



Remarks As Prepared “The State of Research at the University of Minnesota”  
Dr. Brian Herman, Vice President for Research

## WELCOME:

### (“The State of Research at the University of Minnesota”)

- **Chair Beeson, Vice Chair Johnson, Regents, President Kaler, Friends:**
- Thank you for the opportunity to come and speak with you today. I am honored to present my first “State of Research” report as Vice President for Research at the University of Minnesota.
- When I was here last summer, it was to speak about my first 100 days at the university and to identify both successes and challenges we face as a research enterprise “amidst constraints.”
- Today, I will build on those remarks, in addition to presenting our annual report of accountability. Specifically, I will present our latest performance measures, including:
  - The fiscal year 2013 and five year trends of sponsored research funding at the university
  - An update of our technology commercialization results
  - And a comparative analysis of our research activity as measured against our regional, national and global peers.
- As you will see, these performance measures continue to show a strong research enterprise sustaining its ranking and performance among an elite group of research institutions.
- But today is as much about discussing opportunity as it is about sharing data.
- Here I provide a look at the path forward for our research enterprise, and how progress through our own state and university efforts have helped position us for success.
- Finally, I will share with you the research strategic plan our community has developed that includes our vision, our cornerstone beliefs and our goals.
- Our faculty, university leaders and community all contributed greatly to the results and vision you see here.
- **In short:** I hope this report helps to illustrate the university’s strengths, the opportunities we have, and why this strategic path forward is critical for our future success in research at the University of Minnesota.
- **In return:** I hope to offer you a chance for a robust and informative discussion about the path ahead for the university’s future.

## (SLIDE 3: FY13 AWARDS BY COLLEGE)

### FY13 Awards by College and Campus

- I will first lead you through slides you may be familiar with as presented on previous occasions: Sponsored Awards by College and Sponsored Awards by Source.

- The University of Minnesota faculty and staff competed successfully for \$693 million in sponsored research funding in fiscal year 2013.
- As you can see on this first slide, Sponsored Awards by College and Campus, funding by college declined across the board—except for the College of Biological Sciences and the School of Public Health. I will speak more about Public Health’s “secret sauce” in just a few minutes.
- The arrows indicate either increases or decreases by dollar amount (in millions of dollars) from the previous fiscal year, 2012. The total amount of funding received is also listed. Increases and decreases are shown for most, but not all, colleges.
- The total award amount was down \$56 million, or 7.5 percent, from the total for fiscal year 2012.

#### **(SLIDE 4, AWARDS BY SOURCE)**

##### **FY13 Awards by Source**

- What you will see in this next slide, Sponsored Awards by Source, is a similar picture to the first slide: funding decreases by source were seen in every funding category except for the National Science Foundation.
- NSF awards are up 26.9 percent for FY2013, and this can be attributed to nine awards over \$2 million this year compared with four awards in FY2012.
- The National Institutes of Health and the National Science Foundation continue to account for about 70 percent of the federal total research funding at the university.
  - Before moving on, I want to offer a quick side note for clarification on the different sets of numbers we will be discussing today.
  - I have just finished summarizing award funding for the past fiscal year.
  - As you may already know, an award is a commitment to multi-year funding coming into the U research enterprise. It is important to look at award funding trends, which is why I will next show this same award data over a five year period.
  - As I move to the national and global comparisons, the discussion will change to expenditure data, which is more commonly used for comparison purposes across institutions.

#### **(SLIDE 5, CIC AWARD COMPARISON)**

##### **CIC Award comparison**

- To gain some additional perspective on research funding more broadly, we have included data that provides a comparative analysis of schools in the Big 10 over the past five years.
  - The slide shows the CIC, or Committee on Institutional Cooperation, comparison. The CIC is commonly referred to as “The Big 10.”
- As you can see, the University of Minnesota ranked third among the Big 10 for award totals received at the institution.
- Additionally, you can also see the majority of universities here either decreased in their award amounts, or remained flat for this same period of time. The exception to this slide is Michigan, which again showed an increase for the second year in a row.
- This data demonstrates that a majority of universities cannot simply afford to rely on unpredictable federal funding levels and remain competitive in the long-run.

