Commission on University of Minnesota Excellence

Report to the
Minnesota State Legislature

September 2002

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I. Preface

The Commission on University of Minnesota Excellence, established in Minnesota Session Laws 2001, 1st Special Session, Chapter 1, Article 2, Section 28, is pleased to respond to the Legislature's charge through this summary of pressing issues and recommendations.

The Commission's scope included: reviewing the University's nationally ranked areas of excellence; reviewing the major investment efforts in interdisciplinary initiatives identified by the University in 1998; evaluating and making recommendations on additional centers of excellence; examining the University's mission, scope, and financing of programs and proposing possible ways in which the University can refocus or refine its mission and offerings; and, identifying undergraduate degree programs in which quality and productivity could be achieved through increased collaboration with public and private post-secondary institutions inside and outside of Minnesota. Because of the emphasis of the legislation on sustaining and establishing centers of excellence of national prominence, the Commission focused its attention and this report on the programs of the Twin Cities campus.

The citizens of Minnesota have built access to numerous choices for higher education through the University, the institutions of the Minnesota State Colleges and Universities system, and its private colleges and universities. The state has, however, only one research university. This university has earned national and international distinction. It is unarguably one of the premier public research universities in the nation, valuable to the state and its citizens as a source of education, guidance, research, cultural assets, technology transfer, and employment.

Today, however, changes in the higher education environment have created new challenges for the University of Minnesota. Technological advances are dramatically impacting higher education delivery systems and competitive pressures in many forms are predicted to continue and accelerate. In this new environment, the University, the Legislature, and the public face crucial choices if Minnesota's flagship university is to succeed in the growing competition for research funding, talented students, and the attention of the scientific, industrial, and public communities it seeks to serve.

The choices that lie ahead will require renewed commitment on the part of the University to achieving excellence in each area of the threefold mission of teaching, research, and service. Similarly, renewed public understanding and support will be required on the part of Minnesotans whom the University is dedicated to serve.

II. Findings and Recommendations

Summary

The environment of higher education is rapidly changing. Technology is driving changes in the delivery system and competition among higher education institutions and other commercial and research organizations. Competition will continue and accelerate and it will affect the ability of the University to attract research funding, public funding, and talented faculty and students. The chief findings of the Commission are these:

1. The measure of excellence at the University of Minnesota, like every other institution or corporation in a competitive environment, is not to be found in comparisons to the past, but in predictions of sustainable future success against the competition.

2. The unique scope of the University's mission is at the same time challenging and appropriate. The mission needs to be understood and actively supported by the Legislature and the general public as the University makes choices which will determine its future success in serving the state and competing with the very best institutions of higher education in the world.

3. The five Centers of Excellence established in 1998 have met their initial objectives. Great progress has been made toward the achievement of national prominence in all five areas. Significantly greater investment however, will be particularly required in digital technology and molecular and cellular biology to achieve sustainable advantage in these highly competitive fields.

   The Commission strongly recommends that before initiating major initiatives in new centers of excellence, the existing centers of excellence should be adequately funded in order to sustain and build the momentum the University has now generated in these areas. The Commission also encourages the University to continually assess the outcomes of its investments and to differentiate and focus on targeted areas of opportunity with high potential for competitive advantage and high relevance to the State of Minnesota.

4. The Commission affirms the value of the University's overall research mission and the urgent need to continue to build its research capacity.

5. To achieve status as a top ranked research institution, the University must have an excellent undergraduate program. In outstanding universities, the research, teaching, and outreach missions are mutually supportive.

6. The graduate and professional programs of the University are strong and competitive. The University must achieve its objectives in research and undergraduate education while maintaining and promoting the health of its graduate and professional programs.

7. The achievement of excellence will require extraordinary focus and priority setting, greater efficiency efforts, and more aggressive reallocation of internal resources on the part of the University of Minnesota.

8. The achievement of excellence at the University of Minnesota will require extraordinary financial support from the state and from the private sector.

Specific Findings and Recommendations

1. Defining Excellence

Minnesota deserves an excellent University: excellent in research, excellent in teaching, and excellent in sharing timely and relevant learning with the people and the communities it serves.

Achieving and sustaining excellence will require significantly accelerated investment, combining internal University reprioritization and reallocation with state and private funding.

The Commission notes, first, that the University of Minnesota is unusual among top public research institutions in the wide scope of roles it is chartered to play.

Secondly, in defining excellence for the University, the Commission is convinced that the true measure is not one that compares progress against the past, but one that predicts sustainable success against the competition.

In recruiting and retaining faculty members, the best graduate students, and high-ability undergraduates the University competes against the very best public and private universities nation-wide. The Commission has reviewed various measures for the University and how the University compares with peer institutions. The Commission has come to understand that there is no accepted overall ranking of research universities, in part because they differ significantly in the variety of programs offered and in the different roles they play in each state's higher education infrastructure.

The Commission challenges the University to be recognized as one of the nation's top five public research universities, measured by the quality and productivity of its faculty members. The Commission notes, further, that this goal will be achieved only with substantial improvement in the University's undergraduate programs. The Commission challenges the University to be recognized among the top ten public campuses of the American Association of Universities in the quality of its undergraduate programs, especially as measured by graduation rates.

The Commission challenges the University to be recognized as one of the nation's top five public research universities. It further challenges the University to be recognized as among the top ten public campuses in the quality of its undergraduate programs.

The Commission recognizes the importance of clearly defining measures of quality that reflect the University's mission and service to the state and help assess progress toward its goals. The Board of Regents

has established an appropriate set of Institutional Level Measures, many of which can be compared to nationally reliable data.[1] Those most relevant to this report are:

Academic Quality
Total external research funding
Faculty and staff experience (satisfaction; compensation)

Students
Characteristics of incoming freshmen (selectivity)
Graduation rate

Efficiency and Effectiveness
Access to and quality of technology infrastructure

Satisfaction of External Constituencies
Satisfaction of Minnesota citizens
Interaction with society; partnerships
Endowment assets and return on investments; alumni membership

2. The scope of the University's mission is at the same time challenging and appropriate.

The Commission has reviewed the mission of the University of Minnesota. By State statute (135A.052):

> The University of Minnesota shall offer undergraduate, graduate, and professional instruction through the doctoral degree, and shall be the primary state supported academic agency for research and extension services.

The University itself expresses its mission as follows:

> Founded in the belief that all people are enriched by understanding, the University of Minnesota is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world. The University's mission, carried out on multiple campuses and throughout the state, is threefold: research and discovery; teaching and learning; and, outreach and public service.

[1] A full description of the development of all 14 of the measures may be found at http://www.evpp.umn.edu/evpp/critmeas/. The Commission notes that these measures, established in 1994 and updated in 1999, also provide the framework for the University's *Plan, Performance, and Accountability Report* (first edition December 2001; http://www.evpp.umn.edu/uplan/2001/.)

The Commission is impressed with the broad responsibilities placed upon the Twin Cities campus in Minnesota's higher education infrastructure. This rich infrastructure encompasses two public systems, together with private colleges and universities, and many proprietary schools. The breadth of responsibilities at the Twin Cities campus is much greater than that assumed by most research universities, let alone performed at a single campus. Early in its history, the state of Minnesota elected to have one research university and to assign to that campus the land-grant responsibilities resulting from the Morrill Act. Thus, the Twin Cities campus has agricultural programs and an academic health center built around a major medical school in addition to its undergraduate programs and research mission. Most states, even very small states such as North Dakota and South Dakota, have two research campuses, one with agricultural programs and one with professional programs such as law and medicine. Like Minnesota, Wisconsin concentrates responsibilities in a single campus (University of Wisconsin, Madison.) The Ohio State University, Columbus and the University of Florida, Gainesville are the only other major university campuses that have both agricultural programs and academic health centers.

The breadth of the University's responsibilities is much greater than on most research university campuses.

The Commission underscores how important it is that Minnesotans understand the unique and complex set of responsibilities that have been assigned to the Twin Cities campus of the University of Minnesota. Without that understanding, wrongful and simplistic comparisons will be made and inaccurate conclusions may be drawn. For example, the University of Minnesota, Twin Cities and the University of Wisconsin, Madison are often compared to peer campuses such as the University of California, Berkeley, the University of Texas, Austin, and Indiana University. Yet none of these other campuses has agricultural programs and academic health centers.

Not only does the Twin Cities campus have an unusually broad range of programs, but it is also the nation's third largest campus as measured by enrollment, behind Ohio State, Columbus and Texas, Austin.

Although the breadth of programs at the Twin Cities campus renders cross-institutional comparisons frustratingly difficult, the Commission concludes that the very breadth of programs is in fact a distinct competitive advantage of the University of Minnesota.

Although the breadth of programs at the Twin Cities campus renders cross-institutional comparisons frustratingly difficult, the Commission concludes that the very breadth of programs is in fact a distinct competitive advantage of the University of Minnesota. Permitting and promoting important connections between researchers and students, the breadth of programs will be an increasingly important competitive advantage as the underlying linkages among fields of knowledge become better understood.

The Commission finds that the University has balanced its research mission well with its land-grant responsibilities and its commitment to access and excellence in undergraduate education. The Commission cautions, however, that this balance requires constant adjustment to anticipate and generate change. In particular, the University's broad scope of responsibilities requires careful priority setting and ongoing reallocation and renewal to ensure that all aspects of its challenging mission are executed with quality.

3. The Centers of Excellence established in 1998 have met their initial objectives.

Without exception, the initial development of the Centers of Excellence designated in 1998 have met or exceeded the objectives articulated at their inception: Digital Technology, Molecular and Cellular Biology, Design, New Media, and Agricultural Research and Agricultural Outreach. The University has invested in faculty, technology, and facilities in a manner and timeframe consistent with the objectives set forth in the vision advanced to the Legislature in 1998 to build centers that would be fundamental to other research areas at the University and relevant to the economic development of the state.

The State of Minnesota met its commitment to fund a total of $18.6 million for these initiatives over the past five years. That core investment leveraged an additional $66.7 million in external funds, together with $9.4 million in internally reallocated funds.

The Commission notes that the University of Minnesota has historically established a fine record of fund raising and effective leverage of public funds. Typically, the ratio of external gifts, grants, and contracts to state funding is one-to-one. In the particular case of the 1998 initiatives, however, the University achieved an outstanding three to one return on the State's investment.

It is plain that other education and research institutions are similarly determined to attract research funding, talented students and faculty, and the recognition of scientific and industrial communities. Many have a head start and many have made extraordinary investments.

Impressive as the commitment of the Legislature and the stewardship of the University have been, the Commission is convinced that significant new investment will be required to achieve and sustain national prominence in critical areas. It is plain that other education and research institutions are similarly determined to attract research funding, talented students and faculty, and the recognition of scientific and industrial communities. Many have a head start and many have made extraordinary investments.

- The Commission recommends that the University accelerate its investments in programs of excellence, aggressively reprioritizing and reallocating funds within the University as necessary.

- The Commission urges that, before undertaking significant new initiatives, the existing Centers of Excellence be adequately funded to build upon the momentum the University has generated since 1998 before undertaking significant new initiatives.

a) Considerable progress has been made in advancing the digital technology and molecular and cellular biology programs of the University. However, to achieve and sustain national prominence, more needs to be accomplished and additional investment will be required in select areas within these rapidly changing fields.

Compared with the goals set in 1998, and with past performance, the University has significantly advanced its digital technology and molecular and cellular biology programs. Faculty positions have been filled, graduate students have been attracted, and research funding has been greatly increased. However, it is broadly understood that digital technology and molecular and cellular biology are the foundation for many of the research and technology opportunities this century will present. Many distinguished institutions are pursuing prominence in these areas, especially in the life sciences. In fact, several states have created special funds to invigorate the programs of their public universities.

Thus, the University of Minnesota will need to be careful, agile and focused in selecting the special areas in which prominence can be realistically achieved. Notable possibilities are data storage, signal and image processing, nanotechnology, biocatalysis, and bioethics.[2] In addition to being areas of potential advantage for the University, each of these areas can substantially contribute to the scientific and commercial interests of the state.

The University of Minnesota will need to be careful, agile, and focused in selecting the special area is which prominence can be realistically achieved.

b) The University has long-standing national distinction in agricultural research and agricultural outreach. Continued investment will be required to sustain the current level of excellence and capacity to respond rapidly to the unique needs of the Minnesota agriculture and food product economy.

The University has maintained its long-standing national prominence in agricultural research and agricultural outreach. It is important to sustain this quality because of the critical role that agriculture and the food product industry play in the state's economy.

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[2] Nanotechnology is research and engineering of objects on the extremely small scale of a nanometer – one billionth of a meter. Biocatalysis is the process through which enzymes, when added to one material, can convert it into a new product or purpose.

The University has established a unique, three-prong center of excellence in agriculture: core research, rapid response capability, and agricultural research. All three complement and benefit from the research conducted under the molecular and cellular biology initiative, and each serves the specific needs of Minnesota farmers and industry.

c) The Design and New Media Initiatives have been successful, and should be supported through internal budgetary processes and continued fundraising.

The Design and New Media Initiatives have established broadly multidisciplinary and nationally recognized institutes, appointed internationally renowned directors, established new academic and professional outreach programs, and leveraged very significant external funding. With funding and leadership in place, the Commission considers these initiatives well on their way to achieving national distinction in areas that relate and contribute to important industries in Minnesota, e.g., publishing, advertising, graphic design, architecture, and engineering. The Commission judges that the 1998 legislative funding has accomplished its catalytic goal and that future growth should be funded through the University's regular, internal budget and fund-raising processes.

4. The Commission affirms the value of the University's overall research mission and the urgent need to continue to build its research capacity.

The research programs of the University of Minnesota are core contributors to the University's reputation and mission, and to the future prosperity and vitality of the State of Minnesota. The Minnesota public understands and values the fact that research is a featured component of the University's tri-partite mission of teaching, research, and outreach (*St. Paul Pioneer Press* survey results, Appendix G). Perhaps less well understood is the manner in which research both enhances and is enhanced by the other two parts of the University's mission.

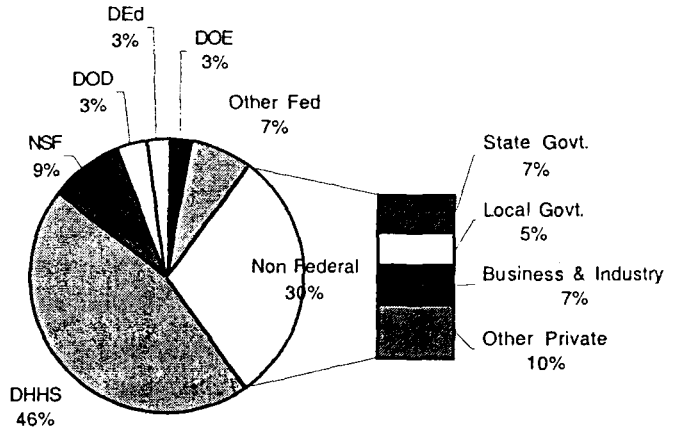
The Commission finds it helpful to understand that the University's research programs not only develop, discover, and contribute to new knowledge but also lead to new products, processes, medical treatments, and policy. Similarly, research programs serve as vehicles for the advanced education and training of the next generation of scientists, engineers, and scholars. Stated differently, students learn to discover and develop new knowledge by being mentored, taught, and advised by others engaged in such discovery. This one-on-one instruction is the heart and soul of great universities' graduate and professional programs and is the genius that makes American research universities the envy of the world. The engagement in research and in instruction of these advanced students keeps the faculty at research universities current and contributing in their fields.

The level of grants and contracts awarded to University researchers is a basic measurement and predictor of the capacity of the University to achieve its research mission in the future. Researchers at the University of Minnesota effectively competed

with researchers throughout the nation for over one-half billion dollars of new sponsored program support in FY 02. This is the first time the University has surpassed half a billion dollars in research awards. The new awards totaled $527 million, an increase of 5.8 percent from FY 01 and a 53.6 percent increase over the period FY 97-FY 02 (with much of that increase occurring during the past three years).

The federal government continues to be the largest supporter of externally funded sponsored programs at the University of Minnesota with over two-thirds of the total awards made in FY 02. Of the federal sponsors, the National Institutes of Health (NIH), through the Department of Health and Human Services (DHHS), is by far the largest sponsor of University research activity with 46 percent of all awards. Over the last decade, the NIH has enjoyed the largest growth in research funding among the federal agencies. The ability of the University to capture a portion of that growth for the state of Minnesota is largely dependent on the University's research capacity in biomedical and life sciences. Recent investments by the State of Minnesota through the Molecular and Cellular Biology initiative, capital building investments, and the dedication of a portion of the Tobacco Endowment to support the Medical School have put the University on a path to being even more effective in competing for this funding.

Sponsored Program Awards By Sponsor
(FY 02: $526.6M)



Sponsored research dollars are largely spent to support salaries of researchers (faculty, students, and professional research staff), the purchase of supplies and equipment, and to reimburse the University, at least partially, for the research infrastructure necessary to support research activity. In short, much of the funding attracted by researchers at the University of Minnesota is spent in Minnesota – contributing in a very tangible way to the state's economy. The federal Department of Commerce estimates that roughly 39 jobs are created in Minnesota's economy for every $1 million spent in research programs at the University. This number includes not only the jobs directly supported by research but also the impact of the dollars moving through the state's economy. It does not include the impact of new knowledge, technology transfer, and new company formation on job creation.

Investments made by the state in the University of Minnesota's research infrastructure have a tremendous multiplier effect and leveraging capacity.

