

1: Serving Minnesota Through World-Class Greatness

by Robert H. Bruininks, President

[Note: This section includes excerpts from President Bruininks's February 2005 State of the University address to faculty, staff, students, and the general public and a June 2005 presentation to the University's Board of Regents.]

There's a story—probably apocryphal—about the famous English architect, Sir Christopher Wren, whose famous work included St. Paul's Cathedral in London. The story goes that Sir Christopher walked onto the worksite one day, unrecognized, and started talking to the people working there.

“What are you doing?” he asked one of the men, and the man replied, “Cutting a piece of stone.”

He put the same question to another man, and the man replied, “Earning five shillings.”

A third man had the answer Wren was looking for. When asked what he was doing, he said, “I'm helping to build one of the most beautiful buildings in the world.”

Clearly, this third man had committed to a vision, one that was larger than him, yet was quite reliant on his best efforts and his dedication.

Our Values

That same commitment to a vision—to transform this great institution into one of the world's top public research universities within a decade—is what we are about today. The Board of Regents' endorsement of this vision

in 2005 and the changes it calls for are based on enduring values that have guided this institution since its founding:

- **Excellence and Innovation**—We are heirs to a 155-year legacy of innovation at the University, where people of average means but extraordinary imagination set world-class standards and achieved world-class results.
- **Discovery and the Search for Truth**—We must share knowledge to advance our quality of life and the economy of Minnesota, the nation, and the world.
- **Access and Diversity**—To ensure that talented people from every income level, every neighborhood, and every kind of background can find a place at the University—and succeed here.
- **Academic Integrity**—To reconstruct a deeper sense of community and respect—across disciplines, across employee groups, and across students and teachers.
- **Results**—A commitment to student progress and learning; the enrollment of tens of thousands of diverse, talented students who seek their future here each year; strengthened academic leadership in

areas of comparative advantage; strengthened faculty and staff culture, one premised on continuous improvement; and reduced operating costs.

- **Service and Stewardship**—We want this University to be known as much for how well it manages itself as it is for research breakthroughs or high-quality education programs.

Based on these values, the Regents began this process by recognizing the current context of higher education in Minnesota, nationally, and internationally. The Board understood that the University's trajectory had become a path that, all too soon, would not measure up to our historical legacy or the expectations of its leaders.

A Strong University

As this accountability report makes clear, the state of the University of Minnesota is strong, and worthy of the dedication and faith that so many have offered over the years. However, we need to do better. Maintaining the status quo at the University will, as Provost Tom Sullivan has said, "seriously impair our ability to continue to serve the state of Minnesota, our nation, and the world with distinction in research, teaching, and outreach."

We need the creativity, hard work, and adaptability of the University community to position the University of Minnesota as one of the world's great public research universities. That's what our strategic planning process is about. I believe strongly that this community is up to the challenge.

The Challenge of Change

We must recognize and adjust to the changing conditions in higher education. One of the most obvious challenges facing public research universities like ours is declining or

static public investment in higher education. This is a concern in many states. But, uncharacteristically for Minnesota, we have watched state support for higher education as measured by tax effort by income, decline from 6th in the nation in 1978 to 26th today. Unfortunately, the federal higher education budget is increasingly squeezed, too. After years of steady increases in the budgets of major research funding agencies like the National Institutes of Health and the National Science Foundation, most federal research funding sources anticipate funding cuts or increases at levels below inflation.

Students pay more toward their education today, and tuition will soon eclipse state support as a portion of the University's budget. Although Minnesota's undergraduate financial aid program remains among the most generous in the country, federal funding for student aid programs has failed to keep pace with the rising cost of higher education.

The value of the average Pell grant is half of what it once was for low-income students at a four-year public institution. For proponents of students working their way through college, this, too, is an increasingly difficult prospect. A student earning minimum wage today would have to work 60 hours a week to pay for his or her education versus 20 hours per week a quarter century ago.