## (SLIDE 6, PUBLIC HEALTH SUCCESS QUOTE)

### Public Health Quote

- As I mentioned earlier, amidst the numbers analysis, there are some great success stories we should not lose sight of.
- While I could speak to the great work being done at any number of our colleges, one of those stories comes from the School of Public Health, where we saw, moments ago, a sizeable award increase of nearly \$89 million for the college, due in large part to the work by Dr. James Neaton.
  - Dr. James Neaton, professor of biostatistics, is recognized internationally for his significant discoveries in the treatment and prevention of disease and building capacity worldwide for conducting large-scale health research.
  - While Dr. Neaton brings in many awards, two NIH awards totaling \$34.9 million stand out in fiscal year 2013 for his HIV study: the International Network for Strategic Initiatives in Global HIV Trials (INSIGHT). He and his INSIGHT team have conducted randomized clinical trials at over 400 clinical sites in 37 countries and have enrolled more than 14,000 people with HIV.
  - Findings from the study have changed clinical practice guidelines globally, opened up new avenues for HIV researchers, and improved the health of countless people.
  - I would also be remiss if I didn't speak to the new incoming Medical School Dean and VP for Health Sciences, Dr. Brooks Jackson, who will officially arrive at the university later this month.
  - An internationally recognized researcher in HIV diagnostics, prevention and treatment, he has been the principal investigator on a \$500 million NIH internationally funded project on maternal and pediatric AIDs clinical trials, and he has helped Johns Hopkins' pathology department rise from fifth to first place nationwide in NIH funding.
  - We look forward to his leadership and contributions that will help our university community grow in considerable ways.

## (SLIDE 7: FIVE YEAR TRENDS)

### Five Year Trends

- As we move to the next slide, we see the year-to-year variations in our research funding throughout the past five years. Without funding from the American Recovery and Reinvestment Act (or ARRA) included, the university's funding has remained stable, consistent and competitive.
- In fiscal year 2013, ARRA funds dropped to \$749,000, down from a high water mark of \$131.4 million in fiscal year 2010.
- Throughout the duration of the ARRA funding, the university received a total of \$251.6 million in ARRA funds, the second highest amount in the Big 10 behind Michigan.
- What is also important to note is that the university was the second largest recipient of ARRA funding in the state behind the Minnesota Department of Transportation.
  - This allocation demonstrates the university's significant role in the state's economic, social and physical infrastructure.

- As ARRA concludes, we see that the university grew its total award funding 14 percent during the five years ARRA funding was available.
- As we all know, ARRA was designed to stimulate the economy in the short term, and hopefully, afford us at the university some time to figure out how to respond to a future that could include economic uncertainty and flat, or decreasing, support in award funding, as we will see on the next slide.

## **(SLIDE 8, AWARD PERFORMANCE BY COLLEGE)**

### **Award Performance by College**

- This slide shows research funding for the past five years and those colleges with over \$15 million in total awards. In the first column on this slide, colored gray, we see that the overall funding for the university remained flat.
- However, we also must note that some of the colleges bucked the trend of “flat growth,” as the slide shows a positive percent change in their funding between the start and end of the five year period.
- In these colleges, there are lessons we can learn from, and hopefully, we can offer guidance to the university community on steps that can be taken to mimic that growth.
- This positive change, in many of these colleges, can be attributed to new and dynamic leadership and a strong, college-wide commitment to pursuing new sources of research funding, such as we saw in the example of Dr. Neaton.
- They should be commended for their achievements and hard work during these challenging economic times.
- But given the minimal growth in recent years of the university’s overall total, much of our work ahead will need to be focused on finding new and innovative ways to address these challenges and maintain our competitive edge.

## **(ADVANCE TO SLIDE 9, Technology Commercialization)**

### **Technology Commercialization**

- And while we are faced with real challenges related to unstable federal support, fiscal year 2013 data out of the Office for Technology Commercialization is promising.
- It points to strong performance and continued productivity among our research faculty in the technology commercialization realm.
- A record 14 startup companies were launched based on University of Minnesota research and innovation, which upstaged the previous year’s record of 12 startups.
- I now want to call out two metrics, in particular, that have changed: invention disclosures and MN-IP.
  - The invention disclosures metric is one that has steadily grown in a positive direction during the past five fiscal years.
  - What is new this next year is that it has become one of the five accountability measures that the university will track in order to receive one percent of its biennial appropriation from the state, and given our performance to-date, I am confident we are on track to meet this measure in 2014.
  - Additionally, we will now track the annual number of MN-IP—or Minnesota Innovation Partnerships—agreements as part of our technology commercialization metrics.