Investments made by the state in the University of Minnesota's research infrastructure have a tremendous multiplier effect and leveraging capacity. This infrastructure enables the University to attract faculty and students who in turn attract significant research dollars to the state. The investments of the state and other research sponsors ultimately create new knowledge and a highly educated technical, academic, and professional workforce.

5. To achieve excellence, and national ranking, the University must have an excellent undergraduate program.

At outstanding universities, the research, teaching, and outreach missions are mutually supportive. Improvement of the University's undergraduate program, especially through improving graduation rates, is one of the most effective means of achieving the overall excellence of the University.

The Commission challenges the University to be among the top ten public campuses of the American Association of Universities in the quality of its undergraduate programs, especially as measured by graduation rates.

Improvement of the University's undergraduate program, especially through improving graduation rates, is one of the most effective means of achieving the overall excellence of the University.

The Commission recognizes the many positive steps the University has made in improving undergraduate education. The University has invested in freshman seminars, study abroad, undergraduate research, writing across the curriculum, community service, residential living, technology to enhance learning and service to students, an emphasis on improving the quality of incoming students, increased scholarships and financial aid, and related capital investments. Demand is increasing from potential students with better test scores, higher high school grades, and stronger high school preparation.

At the same time, the Commission emphasizes that this work is not complete. Admission, retention, and graduation rates must all greatly improve if the University is to achieve top-ten status in its undergraduate program.

a) Admissions

The Commission understands that the ability level of entering students does not entirely explain the University's poor graduation rates (note the table on the following page), but student selectivity is nonetheless a major factor. The Commission believes that the University must continue to increase standards it uses to admit students to the Twin

Cities campus and that the use of multiple measures, e.g., ACT or SAT scores, high school rank, unique talents and special abilities of entering students, can mitigate the potentially adverse effects of higher selectivity on deserving students.

The Commission believes that the University must continue to raise the standards it uses to admit students to the Twin Cities campus.

b) Retention Rates

The most recent comparative data available (fall 1997 cohort) indicates that the first-year retention rate of the University of Minnesota was 84.1 percent, while Illinois, Michigan, Penn State, and Wisconsin all had first-year retention rates over 90 percent. (These data lag current enrollments by one or more years, and do not reflect more recent progress.)

c) Graduation Rates

The University should set a goal of achieving a four-year, 50 percent graduation rate, and take aggressive steps to realize that goal soon.

The University has done much to improve its 4-year graduation rate (the 4-year rate was as low as 8.3 percent for the 1986 cohort). The Commission particularly notes the recent initiative to improve retention and graduation rates, a key strategy to enhance the excellence of the University's undergraduate programs. (See "Technical Report" and Appendix H.) Yet, the improvement resulting from such initiatives is, in our judgment, insufficient. Further improvement must be among the University's highest priorities.

University administration predicts that the 4-year graduation rate on the Twin Cities campus will finally climb above 30 percent for the class entering in the fall of 1998. This was the initial goal set when the University first adopted its institutional measures in 1995. While it is a noteworthy accomplishment, the Commission stresses that this goal is no longer sufficiently ambitious, especially as competitor institutions are continuously maintaining or even improving their already higher graduation rates.

The University should set a goal of achieving a 4-year graduation rate of 50 percent.

Retention and Graduation Rates for Selected AAU Campuses (Fall 1997 Cohort)[3]

Institution	Entering Class	Mean ACT	Mean SAT Composite	Retention Rates 1st Year	2nd Year	3rd Year	4th Year	4-Year Grad Rate
Virginia	2,908		1299	96.5%	89.8%	89.2%	7.8%	83.0%
North Carolina	3,417		1220	94.8%	89.8%	89.5%	13.6%	69.4%
Michigan	5,535		1210	94.9%	89.7%	85.5%	20.2%	65.4%
Illinois	5,764	26.8	1240	91.9%	85.7%	83.4%	22.5%	57.4%
Florida	5,989	26.2	1200	91.8%	85.5%	79.4%		49.1%
Penn State	5,183		1185	92.9%	87.7%	84.9%	35.5%	48.2%
UC-San Diego	3,189		1232	95.5%	89.6%	83.5%	30.3%	46.6%
UC-Berkeley	3,557		1311	95.7%	90.1%	84.3%	31.6%	45.7%
Indiana	5,631			87.3%	80.0%	76.6%	28.2%	45.1%
UCLA	3,791		1239	96.4%	90.4%	85.2%	36.1%	43.8%
Wisc	5,881	26.5	1218	90.1%	83.2%	80.1%	39.0%	41.0%
U Wash	4,352		1151	89.8%	81.2%	74.6%	34.3%	39.7%
Iowa	3,580	24.6	1166	81.5%	72.7%	69.8%	29.9%	37.3%
Missouri	3,514	26.0		84.2%	75.0%	69.5%	30.8%	36.5%
Texas	6,945		1205	88.0%	80.6%	75.2%	36.7%	36.4%
Mich St	6,384			87.9%	80.0%	75.5%	38.7%	34.3%
Texas A&M	6,180	25.0	1176	87.7%	82.6%	78.7%	47.3%	31.5%
Purdue	6,331		1105	86.5%	75.6%	72.5%	38.8%	31.2%
Ohio St	5,897	23.9		81.8%	73.0%	67.0%	36.9%	29.1%
Arizona	4,431	23.0	1096	76.5%	66.0%	60.7%	30.7%	29.0%
Minnesota	**4,371**	**24.3**	**1120***	**84.1%**	**72.3%**	**67.2%**	**35.3%**	**27.3%**
Iowa State	4,007	24.5		83.6%	75.1%	71.3%	43.2%	27.0%
Nebraska	3,200	24.3		79.5%	67.8%	63.7%	41.1%	21.1%

**Note: Minnesota did not provide a mean SAT score; 1120 is the SAT correlate of an ACT score of 24.3.*

In challenging the University to be recognized as a top five public research university, the Commission understands that this goal can be met only with continuing improvement in its undergraduate programs, especially as measured by graduation rates.

The Commission challenges the University to be recognized as among the top ten public campuses of the American Association of Universities in the quality of its undergraduate programs, especially as measured by graduation rates. The Commission encourages strategies such as additional funding for scholarships to help recruit high ability students in areas related to the centers of excellence, smaller class sizes, support of honors programs, and increased diversity of the student population. These strategies will simultaneously improve the ability of the University to

The Commission challenges the University to be recognized as among the top ten public campuses of the American Association of Universities in the quality of its undergraduate programs.

[3] Mean ACT and SAT scores, and retention and graduation rates for selected American Association of Universities campuses for students matriculating in fall 1997 (most recent available data). On some campuses, sufficient numbers of students do not take either the ACT or SAT to produce statistically significant means for the entire cohort.

attract high ability students from Minnesota and other states, lead to a more diversified student body, and reinforce higher standards in Minnesota's high schools.

6. The University must enhance and sustain the quality of its graduate and professional programs.

The Commission affirms the value of the University's graduate and professional degree programs.[4]

The University's graduate and professional programs (i.e., medicine, dentistry, law, pharmacy, public health, and veterinary medicine) distinguish it from other higher education institutions in the state. The Twin Cities campus awards nearly all of the Ph.D. degrees granted in the state, and most of its master's degree programs are unique. (More than two-thirds of the master's degree programs offered by other higher education institutions in the state are in just two areas, business administration and education.)

While many people think of the Twin Cities campus as a large, undergraduate institution, over 40 percent of the degrees awarded each year are graduate and professional degrees. This is a higher percentage than any peer campus (e.g., other Big Ten institutions and the University of California campuses). The State of Minnesota depends heavily on the capacity of the University to produce more than 200 physicians and attorneys each year and 70 to 80 dentists, pharmacists, and veterinarians, as well as more than 600 Ph.D.'s and 2,300 master's degrees in a wide variety of disciplines.

The University's strong reputation among peer institutions is due in large part to the strength of its professional and graduate programs in such areas as agriculture, chemical engineering, mechanical engineering, economics, history, psychology, education, public health, public affairs, and mathematics, to name just a few. And the University's ability to recruit high quality graduate and professional students, internationally as well as nationally, is nearly as important as its ability to recruit high quality faculty members. Essentially, the two are inseparable.

While many people think of the Twin Cities campus as a large, undergraduate institution, more than 40 percent of the degrees awarded each year are graduate and professional degrees. This is a higher percentage than for any peer campus.

Further, graduate students play a major role in core colleges such as the College of Liberal Arts, the Institute of Technology, and the College of Biological Sciences, which award most of the University's Ph.D. degrees. The faculty members in these colleges rely on graduate students for assistance in instructional activities as well as research programs. This arrangement works to the advantage of the University and the student because the

[4] These include its "first-professional" programs in medicine, dentistry, law, pharmacy, and veterinary medicine.

opportunity to work as a teaching assistant and as a research assistant under the supervision of a faculty mentor is an invaluable and integral part of a graduate student's education.

The faculty members who conduct the University's research and public service programs are the same faculty members who teach undergraduate students and work closely with graduate students. The University's research programs are of great value not only for the discoveries they produce (and their various applications), but because they provide a training ground for graduate students. In addition, the educational experience of the University's undergraduate students is enhanced by their opportunity to interact closely with graduate students, as well as faculty members.

While the Commission calls for accelerated investments in research and significant improvement in the University's undergraduate programs—areas specifically highlighted in the legislative charge—the Commission also notes the strength of the graduate and professional programs and stresses the burden upon the University to achieve the called for improvements in research and undergraduate programs while preserving the exceptional strengths of its graduate and professional programs.

7. Extraordinary focus, priority setting, and reallocation of internal resources will continue to be required from the University of Minnesota.

The Commission challenges the University of Minnesota to become one of the top five public research universities in the nation. The State of Minnesota deserves a top-notch research university, and the University of Minnesota has the constitutional autonomy and responsibility to achieve that status.[5]

The State of Minnesota deserves a top-notch research university, and the University of Minnesota has the constitutional autonomy and responsibility to achieve that status.

The Commission recognizes that extraordinary resolve will be required on the part of the Regents, the administration, and the University community to accelerate the difficult choices needed to align standards and resources with competitive excellence. Such choices are often unpopular and disruptive and may encounter significant resistance within and without the University.

[5] A 2000 report of the Minnesota House Research Department, "University of Minnesota Constitutional Autonomy," explains and analyzes this status in depth. The University was incorporated in 1851 and its powers were set out by an act of the Territorial Assembly, including establishment of a Board of Regents that was given general authority to govern the University. This status was carried forward into the constitution when Minnesota became a state in 1858. This special legal status applies to universities in at least 18 other states, making "a state university a separate department of government, not merely an agency of the executive or legal branch." For a copy of the full report, see: http://www.house.leg.state.mn.us/hrd/pubs/umcnauto.pdf.

Accordingly, the Commission strongly supports the Board of Regents and the administration in accelerating the rate of internal reallocations to high-priority initiatives. Increased internal allocations can be achieved by, for example, increasing efficiency and productivity generally, by promoting timely graduation, by strategically allocating open faculty positions, and by increasing the University's capacity for centrally directed strategic investments. Other strategies will require broader collaborations with industry and private and public funding sources.

The Commission recognizes that extraordinary resolve will be required on the part of the Regents, the administration, and the University community to continue to accelerate the difficult choices needed to align standards and resources with competitive excellence. Such choices are often unpopular and disruptive and may encounter significant resistance within and without the University.

8. Extraordinary financial support will be required from the State of Minnesota and the private sector to achieve these objectives.

The Commission notes with grave concern that Minnesota is no longer among the leaders in state financial support for higher education. The historic pride that Minnesotans have taken in the value we place on higher education is at risk. This concern compels the Commission to reassert, reinforce, and underscore the importance of the distinctive missions of the University of Minnesota: research, outreach, and graduate and professional education. The long-term competitiveness and quality of life that citizens of this state enjoy depends on collective understanding, support, and appreciation for these vital missions.

a) The Role of Public Support

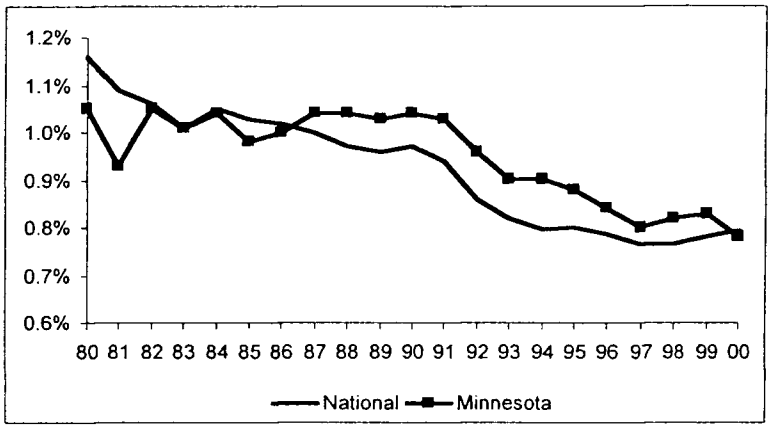
Tax effort is a common way of assessing and comparing the priority that states attach to various programs. It is defined as the amount of personal income in a state that is taxed and then appropriated to transportation, corrections, social services, or K-12 education or higher education. The most common method ranks states on the basis of tax funds per $1,000 of personal income.

The Commission notes with grave concern that Minnesota is no longer among the leaders in state financial support for higher education.

In FY 60, Minnesota ranked fourth nationally in the level of tax effort for higher education. In FY 02, Minnesota ranked 20th, at $8.78 per $1,000 of personal income, still above the national average of $7.67, but below states that have characteristically neglected their public education systems (e.g., Mississippi, Arkansas, Alabama). These

numbers for all states include state funds for financial aid programs as well as state appropriations to public and private institutions (e.g., the Mayo Clinic in Minnesota).[6]

Appropriation of State Tax Funds for Higher Ed Operations as Percent of Personal Income



Using tax effort as a measure of public support, over the period FY 79 to FY 01, state tax effort for higher education declined by 30.4 percent nationally. Minnesota was one of 22 states that fared worse than the national average (-33.5 percent).

Of course, part of the explanation for Minnesota's decline in the tax effort for higher education is that personal income in Minnesota has increased at a greater rate than the national average (209.4 percent for Minnesota from 1980 to 2000 versus a national average of 189.4 percent).[7] However, the trend suggests that higher education is also clearly less of a priority in Minnesota today than it was 20 years ago. The Commission urges a reversal of that trend with an emphasis on accountable results for new University funding.[8]

The Commission's concern about Minnesota's declining tax effort for higher education is attenuated by its concern about the growth in Minnesota's higher education infrastructure. While it is outside the capacity and charge of the Commission to

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[6] "The Rise and Fall of State Investment Effort in Higher Education, 1962 to 2002," *Postsecondary Education Opportunity Newsletter*, Number 115 – January 2002.

[7] It could be reasonably argued that one of the drivers of Minnesota's above-average growth in personal income was Minnesota's historic above-average investment in education at both K-12 and higher education levels. Slippage in the state's relative position for such investments should be a source of concern for the state's long-term prospects.

[8] Using a longer timeline and gross domestic product (GDP) as the measure, erosion of support for higher education can be viewed in a larger context. Between 1952 and 1993, combined public and private spending for higher education as a percentage of the nation's GDP increased steadily, reflecting the importance of higher education to the nation's social and economic welfare and the impact of the "baby boom" generation. This trend was reversed in 1993 and has declined since then, largely because of reductions in state support for higher education

evaluate the cost effectiveness of Minnesota's higher education infrastructure, two conclusions are inescapable.

- First, Minnesota is not providing a competitive level of public support to higher education institutions, and specifically, the University of Minnesota.
- Second, the relatively low level of support, combined with barriers to achieving efficiency across many public campuses, significantly handicaps the achievement of excellence for both MnSCU and the University of Minnesota.

The Commission challenges the State to restore its historically above-average support, and to be among the top five states in the nation in the strength of its financial commitment to higher education.

The Commission recommends an above-average increase in state funding of higher education institutions, and specifically, the University of Minnesota. The Commission challenges the State to restore its historically above-average support, and to be among the top five states in the nation in the strength of its financial commitment to higher education.

b) The Role of Private Support and Tuition Revenue

Even with a generous state, even with a high-quality institution, and significant prioritization and reallocation of internal resources, private support provides the critical margin of excellence the University needs to achieve its goals. This is a strategy embraced by the University's peers, and successful private fundraising is sometimes used as an indicator of institutional quality.

Private support comes in three main forms:[9]

- Private gifts, including income from endowment accounts and private practice income
- Private grants and contracts, usually in support of sponsored research programs
- Tuition revenue

The Commission notes that while tuition dollars are flexible in their application, most private gifts and all private grants and contracts are dedicated in their use. In other words, such funds are not available for reallocation.

Private Gifts, Grants, and Contracts

The Commission highlights the University's exceptional achievement in raising over $1.3 billion for its capital campaign, one year ahead of its target completion date. The

[9] Note that auxiliary income (from athletics, housing, etc.) is a fourth form of private support not included in this discussion since it does not support the University's core mission activities.

growth in private support for the University of Minnesota has been remarkable over the past ten years, and this trend must continue. The role of private giving at the University of Minnesota reflects a national trend or increasing reliance on philanthropy in higher education.

- Over the period FY 95 to FY 01, private giving to the University of Minnesota increased from $67,734,435 to $157,267,290 (132.2 percent).

- The University's endowment, at more than $1.8 billion, ranked fourth among public universities in FY 00, after Texas A&M ($3.9 billion), University of Michigan ($3.3 billion), and University of California Berkeley ($2.2 billion).

