contract work. However, MSC Inc.'s performance has been deficient in all three areas mentioned. In particular they have taken a very uncooperative and unproductive stance in working with the Institute to interpret the contract in a timely fashion in terms of the new technology. Furthermore, MSC Inc.'s internal communications regarding their relationship to the University are seriously deficient.

The situation with respect to lack of cooperation and poor management by Minnesota Supercomputer Center, Inc. (MSC Inc.) has reached a point where we believe that immediate changes are required for the University to receive proper benefit from our contract and provide supercomputing services for faculty, graduate, and undergraduate research.

We are convinced that these failures by MSC Inc. are primarily traceable to top management. MSI has experienced considerable difficulty with MSC Inc.'s top management in the past. We had hoped that the new long-term commitment would herald a new era of cooperativity and that the problems we experienced would be corrected, but this has not occurred. In fact, the management has deterioriated. We hereby express a unanimous vote of no confidence in the top management of MSC Inc.

Not only has MSC Inc.'s performance been unacceptable in immediately recent events, but there is a pattern of problems over a number of years that have convinced us

1200 Washington Ave. So.
Minneapolis, MN 55415
612/ 626-1888

Minnesota **Supercomputer** Center, Inc.

Statement of the Board of Directors of Minnesota Supercomputer Center, Inc.

TO: Minnesota Supercomputer Center, Inc. Employees
Minnesota Supercomputer Institute Fellows

DATED: April 10, 1993

The Board of Directors of Minnesota Supercomputer Center, Inc. (the "Board" of "MSCI") recently received a copy of a resolution passed by the Planning Committee of the Minnesota Supercomputer Institute ("MSI"), approved January 19, 1993, criticizing the management of MSCI and asking for changes in the same. In response thereto, the Board wishes to state publicly, in the strongest terms, its confidence in the management of MSCI and its president.

Over the past eleven years, the management of MSCI has created a successful company with a strong and enviable track record of accomplishments, which generates significant revenue per year, which employs eighty full-time employees, and which provides state-of-the-art computing services to the University of Minnesota (the "U of M") and to its commercial users, the quality of which is not available anywhere else in this country. The Board of Directors has the highest respect for the individuals who have produced this success, and management has the full confidence and support of the Board.

The Board is concerned that there be established and maintained the highest feasible level of communication and service between MSCI and members of the faculty of the U of M who collectively represent MSCI's largest user. To that end, the Board has appointed a Board committee to review with management and U of M users, the current state of such communications and service and to make any necessary recommendations regarding the same.

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Office of the Dean
College of Liberal Arts

215 Johnston Hall
101 Pleasant Street S.E.
Minneapolis, MN 55455
Fax: 612-624-6839

April 16, 1993

TO: Supercomputing Task Force

FROM: Joyce Wascoe
Assistant to the Dean for Planning and Fiscal Management

RE: Resolution

The CLA Computer Committee at its April 6, 1993, meeting unanimously approved a resolution regarding the Minnesota Supercomputer Center. The CLA Computer Committee would like you to consider the resolution during your deliberations and include the resolution in your report to the President.

RESOLUTION

Supercomputing activities are important to an increasing number of faculty and students. However, the current provision of supercomputing services through the MSC (Minnesota Supercomputer Center) corporation has been found unsatisfactory by many users and by the Fellows of MSI (Minnesota Supercomputer Institute), the academic supercomputing administration. The Legislative Auditor, in his report on University of Minnesota Supercomputing Services, has detailed serious governance and accountability issues with that arrangement. And legislators have also voiced their concern about the lack of accountability inherent in it.

Therefore, we recommend to the University Administration, and to the Task Force that was constituted to study the issues raised by MSC's proposal to become independent of the University, that the following actions be taken:

A. The President should ask the Legislative Auditor to complete his study, with an audit of the MSC side of supercomputing.

B. The provision of supercomputing should be restructured along these lines:

1. Supercomputing is a program of University-wide importance, and therefore should report to the Vice President for Research, and should be governed by an elected council consisting of representatives of MSI Fellows and representatives of the rest of the University.

2. MSC should be dissolved, and its functions should be assumed by an operating arm of MSI.

3. Periodic review by outsiders of national reputation should be instituted to ensure that the supercomputing program benefits from a broad perspective and vision, avoids the mistakes made elsewhere, and achieves the intended goals of the University and State as effectively as possible.

Certified
12 July, 1982

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D-876

CERTIFICATE OF ELECTION TO BE GOVERNED BY
CHAPTER 302A OF MINNESOTA STATUTES
AND
CERTIFICATE OF RESTATED ARTICLES OF
INCORPORATION OF RESEARCH EQUIPMENT, INC.

The undersigned, the sole incorporator and sole member of the first Board of Directors of Research Equipment, Inc., a Minnesota Corporation organized under Chapter 301 of Minnesota Statutes, hereby certifies that the following resolutions were adopted in writing by the sole incorporator and sole member of the first Board of Directors of the Corporation prior to the issuance of any shares:

BE IT RESOLVED, that this Corporation hereby elects to be governed by Minnesota Statutes Chapter 302A and accepts all of the duties and responsibilities of a corporation governed by Chapter 302A.

BE IT RESOLVED, that the following Restated Articles of Incorporation of Research Equipment, Inc. are hereby adopted, which restated Articles shall supersede and take the place of the existing Articles of Incorporation of Research Equipment, Inc., as amended to date:

RESTATED ARTICLES OF INCORPORATION
OF
RESEARCH EQUIPMENT, INC.

ARTICLE I.

The name of this Corporation is Research Equipment, Inc.

ARTICLE II.

The purpose for which this Corporation is formed is to engage in the acquisition of assets of all types, alone, or in association with others, and the utilization of such assets, by lease, purchase or otherwise, directly, or indirectly, primarily or secondarily for the benefit of or use by the Regents of the University of Minnesota. This Corporation shall have unlimited power to engage in, and to do any lawful act concerning, any and all activities which further the purpose of this Corporation.

After an organizational meeting on March 12, the task force met with Stephen R. Pflaum on March 16. Mr. Gerald Fischer, Chief Executive Officer of the University of Minnesota Foundation and Mr. Duane Kullberg, Chair of Board of Trustees of the University Foundation were also at this meeting. *Mr. Pflaum clearly outlined the proposal. The Foundation representatives stated that they would do whatever the University recommended, consistent with their fiduciary responsibilities as representatives of the Board of Trustees of the Foundation.*

Two meetings with the Supercomputer Institute Fellows were held on March 22 and 25. At the second meeting, representatives of the AHPCRC were present. *The Fellows and the AHPCRC representatives were unanimously opposed to the proposed sale.*

Task force members held an evaluation meeting on March 30. A meeting open to all members of the University community was held in the Campus Club on March 31. This meeting was widely announced and advertised in the Minnesota Daily. *The speakers at this meeting were all critical of the proposal.*

On April 1 a report on task force proceedings was given to the Faculty Consultative Committee. *The task force was urged to meet with the State auditor and members of the legislature.*

On April 9 the task force met with Mr. John Sell President of the Center; and on April 12 it met with Dr. Donald Truhlar, Director of the Institute, and Regents' Professor Richard Goldstein, Member of the Board of Directors of the Center. *These meetings served to clarify the relationship between the Center and the Institute.*

On April 12 Senator Phil Riveness, Chair of the Legislative Audit Commission and James Nobles, Auditor, were interviewed at the State Capital by four members of the task force (Messrs. Burk, Jones, Potami and Rubenstein). *Their major concern was the health of the relationship between the Center and the Institute. Both saw the formal relationship as secondary. They also expressed dismay that the full Board of Regents were not privy to the details of the University's relationship with the Center.*

On April 14 the task force met to review its findings and to begin to draft its report. On April 20 the task force met with Senior Vice Presidents E.F. Infante and Robert Erickson and Vice President Anne Petersen. The task force showed them an

early draft of this report as a way of focusing the discussion. On April 22 and May 3 the task force met to discuss the organization of the final report.

Minutes of each of these meetings follow.

MINUTES*

Task Force on Supercomputing
Friday, March 12, 1993
12:00 - 1:30
Room 406 Campus Club

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, A. R. Potami, David Weiss

Regrets: Donald Riley

Absent: None

Guests: None

Others: None

Professors Burk and Rubenstein convened the meeting at noon and asked task force members to review the charge set forth in the letter from President Hasselmo and Professor Bognanno. The underlying purpose of the work of the task force, he said, is to be certain that there is support from, the University community, the legislature, and the legislative auditor for whatever proposal the task force might recommend. The task force is to have a written report by the first week of April that addresses the four questions set out in their charge letter. The primary focus of the task force's attention should be on the proposal from the Minnesota Supercomputer Center, Inc. (MSCI), that the University sell its shares in MSCI to the University Foundation.

The meetings and proceedings of the task force should be open and well publicized, Professor Rubenstein said, so that everyone lays all their cards on the table.

One Committee member inquired if the decision about the MSCI proposal had already been made. Other Committee members expressed doubt that it had.

Is the task force forbidden from exploring options other than accepting or rejecting the proposal from MSCI? While the focus of the task force activities should be on the proposal, task force members believed that they are not precluded from recommending alternatives. WHATEVER is proposed, it was said, must be acceptable to all parties concerned. The general feeling, from those legislative contacts that have been made thus far, is that this proposal might be a way to address the concerns of legislators.

Professor Burk reported that he has contacted Stephen Pflaum, chair of the MSCI Board of Directors, to obtain a written version of the proposal; up to now it has only been oral. Mr. Pflaum has promised to provide a written proposal soon. The task force members did not know if the MSCI Board of Directors has authorized the proposal; it was agreed that Professor Burk would find out.

Task Force members then discussed the implications of the proposal and how it might help the University to carry out its mission in supercomputing. There were some reservations about whether or not relinquishing all University control over MSCI would improve the situation, but the "bottom line" question must be whether or not it will help the University carry out its mission.

If the stock is sold to the Foundation, with the proceeds to the University, then the University would be purchasing services from an outside vendor. Given that the $8 million from the University is guaranteed, the University may not be treated as a preferred or major customer.

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*These minutes reflect discussion and debate at a meeting of an ad hoc committee of the University of Minnesota; none of the comments, conclusions, or actions reported in these minutes represent the views of, nor are they binding on, the University.

The Task Force then turned its attention to whom it should hear from as it conducts its deliberations. In terms of the question "how will the quality and quantity of supercomputing service the University receives from MSCI change under the proposed new relationship?" it is clear that the views of users must be solicited (once the terms of the proposal are understood). The providers--MSCI--will presumably make clear in the proposal how the quality and quantity of service will be continued.

The next meeting of the Task Force must be with Mr. Pflaum, in order that he can present the proposal. Task Force members deliberated for some time about whether or not the meeting with Mr. Pflaum should be open or closed [the Task Force was advised by the General Counsel's Office that it has the legal right to close the meeting]. The problems with an open meeting could be that the discussion may involve trade secrets, the discussion may necessarily include sharp questions on a number of matters, and to avoid risk of killing the proposal before its merits have been explored, the Task Force may be able to amend the proposal to respond to University concerns that Mr. Pflaum is unaware of. The Task Force agreed, however, that once it has received and understood the proposal, all of its future activities should be open and publicized; there was unanimous agreement that the proposal, however finally structured, must be able to withstand full public scrutiny. It was finally agreed that the Task Force would examine the proposal before making a decision about the conduct of its next meeting.