Meanwhile, our costs, and those of our peer institutions, have grown significantly above the rate of inflation for many years. We face increasing competition—especially from private universities—for top scholars. Employee health care costs continue to outstrip inflation.

Cutting-edge research and teaching require facilities and a technology infrastructure that are up-to-date and often very expensive. Library costs, too, have been increasing at 15 percent annually. But, quite frankly, we can

also lay some of the blame on our own complacency—institutions like ours have been too slow to foster an academic culture that emphasizes the best use of resources and continuous improvement.

As a public university with a legacy of access and opportunity, it is also our responsibility to look at how demographic changes affect our future. Minnesota's population, like the nation's, is aging and becoming more diverse. Over the next decade, the pool of high school age students from which the University draws most of its undergraduates is expected to level off and decline at the same time that it becomes more diverse. We can expect to serve an increasing number of students of color and first-generation college students, and students for whom English is a second language.

We will be a weaker society if we do not address issues of affordability in higher education. Similarly, we must continue to address college enrollment and completion gaps that exist between the majority population on the one hand, and populations of color and students from low-income backgrounds on the other.

We already make extraordinary efforts to ensure that talented students of color and first-generation college students choose the University of Minnesota. Today, among undergraduates at all of the state's four-year campuses, the University enrolls 27 percent of all students, but 40 percent of all students of color. Even so, we will need to redouble our efforts.

Finally, the academy is undergoing changes that we cannot ignore. Our major sponsored research funders are shifting their emphasis to multi-disciplinary, multi-institutional grants and contracts, and many of the problems research universities solve for society require new links across disciplines, institutions, and even national borders.

In many ways, we are already a leading research university. In the University of Florida's annual report, *Top American Research Universities*, the Twin Cities campus has consistently ranked among the top public research universities in the United States; but unless we create a working framework for planning, our ability to meet the future and to take best advantage of the trends I have described will be limited.

Strategic Planning for Action

Starting in 2004, the University began the first comprehensive strategic planning process it had undergone in almost 15 years. Under the leadership of Provost Sullivan, the University community articulated an ambitious aspiration for the University—to be one of the top three public research universities in the world within a decade. Is this an elitist goal? Does it separate us from the interests of Minnesotans, a notoriously humble people? I believe it is not and it does not.

The pursuit of excellence at the University of Minnesota is in the best interest and service of the state, because a research university that does not support excellence will not attract the talent or the funding needed to make a lasting and positive impact on our economy or in our communities. This is the legacy of our land-grant tradition. Minnesota benefits from the University's constituent parts, but it also benefits from having a system that encompasses the state and ties research and education to people's lives.

The late author Peter Drucker has said that an organization must be clear eyed about not only what it wishes to do, but also what it can no longer do, stressing that without attention to sun-setting or ending programs and services, "an organization will be overtaken by events. It will squander its best resources on things it should no longer do."

Our obligation is to make changes in a thoughtful manner that emphasizes our unique responsibilities in Minnesota's system of higher education. This will be a long-term process of adjusting our priorities while always holding firm to our values as a public research university system with statewide responsibilities.

This accountability report underscores the need for us to act with vision, courage, and thoughtfulness. If we meet the growing challenges we face, I am extremely optimistic about the future of the University of Minnesota and its continued relevance to this state and the world.

Why Strategic Positioning?

The goal of strategic positioning is to make the University of Minnesota one of the top three public research universities in the world within a decade. To accomplish this we must invest in core strengths of the University. Minnesota's economy and quality of life are directly linked to the quality of its only research university. The changes we make now and in the future will benefit the University's students, faculty, other stakeholders, and the entire state by strengthening the quality of its education, research, and public service.

In today's competitive world, standing still means falling behind. We must:

- **Keep the state's only research university strong** and of the highest quality as global competition for resources, high-ability students and top faculty grows.
- **Respond to declining state funding.** The University must make wise, but sometimes difficult choices in the face of declining state support. Dollars saved through academic redesign and administrative reform can be reinvested in improved education, research, and outreach.