- Over the period FY 93 to FY 01, sponsored private grants and contracts increased from $40,798,476 to $90,108,688 (120.9 percent), while grant and contract awards from other funding sources, mostly from federal agencies, also increased strongly from $222,807,087 to $408,326,483 (83.3 percent). The impressive growth in private grants and contracts reflects the University's increasing capacity to work with industry. At the same time, the bulk of grant and contract funding continues to come from federal sponsors and is also increasing at a strong rate.

- Over the period FY 93 to FY 03, the University's state appropriation increased from $434,273,000 to $664,258,639 (53.0 percent, just above the level of inflation).

As these numbers indicate, the University has become much more reliant on private funds over the past ten years and has been very successful in securing such funds. Private funds have more than doubled in the past decade and have increased at a rate twice the level of inflation. The University's faculty members are largely responsible for this success. Not only do they secure sponsored funds for their research programs, but, particularly in the cases of the Medical School, the School of Dentistry, and the College of Veterinary Medicine, they also contribute millions of dollars in gift income back to their schools through private practice plans.

The University must continue to expand its interaction and partnerships with private companies, particularly in support of research initiatives that might strengthen Minnesota's economy.

The University must continue to expand its interaction and partnerships with private companies, especially in support of research initiatives that have the potential to strengthen Minnesota's economy. Technology transfer between the University and the private sector is a highly significant and valuable outcome of the University's investments, as illustrated by its ranking of fourth out of 142 public and private research institutions in numbers of university-based start-up companies.

As successful as the University has been in increasing private support for its programs, the Commission believes that it will need to be even more successful in the future. This success, however, will be dependent on an appropriately strong level of state support for core institutional infrastructure and programs.

Tuition Revenue

The Commission notes the national evidence that the tuition increases that have marked recent years at the University of Minnesota, and virtually every other campus across the United States, are likely to continue. In the University of Minnesota's case, revenue from tuition and fees will increase (projected) from $181,152,000 to $356,844,622 (97 percent) over the period FY 93 to FY 03. Nearly all of this increase is due to increases in tuition and fee rates; enrollment has risen only slightly. Over the same time frame, tuition and required fees for undergraduate students on the Twin Cities campus who are Minnesota residents has increased 96 percent (from $3,284 to $6,430).

Big 10 FY 2002 Required Undergraduate Tuition and Fees

		Percentage Change over Past		
University	2001-02	10 Yrs.	5 Yrs.	1 Yr.
1 Penn State	$7,574	72.10%	34.70%	7.90%
2 Michigan	$7,375	82.40%	21.40%	6.50%
3 Michigan State	$5,912	62.80%	21.00%	8.80%
4 IL-Urbana	$5,754	80.70%	38.60%	15.20%
5 Minnesota	**$5,536**	**83.30%**	**26.90%**	**13.50%**
6 Ohio State	$4,788	86.40%	38.10%	9.20%
7 Indiana	$4,734	80.80%	25.10%	7.50%
8 Purdue	$4,164	79.20%	29.80%	7.50%
9 Wisconsin	$4,089	86.90%	34.90%	7.90%
10 Iowa	$3,522	70.00%	33.10%	9.90%

The Commission shares the concerns of students and families about the apparently inevitable trend in tuition increases, even in public universities. However, the Commission notes the following:

- The rate of tuition increases at the University of Minnesota is comparable to increases in similar universities and the University is still in the middle among Big Ten institutions in undergraduate tuition. These are considerable achievements in view of the earlier observation that the rate of decrease in the Minnesota tax effort for higher education has been greater than the median among states.

- Students can mitigate the impact of tuition increases by graduating in a more timely fashion. In addition to the educational benefits, the cost of an undergraduate degree is much less for students who graduate in four years than for students who graduate in five or six.

- Increases in the quality of the University's undergraduate programs and in the undergraduate student experience must precede or accompany increases in tuition for undergraduate students. The increase in price must be matched by an increase in value.

- Access for low-income students must be maintained and indeed increased.

Finally, the Commission again urges the legislature to reverse the downward trajectory of tax effort for higher education.

III. Technical Report

A. Commission Formation, Charge, and Scope

The Commission on Excellence was established by Minnesota Session Laws 2001, 1st Special Session, Chapter 1, Article 2, Section 28, as a component of the higher education funding legislation in 2001, with broadly representative membership (see Appendices A and B).

Its charge was to:

1. Review the University's current nationally ranked areas of excellence;

2. Review major investment efforts in interdisciplinary initiatives identified by the University in 1998;

3. Evaluate and make recommendations on at least five additional centers of excellence in which the University will achieve a top-ten national ranking within the next ten years, identifying those centers with the best potential to achieve this goal; (NOTE: These additional centers of excellence are to be chosen from existing or potential interdisciplinary initiatives and from programs and departments in which the University is considered a national or regional leader.)

4. Examine the University's mission, scope, and financing of programs and propose possible ways in which the University can refocus or refine its mission and offerings; and

5. Identify undergraduate degree programs where quality and productivity could be improved through collaboration with other public and private post-secondary institutions.

By July 1, 2002, the Commission was to report to the legislature on the University's mission, focus, and areas of excellence. In preparing this report, it was encouraged to consider operation and capital financing needs, Minnesota's economic needs, federal research priorities, and opportunities for private financial support.

Commission appointments were not completed until January 2002. Recognizing the very broad scope of this charge and severe time constraints to complete its assignments, the Commission chose to adopt a focused construction of its charge and scope of inquiry: the appropriateness of the University's mission and its national positioning as a top-ranked public research university; progress it has made in establishing the five 1998 Centers of Excellence; and what it would take to sustain its momentum and achieve excellence in these areas. The Commission considered as well the potential for new investment opportunities, and the importance of enhancing undergraduate education.

B. Programs of Prominence

H.F. 6 2001 1st Special Session. Section 28, Subdivision I, part I: review the university's current nationally ranked areas of excellence.

In order to evaluate the University's current areas of excellence, the Commission found it necessary, first, to understand the national distinctiveness of the Twin Cities campus and, second, to review the major national rankings systems.

Distinctiveness of the Twin Cities Campus

The University of Minnesota has served the state and its citizens with distinction for more than 150 years. The Twin Cities campus of the University of Minnesota is the nation's third largest, in terms of enrollment, behind Ohio State University, Columbus and the University of Texas, Austin, and also one of the most highly ranked research university campuses. It has long established strengths in engineering, the social and behavioral sciences, education, natural resources, and agriculture. Its professional schools such as law, public health, pharmacy, dentistry, and veterinary medicine are also very strong. The University's Medical School has a distinguished history, and is rebounding from the challenges posed over the past decade by significant changes in the health care industry.

Always highly ranked among peer campuses for the quality of its research and graduate programs, in the most recent (1995) ranking by the National Research Council, the Twin Cities campus ranked 9th among public university campuses and 20th among all public and private campuses. And, in a 2001 analysis by the University of Florida that focused on various productivity measures, the Twin Cities campus ranked in the top three among public campuses, with the University of California Berkeley and the University of Michigan. Its individual research programs have a long-standing record of excellence, with many ranked in the top 25 nationally (see Appendix E, below).

The Twin Cities campus fares less well in rankings of undergraduate programs (e.g., second tier in U.S. News) because of the high weight placed on selectivity by such rankings. The University is not nearly as selective at the undergraduate level as many private institutions or public research universities located in more populous states. The University's other campuses do well in rankings of undergraduate programs. For example, the University of Minnesota, Duluth ranks eighth among the top 12 public Midwestern universities that offer education through the master's degree (2001, U.S. News) and the University of Minnesota, Morris ranks fifth among the nation's public liberal arts colleges (2001, U.S. News).

Compared with peer campuses in other states, the Twin Cities campus plays a uniquely large role in Minnesota. Early in its history, the state of Minnesota decided that it would have only one research campus and that it would also be its land-grant campus. It is for this reason that the Twin Cities campus has both agricultural programs and an academic health center built around a major medical school.

The University of Minnesota confers more graduate and professional degrees, as a percent of total degrees awarded, than any peer institution (45.8 percent of total degrees). It confers 21 percent of all baccalaureate degrees in Minnesota, contrasted with the University of California Berkeley, which confers just 5.2 percent of the degrees in California. Minnesota confers 73.7 percent of all doctoral degrees in the state; UC Berkeley, just 15.1 percent. In 2000, it generated 98.8 percent of the federal research funds that are granted to higher education institutions in Minnesota; by contrast, UC Berkeley generated just 8.9 percent of the federal research funds awarded to California's higher education institutions. The reason for these differences is that California is a large state with 17 research university campuses, while Minnesota is a relatively small state with only one research university campus. Unlike other states, Minnesota does not have the luxury of relying on private research universities to shoulder a significant portion of graduate-professional education burden or to attract federal research dollars.

The Commission wishes to emphasize the importance to the state of having an excellent University of Minnesota, to prepare undergraduates, train professionals, and conduct research that can be applied to industrial needs, improve healthcare, and foster economic development. The Commission also wishes to underscore the complementary role the Minnesota State Colleges and Universities system plays in providing a range of quality educational opportunities for students throughout the state.

Defining Excellence through Rankings

In analyzing the University's effectiveness in carrying out its mission it is important to look at various measures for the University and at how the University compares with peer institutions, bearing in mind the very different roles that various campuses play in their state higher education systems.

The Commission recommends, therefore (see "Defining Excellence" in Findings and Recommendations, above), that the University clearly define the goals and measures, reflecting its mission and service to the state, by which it will assess progress, based on its Institutional Level Measures and in comparison with peer institutions wherever reliable comparative data is available.

The Commission has come to understand that there is no accepted overall ranking of research universities, in part because they differ significantly in the variety of programs offered and in the different roles they play in each state's higher education infrastructure. (See Appendix D for an overview of the most frequently cited systems.) In addition, there are only a few other campuses nation-wide that have the broad range of programs found on the Twin Cities campus. Nationally different groups provide national rankings of higher education institutions and/or programs. Some focus on institutions as a whole, some on individual graduate programs, and others on the undergraduate experience. Such national rankings interest many people who use them as a kind of "proxy of quality;" they cannot be ignored. As a recent *St. Paul Pioneer Press* survey found, top rankings are important to Minnesotans (see Appendix G). Yet, because there is no perfectly objective or comprehensive ranking system, public policy makers should use such rankings with great caution.

Ranking the University of Minnesota.

The Twin Cities campus ranks as follows on various quantitative measures:

- Total research and development expenditures: 13th (9th among publics)
- Federal research expenditures: 16th (7th among publics)
- Members in national academies: 23rd (10th among publics)
- Faculty awards: 14th (7th among publics)
- Doctorates awarded: 7th (7th among publics)
- Endowment assets: 23rd (4th among publics)
- Annual giving: 20th (8th among publics)
- Start-up companies based on University technologies: 4th (among 142 public and private research institutions)

One key indicator of the University's quality is the success of its faculty members in attracting sponsored funds in support of their research. This is a nationally competitive process that typically involves rigorous peer review. Over the period FY 98 to FY 02:

- Sponsored proposals submitted increased from 4,061 to 4,860 (19.7 percent)
- The dollars requested in sponsored proposals increased from $824,539,000 to $1,470,345,000 (78.3 percent)
- Grant and contract awards received increased from 2,953 to 3,210 (8.7 percent)
- Grant and contract dollars received increased from $350,057,000 to $526,642,000 (50.4 percent)
- Grant and contract dollars received per faculty member increased from $139,022 to $195,197 (40.4 percent)

Over this same period of increased productivity, the number of regular faculty increased by 180, from 2,518 to 2,698.

In addition, there were increases in the numbers of students participating in freshmen seminars, undergraduate research, study abroad, residential living, community service, and use of technology to improve teaching and learning (a listing of these accomplishments may be found in Appendix H).

To move up in the rankings, the University would need to continue to perform at a high level in research productivity, invest in key areas expected to experience growth in federal research budgets, e.g., biomedical sciences; invest in undergraduate improvement to increase retention and graduation rates, and increase selectivity.

Finally, in considering how the University compares with peer campuses it is important to understand the role that each campus plays within its state, and that large campuses in relatively small states (e.g., the Twin Cities campus, Wisconsin, Madison) are incredibly important to these states. This is illustrated in the table below, which provides the most recent figures from the National Science Foundation on R&D

expenditures in universities and colleges (public and private). It shows that the Twin Cities campus accounts for 98.8 percent of all academic R&D expenditures in Minnesota, while campuses in larger states, understandably, account for much less (e.g., UC, Berkeley 12.8 percent). It also reveals that Minnesota has the fourth lowest academic R&D per capita in the sample of states shown in this table. This is not because the Twin Cities campus is unproductive; on the contrary, as the numbers show it is very productive. It is instead because Minnesota has only one research university, and does not have the cushion of resources and programs that a private research university would provide.

Public Research University Campus R&D as Percent of Total State Higher Education R&D

	Campus as % of State Total	All Funds Campus	All Funds State	Federal Funds Campus	Federal Funds State	Campus as % of State Total	State Population	Total R&D per Capita	Federal R&D per Capita
Minnesota, Twin Cities	**98.8%**	**$411,380**	**$416,411**	**$229,958**	**$233,018**	**98.7%**	**4,972,294**	**$83.75**	**$46.86**
Wisconsin, Madison	83.8%	$554,361	$661,470	$278,629	$348,779	79.9%	5,401,906	$122.45	$64.57
U of Washington	82.3%	$529,342	$642,934	$389,622	$443,223	87.9%	5,987,973	$107.37	$74.02
U of Arizona	74.1%	$345,090	$465,777	$187,161	$244,938	76.4%	5,307,331	$87.76	$46.15
U of Nebraska, Lincoln	65.2%	$136,023	$208,480	$37,831	$65,702	57.6%	1,713,235	$121.69	$38.35
Iowa	56.6%	$236,944	$418,263	$140,764	$203,437	69.2%	2,923,179	$143.08	$69.59
Michigan, Ann Arbor	55.4%	$551,556	$995,756	$364,033	$553,119	65.8%	9,990,817	$99.67	$55.36
Purdue	46.1%	$234,536	$509,141	$92,010	$228,768	40.2%	6,114,745	$83.26	$37.41
Indiana	44.7%	$227,737	$509,141	$107,577	$228,768	47.0%	6,114,745	$83.26	$37.41
Iowa State	42.0%	$175,558	$418,263	$59,976	$203,437	29.5%	2,923,179	$143.08	$69.59
Ohio State	39.3%	$361,399	$918,500	$132,219	$498,967	26.5%	11,373,541	$80.76	$43.87
U of Colorado	38.2%	$207,973	$544,204	$178,777	$427,495	41.8%	4,417,714	$123.19	$96.77
U of Florida	36.8%	$313,692	$851,932	$120,374	$408,826	29.4%	16,396,515	$51.96	$24.93
Georgia Tech	32.9%	$304,511	$926,749	$126,164	$417,664	30.2%	8,383,915	$110.54	$49.82
Illinois	31.9%	$373,024	$1,170,625	$193,490	$681,006	28.4%	12,482,301	$93.78	$54.56
U of Virginia	29.7%	$174,522	$587,718	$119,243	$321,690	37.1%	7,187,734	$81.77	$44.76
Penn State	27.6%	$427,575	$1,549,050	$226,074	$1,032,963	21.9%	12,287,150	$126.07	$84.07
N Carolina, Chapel Hill	25.9%	$269,072	$1,040,017	$194,794	$577,437	33.7%	8,186,268	$127.04	$70.54
Michigan State	22.9%	$227,734	$995,756	$97,112	$553,119	17.6%	9,990,817	$99.67	$55.36
U of Md, College Park	16.7%	$252,429	$1,507,549	$136,605	$1,090,445	12.5%	5,375,156	$280.47	$202.87
Texas, Austin	13.4%	$272,811	$2,039,642	$178,889	$1,101,463	16.2%	21,325,018	$95.65	$51.65
UCLA	13.1%	$530,826	$4,053,042	$274,162	$2,335,093	11.7%	34,501,130	$117.48	$67.68
California, San Diego	12.8%	$518,559	$4,053,042	$326,037	$2,335,093	14.0%	34,501,130	$117.48	$67.68
California, Berkeley	12.8%	$518,514	$4,053,042	$208,338	$2,335,093	8.9%	34,501,130	$117.48	$67.68
U of Oregon	10.4%	$35,934	$346,149	$30,793	$246,684	12.5%	3,472,867	$99.67	$71.03
SUNY, Stoney Brook	7.1%	$163,307	$2,290,812	$96,641	$1,475,423	6.6%	19,011,378	$120.50	$77.61
U Mass, Amherst	6.5%	$97,052	$1,485,792	$44,697	$1,064,468	4.2%	6,379,304	$232.91	$166.86

With the caveats, above, the Commission wishes to highlight the significant number and range of top-ranked academic programs; those ranked 25 or better are listed in the table in Appendix D. For comparison, it also includes the earlier NRC rankings for these programs. These ordinal rankings should be considered within the context of the number of programs nationally. For instance, Engineering, ranked 21 of 145 programs, is in a comparatively stronger position than a program such as Physics, ranked 24 of 88. This example is mentioned to illustrate the challenges in interpreting ordinal rankings.

The range of programs of prominence at the University over the past decade and more speaks eloquently to the strength of the institution. However, this strength is fragile. It depends on continued access to resources to recruit and retain top faculty, develop and upgrade research facilities, and attract the best graduate students.