It was also agreed that the meeting with Mr. Pflaum should include a representative from the University Foundation, probably its President--or someone who is NOT also a member of the MSCI Board of Directors. One Task Force member offered the observation this process must convince a lot of stakeholders and that Mr. Pflaum--and Mr. Sell, President of MSCI--need to persuade the Task Force that this is a good idea.

The Task Force then discussed possible future meetings; it was agreed that Professor Burk would be in touch with Mr. Pflaum to arrange a time, and that subsequent meetings might be as follows:

March 22, 2:30 - 4:30 p.m	User views to be invited
March 23 or 25, morning	Meeting with legislators/auditor
March 31, 1:00 - 3:00 p.m.	Open forum

It would be very useful, said one Task Force member, to have an overview of the present arrangements--why a corporation is needed, why the arrangements are necessary, and why privacy is needed. There are elements to the structure that cannot be ignored, at risk of causing trouble later. It may be that a corporation is necessary, and that structure may be appropriate for other activities as well, but whatever is recommended must make sense, whether public or private. Mr. Pflaum will doubtless speak to that question, it was said. The legislative audit contains a good chronological summary of events, it was pointed out, but other elements of the history probably also need review.

The survival of the supercomputing in some form is important, said one Task Force member, to the University remaining a major research institution.

The Task Force agreed that once Mr. Pflaum's proposal is in hand, an independent auditor should be retained to examine the numbers and advise the Task Force.

Professor Murthy then spent some time providing the Task Force background on the structure and administration of both MSCI and MSI.

The meeting adjourned at 1:45.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
Tuesday, March 16, 1993
6:00 - 8:30 p.m.
Room 238 Morrill Hall

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, Donald Riley

Regrets: A. R. Potami, David Weiss

Absent: None

Guests: Gerald Fischer (President, University Foundation), Duane Kullberg (Chairman of the Board of Trustees, University Foundation), Stephen Pflaum (Chairman, Minnesota Supercomputer Center, Inc., Board of Directors, and member, University Foundation Board of Directors)

Others: None

Professor Rubenstein convened the second meeting of the task force at 6:00; task force members discussed briefly how the next meetings should be structured. It was agreed that one meeting should be held to hear from the MSI Fellows and another should be an open forum. The task force recognizes that there are a variety of different users whose views need to be solicited.

Professor Rubenstein then welcomed Stephen Pflaum to discuss the proposal from the Minnesota Supercomputer Center, Inc. (MSCI). Mr. Pflaum began by noting that this is a proposal in the "soft" sense because it has not been approved by the Board of Directors and because MSCI has been cast in the role of having to come up with something--when it wished it did not have to deal with the issue at all. From the Board of Directors on down, however, MSCI wants to do what it can, within the limits of good business practice, to respond to the desires of the University and the Foundation (who are, after all, the only shareholders of MSCI).

This proposal is not a popular idea with the management of MSCI, Mr. Pflaum told the task force. It is akin to a family wishing to sell out of the family business: the family wants to take out its capital, but to remove that capital does harm to the business, which needs the capital to operate. The management of MSCI sees a net worth of $8.6 million, slowly built up out of earnings, about to evaporate. If MSCI could have paid dividends, it would have, but that $8.6 million accumulation of capital was created as a result of a "lean and mean" operation. The problem is that the cost of computers escalates dramatically with each new generation of equipment; so, of course, does the speed and technological capacity, but the machines still cost a lot of money. The cheapest money available to run a business is its own; next is borrowed money, and the most expensive is with equity purchased in the company (with its accompanying expectation of a return on the investment). From MSCI's perspective, the best arrangement would be no change; it would prefer to be as considerate and attentive to the needs of the University--MSI--as possible, rather than give up a large part of its capital to buy out the University's interest.

There is, however, the matter of public perception that must be addressed, Mr. Pflaum continued. The legislative auditor, in raising issues for the audit commission, was only doing his job. What he found troublesome is "the possibly conflicting role the University occupies" in that University funds are invested in a private, for-profit company from which the University is also purchasing services. That arrangement would probably be troublesome even with additional disclosure.

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In an attempt to respond to that concern about the University's equity interest in the company, Mr. Pflaum told the task force, a subcommittee of the MSCI Board of Directors has proposed a vehicle by which the University could take its equity interest out of MSCI while doing minimum damage to the company. That subcommittee of the MSCI Board of Directors has discussed the proposal with a subcommittee of the Foundation Board of Directors, and concluded that the proposal at hand does the least damage to MSCI. It permits the University to sell its interest in MSCI, with payment to be made to the University pursuant to a promissory note to be paid off over a period of years. This arrangement would not require an immediate drain of over $5 million from the $8.6 million in net worth of MSCI. (The $5+ million reflects the initial University investment of $4.5 million in preferred stock of MSCI, the accrued but unpaid 5% dividends, and the yet-to-be determined value of the University's 10% of the common stock in MSCI.) MSCI probably could operate, were that $5+ million to be paid out at once (as opposed to over time), but only at a very reduced level.

The promissory note could run directly from MSCI to the University. The proposal is that the Foundation would issue its note to the University, to purchase the University's interest in MSCI; the Foundation's note to the University could be guaranteed with a letter of credit, which would leave no doubt about the strength of the note--it would be as good as the University's credit or that of the State of Minnesota.

Under this alternative, the University would sell its interest in MSCI (the preferred plus common stock) to the Foundation; the Foundation, the same day, would then sell the preferred stock and the University's common stock to MSCI on the same terms as the University sale to the Foundation. The reasons for the the involvement of the Foundation, Mr. Pflaum said, would be to enhance the credit-worthiness of the transaction and to keep the MSCI note arm's length from the University. MSCI would also pay the associated charges for the letter of credit and the 5% interest on the promissory note, so the Foundation would not be "out of pocket" for any of the expenses. Irrespective of whether the note runs from MSCI to the University, or from the Foundation to the University, the Foundation would become sole owner of MSCI, because it would own the only outstanding stock in the company (the 90% of the common stock it now owns, which would NOT be sold in this transaction).

It is his understanding, Mr. Pflaum said, that the attitude of the Foundation is that if it can satisfy itself that this is a legitimate business risk for the Foundation, the question is then whether or not the Foundation should do it. Inasmuch as the Foundation exists to provide a benefit to the University, it will consider the transaction if the University wishes it to do so. Once the Board of Regents has decided what the University will do, the Foundation can then be approached. But there must be a request from the University.

What happens, Mr. Pflaum was asked, if MSCI is insolvent in three years? Mr. Pflaum explained that, first, the preferred stock would be redeemed by the transaction and would be off the books and out of existence. Instead of the preferred stock, the accountants would record as a liability (the $5+ million) promissory note. The net worth of MSCI would be reduced from the $8.6 million to about $3.6 million. There thus could be covenants to the note: MSCI could not impair its net worth below a certain amount while the note was outstanding. Before it could risk insolvency, MSCI would have to have enough net worth to pay off the note. As with any business transaction, of course, there could still be trouble; bad management or unforeseen circumstances could devalue the note, but one assesses this as part of the normal business risk.

What about the commitments to purchase new equipment, Mr. Pflaum was asked, which considerably exceed the value of the company, and thus its ability to pay off the note? Mr. Pflaum explained that MSCI has, from the beginning, assigned interest in its service contracts to its lenders (of which the University is only one). Revenues from the University to MSCI are nowhere near enough to amortize equipment costs, much less run the center itself. About 2/3 of MSCI's revenues come from non-University sources (the $8 million per year from the University is about 1/3 of annual

revenues); all the major service contracts with customers are pledged to banks. The income from the contracts with the University and other customers are part of the banks' security interest; MSCI, of course, must EARN the income (if it does not provide services to the University, the University does not pay, which is a risk the lender takes). Of the $25.5 million in revenues each year, not all of it is pledged to equipment purchases, Mr. Pflaum clarified.

In order to sell the stock of a small business, the business must be evaluated; Mr. Pflaum was asked if such an evaluation of MSCI would be conducted. He affirmed that it would; an investment banking firm would be asked to issue a fairness opinion on the transaction. There is NO guarantee of what the business is worth; they look at the closest analogs using objective measures such as earnings, risk, book value, direction of earnings, and so on. Pricing a business, however, is more an art than a science.

Technically, Mr. Pflaum told the task force, the transaction will consist of the preferred stock, plus the University's common stock, being sold back to MSCI, at which point it has been redeemed, and at the end of the day MSCI will have taken $X million and paid it to the University. At that point, as noted, the Foundation will be sole owner of MSCI. The beneficiary of the Foundation is the University, but the Foundation, technically and legally, will be the sole shareholder of MSCI.

Why is MSCI trying to divide up the equity? It is not, Mr. Pflaum said; it was asked to develop a proposal to get the University out of its equity ownership. The only party with an ownership interest in MSCI, after the transaction, will be the Foundation, said another Committee member; MSCI will use income to retire the stock shares. That is contrary to what has been discussed elsewhere, it was said; plans have been drawn to divide the equity among management and staff. That is not so, Mr. Pflaum said. One alternative that was considered by the MSCI Board of Directors was an Employee Stock Ownership Plan as a means to fund the transaction, but the Board did not favor that option. The Foundation, he affirmed, will have 100% ownership after the transaction.

There is a continuum possible, Mr. Pflaum pointed out. At one end, the Foundation can own MSCI completely. The question then is whether or not MSCI can generate the working capital it needs to go forward. If it can, it can continue to operate as it has since the University put in the $4.5 million for the preferred stock (which was necessary since MSCI had no capital at that time). After the transaction, some of the earnings will have to be used to pay off the promissory note, which will likely mean slower growth (of working capital for future equipment purchases) for MSCI.

As the cost of computing goes up, the funds to purchase equipment must come from someplace. Some will be internally-generated by MSCI, but in the event they are insufficient, where does it turn? Not to the University, Mr. Pflaum said, nor to the Foundation, so MSCI will have to go to outside investors. Such investors would probably be corporations interested in the business, such as a supplier or a user. That alternative is also available today, he observed.

At the other end of the continuum, the University could sell its interest in MSCI to outside investors rather than the Foundation; this, it appears, would satisfy the concerns of legislators. The MSCI proposal, Mr. Pflaum said, tries to plow a middle ground, so that ownership of the company is kept in close proximity to the University while divorcing it from the University itself. The University obtains the cash from its investment while keeping MSCI in friendly hands.

If, however, there is not enough capital to run MSCI, the solution would be to sell stock rather than shut it down. The Board of Directors concluded it would not be prudent to sell stock to the employees; supercomputing is too risky a venture in whic to tie up pension funds. It is probable, Mr. Pflaum agreed, that an outside owner would have little interest in giving supercomputing time to University researchers; many of the users are not in Minnesota, and if the controlling ownership were to pass from the Foundation to outsiders, the company would probably be moved. A portion of the company could be sold, however; so long as the Foundation retained 50% or more ownership, it could keep MSCI here and operating on behalf of the University.