- Through MN-IP, we are making it easier for businesses to work with the University, sponsor research, and in a word, **innovate**.
- Known nationally for its groundbreaking approach to make it easier for business to work with the university research community, MN-IP is designed to improve access to university-developed technology while reducing the risk and cost associated with sponsoring research and licensing intellectual property.
- By the end of fiscal year 2013, 55 new sponsored research agreements had been signed through the MN-IP program.

**(SLIDE 10, MNIP QUOTE)**

**MN-IP Quote**

- This program has been called a “game-changer” by many, and we are excited that the University of Minnesota and our MN-IP program have been called out as an example of excellence by the White House.
- MN-IP is recognized as a national model that helps to support university-industry partnerships, and because of the positive feedback and success of the program thus far, we have recently expanded the program into two parts to enable companies to not only sponsor research at the U, but to also take already-developed university technologies for a “test-run.”
- We are excited to see this important and innovative program receive national attention as good policy, and we look forward to more good things to come from the MN-IP platform.

**(SLIDE 12-TOP 15 INSTITUTIONS)**

**Top 15 Institutions**

- We are now going to turn to review the Research & Development expenditures from the National Science Foundation’s annual R&D survey and peer performance of the nation’s top 15 research institutions.
- While there is no one agreed upon national ranking system, the NSF R&D expenditure measure continues to be recognized as a reliable and strong indicator of total research performance.
- Among public research universities, the University of Minnesota ranks ninth, remaining among the elite public universities, with the Twin Cities campuses posting over \$826 million in research expenditures, and as a university system generating over \$849 million.
- There is one important note to make mention of here: the survey as of 2010 changed reporting requirements where all institutions must report by campus, even though the University of Minnesota system acts as a single enterprise when it comes to its research.

**Other national and global rankings among public research universities**

- Also included in this slide are two other widely accepted and cited ranking systems, the Center for Measuring University Performance and the Academic Ranking of World Universities.
- Minnesota retained its strong position in both of these ranking systems as well.

## **(SLIDE 13: NSF HEADLINE QUOTE)**

### **NSF Headline Quote**

- As we saw in earlier data, and in headlines such as this one by the NSF highlighting the stagnation of expenditures, the university is in danger of remaining on a flat-growth trajectory.
- We at the University of Minnesota think we can chart a different path forward, rather than follow the uninspiring course offered through this federal funding narrative. It is a path that makes better, more efficient use of our resources; one that grows productive and robust partnerships at the university and with non-university organizations to create new knowledge; and one that offers direction establishing us as a leader and convener of these new ideas in order to solve the looming and significant challenges of the future.
- To take this path and achieve these goals, we must transform our research enterprise.

## **(SLIDE 14: TRANSFORMING RESEARCH TITLE PAGE)**

### **Transforming Research**

- I will discuss the steps we are taking at the university to achieve this ambitious vision, and challenge this flat-growth trajectory, or what I like to call the “new normal.”

## **(SLIDE 15: EMERGING PRIORITIES)**

### **Emerging Priorities**

- In my July 2013 Board of Regents presentation, “Achieving Success Amidst Constraints: Research Priorities and Infrastructure” and after my first 100 days in office, I presented to you a vision for the future of the research here at the University of Minnesota, which builds upon the university’s strengths.
- As you may recall seeing, these emerging priorities at that time were the following, as shown on this slide.
- I believe in partnership with our faculty, research community, university system and the President’s office, we have started on the path to achieving research success, as presented through these priorities.

## **(SLIDE 16: TRIPLE HELIX)**

### **Transdisciplinary Partnerships: The Triple Helix**

- Success, in part, takes shape through our development of transdisciplinary and public-private partnerships.
- A way to more simply represent this collaborative relationship is through the “Triple Helix,” a model of innovation and business development.
- What the model represents is the complex and dynamic relationship that takes place between the entrepreneurial university, business and industry partners and government entities.
- The goal of this intricate and interconnected partnership is to create an innovation ecosystem that thrives on the combination of knowledge creation capabilities, such as those located at the university, with the needs of our for-profit and non-profit partners, along with the policies, investments and oversight of the government to support the ecosystem.
- Stanford and North Carolina have already adopted this philosophy and model, and, as

evidenced by national news and rankings, they remain leaders in academic and regional innovation.