- **Respond to changing demographics** that will change the numbers, diversity, age, and needs of the student population.

Over the past two years, the University has undertaken a comprehensive review of its mission, academic and administrative strengths and weaknesses, institutional culture, and core values; the state, national, and global competitive environment in which it operates; demographic trends affecting its students, faculty, and staff; and the myriad long-term financial issues affecting public research universities.

Following this review, the Board of Regents affirmed that the University must strengthen its role as Minnesota's only major research university, as its land-grant institution, and as the state's primary magnet for students, faculty, professionals, entrepreneurs, and civic and artistic leaders.

Action Strategies

Based on this comprehensive review, the University identified five action strategies necessary for the University to achieve its vision:

- Recruit, educate, retain, and graduate outstanding students.
- Recruit, mentor, and retain outstanding faculty and staff.
- Promote an effective organizational culture that is committed to excellence and is responsive to change.
- Enhance and effectively utilize our resources and infrastructure.
- Communicate clearly and credibly with all our constituencies and practice engagement responsive to the public good.

Measuring Our Progress

Within this action-strategy framework, and as part of its strategic positioning efforts, the University created a Metrics and Measurement Task Force to identify the right metrics and establish processes to best support and analyze the University's progress toward its aspirational goal. In its work, the task force was guided by these criteria for "ideal measures":

- Reflect the University's aspirational goal
- Provide meaningful policy direction for improvement
- Be free of manipulation
- Be easily understandable and credible
- Contain benchmarks against which progress can be measured
- Be reliable and valid
- Be able to be constructed and updated regularly at reasonable cost¹

This accountability report provides a performance baseline for the University. It also provides our best assessment of how well we are doing in meeting our goals and where additional efforts are required when our performance is not consistent with our aspirations.

Academic Priorities

The University is committed to maintaining and strengthening excellence through a coherent vision, by investing in its outstanding

¹ We are indebted to the National Center for Higher Education Management Systems (NCHEMS), which cited most of these principles in its work with the Minnesota Office of Higher Education to develop performance measures for a higher education accountability system for Minnesota.

academic programs, and by building a culture that supports interdisciplinary work.

The University has many nationally and internationally ranked academic programs. It is critical that the University continues to provide significant support to these programs in order to maintain the strong disciplines that form the core of basic knowledge. The distinctive contributions of individual disciplines create an intellectual framework for developing deep expertise in specific arenas.

At the same time, the University recognizes that today, more than ever, pushing the boundaries of knowledge in one field often means crossing into other disciplines. Addressing the big questions that confront society in the 21st century requires interdisciplinary teams of researchers working together. In the last decade, the academy has begun to realize the untapped potential of interdisciplinary research, and, increasingly, funding agencies are encouraging interdisciplinary proposals.

Many scholars at the University already are involved in interdisciplinary research collaboratives, and new initiatives will provide the infrastructure for enhancing these collaborations.

Interdisciplinary Strategies: The University is increasingly focused on developing and nurturing interdisciplinary research and education. Since 2003, the University has encouraged collaboration through University-wide interdisciplinary initiatives, the 21st Century Interdisciplinary Conference Series, and incentives to colleges to develop the highest level of interdisciplinary and cross-college initiatives.

The importance of interdisciplinary work has been highlighted during the University's strategic positioning process. As a result, the University is sharpening its focus on interdisciplinary initiatives system-wide. The

Vice President for Research and the Vice Provost and Dean of the Graduate School have been charged with guiding and supporting interdisciplinary research and education. Working through the Provost's Office in conjunction with the Associate for Presidential Initiatives, they will develop a system-wide strategy for developing, nurturing, and assessing interdisciplinary programs.

Currently this group is planning an invitational conference to explore institutional strategies for maintaining a high level of interdisciplinary work with up to 12 of the University's peer institutions. In addition, the Provost's Office has strengthened the importance of colleges' interdisciplinary efforts in the strategic planning (compact) and budgeting process.