C. Centers of Excellence: Review of 1998 Interdisciplinary Initiatives[1]

> *H.F. 6 2001 1st Special Session, Section 28, Subdivision I, part 2: review major investment efforts in interdisciplinary initiatives identified by the university in 1998, including digital technology design, new media, molecular and cellular biology, medical science and agriculture.*

In its 1998 session, the Minnesota Legislature made a visionary investment to strengthen the University of Minnesota's research, teaching, and outreach programs and to advance Minnesota's reputation in areas of critical importance to the economic welfare of the state: Digital Technology, Molecular and Cellular Biology, Design, New Media, and Agricultural Research and Outreach. No peer institution has reported a comparably structured set of investments, making meaningful comparisons difficult.

The 1998 investments either built on existing University of Minnesota strengths, as in the case of Design, New Media, and Agricultural Research and Agricultural Outreach or, as in the case of Digital Technology and Molecular and Cellular Biology, made significant investments in core basic sciences and technology that provide the foundation for much of the advancement in science and technology anticipated for the first part of this new century.

In each case, the University of Minnesota had either the opportunity or the imperative to become a major player at both the national and international levels. They were, as well, intended to build areas with potential to benefit the state's economy.

The state's 1998 investment of $18.6 million for academic initiatives, leveraged with additional internal and external funding, has enabled the University to transform the ways faculty investigate new ideas, teach students, and share new developments with the community.

The Commission recognizes and appreciates the very significant change that the 1998 investments have achieved with, in comparison to the University's overall budget, a reasonably modest investment. The academic leadership of the University, both faculty and administrative, have used the state's investment as a catalyst for building new interdisciplinary structures that in turn attract outstanding faculty and students to the University, enable the retention of highly productive faculty, and attract external funding. The table below illustrates the high degree of leverage achieved by the 1998 initiative investments.

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[1] Much of the material in this section was extracted from "Academic Interdisciplinary Initiatives: Progress Report-December 2001," prepared by the Office of the Executive Vice President and Provost and available at www.evpp.umn.edu/evpp/aii/.

Academic Interdisciplinary Initiative Investments, 1998-2001

	1998 State Appropriation	Reallocated Funds	Externally Leveraged Funds	Total Academic Investment	Related Capital Investments
Digital Technology	$4,500,000	$1,333,000	$15,062,000	$20,145,000	$53,600,000
Molecular and Cellular Biology	$7,375,000	$6,000,000	$23,479,974	$36,854,974	$106,372,000
Design	$1,150,000	$186,000	$3,010,000	$3,596,600	$28,882,000
New Media	$1,700,000	$567,000	$18,300,000	$20,567,000	$18,000,000
Agricultural Research/ Outreach	$2,250,000	$360,000	$5,330,000	$7,940,000	$14,977,000
UMC (Agriculture)	$600,000	$300,000	$244,000	$1,144,000	
UMD (Biology, Design, Agriculture)	$1,000,000	$682,000	$669,000	$2,351,000	
UMM (Agriculture)	$50,000		$595,000	$645,000	
TOTAL	**$18,625,000**	**$9,428,000**	**$66,690,574**	**$94,743,574**	**$221,831,000**

By investing in interdisciplinary areas, the University has increased its capacity to strengthen programs across nearly every college and campus. These crosscutting benefits also raise the challenge of measuring their impact, since the initiatives are not meaningful national measures. Rather, what should be tracked is the increased capacity of core academic units to hire and retain the best faculty, recruit the best graduate students, and generate sponsored funding. These successes will, over time, translate into higher disciplinary rankings.

Comparisons with peer institutions are desirable to benchmark progress toward achieving national distinction, although these are necessarily inexact where investments may target differing groupings of disciplines. However, an "in process" assessment of the University's position relative to is peers could be estimated by comparing growth and size of faculty, number and selectivity of graduate admissions, and amount of sponsored funding generated in core disciplines. These external indicators will trail faculty hiring so that, for example, it may take three to four years from the initial funding of an initiative to see solid indicators of external funding.

Digital Technology

The Digital Technology Center's goal is to become a center of excellence at the University of Minnesota and to form partnerships with the community to reestablish Minnesota's leadership position in digital technology. The Center focuses on leading edge research in: data storage, analysis and visualization, scientific computation, telecommunications, and software engineering. Under this initiative, a total of 20 new faculty positions will be filled by the end of 2003, 14 with state funds and 6 with internally reallocated funds. The Digital Technology Center has moved into the newly renovated Walter Library. Additional information about the Digital Technology Center may be found at http://www.dtc.umn.edu/.

The Commission judges that this effort is on track towards achieving the goals established for it in 1998. However, viewed within the context of developments in this area, in retrospect, these goals were not aggressive enough. Compared with top universities in this area, the University of Minnesota continues to be undersized in terms of FYE faculty, even given the difficulties of comparisons among programs that are structured very differently. For example, in 2001-02, the University of Illinois Urbana-Champaign had 117 faculty in electrical engineering and computer engineering, Purdue had 92, Texas had 84, and Washington had 78, compared with 62 at Minnesota.

The University should monitor the demand by and for students in the area of digital technologies as well as the external funding environment. For example, the University of Minnesota received over 2,300 applications for admission to its graduate programs in Computer Science, Computer Engineering, and Electrical Engineering for the 2002-03 academic year. The University was able to offer admission to only 400 of those applicants (counting on a matriculation rate of one third). To be top-tier and meet demand, the University will need to significantly augment this investment. A continued effort to fund new positions will be justified by both student demand and by the research and economic development opportunities offered by the field.

Molecular and Cellular Biology

The University aspires to be among those institutions of higher education at the leading edge of the revolution occurring in the biological and life sciences. The Molecular and Cellular Biology initiative focuses on functional genomics, a new branch of science that determines the mechanisms by which thousands of genes are orchestrated to develop and maintain an organism.

This initiative emphasizes interdisciplinary research and education, and the capacity to connect science to significant industrial applications across plant, animal, and medical fields. It involves faculty from the Biological Sciences, Agriculture, Medicine, and Veterinary Medicine. To make it easier for faculty to work with one another and to leverage and share resources, the initiative has involved the reorganization of the biological sciences around four new departments — Biochemistry, Molecular Biology and Biophysics; Neuroscience; Genetics, Cell Biology, and Development; and Plant Biology.

Under this initiative, a total of 41 new positions will be created; approximately half of those have already been filled. The Molecular and Cellular Biology building on the Minneapolis campus was completed in early summer 2002 with the first courses scheduled for the facility in fall 2002. Construction of the Microbial and Plant Genomics building, supported by a $10 million Cargill gift and matching legislative funds, began on October 15, 2001 with an anticipated occupancy in early 2003. For additional information see: http//biosci.cbs.umn.edu/admin/bioinit/.

Compared with top universities in this area, the University has fewer faculty, and may be adding new faculty at a slower rate than some. The structure of the life sciences varies considerably from campus to campus, making comparisons difficult. In fact, no reliable data exists for drawing comparisons on measures that would appear as simple

as faculty counts! In the absence of such comparative data, the Commission recommends that the University monitor its capacity to attract top students and faculty in these fields and its capacity to address the employment needs of the state.

The Commission acknowledges the legislature's foresight and the University's execution in the development and implementation of this initiative. Technology and science forecasters are nearly uniform in their declarations of the preeminence of the life sciences for this new century. It is imperative that the University of Minnesota be a significant player on the national and international stages in these scientific fields and by doing so provide both a window on the future and the human capital that will be needed by Minnesota's industry, agriculture, and health services sectors. The Commission judges the 1998 initiative to be a "good start" but emphasizes that the importance of the field, and its breadth and depth call for continued investment — by the state, by the private sector, and by reallocation of University resources. It urges the University to identify particular subfields or niches that are most likely to achieve top-tier status, and that respond to demand by students and industry.

Design

The Design Initiative both exploits and supports Minnesota's strength in the arts, architecture, advertising, and graphic design. It addresses the design of products, services, and environments, from individual objects we purchase, to the space and ventilation of buildings, to urban transportation systems.

Its initial investment has been leveraged by significant external funding, including a $1 million gift from Target Corporation. Renovation of the Architecture building, completed in summer 2002, includes new offices for the Design Institute. For additional information, see: http://design.umn.edu:8080/designInstitute/index.html.

The Commission views this initiative to be well on its way to accomplishing its goal of raising the profile of design as an intellectual activity on both the University campus and throughout the community. The Commission is pleased that both the University and the Legislature looked beyond science and technology to other areas in which University research and education programs make significant contributions to the quality of life — as well as to the state's economy. Much work remains in effectively integrating the research and education agenda of the Design Institute with those of academic fields throughout the University but the opportunity is compelling. The Commission feels that the investments made by the state have catalyzed the effort and that future growth will be sustained through leveraged external resources and, where and when appropriate, internal reallocation.

New Media

The New Media Initiative focuses on the convergence of new and traditional media streams into one that is available in highly flexible digital format. The Institute of New Media Studies, housed in the School of Journalism and Mass Communication, is a center for interdisciplinary research, industry outreach, and collaboration on emerging issues in the new media arena. This investment is also strengthening the School by

building a nationally preeminent program that provides students with the best possible academic and professional education for entry into diverse careers in this rapidly changing industry.

With six of the eight new faculty positions having been filled, the New Media Initiative has attracted over $18 million of external resources to support its research, educational, and outreach mission. For additional information, see: http://www.inms.umn.edu/flash_index.html.

The Commission is duly impressed by the significant external support attracted by this initiative. Such support is a testament to the importance of media and related industries in Minnesota as well as the history of distinguished leadership offered by the School of Journalism and Mass Communication. The 1998 initiative provided a much needed "boost" to stimulate a rethinking and restructuring of the education of future media professionals and has enabled the University of Minnesota to aspire to a leadership position in the rapidly changing terrain of "new media." The Commission judges that the legislative funding accomplished its goal and that future growth should be funded through internal University budget processes and/or external funding.

Agricultural Research and Agricultural Outreach

The 1998 investment in Agricultural Research and Agricultural Outreach enables the University to continue to respond to important challenges in food production, food quality, and the marketing of agricultural products — all areas of critical importance to the state's rural economy. Many of these areas, already in the top tier nationally, are also strongly linked to the University's initiatives in genomics and molecular biology.

The University must also have the capacity and flexibility, supported by the Rapid Response Fund, to deal with problems as they arise. Agricultural outreach, the third component of this center of excellence, transfers the wealth of research-based knowledge into the hands of people working in agriculture, and brings problems from the field to the attention of University researchers. This three-part approach is critical to the state's economy, and makes the University unique as a top-ranked public research institution.

Six faculty positions have been filled with funding allocated through the supplemental Agricultural Research and Agricultural Outreach appropriation and six additional positions have been leveraged through internal reallocations and/or partnership with the MnSCU system. For additional information, see: http://www.rapidresponse.umn.edu.

The Commission judges that resources provided by the legislature through this initiative have been dedicated to their intended purposes. The agricultural research and outreach programs of the University of Minnesota continue to be the envy of many institutions throughout the nation and the world. The Commission recommends that the legislature sustain this dominant center of excellence through additional investments.

D. New Investment Opportunities

> *H.F. 6 2001 1st Special Session. Section 28, Subdivision 3: The commission must, at a minimum identify five additional centers of excellence at the University of Minnesota in which to focus resources and policy initiatives. The goal for these centers is to have them develop national stature and achieve national ranking in the top ten within ten years. The additional centers of excellence must be chosen from a group of potential centers of excellence that includes the programs and departments in which the university is currently considered a national or regional leader and from existing or potential interdisciplinary initiatives at the university.*

The Commission wishes to emphasize the critical importance of increasing investments in three of the 1998 initiatives (molecular and cellular biology, digital technology, and agriculture) to enable them to achieve and sustain top-tier quality. Equally important is the need to ensure that resources are in place to sustain excellence in those other areas in which the University has prominence.

Should additional resources be available, the Commission urges the University to establish criteria for the identification of new centers of excellence including such factors as: contribution to the state's economy; potential to build on a nucleus of existing strength; the attractiveness for recruiting undergraduate and graduate students; and the likelihood of success. Additionally, program areas should be considered in terms of the scale and goal of investment needed to achieve national prominence.

Continuing investments will be needed to preserve prominence in such areas as economics, chemistry/chemical engineering, public health, psychology, and child development. Modest investments would be needed to push very strong programs past the "tipping point" to top-tier status, for example, in applied mathematics, law, ethics and public policy, bioethics, international studies, civil engineering, and law/intellectual property. Continued investment to maintain the momentum of previous initiatives would be needed in such areas as biocatalysis, digital and network security, management information systems, pharmacogenomics,[2] structural/molecular biology, and bioinformatics. Significant new investment, with the potential for large pay-offs in new fields, would be necessary to achieve national distinction in such areas as nanotechnology, neurocognitive science, and translational medical research.[3]

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[2] Pharmacogenomics is the study and development of pharmaceutical products using genomic research techniques. Bioinformatics uses high-powered computer technology to search for meaningful relationships between sequences of DNA.

[3] Translational research takes basic science discoveries and develops therapies for prevention and treatment of disease.

E. Mission, Scope, and Financing of the University

H.F. 6 2001 1st Special Session, Section 28, Subdivision 1, part 4: examine the university's mission, scope and financing of programs and possible ways in which the university can refocus or define its mission and offerings.

Mission

The State has defined the missions of its post-secondary institutions as follows, according to State Statute 135A.052:

> "Subdivision 1. Statement of missions. The legislature recognizes each type of public post-secondary institution to have a distinctive mission within the overall provision of public higher education in the state and a responsibility to cooperate with each other. These missions are as follows:
>
> (1) the technical colleges shall offer vocational training and education to prepare students for skilled occupations that do not require a baccalaureate degree;
>
> (2) the community colleges shall offer lower division instruction in academic programs, occupational programs in which all credits earned will be accepted for transfer to a baccalaureate degree in the same field of study, and remedial studies, for students transferring to baccalaureate institutions and for those seeking associate degrees;
>
> (3) consolidated community technical colleges shall offer the same types of instruction, programs, certificates, diplomas, and degrees as the technical colleges and community colleges offer;
>
> (4) the state universities shall offer undergraduate and graduate instruction through the master's degree, including specialist certificates, in the liberal arts and sciences and professional education; and
>
> (5) the University of Minnesota shall offer undergraduate, graduate, and professional instruction through the doctoral degree, and shall be the primary state supported academic agency for research and extension services."

The Commission has reviewed the mission of the University of Minnesota and recommends no change. It finds that high quality research and a high quality undergraduate program are mutually reinforcing and endorses the investments of the University in each. The Commission further recommends that the mission be actively supported by the Legislature and the general public as the University continues to differentiate its role within the Minnesota higher education system, one that is evolving as the higher education landscape has changed in the state.

The Commission wishes to reaffirm the respective roles of the Board of Regents, the University administration, and the Legislature in evaluating, proposing, approving, and funding modifications of the University's mission, scope, and financing.

The Commission recognizes that the University's distinctive mission complements the Minnesota State Colleges and University system role in providing high quality higher education programs statewide.

Scope

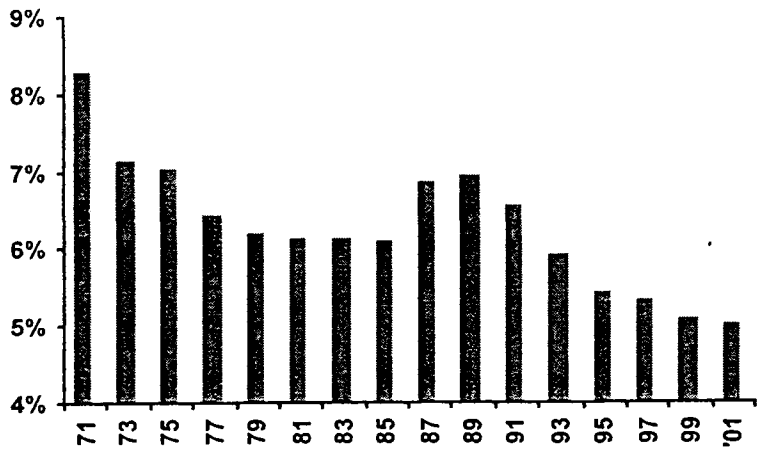
The University of Minnesota plays a distinctive role in the state, and among its peers. Like the universities of Wisconsin and Washington, Minnesota is more important in this state than comparable campuses in larger states, with a complex range of responsibilities. (See detail "Mission" in Findings and Recommendations, above.)

Financing

Past President Yudof has argued in his articles on the "hybrid university" that declining public support of higher education raises profound questions, challenges, and choices for Minnesota (see Appendix F). The Commission notes with grave concern that Minnesota is no longer among the leaders in state financial support for higher education. As discussed above in the Commission's "Findings and Recommendations," the historic pride that Minnesotans have taken in the value we place on higher education is at risk.

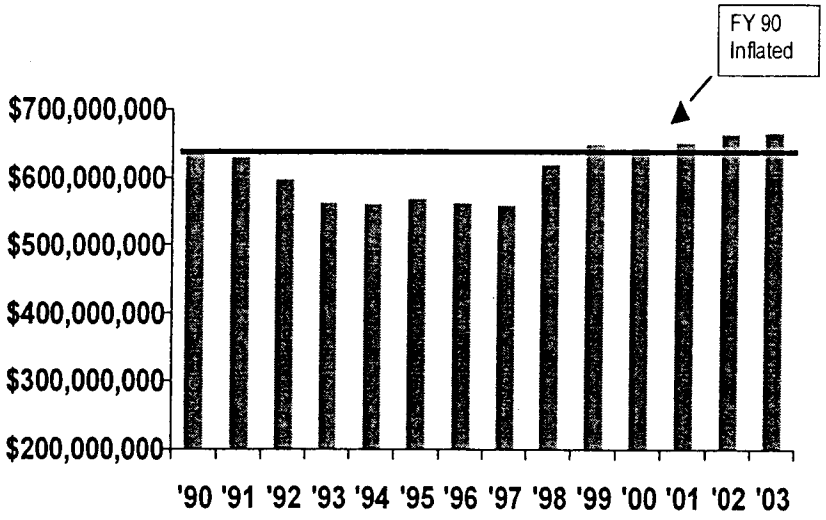
As the graph on the next page illustrates, state support for the University of Minnesota and other institutions as a percentage of total state funding has declined over the past three decades. Funding for the University was 8.3 percent of the state's budget in 1971, but will be just 4.9 percent of the state's budget in FY 03.