One task force member observed that if control of MSCI were sold to outsiders before the expiration of the $8 million annual University commitment to purchase services (in slightly over 3 years), presumably that guarantee would no longer exist. Mr. Pflaum said there are a number of issues that would be raised by sale of control of MSCI to outsiders. One of the most important is MSCI's relationship with the University; to preserve the most important features of that relationship, this proposal calls for selling MSCI within the "family." The company, he repeated, does NOT like this proposal, because it uses the company's working capital. The Board, however, is prepared to sell MSCI to outsiders, if the University wishes, but it has been told that MSCI should be kept as close as possible to the University--and if that is NOT the case, the Board of Directors needs to know that.

After the 3+ years, said one task force member, MSI Fellows would be free to contract with any organization for their business; MSCI could be asked to bid, as could other centers. The legislators like that freedom to purchase elsewhere, Mr. Pflaum said. In that event, it was said, MSCI should very much WANT to cultivate University users, because they are customers who could go away in the future. Mr. Pflaum agreed, and said MSCI should be doing so today; the Board of Directors repeatedly reminds MSCI of that fact.

On the other hand, it is possible that MSI will change in three years. The legislature, for example, could decide not to invest money in supercomputing, no matter what the arrangements between the University and MSCI--and the Board, Mr. Pflaum said, has discussed with MSCI management this possibility. Or, University priorities could change. MSCI has grown because visionary University leaders saw MSCI as a project of great value, but that does not mean that the University will continue to do so. That debate will probably continue for some while at the University. This transaction, however, does not attempt to deal with any of those possibilities, Mr. Pflaum noted once again.

There is one misconception in the discussion, maintained one task force member. Neither the University nor the state would likely support the $8 million expenditure on a true outside vendor; that $8 million from the legislature is not the University's to do with as it pleases--it is tied to supercomputing, and would likely not be available if used to buy supercomputing time elsewhere. It is not realistic to believe the University has the option to take its contract somewhere else--which eliminates the ability to demand good service on such grounds.

As one listens to the discussion, another task force member observed, the issue of accountability is always present. Several questions arise. First, would the transaction really change the issue of accountability in the eyes of the legislator and auditor? One suspects not. Second, will the public understand that the University does not own MSCI, but that the Foundation does? Third, would ANOTHER problem in public perception be created if the University does not seek to maximize its profit in the sale--even though doing so would hurt the company? To the last question, Mr. Pflaum acknowledged that there could be a problem, but if the University articulates well what it is doing and what it expects to accomplish, the perception problem could be dealt with. The transaction does not attempt to deal with accountability issues. But accountability has been the recurring theme of the debate to date, it was pointed out, and there has not been sufficient accountability for the $4.5 million or for the financial operations of MSCI; how does it solve the problem to take this secretive business and sell it to the Foundation?

Mr. Pflaum observed that he could of course provide no guarantees about public reactions, but said that on the basis of conversations of which he is aware or has been privy, he believes the significant players in the issue would be satisfied with the arrangements. The accountability question may not ever be completely resolved, he said, but if the legislature feels satisfied, that is a step forward.

Another task force member said there are two issues; one is perception about accountability, and the other has to do with the quality and quantity of the services that would be provided by MSCI

to the University. He is skeptical, he said, that the proposed transaction would "fix" either issue. There would be no change in the relationship with the University, it was said earlier in the meeting. Mr. Pflaum agreed that there should be no change, but the relationship between MSCI and the University should be dollar-driven and tied to the service contract, he said; the University should receive full value for its dollar irrespective of whether the University itself or an outside corporation owns MSCI. The University must insist on fair treatment.

The "value" is hard to decide, pointed out one task force member; another observed that the University clientele does not now believe it is getting what is deserved--and that presumably would not change, either. If the University sells its interest, it runs the risk of becoming a third-rate citizen in terms of supercomputing service, without any hope of improvement, given the history of the relationship. There can and should be an improvement, Mr. Pflaum asserted. The University should focus on the dollars; if it does not receive the level of service it believes it should, MSCI should not receive the money. If the relationship is contested over the next three years, the University will not be interested in renewing it.

Another issue is the legislative interest in technology transfer; it is putting money into the University so that the University can interact with industry through supercomputing. If the University is separated from MSCI, except as a buyer, hard boundaries are drawn which makes that interaction more difficult. While it is true that faculty have relationships with companies without ownership--because the relationship is mutually beneficial--another element is the facilities and services provided by MSCI that are central to the relationship. To separate the University from MSCI removes the potential for interaction.

But if the University has no stock ownership, it is freed up to go elsewhere to obtain service. That line of reasoning misses the point, it was said; when the University has no involvement in the operation of MSCI, it will have access only to supercomputing time, which is very different from access to technology and a say in the decisions being made, which affect the interaction. Researchers could not obtain what they need from a remote facility. If, it was rejoined, MSCI wants to keep a big customer--the University--it is not clear why it does not act that way now; to survive, it must sell its services to the University and to its other customers. Mr. Pflaum commented that the Board of Directors has told the management that if they are going to complain about the University's requests for attention and service, they should go find other customers--but there aren't any of that size. He agreed that management relationships between MSCI and MSI are sometimes abrasive.

Discussion continued about the possibility of the University's purchasing supercomputing at a remote site. It was said that supercomputing is cutting edge work and depends on the interaction and special technologies--capabilities that do not exist elsewhere. One task force member inquired about the percentage of faculty whose work could be done at a remote facility rather than on site; that is not the issue, it was responded. We are talking about the University as a vehicle for technology transfer and development of breakthroughs. The Geometry Center, interjected another task force member, would not be at the University if were not that MSCI is on site; it consists of 14 of the world's best mathematicians, and that is what the University should be striving to establish through supercomputing. Part of the work, it was acknowledged, may have to be provided by a monopoly (MSCI); what part does not? The issue, it was asserted again, is the SUPPORT that comes with MSCI being on site; without the support provided, the dollars to purchase time don't matter. But the University has $8 million that it will be able to spend anywhere; how much of that must be on site? The University's leverage is the money, and it will be treated differently if it can go elsewhere to spend the money, or part of it. It is this point, Mr. Pflaum observed, that concerned the legislative auditor: The University is precluded from shopping for service elsewhere when it has an ownership interest in MSCI; without it, it is motivated to drive the best bargain it can. That, it was said again, misses the point: researchers cannot do at San Diego or Illinois what they can do here, and the issue goes beyond simple financial questions.

What does the University gain or lose if the entire matter is reduced to a financial transaction?

Mr. Pflaum said that from his point of view, as a lawyer and businessman, there should NOT be a change in the professional relationship between MSCI and supercomputing users because of the proposed transaction. The University is buying services and has every right to expect a standard of performance in return. He said he is inclined to agree with the legislative auditor that performance for the University would be increased if the University did not have to worry about the financial consequences of its decisions.

The MSCI Board of Directors, Mr. Pflaum explained, is like any corporate board of directors: it makes policy decisions, approves major strategy decisions, but does NOT dictate operations. It reviews the budget presented by management, evaluates performance vis-a-vis objectives, and expects communication from the management so there are no surprises. The Board function should not change, whether or not the University owns MSCI, and policy is set by the shareholders who own the company, and therefore elect the directors.

If the Regents were to ask the Foundation to conduct the transaction, what would it do, Mr. Kullberg was asked. This is not, basically, a Foundation problem, he said. The question is whether or not the University wants the Foundation to facilitate the arrangements. If the University strongly asserts that it wants help, this transaction is a method to provide it. If the University is ambivalent, the Foundation does not need the problem. This is only a small amount of money, he noted; the issue is whether or not the University wants to keep supercomputing available through MSCI, because it has provided a tremendous competitive advantage.

Mr. Fischer noted that some will see the transaction as the University selling to itself because of the inextricable linkage between the University and the Foundation. People do not understand that the Foundation is an independent entity, that it does not perform public or government functions, and that it happens to have the University as its sole beneficiary. One question, then, is how to communicate the transaction in order to achieve maximum benefit?

Another issue, Mr. Fischer pointed out, is that the Foundation will do "due diligence" before finally deciding, because there is a degree of risk in the enterprise. They will not do so, however, until there is a clear message from the University that this transaction is what it desires. This is a volatile industry, with huge obligations required to stay at the cutting edge. The Foundation was involved originally, in 1983, in order to ensure the survival of MSCI, and it would be willing to be involved again.

Mr. Fischer then told the task force that he has heard the $8 million the University spends at MSCI is leveraged well, and that there are a lot of other activities (perhaps $60 million) at the University because of MSCI. It is to be hoped that this process will identify other options, if this is not the best arrangement. What would be best, from the perspective of the faculty?

There are no simple answers, said one task force member. In an ideal world the center would be inside the University; the problem is the prohibitive cost of equipment. If the current arrangement is not viable--and that has yet to be demonstrated, it was argued--the faculty must be sure that it is not. One option might be a smaller version of MSCI, within the University; MSCI has three times the capacity the University needs, and perhaps those needs could be met with a smaller supercomputing entity. The University, Mr. Fischer noted, provides 1/3 of the MSCI revenue but uses 2/3 of the supercomputing time. Another task force member pointed out that there are different machines being used for different purposes. That is not an unresolvable problem, it was said, but no one is ADVOCATING a smaller operation; it is simply one option. The underlying point, it was said, is that because the University has played a leadership role in supercomputing, and has the potential to continue to do so, the activity can make a huge difference in the University's ability to be competitive. That CENTRAL point must not be overlooked.

Consideration of options, observed another task force member, must be linked to the issues. One is accountability, both to the legislature and internally. Part of that accountability lies in the

contract; the nature of the contract, over the years, has been a source of problems, and the management style of MSCI has escalated the problems. There are a variety of ways to address these issues without selling MSCI.

In terms of on site work, it was said, a faculty member cannot always do laboratory work and send it off for analysis to some other university. For these faculty members in question, MSCI is their laboratory. It is also unrealistic to talk about taking the $8 million and going anywhere; most faculty do not have that choice, and some work--such as the work being done here in supercomputing--requires proximity.

And one cannot say the business risk should not be absorbed by the University; the contracts as they are now written put the University--MSI--at a tremendous disadvantage in trying to address problems; the NATURE of the contract is at the root of the difficulties. Other recommendations from this task force will not resolve those problems; why not renegotiate the contract? That is why, added another task force member, perhaps one should not jump to the conclusion that MSCI should be sold. It was later commented that the (presently informal) understanding that all unused supercomputing time is to be provided to the University could be made a formal part of the contract.

One problem with moving supercomputing inside the University, Mr. Kullberg observed, is that while there might be more control, the result may be to change the devils; instead of economic arguments, there would be political disputes. A more practical problem, Mr. Pflaum observed, is that the next generation of computing equipment will probably cost $40 to $50 million. When the University, in a very good year, receives $100 million in capital funding from the legislature, there is NO WAY that $40 or $50 million would be set aside for computing equipment. And even if it were possible, the University should be unwilling to take the risk because things change so fast.