The University's leadership in fostering inquiry across disciplinary boundaries extends beyond the realm of research to include a wide array of academic and training programs. These programs, particularly at the graduate level, prepare future faculty, as well as leaders in other sectors, to use the tools and methods of multiple disciplines to solve complex societal and intellectual problems. Indeed, these programs recognize that collaborative approaches to problem solving may be a critical competency for the creation and dissemination of knowledge in the 21st century.

Training grants, such as the National Science Foundation's Integrative Graduate Education and Research Traineeship, support graduate students in science and engineering in the development of deep knowledge of their chosen disciplines and collaborative research that transcends traditional disciplinary boundaries. The Graduate School supports the development of interdisciplinary education programs in areas of strength at the University and provides matching funds that encourage

faculty to apply for training grants to support the implementation of best practices.

Interdisciplinary Initiatives

In 2003, the University launched eight interdisciplinary initiatives representing areas of strength and comparative advantage for the University. These areas have high-quality foundational programs, are central to the University's land-grant mission and research enterprise, and reflect the needs and resources of Minnesota. The University believes that further investment will yield significant return in intellectual quality and capital and where considerable outside resources can be leveraged. University students at all levels also reap the rewards of these initiatives as they learn in the midst of a dynamic interdisciplinary academic enterprise.

Three of these interdisciplinary initiatives have been funded through reallocation of existing resources and private philanthropy. The three initiatives—Children, Youth, and Families; Arts and Humanities; and the Consortium on Law and Values in Health, Environment and the Life Sciences—are more established programs where significant resources already have been allocated.

The remaining five initiatives are in the biosciences: Brain Function Across the Lifespan; New Products from Biotechnology (Biocatalysis); Healthy Foods, Healthy Lives; Environment and Renewable Energy; and Translational Research in Human Health. These initiatives cannot be fully capitalized without additional support from the state and partnerships with the private sector.

The University's interdisciplinary strengths are not confined to these interdisciplinary initiatives. Other areas of active interdisciplinary engagement include nanotechnology, water resources (Twin Cities and Duluth), digital technologies,

bioinformatics and computational biology, cognitive and behavioral sciences, the robotic telescope project and the Unmanned Air Vehicle Project (Crookston); new graduate programs in integrated Biosciences and advocacy and political leadership (Duluth); and the offering of six interdisciplinary minors (Morris).

Arts and Humanities: This initiative builds on the University's strengths in the arts and humanities to expand interdisciplinary and collaborative efforts. At the core of this expanded effort is the University's Institute for Advanced Study, which opened its doors in 2005. The Institute promotes and supports distinguished, path-breaking research and creative work at the intersection of the arts, humanities, and social sciences.

The initiative also seeks to transform the arts and humanities at the University and beyond by developing a new interdisciplinary arts and humanities curriculum, supporting new creative processes and works of art, and deepening collaborations with other arts organizations and educators in the community.

An international conference, *Reclaiming the Arts: Strategies for Commitment*, was held in 2004 to begin the transformation of the arts at the University. Searches are under way for distinguished faculty in the arts and humanities whose research and teaching are path-breaking and interdisciplinary.

Children, Youth, and Families: The contributions a child can make to society as an adult can be traced directly to the first few years of life. Minnesota has an important stake in the adults its children will become. This initiative represents an institutional commitment to deepen and broaden the University's capacity to address the pressing issues that face the state when it comes to children, youth, and families.

Launched through a 2002 statewide summit, this initiative focuses on creating new and enhancing existing mechanisms for leveraging faculty support for cross-disciplinary approaches to research, teaching, and public engagement. By bringing together researchers and educators from around the University with practitioners, policy makers, and opinion leaders, the initiative seeks to encourage research by creating a new understanding of how to enhance outcomes for children at every developmental stage in their lives.