State Funding for the U of M as Percentage of Total State Spending



Throughout most of the 1990s, the University's state appropriation has not kept pace with inflation.

State Appropriation Adjusted for Inflation (FY2002 CPI)



Minnesota is not providing a competitive level of public support to higher education institutions and, specifically, the University of Minnesota. The relatively low level of support, combined with the high cost delivery system, significantly handicaps the achievement of excellence for both of our public higher education systems.

F. Potential for Enhancement of Excellence in University Undergraduate Programs through Collaboration

> *H.F. 6 2001 1st Special Session, Section 28, Subdivision 1, part 5: identify undergraduate degree programs in which quality and productivity improvements could be achieved through increased collaboration with public and private post-secondary institutions in and outside of Minnesota*

The Commission suggests that this component of the charge does not fit well with the main focus of its deliberations and report. It would refer, instead, to the two legislatively mandated reports endorsed by the Board of Regents and submitted to the Legislature in February 2002 on *Academic Priorities* (undergraduate education section) and on *Postsecondary Planning* (the latter prepared jointly with MnSCU) (see Appendix H for executive summaries).

The Commission wishes to underscore the many positive steps the University has made in improving undergraduate education, through investments in: scholarships and financial aid, freshman seminars, study abroad, undergraduate research, writing across the curriculum, community service, residential living, on improving the quality of incoming students, technology to enhance learning and service to students, and related

capital investments. The Commission endorses the recent emphasis on timely graduation rates and notes that:

- Strong undergraduate education requires integrated investments in academic programs and service enhancements.

- The strength of University undergraduate programs is tightly linked to the quality of its research and graduate/professional programs; investments in new faculty positions in key areas and in research facilities benefit undergraduates who can take advantage of new faculty, cutting-edge laboratories, and innovative academic programs.

- High-quality undergraduate programs also require a commitment to a balanced strategy. Students take courses not only in their own department, but also from other departments or even other colleges across the University. Strong undergraduate programs that attract the brightest undergraduate students demand excellence in the core arts and sciences that serve as the foundation for most undergraduate degree programs. For example, to strengthen biological sciences, the University must also have strong physical sciences, mathematics, and humanities programs.

The University has made progress, but more needs to be done to achieve a ranking in the top ten among public research universities in a nationally competitive environment in which students have become more sophisticated and selective consumers.

IV. Appendices

A. Legislation Establishing the Commission

B. Roster of Commission Members and Appointing Authority

C. List of URLs and Core Materials Reviewed by the Commission

D. National Rankings Systems Overview

E. University of Minnesota Top Programs in National Rankings

F. "Higher Tuitions: Harbinger of a Hybrid University?" and "Is the Public Research University Dead?" Mark G. Yudof

G. Maintaining U's Ranking Is a Priority." *St. Paul Pioneer Press*, July 2, 2002

H. Academic Priorities and Postsecondary Planning Legislative Reports (Executive Summaries and Key Sections)

Appendix A

Minnesota Session Laws 2001, 1st Special Session, Chapter 1

An act relating to education; appropriating money for education and related purposes to the higher education services office, board of trustees of the Minnesota state colleges and universities, board of regents of the University of Minnesota, and the Mayo Medical Foundation, with certain conditions; ...

Article 2, Section 28

Sec. 28. [COMMISSION ON UNIVERSITY OF MINNESOTA EXCELLENCE.]

Subdivision 1. [ESTABLISHMENT.] The commission on University of Minnesota excellence is established to:

(1) review the university's current nationally ranked areas of excellence;

(2) review major investment efforts in interdisciplinary initiatives identified by the university in 1998, including digital technology, design, new media, molecular and cellular biology, medical science, and agriculture;

(3) evaluate and make recommendations on how the university can develop additional centers of excellence that will achieve a national ranking in the top ten within the next ten years and identify centers of excellence which are best positioned and have the best potential to achieve this goal;

(4) examine the university's mission, scope, and financing of programs and propose possible ways in which the university can refocus or refine its mission and offerings; and

(5) identify undergraduate degree programs in which quality and productivity improvements could be achieved through increased collaboration with public and private post-secondary institutions in and outside of Minnesota.

Subd. 2. [MEMBERSHIP; STAFF.] (a) The commission on University of Minnesota excellence consists of 15 members. Four members must be appointed by the governor, including the chair of the commission. Four members must be appointed by the speaker of the house of representatives. Up to two members of the house of representatives may be appointed. Four members must be appointed by the subcommittee on committees of the senate committee on rules and administration. Up to two senators may be appointed. Three members must be appointed by the chair of the University of Minnesota board of regents and may include current members of the board. Appointments must be

made by September 1, 2001. Members appointed to the commission must be selected for their expertise in complex organizational structure and should include leaders of business, industry, or post-secondary institutions. The president of the University of Minnesota or the president's designee is an ex officio, nonvoting member of the commission.

(b) Members of the commission serve without compensation or expenses under Minnesota Statutes, section 15.0575, subdivision 3.

(c) The board of regents of the University of Minnesota is requested to make University of Minnesota staff available to the commission.

Subd. 3. [CENTERS OF EXCELLENCE.] The commission must, at a minimum, identify five additional centers of excellence at the University of Minnesota in which to focus resources and policy initiatives. The goal for these centers is to have them develop national stature and achieve a national ranking in the top ten within ten years. The additional centers of excellence must be chosen from a group of potential centers of excellence that includes the programs and departments in which the university is currently considered a national or regional leader and from existing or potential interdisciplinary initiatives at the university.

Subd. 4. [REPORT.] The commission must report to the legislature by July 1, 2002, on areas of excellence, mission, and focus of the University of Minnesota. In preparing its report on areas of excellence, the task force is encouraged to consider operation and capital financing needs, Minnesota economic needs, federal research priorities, and opportunities for private financial support.

Subd. 5. [EXPIRATION.] The commission on University of Minnesota excellence expires on December 31, 2002.

Appendix B

COMMISSION ON UNIVERSITY OF MINNESOTA EXCELLENCE MEMBERSHIP and APPOINTING AUTHORITY

Doug Leatherdale, Chair
Retired
[Governor]

Jane Belau
Consultant, Ceridian
[Senate]

Robert Bergland
Retired
Regent
[University]

Judith Garrard
Professor, Division of Health Services Research and Policy
[University]

Jean Keffeler
Retired
Regent
[Governor]

Steve Kelley
State Senator
[Senate]

Jay Kiedrowski
Executive Vice President, Wells Fargo Institutional Investments
[Senate]

Warren Larson
Marketing, Community Relations and Community Development Director, Meritcare
[Senate]

Christine Maziar
Executive Vice President and Provost
[University, Ex officio]

Richard McNamara
CEO & Owner, Activar Inc.
Regent
[Governor]

Steve Minn
Principal, Lupe Development and Associates
[Governor]

H. Bryan Neel III
Professor and Surgeon, Mayo Clinic
Regent
[University]

Tim Pawlenty
House Majority Leader
[House]

Ruth Schuman*
Public member
[House] *withdrew, not replaced

Donald Sudor
Retired
[House]

Darrell Thompson
Executive Director, Bolder Options
[House]

Appendix C

URLs and Core Materials Reviewed by the Commission

URLs:

http://www.aau.edu/resuniv/RschFacts.html
http://www.dtc.umn.edu/
http//biosci.cbs.umn.edu/admin/bioinit/
http://design.umn.edu:8080/designInstitute/index.html
http://www.inms.umn.edu/flash_index.html
http://www.rapidresponse.umn.edu

University Reports and Facts

- Reflecting on Success
- University of Minnesota 2001 Facts
- University of Minnesota 2002 – 2003 Biennial Budget Request User's Guide
- Academic Priorities Report (Report prepared for submission to the Minnesota Legislature)
- Fiscal Years 2001-02 and 2002-03 Operating Budgets/Conceptual Framework (Presented to the Board of Regents by President Yudof)
- Minnesota Academic Initiatives: Where Will the University of Minnesota Be in 20 Years?
- University of Minnesota Academic Interdisciplinary Initiatives Progress Report: Executive Summary, December 2001
- University of Minnesota Accountability Discussion (Presented to the House Higher Education Finance Committee by President Yudof)
- University of Minnesota 2001 Annual Report
- University of Minnesota Foundation 2001 Annual Report
- University Plan, Performance and Accountability Report 2001

Unit-Level Reports

- Minnesota Medical Foundation Annual Report
- Compact for the College of Liberal Arts -- FY 2000
- Compact Addendum for the College of Liberal Arts, FY 2000-01

External Reports

- The Top American Research Universities
- Minnesota Higher Education Data Profile

Appendix D

National Rankings Systems Overview

Four national ranking systems use unique methodologies, combining objective and subjective information in different, and sometimes unsupportable, ways.

- **U.S. News and World Report "Best American Colleges" and "Best Graduate Programs" Series.** Beginning in 1983, U.S. News examined a broad cross section of institutions, using a combination of statistical and reputation surveys to collect data, looking at graduate programs each spring (most recently in 2002), and overall institutions each fall (most recent in 2001). Academic reputation is weighted most heavily, comprising 25 percent of the score. Graduation rates are also weighted heavily, at 16 percent. Only a subset of graduate and professional programs are ranked each year. (Among those not ranked by U.S. News, but highly ranked in other systems are: Journalism, Statistics, Agricultural Economics, Forestry, and Pharmacy.) Because the methodology, as well as the weightings, have changed over the years, changes in rank from one year to another may not be based on objective differences. Outside the world of institutional rankings it would be unreasonable to expect an institution's ranking to vary significantly from one year to the next—the fundamental quality drivers for an institution just don't change that quickly. Nonetheless, a review of U.S. News rankings over the last decade show many instances of significant change in institutional ranking for institutions outside of the top ten. Such variations can be explained by methodological deficiencies or, in some instances, by survey "response engineering." Many colleges and universities, and policy analysts strongly criticize the U.S. News rankings when they appear each year. Yet, very few refuse to participate because it is one of the most frequently cited of the ranking systems and failure to provide institutional information to the U.S. News surveyors may lead to use by U.S. News of unreliable data, not verified by the institution, in the rankings.

- **National Research Council Rankings of Doctoral Programs.** Considered one of the more objective of the ranking systems, since the 1920s, the National Research Council (affiliated with the National Academy of Science and its predecessors) has ranked doctoral programs, presenting its findings roughly once every decade (most recently in 1995). Based on surveys sent to faculty asking their opinion on faculty and program quality within particular disciplines, 20 measures include scholarly quality measured by publications, citations, awards and honors, effectiveness in educating graduate students. In the 1995 report, reputation correlated strongly with program size, favoring larger departments. The next report is not expected to be released until 2005, at the earliest. Since 1995, when the last study was published, doctoral-level research has become increasing interdisciplinary; defining disciplines and determining how to compare them with earlier data will be a major issue for the next study. These questions are especially difficult and pertinent to the biological sciences that have experienced significant reorganization throughout the country. In the past, the NRC rankings have failed to capture Minnesota's strength in agriculture, natural resources, human ecology, and education, as well as completely ignoring the professional degree programs such as law, medicine, public health, dentistry, pharmacy, and veterinary medicine – all areas of strength on the Twin Cities campus. It is hoped that the next NRC rankings will include evaluation of Ph.D. degree programs in the "land-grant" disciplines as their exclusion as been a source of frustration for land-grant universities.

- **University of Florida Top American Research Universities Study**. The University of Florida has published a ranking of research institutions for the past two years (most recently in 2001). Building on a benchmarking and accountability initiative required by the Florida legislature, this report is currently considered the most objective as it includes no reputational information. It is limited, however, in that it only looks at institutions as a whole and is considered by some to underemphasize undergraduate education. Nine measures, including such criteria as research expenditures, size of endowment, alumni giving, were identified specifically to measure competitiveness of research universities in garnering resources to support research. Rankings are based on data collection from all schools covered by the study. Institutions are grouped on the basis of how many measures they have in the top 25. This ranking system is the one that best reflects Minnesota's strength across its broad mission.

- **Gourman Report**. Most recently updated in 1997, the Gourman Report is the work of a single editor, attempting to assign precise numerical scores to institutions and programs, based on reviews, surveys, and public sources. The report does not disclose its methodology. It is used because it reviews a wider range of academic programs than other ranking systems.

Appendix E

University of Minnesota Top Programs in National Rankings

Program	1995 NRC Rank [274 institutions total]	Rank in NRC or Gourman	Number of Top-Ranked Programs in US News or Gourman	Source
Engineering		21	145	US News, 2002
Aerospace Engineering	12	12	30	Gourman, 1997
Bioengineering/Biomedical	17.5	21		US News, 2001
Chemical Engineering	1	2	20	US News, 2002
Civil Engineering	13	17		US News, 2001
Computer Engineering		19		US News, 2000
Electric/Electronic/Communication	18	21		US News, 2001
Materials Engineering	17	21		US News, 2001
Mechanical Engineering	8	9	23	US News, 2002
Chemistry	21	22	89	US News, 2002
Inorganic Chemistry		10	16	US News, 2002
Physical Chemistry		1	16	Gourman, 1997
Polymer Chemistry		8		US News, 1999
Geology	31	21	27	US News, 1999
Hydrogeology		7	10	US News, 1999
Mathematics	14	16	98	US News, 2002
Applied Mathematics		9	79	US News, 2002
Physics	22.5	24	88	US News, 2002
Astrophysics & Astronomy	24	20	27	Gourman, 1997
Medicine		15	124	Gourman, 1997
Audiology		8	66	US News, 2000
Clinical Nursing, Adult/Med-Surg		10	14	US News, 2000
Clinical Nursing, Comm/Publ Hlth		7	11	US News, 2000
Clinical Psychology		5	114	US News, 2001
Family Medicine (UMD)		13		US News, 2001
Family Medicine (UMTC)		9		US News, 2001
Microbiology		22	40	Gourman, 1997
Occupational Therapy		23	67	US News, 2001
Pharmacology	21	22	30	Gourman, 1997
Primary Care (UMD)		14	114	US News, 2002
Primary Care (UMTC)		14	114	US News, 2002
Rural Medicine (UMD)		8	20	US News, 2002
Rural Medicine (UMTC)		19		US News, 2001
Dentistry		11	54	Gourman, 1997
Nursing		13	73	Gourman, 1997
Pharmacy		7	59	Gourman, 1997
Public Health		7	28	US News, 2000
Veterinary Medicine		11	21	US News, 2000
Public Affairs		12		US News, 2002
City Management & Urban Policy		20		US News, 2001
Health Policy & Management		7		US News, 2002
Nonprofit Management		3		US News, 2001
Public Management Admin		13		US News, 2001
Public Policy Analysis		13		US News, 2001
Social Policy		11		US News, 2001

Law		18	175	US News, 2002
International Law		14		US News, 2001
Management		24		US News, 2002
Health Services Administration		4	40	US News, 2000
Industrial/Labor Relations		6	8	Gourman, 1997
M.I.S.		5	26	US News, 2002
Marketing		25		US News, 2001
Part-time MBA		12		US News, 2001
Production/Operations Mgmt		21		US News, 2001
UG Business Degree		14		US News, 2001
Education		12		US News, 2002
Administration/Supervision		12		US News, 2001
Counseling/Personnel Services		5	16	US News, 2002
Curriculum/Instruction		18		US News, 2001
Education Policy		14	19	US News, 2001
Educational Psychology		6		US News, 2002
Elementary Education		11		US News, 2001
Higher Education Administration		11		US News, 2001
Secondary Education		11		US News, 2001
Special Education		7	13	US News, 2002
Vocational/Technical Education		3	10	US News, 2002
Agricultural Sciences		9	32	Gourman, 1997
Agricultural Economics		4	34	Gourman, 1997
Agricultural Engineering		6	32	Gourman, 1997
Agronomy/Soil Sciences		5	26	Gourman, 1997
Botany		16	40	Gourman, 1997
Entomology		5	31	Gourman, 1997
Horticulture		8	27	Gourman, 1997
Plant Pathology		7	30	Gourman, 1997
Ecology, Evolution & Behavior	15			
Nutrition		15	38	Gourman, 1997
Social Work		19	79	US News, 2000
Forestry		6	31	Gourman, 1997
Architecture		13		US News, 1997
Landscape Architecture		16	17	Gourman, 1997
Art History	30	25	30	Gourman, 1997
Classics	24	24	29	Gourman, 1997
Drama/Theatre		6	32	Gourman, 1997
Economics	10	11	53	US News, 2001
Industrial Organization		13		US News, 2000
International Economics		15		US News, 2000
Macroeconomics		6	14	US News, 2001
Microeconomics		12	19	US News, 2001
Gender & Literature		14	23	US News, 2001
Literary Criticism & Theory		19	20	US News, 2001
Medieval Literature		13		US News, 2000
Geography	3	1	30	Gourman, 1997
German	11	18	31	Gourman, 1997
History	21.5	19	89	US News, 2001
European History		14	18	US News, 2001
Modern U.S. History		18	20	US News, 2001
Women's History		7	20	US News, 2001
Journalism		4	22	Gourman, 1997

Political Science	13	15	62	US News, 2001
American Politics		9	21	US News, 2001
Political Theory		7	17	US News, 2001
Institute of Child Development		3	176	US News, 2001
Developmental Psychology		1	10	US News, 2001
Psychology	7	11	176	US News, 2001
Cognitive Psychology		5	31	Gourman, 1997
Experimental Psychology		18		US News, 2000
Industrial/Organizational Psych		2	10	US News, 2001
Personality		4	18	Gourman, 1997
Sensation & Perception		5	24	Gourman, 1997
Social Psychology		11		US News, 2000
Sociology	24	22	65	US News, 2001
Historical Sociology		6	13	US News, 2001
Speech-Lang-Pathology (UMTC)		14	119	US News, 2000
Statistics	13	10	30	Gourman, 1997

Appendix F

Mark G. Yudof, "Higher Tuitions: Harbinger of a Hybrid University?" *Change*, March/April 2002. *Used with permission of the publisher.*

Mark G. Yudof, "Is the Public Research University Dead?" *Chronicle of Higher Education*, Jan. 11, 2002. *Used with permission of the author.*

HIGHER TUITIONS

Harbinger of a Hybrid University?