Asked if the Foundation representatives had any observations to make, Mr. Kullberg said he thought the charge letter may have gotten things reversed, in that it identifies a possible solution before the policy has been developed; the longer-term tasks should be performed before a decision about the MSCI proposal is made. The question is "does the University want supercomputing?" and, if so, "in what form?" Where does the University want to be? When he first came to the Board of the Foundation, Mr. Kullberg recalled, he was impressed with the tremendous capacity MSCI provided to the University--while at the same time off-loading some of the costs to outsiders. This is only one small step, pointed out a task force member, that is not intended to jeopardize future planning; it is, rather, an attempt to responsibly address, early in the legislative session, a potential source of criticism that could hurt the University. While legislative interest in supercomputing may have temporarily subsided, it may very well be because legislators see that the University is taking action to deal with the concerns. Mr. Pflaum agreed, noting that this is a small problem, but one of a type that keeps getting attention; to the extent the University can deal with it, it will help.

MSCI did respond to many of the legislative auditor's recommendations, Mr. Fischer noted. The Foundation, he told the group, would feel more confident about dealing with this issue if the task force could deal with the issue of whether or not the University wants supercomputing, and if so, how it wants access. If, as has been suggested, there are fundamental problems with it, and some faculty believe this is a "bad deal," those problems must be dealt with--and it would be helpful if the task force would establish a framework for doing so. The Foundation is unwilling to take on the risk if there is continued faculty perception that supercomputing is a problem.

Discussion then turned for a short while to whether or not the task force could, or should, comment about problems in supercomputing that are unrelated to the structural arrangements it has been asked to consider.

The meeting was adjourned at 8:30.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
Monday, March 22, 1993
2:30 - 4:30
Minnesota Supercomputer Institute

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, A. R. Potami, David Weiss

Regrets: V. Rama Murthy, Michael O'Connor, Donald Riley

Absent: None

Guests: Mr. Stephen Pflaum (Chair, Board of Directors, Minnesota Supercomputer Center, Inc.), Professor Donald Truhlar (Director, Minnesota Supercomputer Institute), Fellows of the Minnesota Supercomputer Institute

Others: None

[Note: In these and any following minutes, Minnesota Supercomputer Center, Inc.--the private sector corporation--will be referred to as "the Center" and the Minnesota Supercomputer Institute--the academic unit of the University--will be referred to as "the Institute" (the INstitute is "in" the University)]

Professor Rubenstein convened the meeting at 2:35 and thanked Dr. Truhlar and the Institute Fellows who were able to attend for meeting with the task force on short notice. In response to questions, Professor Rubenstein had copies of Mr. Pflaum's letter distributed and explained the proposal that had been advanced by the subcommittee of the Center's Board of Directors to sell the University's interest in the Center to the Foundation.

The first question raised by one of the fellows was whether or not the contract for services between the University and the Center would be cancelled or renegotiated if the change in ownership were to occur. Professor Rubenstein said that point had been raised in the task force discussions with Mr. Pflaum and would have to be addressed; there are new points that might need to be included in the existing contract. The task force, however, was uncertain about whether or not a new contract would be negotiated.

Another of the Fellows provided the task force with a written statement and made brief comments. The quality and quantity of supercomputing at the University would suffer if the Center were owned by an outsider, even if local, and the University would lose its say if it were only a customer. Of particular importance, it was argued, are (1) the need to continue medium- to upper-level technical and programming lectures on supercomputing, which assist users in advanced use, and (2) the in-house supercomputing facility as a recruitment tool for faculty. Faculty at other research universities have access to supercomputing; here, they also have services. The University will lose the seats on the Center's Board of Directors if it sells its interest in the Center, and thus lose voice in decisions. Professor Burk cautioned, however, that there has been no discussion about seats on the Board of Directors.

The Fellows were asked if ownership would make a difference if the support and service for research remained the same; one response was "show me" and that they would believe it when they see

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it. Another Fellow inquired how there could be any guarantee the quality and quantity of research support would remain the same if the University lost its share of the governance.

Asked about the reason for the proposal for the transaction, Professor Rubenstein explained the concern of the legislators, and legislative auditor, about the possible conflict when the University both owns an interest in a company and buys services from it--the University may not be getting the best deal it can for the services purchased. The Foundation is a legally separate entity, even though the University is its sole beneficiary, and this transaction is a way to reduce legislative concern while keeping ownership in the hands of a friendly party rather than an outside third party.

Asked about legislative reaction, Professor Rubenstein reported that thus far, indications are that the proposal has reportedly received a favorable reception. The task force will try to meet with interested legislators and representatives from the legislative auditor's office before it completes its task to get a reading. There is no reason to conduct the transaction if it would not satisfy legislative concerns--that is the main reason it has been proposed, he pointed out.

Mr. Pflaum joined the meeting at this point; Professor Rubenstein explained to him the faculty fears that the University, and its faculty interested in supercomputing, would have even less control over events at the Center than it does now, and that things would be worse than they are now. Mr. Pflaum pointed out that the purpose of the proposal is to satisfy the state legislative concerns about the possible position of conflict the University could be in; if its funds are not invested in the Center, it can bargain tough to get a good deal. The argument being made is that the University needs to own an interest in the Center to have an impact; the answer, he said, is that if the University is not getting what it wants, the problems should be corrected through the contract. Either the problems will be corrected or the day of reckoning will come, when the contract is up for renewal. This may be, he acknowledged, too narrow and legalistic a view of the circumstances.

The contract calls for the provision of certain services, Dr. Truhlar pointed out, that cannot be made public because they are considered proprietary trade secrets of the Center. The task force had asked for copies of the contract; the University's General Counsel advised him, Dr. Truhlar reported, not to unilaterally release the contract to the task force and violate trade secrets into which the University has entered. In order to complete its work, the task force should request a copy of the contract. Task Force members expressed puzzlement at this arrangement; there is a contract for services, but the University does not know what they are and may not have a copy of the contract? Dr. Truhlar said the contract is available to him and to the Institute planning committee. The contract provisions, however, do not include all the services that are provided. Professor Rubenstein assured Dr. Truhlar the task force would request a copy of the contract and a description of the services provided.

Dr. Truhlar was asked what he sees as the important research issues or needs that could be affected by a new arrangement between the Center and the University. The existing supercomputing program, he said, is a great deal more than supercomputing cycles, and expressed agreement with the earlier speaker who emphasized the need for cooperative work between researchers and Center personnel. A lot of researchers at other universities have access to off-site supercomputing--but the ability to talk with people on site is tremendously important. In addition, there is the advantage of being involved in long-term planning on major decisions. One cannot reduce the relationship with the Center to dollars per hour of supercomputing time.

It is difficult to say what the impact of the sale would be; the outcome would depend on additional arrangements in the contract, in technical support, in ways to settle disagreements, in equipment purchases, in planning--all of which are important in judging the worth of the program to the University. Planning decisions are important, he affirmed; the Institute does want to participate in those decisions, and wants to influence them as much as possible, subject to the restraint that outside income must be generated. A concern about the proposed arrangement is whether or not University

participation would continue. There is a mechanism for such participation now, through the four University representatives on the Board of Directors--and they have helped.

Professor Rubenstein noted that one charge to the task force is to provide advice on how the quality and quantity of service to the University would be affected by the change; another point upon which the task force could offer advice, he surmised, is in the aspects of the relationship important to quality and quantity and how they could be retained and improved. It is important for the task force to understand, said another task force member, what services the University does receive and what aspects of the service are important--and that there is a difference between being involved in running the center and being a customer at an existing center. Dr. Truhlar affirmed the observation that having supercomputing on the campus gives researchers a marked advantage in terms of productivity and getting daily work done, in addition to being involved in decisions and setting policy.

One Fellow recounted that he was drawn from Michigan to Minnesota because supercomputing was on-site here, even though the position at Minnesota was not a career step up. Research at other universities is hindered by lack of access. Wisconsin and Purdue once had state of the art computing but have now fallen behind, and the University should not get itself into that position. In addition, it was said, a university gains prestige and renown because of supercomputing.

What can be done to improve the situation? Professor Rubenstein inquired. The task force is trying to be sure that the University continues to have a first-rate supercomputing facility--it is not interested in doing its work if that is NOT the objective. There is no intent to downgrade or eliminate the facility--that must be taken as a given. Is this the time to identify what can be done to make the relationship between the Institute and the Center better? In a time of change, one need not change only one thing.

The question of legislative perceptions of the relationship between the Center and University is a sensitive one. Mr. Pflaum said the discussion leads him to believe the perception issue may be a "paper tiger"; it is becoming clear that the alternative of buying supercomputing time at a remote site may be unrealistic from the point of view of University users. It may be that the legislative auditor is not sensitive to the interrelationships between the Center and the Institute, but there is nonetheless a perception problem that must be dealt with. One Fellow said he was uncomfortable with the notion of the Center as a "store," at which the University buys supercomputing, rather than as part of the University.

The task force is in a difficult position, asserted another Fellow. Taking a detached perspective, it was argued, one could say the University has invested millions of dollars in supercomputing that will be sold off too cheaply. This is the kind of event that draws the attention of the media, and this action would do so. That money, it was said in response to a query, represents the public money paid in from 1985 to 1993. That money was paid, a task force member pointed out, as fees for service; another Fellow said the expenditure can be justified, but the question is how the deal will appear. Asked how much of the money was paid for services, one Fellow surmised that the Center would say all of it was; there are, however, six supercomputers at the Center that are at least the <u>responsibility</u> of the University, although some may not see it that way.

The Center, one task force member observed, is a business that sells services to the University and to the private sector; those funds--both from the University and the private sector--are used to purchase equipment, pay for the building, and pay expenses. It is not solely University money that has paid for these items. One Fellow expressed a great deal of skepticism about claims made by the Center and noted that information is not available to confirm or clarify the situation. His conclusion is that the money that has gone into the Center is less than what they claim.

There are a range of possible structures, it was also pointed out by one Fellow, from making the Center a University department to completely separating from the University; the task force

appears to be considering only one end of the range. Why cannot the task force, agreed a task force member, propose that the University buy out the Foundation, dissolve the Center, and incorporate supercomputing into the University? The secrecy is causing the problems, it was argued, and if the Center did not exist, there would be no secrecy. The existing arrangement is anomalous, it was said, because no other university has a privately-owned supercomputer center, and it seems reasonable to look at absorbing it.

The task force understands the arguments for having supercomputing on site. The argument, a task force member pointed out, is that the secrecy is needed to get customers--to which one Fellow responded that no one knows the amounts of money involved. Does the faculty obtain what they need? inquired another task force member. Other universities with supercomputer centers, yet another task force member observed, have confidential arrangements with companies.

Asked what the costs of the next generation of supercomputers would be, one Fellow said the costs generally remain the same from one generation of equipment to the next. It is unlikely, observed a task force member, that the University would be able to persuade the legislature to provide the $30 to $50 million required for the next purchase.

Also disappointing, it was said, is the lack of Center cooperation with the University on the MAGIC communication project (a major national communications network). Another Fellow contended that the Center has not been responsible for growth in faculty-industry collaboration; others not present at this meeting, it was said, could tell of their discouragement at working with the Center. The University, moreover, it was said, has been the driving force behind faculty research and interaction with industry, not the Center.