In so doing, tangible benefits will be reaped for not only the children and families themselves, but also for the common public good, including enhanced returns in school readiness, parenting skills, children's mental health, workforce capacity, improved public policy and best practices, and economic and community development. A new interdisciplinary research agenda has been developed as part of this initiative. The new Center for Children's Mental Health and the Commission on Out-of-School-Time developed from partnerships launched by the initiative.

New Products from Biotechnology

(Biocatalysis): As a result of former President Yudof's initiative in molecular and cellular biology, the University has a strengthened basic science program in these areas. It is critical that the University maintain its strength in basic science by continuing investment. The University is building on these investments in basic research by supporting applications of molecular and cellular biology and genetics.

The University has a long tradition and world-class expertise in the science of biocatalysis (the use of biological catalysts and processes to transform plant material into useful products). Biocatalysis enables renewable resources, such as forests, grasslands, and the wheat and corn raised by farmers, to become

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the new raw materials for production and energy needs.

This initiative takes the most modern approaches to biology, in areas where the University has great strength in faculty and facilities, to develop exciting new uses for Minnesota's abundant agricultural products and natural resources, from plastics and other industrial products to new drugs. A number of collaborative projects have been funded in both industrial biocatalysis and chemical biology. Over 10 academic disciplines are involved in this effort.

Translational Research in Human Health:

This initiative strengthens the ability of the University to continue to play a leading role in the rapidly changing world of health sciences. The working group for this initiative is collaborating with working groups from the other bioscience/health science-based initiatives in an effort to solidify the University's commitment and reach.

Two key components of this initiative are: 1) the McGuire Translational Research Facility that provides scientists with a physical environment that promotes collaboration and innovation, fosters creativity, and shortens the time to develop new technologies; and 2) targeted investments in faculty to maintain leadership in cutting-edge research in areas such as oncology (cancer), neurosciences (brain functions and diseases), cardiovascular (heart) disease, organ transplantation, stem-cell development applications, and clinical research.

This initiative works in close alliance with the Minnesota Partnership for Biotechnology and Medical Genomics, where Mayo Clinic and University researchers collaborate to generate innovative technology that can be translated into new treatment methods.

Brain Development and Vitality Across the Lifespan: The brain governs every aspect of people's lives. Throughout life, the brain

changes in response to new challenges, experiences, physical development, aging, injury, and disease. New tools—including modern genetics, molecular/ cellular biology and state-of-the-art imaging techniques—are now giving researchers fresh insight into how changes in the brain influence the way people think, feel, and act from infancy to old age.

Research scientists are beginning to answer some of the biggest questions about the brain, such as how its structure and function are affected by age, injury, or disease. The University is the only major research institution taking a lifespan approach to brain development and function. This approach will transform the way scientists understand and treat brain disease and disorders including devastating diseases such as Alzheimer's.

A team of University researchers focusing on brain function across the lifespan has the potential to begin to solve the puzzle of the brain, resulting in better diagnosis, new treatments for brain disorders and disease, and a new ability to support learning and memory in healthy individuals across the lifespan. Currently, a team of distinguished external reviewers is working with the University to sharpen the focus of this initiative and help guide investments.

Healthy Foods, Healthy Lives: The University is positioned as a national leader for an initiative focusing on food and health promotion, being one of only two U.S. universities to integrate six key components on one campus: agriculture, human nutrition, medicine, public health, exercise science, and veterinary medicine.

The initiative links activities in four priority areas to address critical health issues over the next 10 years, bridging quality science to sound public policy and transforming what we know into what we do. The four priority areas are: to use and advance knowledge about the integration of agriculture, food science,

nutrition, and medicine to promote healthy lives; to emphasize prevention of diet-related chronic diseases and obesity through diet, exercise, and human behavior; to enhance food safety at all stages, from farm to table; and to inform public policy.