BY MARK G. YUDOF

In an uncertain economy it is easy to link sluggish growth, meager state coffers, and subsequent tuition increases at public universities. In fact, the revenue shortfalls being faced by states across the United States may explain the magnitude of recent tuition increases at flagship state universities, but this short-term snapshot tells only part of the story. In fact, in good times and bad, under Democrats and under Republicans, the actual story is a long-term trend toward lower or static state support, in relative terms, for public research universities. State support for higher education per $1,000 in personal income dropped from $11.22 to $7.94—a 30 percent decline—between 1979 and 2000.

As higher education comprises a smaller and smaller portion of state budgets, and as state dollars make up a narrowing slice of university budgets, the central implication is that, for the foreseeable future, public research universities will look to students to pay more of their educational costs. These students will be part of what I have dubbed the hybrid university, an institution with many traditions and functions still within the public realm, but with other characteristics that are more in line with those of private colleges and universities. The challenge for these hybrid institutions will be to retain the best of their public traditions while adapting to a more privatized model.

Public research universities have always served different constituencies, and the two most important ones have been the students they teach and the states in which they are located. As tuition pays more and state dollars pay less of the freight, accountability will shift more toward students and their needs and away from the priorities of legislators and other state leaders. To be sure, students and states have many overlapping expectations and interests, but where the priorities of students and states diverge, the hybrid university will be tugged increasingly to the students' side. For example, state leaders may prefer greater investment in promising areas of applied research, whereas student demand may be focused more on business, arts and humanities, and social sciences.

Major public research universities, of which there are 50 to 60 in the United States, will have to adjust to this new reality, or, I believe, they will cease to be the centers for innovation and significant research that they are today.

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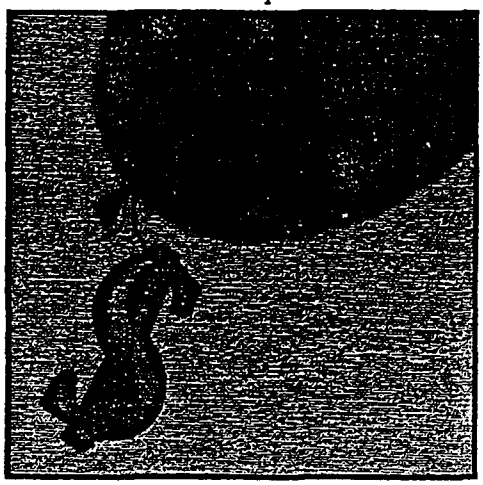
For me, the unvarnished truth is that the extraordinary compact between state governments and their flagship universities appears to be dead—or at least on life support. For more than a century, these two parties had a deal: In return for financial support from taxpayers, these universities would keep tuition low and provide broad access for undergraduates from all economic strata; train undergraduate, graduate, and professional students; promote arts and culture; help solve local problems; and perform ground-breaking research.

Unfortunately, the agreement between the states and their flagship universities has deteriorated for 25 years, leaving public research universities in a purgatory of insufficient resources—low tuition and flat appropriations. State appropriations to higher education have generally kept pace with the Consumer Price Index (CPI) inflation, but the rising costs faced by colleges and universities have consistently outstripped this "regular" rate of inflation. Most public research institutions continue to streamline operations and look for cost-savings, but the reality is that they are still extremely labor-intensive, use expensive technologies, and support costly research facilities.

As a result, public research universities find it increasingly difficult to compete with their private peers for the best faculty members—those who have the ability both to create *and* to effectively disseminate knowledge. In many disciplines, the effort to attract top faculty members is akin to recruiting film stars and top-tier professional athletes; CPI-level salary adjustments simply won't cut it. The gap between professors' salaries at public and private universities has grown from an inflation-adjusted $1,400 in 1980 to $22,100 today, according to a *Chronicle of Higher Education* analysis of American Association of University Professors data. And that gap has grown even as students at public research universities have paid more and more. For example, at the University of Minnesota, tuition covers nearly two-thirds of the cost of instruction today, compared to the one-third of a quarter-century ago.



So what's driving down the share of state budgets allocated to public research universities? Some observers have posited that the end of the Cold War has turned the nation's attention away from maintaining technological superiority or from turning out an educated and prepared populace *à la* the National Defense Education Act of 1958. But the decline in state support began at least a decade before the fall of the Berlin Wall; the time frame just doesn't seem to fit. Whether the new "hot" war on terrorism changes the higher education funding equation remains to be seen, but the trend toward lower state funding continued, unrelentingly, through Détente, *Glasnost*, and the break-up of the Soviet Union.

So where do the reasons lie for the reshuffling of states' priorities? To my mind, a large part of the answer is demographics. Legislators and governors can't help but be influenced by the graying of America. The number of Americans between the ages of 45 and 65 grew by a third over the last decade, and the portion of U.S. households with children at home dropped from one-half to one-third between 1960 and the present. (Are people now watching their stock portfolios instead of raising kids? Fifty percent of the population owns stock today, a five-fold increase over 1965.)

As a result, the public's attention has shifted toward services that affect it directly, mainly health care and public safety, and away from education in general. State spending on higher education fell 14 percent between 1986 and 1996 as a share of states' total budgets, while Medicaid's share nearly doubled, and corrections' share increased by more than 25 percent. Tellingly, the slowly declining share of state spending for higher education intersected with the steep incline in Medicaid's share right around 1990.

Another factor in states' changing priorities is the increasing value of education to individual students. Over a lifetime, a college graduate today will earn an average of $1 million more than a high school graduate, and those with professional degrees increase the gap on average to $3 million. The difference between the wages of the college educated and the non-college educated has widened considerably since the early 1970s. The private return on investment in higher education to each individual, then, has risen significantly.

Though we believers in the civic value of education may lament it greatly, with the wage premium widening, education today is increasingly seen as a private, rather than a public, good. Consequently, many legislators appear more comfortable with students' paying higher tuition than they did in the past, tacitly encouraging students to borrow today and pay back later. Others continue to embrace the populism of low tuition, willfully ignoring higher education's diminished public good status.

Along the same lines, lawmakers are more inclined to emphasize direct aid—such as grants, loans, and now tax breaks—to individual students rather than aid to institutions; arguably the most important federal legislation affecting higher education in recent years has been the new $3,000 deduction for college tuition signed into law by President Bush, and its forerunner, the "HOPE Scholarship" tax credit signed by President Clinton. Pell Grants also have continued to grow. Of course, to cover their increased costs, universities can only capitalize on these direct student subsidies and tax benefits in one way: by raising tuition.

Regents, trustees, and administrators of public research universities are faced with contradictory signals from legislators. A growing number of lawmakers prefer market accountability to traditional legislative oversight for universities, saying, in essence, you're doing the right thing as a university if you are attracting students because of your quality, reputation, and service to students. This emerging paradigm relies on higher user fees (tuition), competition for students (with the market ensuring quality), and the availability of financial aid and targeted tax breaks roughly equivalent to income-adjusted vouchers.

At the same time, lawmakers advocate strongly for their local public colleges and universities, even if these institutions are not competitive or well-used under this market model. This

The first challenge for hybrid universities will be to increase tuition dramatically in order to remain viable and competitive with the eminent private research universities.

is especially true in rural areas where the economy is weak and the population thinning. Over the past 30 years, as the number of postsecondary institutions has grown and as more students have enrolled in higher education, the state funding available for statewide public research universities has been diluted. This "regionalization" of higher education has exacerbated regional and urban-rural splits within states, as legislators seek to protect local colleges or universities, ones that often lack a significant research component.

Another of public research universities' major constituencies has been weakened as globalization, mergers, and takeovers move corporate headquarters or executives from state to state and country to country. Today's peripatetic global business elite has less and less stake in the nearby research institutions; business leaders are less likely to be home-grown, and they often are more interested in a tax system that enhances productivity and profit than they are in encouraging state appropriations for higher education.

Although corporations continue to make donations and forge partnerships with public research universities, the mutually reinforcing ties between what used to be "local" industry and these institutions have weakened. The emergence of corporate educational institutions, such as Motorola University or Dell University, which focus on corporate-specific workforce needs, also has reduced reliance on local higher education institutions.

In order to adapt successfully to the current environment, public research universities will have to evolve into the new model of institutions I have mentioned, charging higher tuition—though still much less than what their private peers charge—and looking to private sources for funds and partnerships. And they must do so while retaining their essential public character.

If I am right—and in many ways, I still hope that I am not—the first challenge for hybrid universities will be to increase tuition dramatically in order to remain viable and competitive with the eminent private research universities. The challenge will be to convince students, lawmakers, and the public that having more expensive but higher-quality public research universities is preferable to having inexpensive ones without a substantial research capacity.

Paradoxically, to continue the long tradition of broad access for students to public research universities, these institutions will have to become more like their private peers; to ensure the access for low-income and historically disadvantaged students that low-cost tuition once allowed, I believe that public research universities will have to work hard to augment funds for student aid and scholarships. This will likely mean an accelerated push for philanthropic support, but it may also extend to lending stronger political support for new public initiatives that direct aid and tax benefits to students. In the last analysis, and consistent with the increased private returns on an investment in education, students may also end up borrowing more to support their education.

At the same time, university advocates also will have to work hard to retain their existing level of state subsidy—still a crucial source of funding that is largely unrestricted. Education, even under the new university, still has enormous public benefits, and advocates will have to find more ways to demonstrate what they are.

Providing for these public goods in an increasingly tuition-dependent environment will be a challenge. Especially at our land-grant institutions, asking for student tuition dollars to pay for outreach activities that may not directly impact students' education is a difficult proposition. Also problematic are professional degree programs that cost far more than tuition could ever generate, but which turn out the doctors, dentists, and veterinarians—to name just a few professionals—our states rely upon.

In regions that lack private research universities, the public benefits that state research universities provide are all the more critical. States such as Minnesota, Iowa, Wisconsin, Virginia, and Washington rely heavily on their flagship campuses to attract and retain bright people in those states, and to lay the foundation for economic growth. The private sector is not likely to pick up the slack in expensive program areas like medicine, for example; the country's newest private medical school opened 23 years ago.

New partnerships with foundations, school districts, non-profit organizations, and corporations will have to be explored in order to better leverage resources. Perhaps the new hybrid universities will have to begin charging fees for outreach programs traditionally provided for free, such as design or horticultural services to communities. (Of course, if these outreach programs are part of the core educational function, then using tuition dollars would be far easier to justify. A law clinic for indigent people, for example, gives law students hands-on experience with the legal system at the same time that it provides a valuable service to its clients.)

As I've described it here, the hybrid public university faces the tension of serving both the student and the broader community. To compete in the postsecondary market, it will have to become more efficiently operated, and it will have to radically improve student services, from accommodations and advising to online access to registration and financial aid. It will have to look more methodically at whether units and programs can support themselves through tuition dollars, and whether cross-subsidizing other programs or functions is either appropriate or sustainable. In the past, cross-subsidization has been widespread, but it has often gone unscrutinized, reflecting historical patterns of resource allocation rather than deliber-

ate decisions in the present. The answers will vary within and among different institutions, but the rationale for cross-subsidies will be more critically examined and the decisions more purposeful.

At the same time—and despite the relative decline in public support—more and more states are requiring public universities to measure their performance and to be more accountable for public dollars. This is true for a number of reasons. Legislatures and universities, influenced by increased private-sector efforts to emphasize quality and employ continuous-improvement models, now have the tools to benchmark achievements and lapses, even if, as I often find myself compelled to point out, students are not widgets.

In addition, with flat public support, universities have incentives to be more efficient if they are to adjust their institutional priorities. Good legislators always look for cost savings. And finally, accountability provides a way for some policymakers to dodge a bullet; they can justify waning appropriations by saying that legislative expectations have not been met, rather than admitting that higher education is simply a lower priority for them.

To be a great learning institution, the hybrid university will also have to continue to nurture and preserve learning for its own sake, retaining responsibility for cultural transmission, civic understanding, and other less quantifiable (but still valuable) activities emphasized in the past. Market forces, as represented by what students want, are not necessarily antithetical to these pursuits, but we must guard against the vulgarization of learning!

On a more encouraging note, if public research universities are freed from some state regulation—for example, gaining the ability to set tuition on their own and to move funds to new priorities more easily—the liberal arts and humanities could end up benefiting. Most of the country's prestigious small private colleges have made their academic reputations in these areas. With an eye toward market competition, perhaps public research universities can invest a relatively modest amount in these departments (when compared to the sums required for a first-class molecular and cellular biology department, say) and improve their national rankings and standing among current and prospective students in the process.

For too long, most public research universities and their supporters have written off our funding predicament to the circumstances of the day—if only the economy were better, if only this candidate had won an election rather than that one, if only a certain legislator chaired a certain committee, if only we had done a better job of explaining our importance to the state's economy and society during the legislative session, and so on. In some cases our regret may be well-placed—for example, higher education often has come up short in publicly articulating its purposes and benefits—but the data over more than two decades belie optimism that state subsidies will improve. Perhaps it's time that we adjust to the long-term political realities and revise the compact with our taxpayers and students to keep public research universities operating at the highest levels of excellence in the decades ahead.

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POINT OF VIEW

Is the Public Research University Dead?

By MARK G. YUDOF

Public colleges and universities have raised tuition this year at the highest rates in eight years, according to the most recent annual College Board survey -- ratcheting up fees by an average of 7.7 percent, or more than twice the rate of inflation. Most observers point to the faltering economy as the major reason for the increases, as public institutions have sought to offset drops in state support. More recently, the attacks of September 11 have compounded pre-existing economic difficulties.

Indeed, the National Conference of State Legislatures has reported that 43 states are experiencing revenue shortfalls and more than half are considering budget cuts. And at least nine governors have warned universities to expect midyear rescissions in their state appropriations.

For public research universities, those developments represent only the deepening of a long-term and structural trend toward relatively less state support. Even in the past few years, when state budgets were expanding, public research universities made little headway against the legacy of previous lean years. Thus, regardless of the economy, in the foreseeable future, students at public research universities will have to pay more of their own educational costs, and the role of such institutions will fundamentally change.

More than a century ago, state governments and public research universities developed an extraordinary compact. In return for financial support from taxpayers, universities agreed to keep tuition low and provide access for students from a broad range of economic backgrounds, train graduate and professional students, promote arts and culture, help solve problems in the community, and perform groundbreaking research.

Yet over the past 25 years, that agreement has withered, leaving public research institutions in a purgatory of insufficient resources and declining competitiveness. The gap between professors' salaries at public and private universities, for example, has grown from $1,400 in 1980 to $22,100 today. As a result, public institutions find it increasingly difficult to compete for the best faculty members who, in turn, attract the brightest students and significant research dollars.

Demographic changes lie at the heart of public research universities' predicament. Over the past 40 years, the proportion of American family households with children has declined from almost one-half to one-third. The country's aging population appears more interested in issues like health care and public safety than higher education. While higher education's share of average state spending fell 14 percent from 1986 to 1996, Medicaid's share nearly doubled. The funds allocated to correctional facilities grew by more than 25 percent.

Observers may note that, over the past 25 years, state support for higher education has generally kept up with inflation, as measured by the consumer price index. But public research universities are extraordinarily laborand technology-intensive enterprises; to attract top talent and stay on the cutting edge, they must invest and spend significantly more than the inflation rate.

Meanwhile, as state support for higher education has declined relative to other public services, the value of education to students has increased substantially. After adjusting for inflation, a male college graduate today makes an average of $32,000 more each year than a high-school graduate, compared with a $15,000 gap in 1975. Over a lifetime, a person with a bachelor's degree will earn an average of $1-million more than a high-school graduate; a professional degree widens the differential to $3-million. With the wage premium rising, education is increasingly seen as a private, rather than a public, good.

Given that reality, both federal and state policy makers are asking students to shoulder a larger share of their higher-education expenses. Already students at public research universities are paying more; at the University of Minnesota, for example, their tuition covers nearly two-thirds of the direct cost of instruction, compared with the one-third that their peers paid 25 years ago. In the same vein, elected officials prefer market accountability -- with institutions competing with each other for students -- rather than traditional public oversight to ensure quality. And rather than provide operational support to universities, they encourage universities to charge higher tuition, then favor giving direct aid to students in the form of scholarships and tax benefits to help make that tuition affordable.