Discussion turned briefly to the origins of the present arrangements, which evolved originally because of concern about possible unrelated business income and IRS tax regulations. It was not clear, at the meeting, whether that concern is still valid. Mr. Pflaum observed that there were three issues involved: 1) unrelated business income; 2) an arm's length relationship in order that the equipment could be depreciated (unless the legal test for an arm's length relationship was met, equipment could not be depreciated, and the tax advantage of the depreciation would be lost), and 3) possible business community objections to the University competing with the private sector using a tax subsidy to do so. He said he did not know if such business concerns would have materialized. A fourth concern, added a task force member, was liability: what if a mistake cost a corporation a lot of money--would the liability run to the University? This same concern would exist with respect to the Foundation, responded one Fellow.

The critical issue, Dr. Truhlar pointed out, is that the total University funds available for supercomputing would not be enough to purchase the best equipment, so time had to be sold to outside firms to obtain the money. That, he said, has <u>always</u> been an important issue. Before the Center and its predecessors, the University owned a Cray and sold time to outside firms; University faculty at that time did not have the same access as they do under the existing arrangements--supercomputing time was very expensive for faculty. Then this scheme, clarified one task force member, was established to be sure the best equipment could be purchased and that supercomputing would be available to faculty members, the latter subsidized by selling time to outside parties. The question, then, is whether or not the University could accomplish these objectives if the Center were made a University department, and if it could do so into the future.

One can turn the question around, commented another task force member, and inquire what it is that the Center is doing that the University could not do as well. If the program is starting out solvent, why could the University not run it? If marketing is the problem, presumably the University could hire people to do that; it is not clear what the added value is to having supercomputing privately run. It seems to be causing trouble rather than adding value.

In terms of running the business, one Fellow said, the Center believes it has taken business away from another of the supercomputing centers--corporate users felt the other center was not business-oriented, was chaotic, and too academic, and they left unhappy. That has not occurred here, it has been said. That problem would need to be considered. Center people are very good, said one of the Fellows most critical of what has occurred; they are aggressive in getting business. What must be balanced, he said, is whether or not the University would be happier if the Center were doing slightly less good a job. It may be that the same people running the Center would work for the University. It was claimed, however, that the predecessor supercomputer organization to the Center--REI--had problems keeping good people, and no one wants a bureaucratic organization that will drive out those people.

The task force should inquire about the history of Institute negotiations with the Center and how they would be changed with the new structure, one Fellow suggested. Others present disputed the use of the term "negotiation" when describing the relationship between the Center and the Institute, claiming that Institute people often only found out about a major decision at the last moment, after it was already accomplished. In one instance, the Institute learned of a major equipment purchase only a week before the machines arrived. The secrecy was justified on the grounds of the good deal obtained. The machines were purchased entirely for commercial purposes, it was claimed, took up a great deal of Center staff time that was then not available to Institute users, and they subsequently disappeared entirely. Decisions have often not made based on the best interests of academic reasons.

It is important, Dr. Truhlar affirmed, that University researchers have a say in decisions, and it will be important to determine how the University would retain its say if the structure were to be changed. It appears, from the foregoing comments, said one task force member, that the University has <u>not</u> had a great deal of say; Dr. Truhlar conceded that there have been times when the University has not has as much influence as he would prefer. There have been occasions when he has not been consulted as much as might be expected in an ideal world, Dr. Truhlar explained, but it is not clear that the proposed new structure would make things any better.

Dr. Truhlar asked if Mr. Pflaum could provide clarification on why 100% ownership by the Foundation would cure the problem of public perception. Mr. Pflaum said he could try. When he was at a meeting with the legislative auditor, options seemed to include spinning the Center off from the University completely, incorporating it completely within the University, or some middle ground. This change was proposed as a middle-ground option to respond to criticisms. It appeared to be the sentiment of several legislators that a move toward the private sector was desirable, and that this proposal was an acceptable way to do so, if the University were to get its equity out of the company, in a fair deal. If the University were to sell to outsiders (as opposed to the Foundation), the benefit of the relationship developed over the last 8 years would be lost. Therefore, this middle ground (ownership by the Foundation and not by the University) appeared to be acceptable.

There remain troubling questions, said one task force member. The total investment by the University is greater than the $5+ million of preferred and common stock and dividends, it is not clear if the University would retain any control, and if the University were to still appoint members to the Center Board of Directors, it would be difficult to convince anyone that things had changed.

It was suggested that the task force could profit by considering the arrangements at other institutions, including UC San Diego, which, it was said, is considered by many to have the best supercomputing operation in the world. They use an outside contractor to run the service, but all policies and operation decisions are dictated by the university and by NSF through the university. It also has, according to one Fellow, a thriving program of cooperation with industry, selling time on its computers. In any event, it was said, the task force should be in touch with the directors of other such centers. Mr. Pflaum pointed out that the 5 NSF centers, by statute, are restricted to obtaining a maximum of 10% of their income from outside sources; he said he did not know how they finance equipment purchases.

One of the Fellows suggested it would be worthwhile to contact other directors. Dr. Truhlar told the task force, however, that the Minnesota arrangement is unique in the availability of supercomputing to the faculty--no center anywhere, he maintained, is as good for its own faculty as this one is. The NSF centers have a different mission, and do not sell supercomputing on the same scale. The question, one task force member pointed out, is not how good their computing or computers are, but rather whether or not another center has an organizational model the University could use. There has also been a plan--the status of which was not known--that NSF may shut down all the centers; what will those institutions do for revenue?

One task force member suggested that the discussions were getting off the track. Legislators are concerned because they cannot obtain data. The Fellows and users are concerned about levels of service and want the service continued--but are talking about tearing apart the unit that provides what they have. The discussions should deal with the legislative perceptions. Dr. Truhlar agreed that if the entire difficulty has to do with perception, education is the answer. And if the legislative question is resolved, while users remain concerned about service, then changes should be sought. One Fellow said it his sense that the Center has been running on 2 cylinders for a long time; while it is better than anyplace else, it is nowhere near as good as it could be.

Changing a few perceptions today will not help down the line, observed one task force member; one of the Fellows added that the veil of secrecy will always draw suspicion and create perceptions that there is a problem. That problem will only be solved by laying the cards on the table.

The first rule, said one task force member, is "do no harm." The task force can try to make things better, but if things end up worse, many will be sorry. If changes of the magnitude being discussed here are to take place, the University needs to be very careful what it does. One attractive aspect of the proposal is that there is no change in how things work, only in the location of dollars. If the Center were brought into the University, the works could get mucked up.

Another Fellow maintained that this is an important point--that all the companies selling supercomputing cycles have gotten out of the business because they could not make it. If the Center is selling successfully, its costs must be subsidized. Those universities that do sell supercomputing cycles do so only to make a little extra income.

This task force, said one of its members, does not have the expertise to look at other arrangements. It can try to deal with the question of public perception, but it has not the time or expertise to consider other structures--although that is perhaps what is needed. That, pointed out another task force member, is the responsibility of those considering the longer-term issues raised in the letter of charge: what the University's relationship with supercomputing should be. The task force has been asked to devise something that will last for the three years remaining on the present contract but that will then allow the University to move on. This proposal is not dealing with the forever, and the state may not continue to provide the money.

One problem, said a couple of the Fellows, is that there are developments taking place nationally right now--moving very fast--that the University should be participating in, and the task force should consider the risk of the University being shut out of these developments. But the task force should deal with internal matters, it was said, rather than risk destroying what exists now, which might happen if the task force considers major restructuring.'

One Fellow warned the task force that those involved in the Center are very smart people, and one must appreciate that fact. If sold to the Foundation, the Center will be the tail that wags the dog, he asserted; the Foundation is more manipulable than the University administration or the legislature. This proposal is entirely the Center's idea. There is no proof of these charges, one task force member noted.

It has been overheard, via the grapevine, reported one Fellow, that the Center folks are comfortable with the proposal, and that if it goes through, they will not have much to do with the Institute in the future. The contract could prevent that from occurring, said one task force member, to which another Fellow retorted that that is sheer fantasy and no one should doubt, it was contended, that the contract will be written to the advantage of the Center.

Professor Rubenstein thanked everyone for attending the meeting.

The meeting was adjourned at 4:45.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
March 25, 1993
2:00 - 4:00
Minnesota Supercomputer Institute

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, A. R. Potami

Regrets: V. Rama Murthy, Michael O'Connor, Donald Riley, David Weiss

Absent: None

Guests: Fellows of MSI, George Sell, Donald Austin (both from the Army High Performance Computing Research Center)

Others: Steve Collins (Computer and Information Services), Pat Sweeney (St. Paul Dispatch and Pioneer Press)

[Note: The minutes of the task force for the meeting of March 22 should have noted that Messrs. Collins and Sweeney were also present at the meeting.]

[Note: In these minutes, Minnesota Supercomputer Center, Inc.--the private sector corporation--will be referred to as "the Center" and the Minnesota Supercomputer Institute--the academic unit of the University--will be referred to as "the Institute" (the INstitute is "in" the University)]

Professor Rubenstein convened the meeting at 2:00 and welcomed the three Fellows who were able to attend. He distributed copies of the letter from Mr. Pflaum outlining the proposal for the sale of the University's equity in the Center to the Foundation. It was suggested that another meeting might be helpful because other Fellows would have been in attendance except that they are away at meetings during spring break week.

The proposal as outlined in Mr. Pflaum's letter, noted one of the Fellows, indicates that the Center Board of Directors is willing to consider moving the Center either towards the University or away from it. The task force, however, seems to be dwelling only on the details of the proposal to move it away from the University. No interest of the faculty or the users would be served by the sale, although perhaps the interests of the Center would be. The proposal recognizes that movement either way is possible, it was repeated, and, in his opinion, any move should be at the University's initiative and in the direction of more University control. The original motivation for the creation of the Center was to provide services to the University, and accommodating tax law--perhaps no longer even applicable--were among the reasons for the structure chosen. Moving towards more University control could make sense, if done carefully, one Fellow concluded.

One task force member inquired what the essential characteristics of an academic computing facility are, and about what is important to the relationship for users. One Fellow responded that while one can speculate on the reasons for the original structure, one can be certain about what users would like it to be. A purely contractual relationship--which is what would exist if the University were to sell its interest in the Center--envisions a relationship where one pays the money and obtains the supercomputing cycles. A business may need number-crunching, without involvement of its staff. But a university has an educational function, and a supercomputing center should be a training ground for

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faculty and students. A university center should be a leading edge facility, with research, experiments with new equipment, and new ways of computing--and those require more than a contractual relationship.

What, asked one task force member, is involved beyond the contractual relationship, recognizing that the objective in the end is the use of supercomputing time? One Fellow quickly denied that that was the only objective; one of the mandates for the Army High Performance Computing Research Center (AHPCRC), for example, is working with the newest aspects of supercomputing. In addition, involvement with local industry to do things faster and more cost-effectively is essential.

Why does 100% ownership by the Foundation, with the Center Board of Directors beholden to the Foundation, necessarily mean the relationship will change? it was then asked. The Center would become fully for-profit and seek to maximize profits, one Fellow responded, and University activities would likely not always contribute to that goal. If co-owned by the University, however, the Center should be seeking to maximize the University's interests, not profit. If commercial activity can contribute to the University's interests, with the Center activities, that is acceptable. If there are no University representation on the Center Board of Directors, one Fellow speculated, even if the people on the Board are well-intentioned, they will not be aware of what the University could get out of the relationship if it owned the supercomputing center.