A 2004 conference brought together researchers and practitioners to develop a coordinated agenda for this initiative. The initiative has received a grant from the Homeland Security Administration to fund a center focused on food safety.

Environment and Renewable Energy:

Perhaps the most critical global challenge for the 21st century is maintaining a healthy, productive environment that will continue to support life in the face of an increasing world population, energy shortages, shrinking freshwater supplies, destruction of natural habitats, and declining genetic diversity. Integrating all we know from scientific, economic, social, and spiritual perspectives is key to understanding and resolving these issues.

The initiative is grounded in three major inter-related projects. The first builds on the recommendations of the Commission on Environmental Science and Policy to create an integrated and transparent approach to the environment at the University.

The second focuses research and technology transfer on renewable energy with funding from Xcel Energy under a mandate from the Minnesota Legislature through the Prairie Island Bill.

The third is aimed at integrating sustainable practices and energy conservation across the full range of University activities under the leadership of University Services. A steering committee is developing a comprehensive plan to fulfill the expectations of a new Regents Policy on Sustainability.

Law and Values in Health, Environment, and the Life Sciences: This initiative deepens

the University's commitment to the Consortium on Law and Values in Health, Environment, and the Life Sciences. The Consortium was founded in 2000 to respond to the most challenging legal and ethical questions of the 21st century, questions posed by biomedicine and the life sciences.

These are questions that require a new kind of cross-disciplinary work fully marrying legal, ethical, and scientific expertise. The Consortium leverages the University's strengths in the life sciences, humanities, law, bioethics, and public policy to do cutting-edge work on the societal implications of the life sciences.

During 2004, the Consortium launched a new multidisciplinary journal, *The Minnesota Journal of Law, Science, and Technology*. It also continued a series of events aimed at advancing the conversation on science, the law, and society for the University and the wider community.

21st Century Interdisciplinary Conference Series

Since 2003, the University has sponsored more than 35 interdisciplinary conferences across the University system. These conferences have played a critical role in developing new interdisciplinary initiatives and taking existing ones to the next level. Conferences during 2005 included:

- *Symposium on Small Towns: Shaping Our Future* (June 2005). The third annual symposium brought together community development professionals from the non-profit sector, local government officials, University faculty and staff, and small town residents from across Minnesota. The conference focused on new ways of thinking about, imagining, and shaping the future of small towns.

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- *Publication, the Public University, and the Public Interest* (April 2005). This conference explored questions such as: Should the University invest in alternative publishing venues? How do new technology-enabled genre impact promotion and tenure criteria? How will changes in copyright law affect our ability to use the output of the academy?
- *Leading the Change for Breakthroughs in Health through Medical Device Advancements* (April 2005). This was the second conference in a series on medical devices. Experts from the University, local industry, and local government examined the University's role in supporting the state as a world leader in medical device technologies and discussed needed policies and opportunities for collaboration. A third conference is planned in 2006.
- *Children's Summit*. One of the cornerstone's of the President's Initiative on Children, Youth, and Families is the annual Children's Summit. Goals of the summit are to discuss current knowledge of the needs and strengths of Minnesota's children, youth, and families; assess the ways communities are addressing children, youth, and family well-being; strengthen

connections and collaborations among the state's researchers, practitioners, and community leaders in finding solutions to the challenges that face children, youth, and families; and develop action plans to achieve better outcomes for children, youth, and families. Beginning in 2003, the University hosted three annual Children's Summits. The first, *Starting Strong*, focused on early childhood; the second, *Staying Strong*, focused on middle childhood and the transition to adolescence; and the third, *Smart Policies, Strong Families*, focused on the relationship between family functioning and policy.

Examples of major commitments to action that resulted from the summits include the development of an early childhood policy certificate program, a new Center of Excellence in Children's Mental Health, UConnects, and a Commission on Out-of-School Time, each developed and implemented through a public-private partnership between the University and active and engaged community leaders that demonstrate their commitment to improving the well-being of children, youth, and families in Minnesota every day.