- These partnerships, like the structure of the Triple Helix, need to become part of our own research DNA at the university if we are to move our enterprise away from the new normal of “flat” growth.

## **(ADVANCE TO SLIDE 17: UNIVERSITY ECONOMIC DEVELOPMENT)**

### **Office of University Economic Development**

- We are making strides in further developing the third strand of the Triple Helix, or our business partnerships, at the university.
- I’m pleased to announce that beginning this February, we’ve launched an Office of University Economic Development.
- Our Office of Business Relations has done a great job of working with industry and outside partners. However, our capacity has been limited, and the need to more effectively connect system-wide resources and engage outside partners became clear during OVPR’s strategic planning process.
  - I will speak more about this process and our progress in just a few moments.
- As you can see by this slide, many groups at the university are currently involved in economic development-related activities. This list shows only a sample of those activities, which means that alignment is needed if we are to present a unified front, or widen our “open-door” policy, to our external partners.
- This office will work with industry and our institution to develop an economic development plan that complements and facilitates activities within the colleges and individual units, and works with these—and external—stakeholders to implement new economic initiatives that stem from our university’s research and entrepreneurial activities.
- I will have more updates on this important role and office later in the year.

## **(SLIDE 18, MNDRIVE)**

### **MnDRIVE: Our Triple Helix**

- Additionally, the State of Minnesota has already shown true leadership by laying the groundwork to help us build on this Triple Helix model through passage of the MnDRIVE , or—Minnesota Discovery, Research and InnoVation Economy - legislation.
- This is Minnesota’s version of the Triple Helix.
- As you can see by the representatives on our Advisory Board, our partners on this initiative are impressive and varied, and fit the transdisciplinary model we are striving for.
- MnDRIVE was designed to help us work with each other in different and new ways so that the state, industry and the university can, together, tackle the challenges of the future, strengthen the economy and advance research.
- Currently, the multi-disciplinary programs under the MnDRIVE initiative have been authorized to use nearly \$19 million to build out the initiative’s infrastructure, hire leading faculty and graduate students, foster relationships with Minnesota’s businesses and secure resources needed to innovate.
- By utilizing MnDRIVE, and by building upon our emerging priorities that have been identified through the strategic planning process, as you will see in a minute, we are

making progress to ensure the university remains competitive as a research leader and that we continue to innovate beyond the current environment of flat-growth funding for university research.

## **(ADVANCE TO THROUGH COVER SLIDE TO SLIDE 20: PLANNING PROCESS)**

### **Planning Process**

- In May 2013, the OVPR—in partnership with the University and the research community—embarked upon a strategic planning process designed specifically to advance the university’s research mission and bring increased focus, alignment and excellence to the university-wide research enterprise over the next five years.
- The Roman philosopher Seneca said:
  - “It is not because things are difficult that we do not dare; it is because we do not dare that things are difficult.”
- Putting in place a new strategic plan and changing the course of our future will be hard.
- But as we have seen, our community is up for, and has called for, the challenge.
- During the strategic planning process, the Office of the Vice President for Research engaged a broad and diverse community of close to 4,000 individuals on our five campuses and in our surrounding business and nonprofit communities, representing 65 different stakeholder groups.
- Input from these groups came through a number of ways – through online surveys, interviews, targeted focus groups, meetings and public forums.
- The responses were encouraging: we found clear consistency among the themes and support of the vision in our stakeholder responses.
- Once our initial phase of gathering data was complete, we asked outside consultants as well as internal experts to analyze the data using both quantitative and qualitative measures.

## **(ADVANCE TO SLIDE 21: SWOT ANALYSIS)**

### **SWOT Analysis**

- Also during this phase, we mapped out what we heard into a SWOT analysis—a Strength, Weakness, Opportunity, and Threat framework—to help us better understand the current position of the university’s research enterprise as a whole.
  - Included in this helpful tool is your input we gathered during your October strategic planning work session.
- The feedback from you and these various stakeholder groups, combined with the guidance of the OVPR leadership team, has resulted in this plan called: Five Years Forward through Collective Inspiration and Discovery. It is a plan that concentrates on four thematic areas, or cornerstones, in line with our vision of: “Bringing people together in new ways, fostering discoveries and making our world a better place.”