What about the possibility, inquired one task force member, of enlarging the Board of Directors to include more faculty? The Board must worry about the survival of the corporation, and faculty on the Board would have even a stronger stake in its survival, because they would want supercomputing to continue at its current level of excellence at the University. That, responded one Fellow, does not mean that academic interests or the necessary cooperation would be recognized.

The Fellows are not getting what they want now, one task force member pointed out--but the proposed new relationship, with the University selling its holdings--would make it worse, responded one of the Fellows. Another Fellow recalled that the University administration has interceded in events at times, ith beneficial effect for the Institute and Fellows; otherwise, the Center might have done things it saw as in its own best interests--but not those of the University. Things do not always run smoothly, it was added, and the Center needs to be reminded that it is owned by the University.

It is true that the Foundation now has majority ownership in the Center, agreed one Fellow, but at present the University appoints four of the nine members of the Board of Directors. Task force members pointed out that the proposal does not preclude continued University appointments to the Board of Directors; the Fellows responded that such appointments would not be required under the new structure, as is now the case.

If the proposal, however, would satisfy the interests of the legislature and legislative auditor, one task force member followed up--with the Foundation continuing to own the Center, as it now does in effect--that would be the only reason for pursuing the proposal. One Fellow said it seems implausible that this arrangement would accomplish that end. The Center wants less control while the users want more. As the letter from Mr. Pflaum indicates, the sale would simplify the relationship, but it would mean the University is just buying computer time, which would not serve its interests very well.

Additional University representatives on the Center Board who know supercomputing would not help, one Fellow responded to a comment from a task force member. The times the University has interceded on behalf of the Institute, it was said, were actions by University administrators. To view the relationship as contractual is a legal convenience, but a typical business contract is fairly fixed for a period of time. The University, however, has been able to exploit the closeness of the relationship and made it much more fluid--to the benefit of the University community. Once the University must just purchase what it needs, the relationship will be very different, one Fellow told the task force. The language of the proposal itself, said one Fellow, gives away the intent; the relationship becomes simpler

because the University buys what it needs and otherwise has no influence on the Center.

There has been faculty displeasure at decisions made in the past without faculty consultation, such as the surprise purchase of new computers; University people in supercomputing spend their lives developing their expertise, and are legitimately miffed when not consulted. Once the relationship is reduced to dollars, potential interaction on decisions is closed off. Relationships may not be as good as they could be, but one can hope those relationships would grow. In his field, this Fellow pointed out, he needs machines with sufficient memory and he is concerned with how they are set up; if simply a purchase arrangement, the Center can buy and install whatever equipment it wishes and then negotiate with purchasers. The point, it was said, is not just quantity, it is also quality.

If the faculty ran the Center, one task force member asked, could they attract enough private sector business? [One of the Fellows at the meeting is on the external advisory board for the center at Illinois, so was able to speak, in the following lines, with considerable knowledge about it.] There are places, such as the center at Illinois, that is run by faculty that does very well in generating income--it is one of the biggest competitors of the Center here, and about half its income is from business. (The NSF limits on its supercomputing centers, it was clarified in response to a question from a task force member, are on the number of hours sold (10%), not the amount of income that can be generated.) The Illinois center also has creative relationships with industry; companies are partners, not clients, and they sell access to both time and environment. There is also a closer relationship between the faculty and the center at Illinois than there is here, it was said, and the relationships are of two kinds: those interested in projects with industrial partners, and half-time faculty paid by the center. The center at Illinois is used as a mechanism to bring new faculty to the university, with center funds. The industrial marketing is now handled by people hired with that responsibility, it was reported.

Equipment purchases at Illinois, like at Minnesota, are subsidized in part by tax dollars, with a sort of continuing guarantee of support. In addition, one Fellow asserted, faculty at Illinois do not pay for supercomputing with real dollars; the NSF funds, along with those from industry, underwrite the cost of faculty use of supercomputing.

The present situation, said one task force member, is unsatisfactory to state legislators, and it is not clear if it can be maintained. The concerns of those legislators are important to the University in a lot of ways beyond supercomputing, and they can make their displeasure known.

The auditor's report, argued one Fellow, complains of two things. One, the lack of University control over the Center, and two, secrecy and accountability--and the latter two are connected repeatedly in the report. It is hard to believe that the legislators and the public would interpret this proposal to sell the University's interests as anything other than an attempt to hide the books. It would be bad public relations for the University, quite apart from the unattractiveness of the proposal on its merits. It is also likely that the situation will be seen as one where state dollars were used to finance a start-up business. If clearly a University activity, that is not inappropriate, but if the Center is now sold as a private company, that is not appropriate. One task force member observed that the original reason for the structure was to provide additional funds for computers useful to the University; that rationale is now being turned on its head and the new company would in the future sell time to the University.

Whether or not legislators or the auditor would favor the proposal is not known directly by task force members, it was said; reportedly, their comments are guardedly positive. This may be a way to satisfy their interests, but it is not clear what would happen if better records were obtained--or they may not care as long as the University doesn't own the Center. They are concerned, though, that if the sale is made, the University receive fair value for its shares, and that value would be determined by an investment banker (not solely based on the book value of the shares). The main asset of the corporation is that it will keep providing service to the University and raise money at the same time;

the task force seems to have gotten it backwards in this proposal. (Task force members took sharp exception to being characterized as advocating the proposal, and pointed out that it has been made and should be discussed, in an open fashion.)

The question raised by the legislative auditor, observed one task force member, goes beyond the value of the University's equity; it also runs to the issue of what the University is getting for the $8 million it is paying annually for supercomputing. The auditor was frustrated by his inability to obtain information on details of support and services. Some on the task force had been told the auditor had been offered access to all of the Center's financial records; others believed not. If the books had been open, said one task force member, the outcome of the audit might have been different. It is difficult to know what the University is getting if one cannot get at the Center's records.

One of the Fellows said he had the feeling that this decision has already been made--to which one task force member responded that he would not have agreed to serve on the task force if that were the case. The Fellows have indicated they want to move in one direction, but the task force says it was not charged to investigate moving the Center closer to the University. Does the University want to sell its interest? Even though the relationship is less than optimal, it is serving the University community. Another Fellow pointed out again the willingness of the Center Board to move either direction, and the task force, he said, should feel free to recommend that the University should consider moving the Center towards the University.

Mr. Collins recounted that Mr. Pflaum had said legislators appeared to be favorable to the proposal, but told the task force that his interactions with legislators leads him to conclude exactly the opposite. He alleged that University lobbyists are working harder on obtaining approval for the sale of its interest in the Center than it is on the budget cuts. He then read to the task force a letter (copied to the co-chairs of the task force, although they had only recently received it) from Senator Gene Merriam which appears to take a position with respect to the sale proposal and reiterats the legislative interest in full disclosure and accountability for the expenditure of public funds. Accountability is the concern, Mr. Collins said, not ownership, and the University and the Center are lobbying for this proposal to avoid accountability.

One puzzling element, observed a task force member, is that there is no mystery about why the University sought the funds from the legislature; legislators knew what they would be used for. The money goes to the Institute, said another task force member. It is wrong to pin accountability on ownership; the issue is understanding what the University is getting for the money. The present arrangement does not preclude that accountability, but it isn't there now. One of the Fellows concurred, and observed that many do not understand why it is not possible for the necessary information to be revealed to the state auditor.

At this point Professors Rubenstein and Burk welcomed Messrs George Sell and Donald Austin from the AHPCRC to the meeting. Dr. Sell reported that he had come from a review of the AHPCRC, which was very positive about the possible renewal of the AHPCRC funding. To be successful in obtaining the renewal, he told the task force, the University and the Center need to develop closer ties--and should not talk about being separate. If the two are divorced, the chances of the AHPCRC funding being renewed will be hurt.

The AHPCRC has provided $27 million in equipment, which must be at a university site. This was a big issue in the 1989 site review for the decision to award the grant; there were a lot of questions, but the Army was assured the site on which the computers are located was owned by the University. Others applying for the grant, Dr. Sell told the Committee, were ruled out because they did not propose university sites for the equipment--the Army takes this very seriously.

Dr. Sell affirmed, in response to a direct question from a task force member, that he did not favor the proposal to sell the University's interests in the Center to the Foundation. One of the

Fellows reported that he had received a call from one of the members of the AHPCRC review panel who was concerned about the Center-University relationship. The AHPCRC represents a lot of money to the University and the state, and the task force should be concerned about it. Mr. Austin reported that it brings in $60 million over five years; the AHPCRC subcontracts with the Center for supercomputing work. There are special things the AHPCRC needs to do to qualify for renewal, and this would not be a good time for the University to shoot itself in the foot. Task force members agreed it was very important to know if the ownership question could affect the AHPCRC renewal.

Discussion returned to accountability, which one task force member means being able to track dollars. While the task force may not have the expertise to consider other arrangements, putting the Center in the Foundation may mean the legislative audit was a waste of time, because there will be no ability to trace funds if the proposed sale takes place. Unless the Center is totally private--so the University pays X dollars for supercomputing and gets what it pays for--the accountability issue will not go away. The federal auditors for the AHPCRC contract will want to see the Center's books, it was pointed out, and the information cannot be withheld--equipment purchases, personnel costs--but the federal auditors are expected not to reveal business client activity. The state auditory has promised similar confidentiality.

The AHPCRC appears more satisfied with its contracts with the Center, it was said, but it was agreed that this may in part be because its needs are different.

The trend across the nation, said one Fellow, is to involve universities <u>more</u> in industry; this proposal would involve the University <u>less</u>.

One task force member summarized by noting that the proposal had been identified as one possibility for responding to legislative and auditor concerns, and it could also put the Fellows in the position of purchasing--or not--supercomputing from the Center, and that if the Center needed the University--a big customer--it would treat the University well so that when contract renewal time came up in three years, the University would look favorably on renewal. The Fellows, however, have advised the task force that they are not really in a position to buy time elsewhere because of the advantage of having it supplied locally. One Fellow said that was correct, and that in four years' time, if the University provided funding to purchase supercomputing elsewhere, there would be no supercomputing at the University. It also would not be reasonable to think that the Fellows would or could buy time from another center when the Foundation owns a corporation that occupies space in the same building as the Fellows.

In addition, another Fellow pointed out, the access to supercomputing equipment is an important element of the relationship; purchasing it elsewhere would mean a reduction in communication capability by three orders of magnitude--a huge drop in computing power. If the Center is run for profit, it could raise prices based on the proximity, because that proximity and computing power has value, and if they charged what the traffic would bear, they could make a significant profit from the University.

So what, inquired one task force member, is the answer? The legislature will insist on accountability, but there are all kinds of statements about why the Center cannot provide full accountability. One Fellow said the task force should learn about how other centers, which are not for profit, manage their industrial programs.

One possibility that has been suggested to Dr. Truhlar, one task force member reported, is that the information all be released the year afterwards--the legislature could have the information it requests, and the Center could assure clients that those data are no longer current. One problem, said another, could be the length of contracts with clients.