As state support erodes, flagship research universities face other challenges. Many local businesses now operate more globally and are less oriented toward state or regional concerns. In addition, businesses are creating their own educational programs, such as Motorola University or Dell University, to focus on specific work-force needs.

Moreover, increased enrollment in higher education over the past 30 years, and the growth of regional universities within states to meet that demand, has further diluted state support. Although such institutions often have limited research capacities, their emergence has sharpened competition for state dollars.

Where will such trends lead? The 21st century will see the evolution of a hybrid public research university, one with roots in both the public and private spheres. That new hybrid will confront significant new challenges.

The first will be to convince the public and decision makers -- governors, legislators, and regents -- that tuition must increase significantly to keep public research universities viable and competitive with private research universities. Raising tuition further will be anathema to many students, who are already paying a larger part of their instruction costs. University advocates will have to demonstrate that it is "worth it" -- to their regional economy and society, as well as to students -- to charge more in order to support a high-quality research institution. To do so, and to maintain the tradition of public universities, they will have to ensure access for low-income and historically disadvantaged students through expanded institutional student-aid and scholarship programs. That, in turn, will require public universities to accelerate their efforts to garner philanthropic dollars, as well as to secure stronger political support for government initiatives that give financial aid and tax benefits to students.

The continuing need to provide public goods will be another challenge. Especially at land-grant institutions, students and parents may question using tuition dollars to pay for extension services and other outreach activities that don't directly improve students' education. Also, what can be done about professional-degree programs that usually cost far more money than tuition will ever generate -- for example, those in medicine, dentistry, and veterinary science? Public universities may have to explore new partnerships with private foundations and organizations, charge fees for traditionally free programs, and call for more direct, earmarked state support.

The hybrid university also faces a philosophical tug of war: To compete in the market, it will have to operate more efficiently and radically improve student services. But to remain a great learning institution, it will have to continue to nurture learning for its own sake, transmit cultural values, encourage civic understanding, and foster other less quantifiable and profitable -- but still valuable -- features of the university.

The author William Arthur Ward once said, "The pessimist complains about the wind; the optimist expects it to change; and the realist adjusts the sails." Unfortunately, we at public research universities and our supporters have fallen into a pattern of blaming the circumstances of the day -- this year's economy, the current legislature or governor, or the media -- for our dwindling share of state resources, rather than focusing on our future over the long haul. Keeping public research universities relevant and thriving will be no easy task, and we should start by recognizing that the long-term political winds have shifted.

Mark G. Yudof is the president of the University of Minnesota.

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Appendix G

Maintaining U's Ranking Is a Priority

BY KRISTINA TORRES
St. Paul Pioneer Press
July 2, 2002

When it comes to the University of Minnesota, Minnesotans want top rankings, low tuition and at least some improvement in graduation rates.

But improving athletics doesn't make the cut as a priority. A Pioneer Press poll found fewer Minnesotans interested in a reorganized athletic department than in the prestige and accessibility of the state's landmark higher education institution.

"We want it both ways," said Augsburg College's Bill Morris, who was surprised that so many found the university's ranking as a research institution a top priority. The university's reputation as a research institution was somewhat or very important to 95 percent of the 625 registered voters in the poll, which was conducted last week.

"Normally, the importance of (being a) research institution has not been that high. There's always been a segment of the population that felt 'research institution' shortchanged (being a) 'teaching institution,' " said Morris, a political science professor with experience in education polling. "It jibes very well with what (President) Mark Yudof attempted to do."

Yudof leaves Minnesota next month to take over the University of Texas system. Asked to rate his job performance, Minnesotans seemed courteous in their goodbye rather than effusive – 40 percent said he did an excellent or good job, and 36 percent characterized his performance as fair or poor.

The conundrum about setting priorities that the poll presents was a frequent talking point for Yudof.

Maintaining the university as a top-ranked research institution attracts more funding, and more funding pays for better-quality classes and services. Low tuition gives a wider range of people access to those better-quality classes and services, but becomes harder and harder to maintain because growth of state support for higher education has slowed over the past 20 years. The challenge, in other words, is how to balance affordability and quality.

In the case of Minnesota, an analysis of research institutions by the University of Florida shows that the university has remained in the top echelon of its peers despite that slowing of state funding.

With the university getting $23.6 million less than expected from the financially strapped state, tuition and fees are expected to

rise 16 percent – the second double-digit increase in as many years.

"A lot of people didn't like it -- I'm not deluding myself Ñ but we did get the message out," Yudof said in response to the polling results. "The quality is important. It also sends a strong message we should not be cavalier about keeping tuition low."

Minnesotans place similar priorities on the two issues: 66 percent said keeping tuition low was very important and 29 percent said it was somewhat important – a combined 95 percent of those polled. With the university's status as a top-ranked research institution, 74 percent said it was very important and 21 percent said it was somewhat important -- also a combined 95 percent.

"I think it would be difficult (to do each), but you really need to look at how money is spent and use it wisely," said Richard Dean, a retired St. Paul welder who graduated high school during the Depression. "I was unable to go on to college, but I can see it's a lot better to have an education. I think it's very important."

Despite the high priority Minnesotans place on tuition and research issues, significant time has been spent in the past year reorganizing the athletic department to cut costs – particularly a $10 million subsidy the university provides to the sports.

The reorganization, which includes hiring a new athletic director and ending financial support of three teams, has made headlines and stirred passionate athletic boosters into action. But only about a third of Minnesotans said it was very important, while another third said it wasn't important at all.

Instead, more than half – 55 percent -- said it was very important to increase student graduation rates and 29 percent said it was at least somewhat important.

Currently, only half of the freshmen on the Twin Cities campus are likely to get their degrees within six years of enrolling. In April, in an effort to change that, Yudof announced students will be required to take a minimum of 13 credit hours (about four classes) a semester for as long as they attend the university.

"Sounds like a good idea to me," said Doris Seitz of Winona. "Let's develop the brain and go easy on the body for a while."

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Appendix H

Academic Priorities and *Postsecondary Planning* Legislative Reports (Executive Summaries and Key Sections)

Academic Priorities Legislative Report

Legislative Language

Minnesota Session Laws 2001, 1st Special Session, Chapter 1, Article 1, Section 4, Subd. 5

By February 15, 2002, and each odd-numbered year thereafter, the board of regents of the University of Minnesota must submit a report to the commissioner of finance and the chairs of the higher education finance committees delineating:

(1) the five undergraduate degree programs determined to be of highest priority to the system, and the revenue necessary to advance each program to be a center of excellence;
(2) the reallocation of money and curricular and staffing changes, by campus and program, made to advance the system's priorities;
(3) baseline data, and the methodology used to measure, the number of first generation students admitted system wide, together with a plan to increase both the recruitment and retention through graduation of these students;
(4) progress towards increasing the percentage of students graduating within four, five and six years as reported in IPEDS. Data should be provided for each institution by race, ethnicity and gender. Data provided should include information on successful retention strategies and the money allocated to enhance student retention;
(5) progress towards increasing the revenue received, from all sources, to support research activities. Data provided should include information on the increase in funding from each source; and
(6) progress of the academic health center in meeting the goals and outcomes in paragraph (c) including how much money was appropriated from the medical endowment fund contributed to meeting specific workforce training and health education goals for the academic health center.*

**paragraph (c)*
(c) The Academic Health Center, in cooperation with the department of health, shall:
(1) develop new strategies for health care delivery and professional training in this state that takes into account the changing racial and ethnic composition of this state
(2) develop new strategies to meet the health care workforce needs in the state; and
(3) base these strategies on analysis of the population's health status and opportunities for its improvement

Academic Priorities

Executive Summary

1. **Five undergraduate programs of highest priority**

- The University identifies the following areas, some of which are already targets for University investments, as those of highest priority: Social and Behavioral Sciences; Engineering and Computer Sciences; Business; Biological and Life Sciences; Visual and Performing Arts; Humanities (including Communication); and, Physical Sciences and Mathematics.

2. **Reallocation of money for curricular and staffing changes to advance system priorities**

- From FY 1998 to FY 2001, the University has reallocated $97.3 million for its system priorities.

3. **First generation students**

- Among University of Minnesota students responding to a 1999 national survey, 13.4 percent indicated that their parents had only a high school diploma. Within this group, 46.6 percent of students of color identified themselves as first generation; 10.5 percent of non students of color did so.

4. **Graduation rates**

- Five-year graduation rates by campus of freshmen entering the University in 1995 were: Twin Cities – 44.5 percent; Crookston – 32.8 percent; Duluth – 44.5 percent; and Morris – 59 percent. Six-year graduation rates by campus of freshmen entering the University in 1994 were: Twin Cities – 49.6 percent; Crookston – 45.8 percent; Duluth – 50.7 percent; and Morris – 67.6 percent.

5. **Progress toward increasing revenue to support research**

- Sponsored expenditures, the most consistent measure of external research support, totaled $407.2 million for FY 01, up 9 percent from FY 00, and up nearly 34 percent over the five-year period FY 96-01.

6. **Academic Health Center (AHC) progress report**

- The AHC will receive funding from a new state endowment; the estimated total of payments from the endowment will be $343 million, beginning in April 2002. These funds will support health professional education, strengthen the Medical School faculty, support interdisciplinary academic initiatives, and the hiring of between 40 and 50 additional new faculty over the next four years in strategic growth areas.

1. Five undergraduate programs of highest priority

Conceptual Framework: A Balanced Commitment to Quality and Improvement in Undergraduate Education at the University of Minnesota.

Over the past decade, the University of Minnesota has made a concerted effort to improve its undergraduate programs and services for students. This framework is based on these fundamental principles to strengthen undergraduate education:

- Strong undergraduate education requires integrated investments in academic programs and service enhancements, since a significant portion of undergraduate education is and should be broadly conceived rather than disciplinarily specific.

- The strength of University undergraduate programs is tightly linked to the quality of its research and graduate/professional programs; investments in new faculty positions in key areas and in research facilities benefit undergraduates who can take advantage of new faculty, cutting-edge laboratories, and innovative academic programs.

Within this framework, which guides the University's investment strategies, it would be counterproductive to identify a very small, narrowly focused set of programs for emphasis from a much broader range of academic programs. The University has targeted its academic investments over the past several years and these investments will produce clear benefits for undergraduate students. Consistent with these principles, the University frames its undergraduate improvement initiatives broadly, as follows.

Undergraduate Improvement Strategy.

- Commitment to a comprehensive approach. Over the past decade, the University has implemented a comprehensive strategy to improve the undergraduate experience, with particular attention to the first-year experience (orientation, convocation, small freshman seminars, updated classrooms, undergraduate research, intensive writing, study abroad, etc.), and an integrated approach to faculty teaching development and teaching improvement (teaching development and award programs). (See chart summarizing these initiatives in Appendix A, below.)

- Commitment to a balanced strategy to strengthen undergraduate programs. Students take courses not only in their own department, but from other departments or even other colleges across the University. Because of the highly integrative nature of liberal education, universities that strive to offer the strongest undergraduate programs and attract the brightest undergraduate students demand excellence in as many programs as possible, particularly in the core arts and sciences that serve as the foundation for most undergraduate degree programs. For example, to strengthen biological sciences, the University must also have strong physical sciences and mathematics, and humanities programs.

- Investing in academic programs. To implement this balanced strategy, the University must, and has, invested in areas it designates as of highest priority to maintain its

academic strengths and to contribute to the economic well being of the state by preparing students for important career areas. During the most recent four-year period, beyond individual disciplines or program areas, the University has made a very substantial investment to improve undergraduate education, in excess of $310 million including targeted capital investments, and has an ongoing commitment to support programs that leverage resources across colleges and administrative units. (The table in Appendix B illustrates the pattern of major investments in these areas over the past four years.)

- These investments are governed by the University's core budget and planning processes and principles. Some of these principles are embodied within the University's allocation method for tuition and indirect cost recovery, labeled Incentives for Managed Growth (IMG). Under IMG, tuition is directly allocated to the collegiate units that generate the revenue. This has allowed resources to flow immediately to programs with high demand and growing enrollments. Likewise, it forces departments and colleges to immediately address programs with falling enrollment or shrinking demand. All of the nearly $300 million in tuition revenue is allocated in this fashion.
- Over the past four years, IMG has allocated nearly $40 million in new recurring tuition revenue directly to collegiate units. Of this amount, almost 60 percent has gone to collegiate units that contain the programs listed as high priority areas, below.
- The Compact Process is complementary to IMG, providing financial incentives for colleges and campuses to invest in system-wide priorities and special academic initiatives. It is used not only to direct a strategic pool of investment capital to advance University priorities, but also is used to shape and re-direct resources and revenue streams currently within colleges and departments in support of all-University goals.

Identifying high-priority program areas. To identify a group of emerging priorities, as requested by the legislature, the University followed a series of steps, criteria, and consultations that would build on its current strengths and investment strategy, identify broad priorities with the potential to touch the greatest number of students, and help strengthen the quality of undergraduate programs on all four of our campuses. The following areas, some of which are already targets for University investments, have been identified through this approach:

Social and Behavioral Sciences
Engineering and Computer Sciences
Business
Biological and Life Sciences
Visual and Performing Arts
Humanities (including Communication)
Physical Sciences and Mathematics

These include programs that offer students a solid liberal arts education, as well as some that prepare them for careers in professions that will benefit the state's economy. This response stresses the critical importance of providing extraordinary support largely for foundational areas in the arts and sciences. The University provides many other high-quality professionally oriented undergraduate degree options; these are important to maintain, but can be largely sustained through tuition revenues, internal reallocations, and program efficiencies.

Methodological notes. Initial groupings in broad categories of undergraduate programs were created, based on the federal government's CIP (Classification of Instructional Programs) system for classifying educational programs. Using this taxonomy, we have identified 10 broad program areas, reflecting the fact that many undergraduate programs are mutually supporting, e.g., engineering and computer science; social and behavioral sciences; visual and performing arts; etc.

The method to identify program priorities emphasized:

- Student interest. Numbers of degrees granted in each of these clusters and enrollment data for FY 2000 were used to assess student interest in these program groups by sorting according to numbers of degrees conferred in the clusters.

- Quality. These clusters were also sorted based on the University's core planning criteria of quality, comparative advantage, program efficiency, and priority for investment. The groups were then considered in the context of national rankings, since sustaining the quality of highly ranked programs is a key University goal. Two of these clusters – engineering, and social and behavioral sciences – have been consistently highly ranked by the National Research Council. Although focused on graduate programs, these rankings reflect the quality of faculty who serve as undergraduate instructors and mentors.

- State needs. Academic priorities are influenced by economic, educational, and cultural needs of Minnesota. This perspective includes preparation of highly educated graduates for the state's workforce.

- Academic priorities and investment strategy. Finally, the selection was compared with the University's current academic priorities and investments. Biological sciences, engineering and computer sciences, and social and behavioral sciences have been priority areas for investments through the compact and capital budget processes, and individual college investments. Investments in business, and engineering and computers science also reflect the University's responsibility to prepare its graduates for jobs in the state's workforce. Lesser, but still significant investments have been made in

physical sciences and arts and humanities, program areas once ranked highly by the National Research Council, but that have slipped over the past several decades.

- For example, fifteen new faculty positions in computer science, and 42 new positions in molecular and cellular biology will strengthen undergraduate as well as graduate programs. Through the University's Digital Technology initiative, new positions and courses in e-commerce have been added to the Carlson School of Management, helping to strengthen the technology component of the undergraduate business program.

- Recent investments include new faculty positions in Economics, Political Economy, Psychology, and freshman seminar positions in the College of Liberal Arts, Institute of Technology, College of Biological Sciences, Carlson School of Management, and at Duluth and Morris.

Revenue needed to advance these areas to centers of excellence. The University leverages investments from multiple sources to support its academic priorities. To advance the areas designated here, revenue would be necessary in the following forms:

- Most important would be continued support of the University's compensation strategy, combining legislative and internal contributions to make faculty salaries nationally competitive, to sustain our existing areas of excellence while building others.

- The unfunded portions of the 2002-03 biennial budget to support undergraduate improvements and faculty positions in designated areas that strengthen core academic areas, maintain the quality of academic programs, and the connection to Minnesota's economy and quality of life. This would entail growth in our faculty to fill 60 new, unfunded faculty positions in our recent biennial budget request to focus on expanding undergraduate programs in the priority areas noted above.

- Internal reallocations, through the Compact Process, in continued support of academic programs and undergraduate improvements: additional freshman seminars, improved advising, research opportunities, etc.

- Progress on the University's six-year capital plan to build and renovate classrooms, labs, residence halls, and other facilities that support undergraduate education.