## **(SLIDE 22: VISION AND CORNERSTONES)**

### **Vision and Cornerstones**

- The four themes that our community has come to agree on include the following:



- We will enhance research excellence by investing in research infrastructure and faculty and educating our students for the industries of tomorrow.
- We will accelerate the transfer of knowledge by creating opportunities for public-private partnerships that move information out of the ivory tower and into the community where it can do the most good.
- We will advance transdisciplinary partnerships by encouraging collaboration between researchers and among disciplines to derive new concepts and approaches and enable new ways of understanding.
- And we will promote a culture of serendipity where researchers can come together across departments, colleges and disciplines—and with colleagues and communities outside the university—to think creatively and cultivate new ideas.

### **(SLIDE 23: SUPPORTING GOALS)**

#### **Supporting Goals**

- Within each of these four thematic areas we have identified a total of 16 specific goals that speak to the needs and areas where this institution should focus its resources, attention, talent and energy – and ultimately forge its path forward.
- These goals represent the voice of the research community, the university's leadership, as well as our partners outside of the university.
- They include specific ways for us to realize and reach our university's research aspirations represented through the four cornerstones.
  - For example, we will grow and recruit more honorific award-winning faculty,
  - Develop metrics and incentives to motivate transdisciplinary research,
  - Grow and support innovative partnerships within research and with industry—not only through MnDRIVE but also through other initiatives,
  - And create or find tools and resources to support this new research culture.
- I think it's important to mention that even though we have come a long way in developing this plan and have arrived at the vision which will guide us, we really see this as the beginning of an ongoing, iterative and collaborative process. We will continue to seek the guidance and input of all of our stakeholder groups as we put this plan into action.

### **(SLIDE 24: NEXT STEPS)**

#### **Next Steps**

- Over the next few months, we will work with university leadership, President Kaler's office and others in the community to develop a strong implementation plan that:
  - Incorporates continued stakeholder engagement,
  - Establishes common goals,
  - Identifies world-class initiatives
  - And aligns with the university's strategic vision.
- Leads and work teams from across the university system are being invited to help implement the goals, and with their help, we will design specific action plans to ensure we have put in place the right measures for success and aligned the right resources with these plans.

- During this process, we will re-engage our stakeholders to ensure our action plans meet the goals set forth by the strategic vision and plan.

### **(SLIDE 25: LEADERSHIP)**

#### **Leadership**

- And to help ensure this plan stays focused and aligned with our system-wide strategic planning process, goals and mission, we have invited leaders and experts from many fields across the university to help provide guidance as our executive steering committee.
  - This committee is one that has a proven track-record of success, is forward thinking and also represents a broad range of activities and areas of focus that are priorities for our university.
- But please know this: While our office helped to lead and facilitate the planning effort, it is not ours alone to own. This is a university-wide path forward.
- This plan was intended to inform the research mission of the institution, which is a mission that requires all parts to work together in the same direction and with the same goals in mind if it is to be successful.

### **(SLIDE 26: QUOTE)**

#### **Einstein Quote**

- As a researcher myself, and as the VP for Research here at the university, I believe researchers are, at their core, visionaries working to transform society. This has inspired my own work and is what inspires me to come to work every day here at the U.
- Albert Einstein was also such a visionary. He said: “The measure of intelligence is the ability to change.”
- At an event we held this past fall to thank those working in the OVPR for their efforts, passion and innovation, I handed out these mugs with Einstein’s words on them—which I also presented to you back in December—as a reminder that the new course we are charting together requires culture change.
- By embracing change and building upon the university’s existing strengths, we can unlock the tremendous potential to refine and transform our research enterprise in a way that will advance research, increase our competitive advantage nationally and internationally, and generate new knowledge and discoveries.

### **(SLIDE 27: VISION STATEMENT)**

#### **Vision Statement**

- In short, this means our collective goal is our research vision of: “Bringing people together in new ways, fostering discoveries and making our world a better place.”  
Thank you.