One possible reason for the secrecy is that clients are charged different rates, speculated one

Fellow--but the legislative auditor would not care what they pay. Or the customers might object to what they pay compared to what the University pays. This argument, said one task force member, has been thought of, and makes little sense; commercial clients buy from the Center because they perceive they are getting the best value for their dollar. Their concern is not what others pay, especially the University, but rather what they would have to pay for equivalent service someplace else. Moreover, argued another Fellow, even if the auditor had access to the client information, it would not have to be made public--the state auditors must be able to respect confidentiality.

The general feeling of the Fellows, it was confirmed in response to a question, is that the University should bring the Center into the University; all of the Fellows at the meeting said they believed that, and said their colleagues agreed. One cautioned, however, that if an economic transition were to be envisioned, the change should be slow. Of all the options--the current situation, the proposal to sell, and the proposal to bring the Center into the University--the only irreversible one is the decision to sell the University's equity to the Foundation, said one task force member.

The task force members affirmed, in response to a question, that there is no doubt about the intention of everyone to keep supercomputing healthy. This task force, it was emphasized, will <u>not</u> vote to recommend closing down supercomputing.

Professors Burk and Rubenstein thanked everyone for speaking with the task force, and adjourned the meeting at 3:40.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
Tuesday, March 30, 1993
9:00 - 10:00
Room 238 Morrill Hall

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, Donald Riley, David Weiss

Regrets: None

Absent: A. R. Potami

Guests: None

Others: None

Professor Rubenstein convened the meeting at 9:10 and announced that the record of the meeting should be only a summary. Professor Jones distributed three items: articles from David Yuen indicating the application of and competition in supercomputing; a resolution passed unanimously by the Institute Planning Committee in January of this year calling for a change in the management of the Center; and copies of an article in the St. Paul Dispatch and Pioneer Press written by Pat Sweeney. Also distributed to task force members were the articles of incorporation of the Center and associated documents.

The reaction by the University administration to the Planning Committee resolution, Professor Jones said in response to a query, was essentially that the Institute people should work out their difficulties with the Center.

Professor Rubenstein proposed a series of meetings for the task force: the open hearing (March 31); a meeting with John Sell, President of the Center; a meeting with Donald Truhlar, Director of the Institute; and a meeting with Senior Vice Presidents Erickson and Infante. It was agreed that the task force should meet by itself prior to the meeting with the Senior Vice Presidents, and that Vice President Anne Petersen should be invited to join the meeting with the two Senior Vice Presidents. It was also agreed that Professor Jones would inquire of Dr. Truhlar if Regents' Professor Richard Goldstein might join him--Dr. Truhlar--at the time he meets with the task force.

The task force then turned its attention to a series of issues.

-- The comments made at the two meetings with the Fellows, which consisted of universal rejection of the proposal to sell the University's interests in the Center to the Foundation.

-- The nature and amount of total income to the Center, and the nature and amount of financial and other resources provided by the University (the Institute) to the Center. The task force will seek the data it needs to make an informed judgment about the value received by the University.

-- The extent to which the University is getting a "good deal" for the supercomputing service units it receives; there was a prolonged attempt to identify how such a

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calculation might be derived, while other task force members expressed skepticism about the possibility or usefulness of doing so.

-- The extent to which the problems associated with supercomputing are a result of management style rather than anything else, and whether or not the secrecy would not be decreased and productivity increased if that problem were addressed. The fundamental problem, it was said, is that the Center is not an agent acting to further the University's interests; what the University is receiving may be a good value for the money invested, but it is nowhere near what should be expected. Also discussed was whether or not this issue would be taken up by the task force; it was agreed that it could do so.

-- The extent to which the task force had answers to the questions posed in its letter of charge; in some cases it does, in other cases it does not.

-- Whether or not the Center could be "brought into" the University without doing damage to its ability to obtain private sector funding; some task force members believed that would be possible while others were extremely doubtful.

-- The views of legislators and of the auditor about the proposed sale of the University's interests in the Center to the Foundation; one concern is the use of public money as start-up funds for an enterprise that became private; another is whether or not the University will receive a fair deal for its share; yet another is whether or not the arrangement will produce the accountability sought by the auditor and legislator.

-- Why the University's representatives on the Board of Directors of the Center had permitted the situation to deteriorate, and the role of the Board of Directors in the relationship of the Center to the University.

-- The extent to which it was really true that the Center did not like the proposal that the Foundation buy the University's interest.

-- The role the auditor could play in a financial review, and whether or not he had in fact ever been offered access to the complete financial records of the Center.

-- Whether or not the task force was putting too much energy into the Foundation proposal, and thereby ignoring the real, and more important, problems.

Professor Rubenstein distributed copies of the contractual arrangements between the University and the Center; both he and Dr. Riley impressed upon task force members the need to respect the confidentiality of the document and the University's obligation to keep its agreements about respecting trade secrets.

The meeting adjourned at 11:00.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
Open Forum
March 31, 1993
1:00 - 3:00
East Wing, Campus Club

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, A. R. Potami, Donald Riley

Regrets: David Weiss

Professor Burk convened the open forum at 1:00 and welcomed those present to the meeting. He introduced task force members and then explained the events that had led up to the appointment of the task force, beginning with the report of the legislative auditor. He asked that speakers address themselves to the questions asked of the task force in its letter of charge, which he read. He also commented that contrary to the article in the Daily, the proceedings of the task force are not simply another step in the approval process; the task force will not decide, but will gather information and make a recommendation to the President and Chair of the Faculty Consultative Committee.

Professor Burk then invited the first speaker to make comments.

1. Steven Collins

Mr. Collins identified himself as an employee of Computing and Information Services, and thanked the task force for the opportunity to participate, and for its public proceedings. He then said he had two concerns: First, that the legislative auditor did a lengthy study of supercomputing, and the task force has not sought his views; second, that of the 700 users of supercomputing at the University, only the Fellows of the Institute have been invited to meet with the task force.

One confusing factor needs to be eliminated from the deliberations, Mr. Collins told the task force: The Center owes the University $5.6 million for its preferred shares--a debt that bears no relationship to ownership of the Center. The book value of the Center is $8.6 million; 10% of that equals $860,000 (the University's share of the common stock). The public and legislature sees that the University has been given $75 million to build a supercomputing program; the task force, meantime, is on a path to sell that University investment for about $1 million. This would not reflect well on the University, he said.

The question should be turned around: Why does not the University buy out the Center, for $8 million, and become full owner? The Foundation, which has only put $90 into the Center, would doubtless have no problem giving its interest to the University if the University wished.

In the view of the legislative auditor, Mr. Collins claimed, the University has subsidized the company by $10 million; it is doubtful it would be difficult to negotiate for the $2 million in ownership. Researchers have made it clear they oppose selling the University's interests in the Center, the legislators do not support the sale, Mr. Pflaum said the Center management does not support it. Who, he inquired, IS supporting the proposal? It would provide little benefit, and less accountability, to the University; one state representative has alleged, in fact, that the proposal is a move to avoid accountability.

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The suggestion that the Center be made a University department has been supported by the researchers; it was requested in 1990 and again this past January. That suggestion, Mr. Collins told the task force, would satisfy the concerns of the legislators. Mr. Pflaum, moreover, said the Board of Directors would support such a move, and the task force should consider it.

2. Professor Marcel Richter

Professor Richter (Economics) began by noting that he has been at the University for 34 years and spent a lot of time trying to build it up. He became involved in computing, which led him to be appointed to the Hobbie Committee under Associate/Acting Vice President V. Rama Murthy, one of the most effective committees he has ever seen. Dr. Murthy paid attention to the recommendations, and also asked him to set up networking services, which brought him into closer contact with the people in computing. In that capacity, he had contacts with the Center, all of which left him with a bad taste in his mouth; rumors that the Center is hostile to the faculty are true. He said he felt the Center often put private interests ahead of those of the University.

It would, therefore, be a very bad idea to separate the Center more from the University, Professor Richter urged. If the contract were voided, and the University were totally free to purchase services elsewhere. . . . but he expressed doubt the task force was considering a buy-out of the contract, so the University is tied to the Center for another 3 years. Until that contract can be severed, he said, the Center needs to be closer to the University, with more accountability--which leads one to conclude it should be incorporated as an academic department, with openness. One might as well sell the library as this asset, Professor Richter suggested--both are valuable to faculty and students, and the University could sell access to the library when business was not using it. The parallels are clear, he said, and the analogy is serious.

3. Steven Brehe

Mr. Brehe identified himself as an employee of Computing and Information Services and said he wanted to talk about the wall--not the infamous physical wall built by the Center to isolate the University from its commercial research--but the wall that would be erected by the sale of the University's interests in the Center to the Foundation. This will make the Center less responsive to researchers and to the state.

The legislative auditor's report, Mr. Brehe said, found "disturbing irregularities" in the Center's business, that it had misrepresented its relationship with the University to businesses, that it had purchased equipment with an educational discount, that there was a secret University payment to the Center, and that University researchers were dissatisfied despite the fact the Center is to serve them and others at the University.

The worst disclosure, however, was that the Center avoided full accountability for the use of state and University funds, and claimed it needed the secrecy to maintain its competitiveness. The auditor found no substance to these claims, Mr. Brehe told the task force, noting that other centers operate without such secrecy. The audit was in October of 1991, and there have still been no changes in the Center, and it continues to make the claim of the need for secrecy; what Center responses to the audit there have been have superficial, and the auditor says they are not a response.

The University continually says the Center is well-run and does not need scrutiny, Mr. Brehe said. One can doubt that, he said, because the University's clients are not satisfied--consider the MSI Planning Committee resolution calling for a change of management.

This proposal to sell the University's interests, Mr. Brehe argued, is a maneuver to insulate the Center from University oversight and scrutiny and to provide even less public accountability. The proposal, moreover, is being rushed through. The Center has not served researchers, irregularities

have undermined the perception of the University as responsible, and this proposal will make the situation worse rather than fix it.

4. Steven Hauser

Mr. Hauser identified himself as a taxpayer disturbed by the prospect that the University would sell "chunks of the public domain" for almost nothing, with no accountability for the result. The state still provides funds to the University for supercomputing, but its only dealings are with a private company (the Center). To have a sweetheart contract with other companies would be illegal. The University should not sell its interest in the Center.

Professor Burk then opened the floor for discussion. Mr. Collins repeated his question about who favors the proposal; task force members said they had heard from no one who did, or at least not anyone at the University. In response to a query, one task force member explained the genesis of the proposal and why it was being considered. The University must be seriously considering it, said one individual, if the task force is spending all this time on it; the thought was that it might be a solution, one task force member explained. The proceedings of the task force, observed another of its members, are a way to get the question on the table and obtain community response.

Putting the proposal on the table also means finding an alternative approach, said one task force member, although it is not clear what that might be. The task force does not know what all the implications of making it a University department would be. The Center is set up the way it is for reasons, although it appears not to be working well, and perhaps these hearings will have as a result the improvement of the situation. The task force would be of help if it could develop a proposal to respond to the concerns of the University and the legislators.

Supercomputing is important to the University, it was said, and the task force wants it as strong as possible--it is a center of excellence and the University must try to preserve it.

It was noted, in response to additional urging that the task force explore alternatives, that its letter of charge explicitly limited the task force to advising the President and Consultative Committee about the proposal to sell the University's interest in the Center to the Foundation. Some task force members, however, expressed an interest in considering other alternatives.