Appendix A

Framework for Undergraduate Improvement Initiatives, Impact, and Goals

Academic Initiatives	Impact on Students	Goal
Freshman Seminars 35 new faculty positions 20 seminars in 1998-99 125+ seminars in 2000-01	1999 – 400 students (8%) 2001 – 1,875 students (38%) 2002 – 1,900 (35%)	All freshmen
Undergraduate Research 1,500+ faculty since inception	400 TC students in '01	1,000 students per year
Study Abroad	1999 – 700 students 2000 – 1,020 students (UMTC) 2001 – 1,275 students (UMTC)	50% of graduating students
Writing Intensive Courses	Required for all students	Students complete 4 writing-intensive courses during their college careers
Interdisciplinary Minors 1999-2001 – nearly 20, including: Leadership, Information Technology, Design, New Media, Business, Violence Prevention, Youth Studies, Disability Studies, Applied Ethics (UMC), Information Design (UMD), Information Technology (UMC)	2001 – 300+ students	Add minors in high-demand fields to allow students to expand career opportunities

Student Development and Support	Impact on Students	Goal
SEAM (Student Excellence in Academics and Multiculturalism)	1999 – 250 students in 8 learning communities 2000 – 250 students in 11 learning communities 2001 – 275-300 students in 12 learning communities	Enhance academic success for students of color
Service Learning/Community Service	3,000 students/year	4,000 students/year Facilitate intensive learning experience for students
Convocation 120+ faculty participate each year	'98, '99, '00, '01 4,000 students participated each year	Continue annually – all freshmen
Advising and Student Support Services	Restructured in CLA; increased use of technology in all colleges	Enhance advising for all students
Freshmen Orientation	5,469 students attended in fall 2001	Enhance first-year experience for all freshmen
Residential Capacity **Living/Learning Communities** Also include new first-year experience halls. New houses in 2001: Anthropology, Explorations in CLA, Exploration in Engineering and Science, ROTC, Service Learning, and Women's Studies	6,800 total capacity in 2001-02 (20% increase over 2000-01) 5,428 total students in residence halls, 2001-02 1,000 students in 21 living-learning communities in 01-02	 23 houses planned for fall 2002

Faculty Teaching Development Initiatives
Bush Early Career Faculty Program
Mid-Career Teaching Program
Teaching Enrichment Series
Bush Grant for "Enhancing Student Learning through Innovative Teaching Technology Strategies"
Technology Enhanced Learning Innovation Awards and Grants
Morse Alumni Teaching Awards
Graduate and Professional Teaching Awards
Academy of Distinguished Teachers

Technology and Classroom Improvements
Computer-based Library Resources: QuickStart and Research QuickStudy
Classroom Quality and Technology Upgrades – $2.7 million has been invested between 1999 and 2001 in classroom technology upgrades (150 classrooms have been technology enhanced on the Twin Cities campus, and another 50 on the coordinate campuses, 60 percent of total classroom inventory. Goal is 100 percent by 2004.)
Academic Technology Infrastructure – $9.3 million has been invested in the student modem pool, ITV and streaming video, WebCT (used in 1,000 classes), and other system-wide technology enhancements.

Appendix B

Summary of Major Academic Program Investments to Strengthen Undergraduate Programs

ITEM	AMOUNT
Student System	$25,600,000
Undergraduate Improvement Initiatives	8,000,000
Related Capital Investments	198,301,000
Residence Halls	75,905,000
Scholarships / Financial Aid	2,378,871
TOTAL of Major Items	$310,184,871

Postsecondary Planning: A Joint Report to the Minnesota State Legislature

Legislative Language

Minnesota Session Laws 2001, 1st Special Session, Chapter 1, Article 1, Section 6, Subd. 1

By February 15 of each year the board of trustees of the Minnesota state colleges and universities must and the board of regents of the University of Minnesota is requested to report to the legislature on progress under the master academic plan for the metropolitan area. The report must include a discussion of coordination and duplication of program offerings, developmental and remedial education, credit transfers within and between the post-secondary systems, and planning and delivery of coordinated programs. In order to better achieve the goal of a more integrated, effective, and seamless post-secondary education system in Minnesota, the report must also identify statewide efforts at integration and cooperation between the post-secondary systems.

Executive Summary

I. INTRODUCTION

The Minnesota State Colleges and Universities (MnSCU) and the University of Minnesota (UM or "the University") are pleased to submit this joint report on postsecondary planning, as required by the Minnesota Higher Education Appropriation Bill 01-4469 Art. 1, Section 6, Subd. 1.

This report reflects the long-term and ongoing working relationship between the two systems that provide public higher education to the state. While individual cooperative initiatives have been in operation for over a decade, the higher education systems (and other primary stakeholders) have solidified their commitment to develop and coordinate comprehensive, joint metropolitan-area postsecondary programs through formal agreements. These cooperative efforts include the 1993 Twin Cities Higher Education Partnership, established to foster collaboration among the partners to develop these programs, including expansion of upper-division programs in the Twin Cities, and the 1998 *Partnership Agreement for Public Higher Education* that elaborated on a framework for the systems to work together to enhance the capacity of higher

education in Minnesota, and to leverage and extend resources in areas critical to workforce and economic development to every part of the state.

II. DEMAND AND CAPACITY OF HIGHER EDUCATION IN MINNESOTA AND THE METROPOLITAN AREA

Any analysis of and plan for postsecondary education in Minnesota depends on and must respond to the demographic trends in our educational marketplace. We therefore preface this report with a brief overview of the key demographic trends to provide a framework for the activities and plans this report describes.

Population growth

- Population in the 11-county Twin Cities metropolitan area has grown faster than in Minnesota as a whole.
- Population has grown more quickly in the outlying counties of the Twin Cities metropolitan area. However, Hennepin and Ramsey Counties are still the most populous and also experienced strong population growth.
- The 11-county metropolitan area is projected to grow by 9.48 percent over the period 2005-2020.
- The population of Minnesotans ages 15-34 is projected to increase until the year 2015 followed by a declining age cohort to 2025. (People in the 15-34 age cohort are the most likely to become MnSCU or University of Minnesota students in the near future or to be currently enrolled in programs offered by the two systems.) While the Census projections show a declining number of 15 to 19 year olds beginning after 2005, projections of high school graduates for the state as a whole are essentially constant between 2005 and 2010.
- The number of preK-12 students in public schools in the Twin Cities metropolitan area increased slightly over the last three years. These slight increases are projected to continue until their peak in about 2008. Slight gradual declines in high school graduates are predicted after that. Graduation rates are comparatively low in the urban core: 43.3 percent in Minneapolis, and 63.4 percent in St. Paul. If graduation rates in these large districts were 100 percent, fewer than 3,000 additional high school graduates would be added.

Diversity

- All student populations increased from the 1998-1999 school year to the 2000-2001 school year. Blacks or African Americans make up the largest minority population in Twin Cities' public schools. Asian-Pacific Islander, Hispanic, and African American student populations grew at a faster rate than white student populations over this period.
- There was a large increase in the number of Limited English Proficiency (LEP) students from the 1998-1999 school year to the 2000-2001 school

year. Special Education students also increased in numbers from the 1998-1999 school year to the 2000-2001 school year. Related research indicates that LEP students speak an increasingly diverse range of first languages.

Enrollment trends and student characteristics

- MnSCU's Metro Alliance[1] and the University of Minnesota – Twin Cities combined serve over 75,000 full-year equivalent (FYE) students per year. Together they serve about one-third of Minnesota's higher education market. Both the Metro Alliance and the University of Minnesota – Twin Cities campus are projecting enrollment increases for the current and coming fiscal years. The University of Minnesota – Twin Cities campus enrolls about 15 percent more FYE students than the Metro Alliance.
- More than 96 percent of all seniors expect to have had at least some college within six years of high school graduation, regardless of racial/ethnic background. However, African American, Hispanic, and American Indian students are 20 to 50 percent as likely as White or Asian students to take the ACT test (a general measure of interest in college).
- Just over 50 percent of the students in the Metro Alliance and just over 80 percent of students at the University of Minnesota – Twin Cities are in the traditional college age-range of 19-24. The Metro Alliance institutions have much higher percentages of older students, particularly those 25 and older. Metro Alliance institutions and the University of Minnesota – Twin Cities have substantial enrollments of students of color. Students of color represented over 17 percent of enrollment at Metro Alliance institutions in fall semester 1999 and about 13 percent of enrollment at the University of Minnesota – Twin Cities. (International students are not factored into either of these percentages.) Together, their enrollment of students of color is higher than the 14.3 percent of Twin Citians of color.

III. METROPOLITAN PROGRAMS: COORDINATION, DUPLICATION, PLANNING, AND DELIVERY

Coordinating programs and minimizing duplication emanates from the mission differentiation of Minnesota's public postsecondary systems. Data illustrate that the academic programs of MnSCU and the University of Minnesota well complement one another. For example, there is a very sharp difference in the levels of degree awards, with MnSCU dominating in degrees awarded at the baccalaureate level and below. By contrast, the University predominates in the public sphere, in post-baccalaureate degrees, and invests considerable resources in research and public service, unique components of its statutory mission. An analysis of specific degree programs and patterns of enrollment reveals appropriate distribution among public providers for high-demand areas such as business management and education, as well as appropriate specialization, with

[1] The MnSCU Metro Alliance includes Metropolitan State University and all two-year colleges in the 11-county metropolitan area.

MnSCU, for example, offering all of the Protective Services degrees, and the University of Minnesota offering all of the M.D.s.

Analysis reveals very little duplication of programs in the metropolitan area between the University and MnSCU. Among the University of Minnesota – Twin Cities' more than 580 degree programs, and Metropolitan State University's 143 degree programs, only 21 share similar titles (see chart on p. 22). Most of these are in high demand fields, such as business and communication.

For specific, workforce-related instances where inter-system coordination can benefit the metropolitan area, MnSCU and the University established in 1993 a formal and collegial process for the identification and development of program opportunities, through the Minnesota Higher Education Partnership. Formalized in 1998 through a joint "Partnership Agreement for Public Higher Education," this collaboration has produced 10 partnership baccalaureate degrees (in such workforce-oriented fields as construction management, information networking, and manufacturing technology) that leverage the lower-division resources of MnSCU partners with the upper-division resources of the University of Minnesota.

IV. STATEWIDE COLLABORATIVE EFFORTS

Inter-system integration and coordination of resources, including emphasis upon libraries, academic programs, and use of technology to expand access to learning, has been extended beyond the metropolitan area to cover the entire state. A joint, annual report on collaborations statewide between MnSCU and the University of Minnesota demonstrates that over the past three years, formal academic collaborations have grown from 60 to nearly 170 programs, including articulation agreements and partnership degrees, available in nearly every part of the state.

In addition, MnSCU and the University of Minnesota have shared in the development of information technology resources, through important statewide initiatives like ISEEK Solutions and the Digital Library Consortium. A Joint Powers Group has recently developed a statewide plan for a new integrated telecommunications network that will serve the needs of the state's K-20 education system. MnSCU and the University also share library resources, through MnLINK, which provides a gateway to the library catalogues of the University campuses, MnSCU institutions, state agencies, Twin Cities and regional public library systems, and others. In addition, the MINITEX Library Information Network, housed in the University Libraries, provides full text of key subscriptions to MnSCU academic libraries throughout the state.

V. REMEDIAL AND DEVELOPMENTAL EDUCATION

Developmental and remedial education encompass both coursework and academic support services for students who need help meeting the academic requirements of the college-level curriculum. The terms "developmental" and "remedial" are often used interchangeably in practice, but the research literature defines "remedial" as work that should have been completed in high school, while "developmental" covers college-level work in a context that includes a special focus on strategies for success in college. Researchers at the University cite and apply this distinction in inquiry and practice, while MnSCU institutions use the two terms interchangeably.

Preliminary data suggests that even this distinction is too broad. Anecdotal information reveals that students take developmental and remedial courses for many reasons, e.g., often to refresh skills so they feel better prepared for specific college coursework. Moreover, as the data indicate, the vast majority of students engaged in remedial or developmental education take only one to two courses. When combined, the anecdotal information and the available hard data suggest that a deeper analysis would be useful to help system administrators more accurately understand the patterns of use in developmental and remedial education. The systems, then, could collaborate more effectively to develop appropriate solutions for the various user groups, e.g., better communication regarding preparation expectations, lifelong learning needs, immigrant populations, etc. (see Section VII, pp. 38-41, for recommendations).

Nearly all Minnesota public postsecondary institutions provide some form of remedial and/or developmental education[2]. Statewide, 32 percent (7,200) of the 22,447 public high school graduates who enrolled in public colleges and universities in Minnesota took one or more remedial or developmental courses in 1999-2000. At the University of Minnesota, 14.7 percent (766) of the 5,202 students from public high schools who were enrolled in 1999 took one or more remedial courses. Seventy-five percent of the University of Minnesota students in remedial classes took a single remedial course; 98 percent of the remedial credits were in mathematics courses; the remaining 2 percent were in writing/reading. In MnSCU, 21 percent of students at four-year institutions and 45 percent of students at two-year colleges took remedial instruction.

The two-year institutions of the Metro Alliance are open access, open enrollment institutions. This means that all applicants with a high school diploma or GED are admitted to the colleges. However, admission to the institution does not guarantee admission to college-level courses or entry into specific programs. To ensure that students are adequately prepared for college-level courses, the ten community and technical colleges give mandatory entry-

[2] In the Twin Cities metropolitan area, 10 community and technical colleges of MnSCU's Metro Alliance and the University offer remedial and/or developmental courses. Metropolitan State University offers none.

level skills tests in reading, writing, and mathematics. Some also test for English as a Second Language (ESL). These tests, thus, serve a dual purpose: to assist students in registering for appropriate courses that will support their future success in college, and to ensure standards of quality for the college-level curriculum. The Metro Alliance two-year colleges have addressed these deficiencies through a strong curriculum of developmental courses.

General College plays a unique role within the University of Minnesota, focusing on the preparation of students for transfer to schools and colleges of the University and other higher education institutions. These students may require special preparation because of personal circumstances or previous education; General College also has a special mission to support first-generation and urban students. General College offers remedial courses only in basic math and some ESL courses. The remainder of its curriculum carries full college credit and is developmental in nature – that is, it teaches college-level courses (not high school-level courses) to students with a wide range of learning styles.

MnSCU and the University of Minnesota cooperate in the preparation and analysis of annual reports to school districts on remedial instruction, so that the districts receive a single joint report each year, with a comprehensive picture of their graduates' enrollment in remedial courses.

VI. CREDIT TRANSFERS

MnSCU and the University have an extensive policy background and operational initiatives to support access through flexible transfer programs. MnSCU and the University of Minnesota can claim great success in developing a series of interrelated programs that have made inter-system transfer easy, thereby increasing flexibility and access to Minnesota's public postsecondary institutions. In fall 2000, the University of Minnesota accepted 2,725 transfer students from 502 institutions. Of these, 36 percent came from Minnesota community colleges and 9.6 percent from state universities. (10.8 percent came from Minnesota private colleges, and 43.7 percent came from other schools, most in the upper Midwest region.) MnSCU colleges and universities accepted 18,906 transfer students in Fiscal Year 2000, constituting almost 20 percent of all new students that year. About half of these students came from MnSCU Institutions, another 16 percent from other Minnesota institutions (including 8.9 percent from the University of Minnesota), and the remainder from other states. Approximately half of the transfer students enrolled at a state university, the rest in other MnSCU colleges.

Within the MnSCU system, all institutions in the Metro Alliance offer all or part of the Minnesota Transfer Curriculum. In response to the 2001 legislation regarding the

transfer of general education courses, MnSCU now has in place a formal process to review courses from technical colleges for inclusion in the Minnesota Transfer Curriculum; 42 courses have been approved to date from the four metro area technical colleges.

These inter-system transfers are supported by a number of formal procedures and agreements that, beginning in 1991, MnSCU and the University of Minnesota developed to clarify and improve transfer procedures and information sharing. These include: "Standards and Procedures for Transfer" (1992); the Transfer Specialists' Network (1992); the Minnesota Transfer Curriculum (1994); Articulation Councils; the Minnesota Cooperative Admissions Program (1999); and, Electronic Data Interchange programs including SPEEDE/ExPRESS (for electronic interchange of transcript information, piloted in June 2000); the Degree Audit Reporting System; and the Course Applicability System, scheduled to "go live" in March 2002.

VII. NEXT STEPS AND RECOMMENDATIONS

Through this joint planning initiative and legislative report, leadership of the two systems has identified the following areas to address continuing statewide and metropolitan area issues.

Statewide issues

- Program collaborations.
- Remedial and developmental education.
- Credit transfer.

Metropolitan area issues

From the analysis in this report, it is evident that there is an ongoing, critical need to target resources to emerging areas in higher education within the Twin Cities metropolitan area. These shifting needs for associate degree, baccalaureate degree, and lifelong learning will require actions in addition to the statewide plan noted above.

Future work will involve joint planning and action from MnSCU and the University in the following areas:

A. Access and Opportunity

1. Develop joint task force on workforce development and lifelong learning to formulate recommendations and strategies that expand educational access and opportunity for lifelong learning.

2. Identify important career-ladder opportunities (e.g., health professions), articulate ways to share human and physical resources, and strategies to leverage the promise of distributed education and distance learning technologies.

3. Expand the necessary academic partnerships involving the University and MnSCU institutions to increase access to educational resources for students in the metro area.

B. Leadership Framework

1. Consider formation of a metropolitan area preK-16 partnership advisory group to improve the performance, articulation, and coordination of preK-16 systems.

    - The joint leadership group would explore the need and feasibility of improvements in several related areas, including:
        - high school graduation rates
        - academic preparation for postsecondary education and lifelong learning
        - articulation among preK-12 and higher education systems
        - career-ladder and adult educational options (particularly in areas related to economic and community needs)
        - access to four-year degree options in the metropolitan area
        - more efficient use of human, physical, and technological resources

2. Formulate strategies that maximize the coordination and delivery of pre-collegiate programs to improve academic preparation for postsecondary participation, high school graduation rates, and participation rates in postsecondary education.

3. Deepen research and analysis of data on developmental/remedial education, to clarify patterns of use, student needs, and opportunities for expanded preK-12/higher education collaboration.

Final recommendations for new collaborative programs, strategies, improved use of resources, etc., will result from analyses and work in the designated areas of emphasis, above, and from leadership and consultation involving administrative leadership, board members, community leaders, and others.