One individual noted that the Institute Planning Committee resolution calling for a change in the Center management referred to an earlier proposal to incorporate the Center within the University; what were the reasons it was not? One of the task force members said that the University's finance vice president had said there would be financial consequences for doing it, so the proposal was dropped; the administration took his word that it would not be prudent. It was not clear, at this meeting, if those reasons were still present, or if the reasons that led to the existing structure were still valid. It was suggested that questions along this line be addressed to the current Senior Vice President for Finance. Discussion touched briefly on the question of unrelated business income and when it causes universities to have to file--at great labor and expense--a tax return.

One individual started to again make the point that it is a "silly notion" to think that University researchers could conduct research of the same quality by purchasing supercomputing time elsewhere; task force members assured him they now understood that point quite well. One individual, pointing out that he strongly supported supercomputing, said the University should incorporate the Center into the University because supercomputing is a tool of the future, and will be used more and more often in the liberal arts. It is important that faculty have a say in the equipment purchased. It must be an academic department if it is to be the asset it should be for the University, it was said.

What about the point, asked one task force member, that every three or four years there is a need for a new generation of equipment, at a cost of $30 million or more? The University does not have that money, and the legislature is unlikely to appropriate it, so the alternative is to generate external funding from the private sector. If supercomputing is handled by an academic department, it would also be in the business of selling computer cycles to industry. That partnership between the academic and the commercial would have to be carefully arranged to ensure its long-term success and that supercomputing would remain at the University.

The remaining organizations selling only supercomputing cycles, it was said, are academic organizations; the businesses have disappeared. Two such centers, at Illinois and UCSD, are doing exactly what is being envisaged in this conversation, it was said. It is also not clear, it was said, that the Center is making a profit, especially if one counts the subsidies from the University.

Another speaker asserted that it would not be a problem for the University to retain its position in supercomputing if the Center were to become an academic department. The Army Center has provided the finest parallel processing supercomputers in the world, at no cost to the University--because of the Center. Such a unit could not be a regular academic department, but there would be no problem in attracting grants and purchasing machines.

The question of the provision of all unused time on the supercomputers to the University at no charge was raised; it was suggested that if the Center were not owned by the University, it would be difficult to get the Board of Directors of an independent company to vote to give the University all the unused time. Dr. Murthy pointed out that the decision to provide the unused time to the University--a provision not in the contract between the University and the Center--was pressed on the Center by the University administration, not the Board of Director. If the Center were sold to an outside interest, he speculated, it might be virtually impossible to get such a provision in a future contract. These issues, another task force member pointed out, are not addressed in the proposal from Mr. Pflaum, and would have to be discussed were the proposal to go forward; Mr. Pflaum agreed such issues would be on the table.

The role of the task force, it was explained, was to gather opinions--its members are not all experts on supercomputing. Whatever it recommends, one individual urged, the task force should not issue its report and then disappear, because the task force members have heard the voices of those concerned. Its report, it was affirmed, will go to the President and Consultative Committee, and the report will be public. Individuals expressed support for the task force and its work and commended its members.

Professor Burk thanked everyone for attending.

The open forum adjourned at 2:05.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
April 9, 1993
1:30 - 3:00
Room 405 Campus Club

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, A. R. Potami, David Weiss

Regrets: Donald Riley

Absent: None

Guests: John Sell (President, Minnesota Supercomputer Center, Inc.)

Others: None

Professor Rubenstein convened the meeting at 1:30 and welcomed Mr. Sell to the task force. He explained the role of the task force and reported that the proposal to sell the University's interest in the Center had thus far met with universal dislike. The discussion then covered a number of points of interest to the task force.

-- Mr. Sell's views of the genesis of and advantages and drawbacks to the proposal.

-- The problems the Center had with the request by the legislative auditor, and the reasons the Center took the position it did.

-- The reasons for the secrecy that surrounds the operation of the Center, a subject that elicited lengthy discussion with task force members.

-- The manner in which the Center is able to conduct its business that is different from what it would be able to do were it part of the University.

-- The objectives and mission of the Center.

-- The rates charged for supercomputing cycles, both internally and to commercial customers.

-- The nature of, and relationships with, the Center's commercial customers.

-- The communication problems that appear to exist between the Institute and the Center, and the relationship between the two organizations.

-- The appropriate composition of the Board of Directors of the Center.

Mr. Sell thanked the task force; Professor Rubenstein thanked Mr. Sell for joining it.

The meeting adjourned at 4:00.

-- Gary Engstrand

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MINUTES*

Task Force on Supercomputing
Monday, April 12, 1993
1:30 - 3:00
Room 300 Morrill Hall

Present: Thomas Burk, Irwin Rubenstein (c-chairs), Thomas Jones, Michael O'Connor, A. R. Potami

Regrets: V. Rama Murthy, Donald Riley, David Weiss

Guests: Regents Professor Richard Goldstein (Member, Board of Directors, Minnesota Supercomputer Center, Inc.), Professor Donald Truhlar (Director, Minnesota Supercomputer Institute)

Others: None

Professor Rubenstein convened the task force at 1:40 and welcomed Professors Goldstein and Truhlar to the meeting. At the request of the guests, the meeting was held in executive session.

At the conclusion of the meeting, one task force member argued that one change that should occur, even if the proposal to sell the University's interest in the Center is not approved, is to have the Center Board of Directors held more accountable for representing the interests of the University in the operation of the Center. Both the task force members and the two guests agreed that this would be desirable.

The meeting was adjourned at 3:00.

-- Gary Engstrand

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MINUTES*

Task Force on Supercomputing
April 14, 1993
11:00 - 1:00
Physics Reading Room

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, A. R. Potami, Donald Riley, David Weiss

Regrets: None

Absent: None

Guests: None

Others: None

Professor Rubenstein convened the meeting at 11:00 and asked others to report on the meeting with Senator Riveness and Legislative Auditor James Nobles. The discussion included:

-- A review of the meeting with Senator Riveness and Mr. Nobles.

Most of the discussion of legislative concerns came from Mr. Nobles. Their principal concern is the health of the relationship between the Institute and the Center and that the University is an unhappy customer. Both saw the formal relationship as secondary. Their ideas about the sale are different from what has been discussed. For Mr. Riveness, what is important is that the full public investment must be reflected in the price if the University's interest in the Center is to be sold. They were also interested in the possibility of spinning off a successful enterprise completely to the private sector.

The legislature does not want to intervene in University business, but they are concerned and disturbed when they cannot audit University funds. We must be able to show how funds are being spent and that they are being spent reasonably--there is no way out of that. They are glad the University is attending to these issues, both with this task force and the public-private partnership task force. The Center's management is understood over at the legislature, and it is not seen positively, even though good people are involved in it. The legislature sees supercomputing as a good thing; they just want to be sure it is done right. The proposal does not make sense, but if the Center can be spun off for a good price, and a new company established, (that provides jobs), that would be OK. Senator Riveness and Mr. Nobles had a lot of the same perceptions as the Fellows. Mr. Nobles is done, but the issues are still on the agenda of the legislature, and they will not rest until there is an accounting for the dollars. If they buy goods, they have a right to know they are being treated fairly--and they do not know that in this instance.

Mr. Nobles also said he had a letter from Steve Pflaum promising access to records, but was still denied it.

The perception at the legislature that the Center-Institute relationship is poor is very dangerous, and may be fatal; unless something is done to affect it, no one will win.

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An interesting "out" was implicitlly offered to the University by Messrs. Nobles and Riveness: If the Center were willing to bring to the Board of Regents all its secret information, and if the Board had blessed the arrangements, they would have accepted that finding; the task force should explore that possibility. Another task force member said it is too late for that.

Messrs. Nobles and Riveness were concerned that not even the Board of Regents could get information--they were refused it as well. This is a wholly-owned company, and the University cannot get information. The Center Board of Directors does not behave as if it is accountable to the University.

It must be re-emphasized that Messrs. Nobles and Riveness made clear that the primary criterion of success--and for them to continue to put money into supercomputing--will be the happiness of the University community; nothing else matters.

-- Review of the charge letter from Messrs. Bognanno and Hasselmo, and the possible outline of the report.

-- The meaning of "fair value received for past investment" in regard to question two of the charge.

-- The relevance of question three, given certain answers to questions one and two.

-- The need to make clear and unambigous recommendations.

-- The upcoming meeting with the vice presidents.

-- The centrality of the issue of accountability.

-- The composition of the Board of Directors.

-- The need to emphasize the virtues of having the Center at the University.

-- The long-standing nature of the problems and the pressing need for remedies.

The meeting was adjourned at 1:00.

-- Gary Engstrand

MINUTES*

Task Force on Supercomputing
Tuesday, April 20, 1993
7:00 - 8:30 p.m.
Room 300 Morrill Hall

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, Michael O'Connor, Donald Riley

Regrets: A. R. Potami, David Weiss

Absent: None

Guests: Senior Vice President Robert Erickson, Senior Vice President E. F. Infante, Vice President Anne Petersen

Others: None

Professor Rubenstein convened the meeting at 7:15 and welcomed the three vice presidents to discuss supercomputing issues. A draft report from the task force was provided to them at the meeting to aid the discussion. Professor Rubenstein began by reviewing the contents of the report with the three vice presidents. The discussion then covered a number of points.

- The concerns of legislators and the legislative auditor
- The import of, and perceptions about, ownership of the Center
- The role of the Board of Regents, and the provision of information to it
- Cooperation between the Institute and the Center
- Accountability
- The scope of the authority of the legislative auditor
- The nature of the contract between the Center and the University
- The role, responsibilities, and make-up of the Center Board of Directors
- The possible dilemma of full financial disclosure, and the public's right to know, versus risk to the business because of the full disclosure

It was agreed that the task force report should emphasize constructive advice and provide a blueprint for the future. The task force concluded that its report must describe the current situation accurately and that it should go beyond the original charge and also offer constructive advice that follows from its understanding of the present situation. There was no dissent in the room from the proposition that the current situation threatens both the Institute and Center. They must cooperate more, and must communicate more, or neither of them will survive.

The meeting adjourned at 9:30.

-- Gary Engstrand

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MINUTES*

Task Force on Supercomputing
Thursday, April 22, 1993
9:00 - 11:00
Room 238 Morrill Hall

Present: Thomas Burk, Irwin Rubenstein (co-chairs), Thomas Jones, V. Rama Murthy, David Weiss

Regrets: Michael O'Connor, A. R. Potami, Donald Riley

Absent: None

Guests: None

Others: None

Professor Rubenstein convened the meeting at 9:00 and noted that the task at hand was the review of the draft report.

The task force discussed for some while the timing and tasks remaining, the format of the report, and then agreed it would meet again on May 3 to formulate its final report.

The task force agreed on several points:

-- That it must, in any event, describe the facts as it sees them.

-- That the Center and Institute MUST be made to realize they are under dire outside threat, and will not exist in the future if they do not take steps to remedy the problems.

-- A steering committee may be desirable, and may be a necessity, if the difficulties are to be addressed.

-- There might be, in the report, a "vision statement" of what could be if the problems were overcome.

-- The task force must make a declarative statement of some kind about the management of the Center.

The task force adjourned at 11:00.

-- Gary Engstrand

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