University of North Dakota
Strategic Plan
2017-2022
Not your father’s Strategic Plan..

• Concrete and active
• Workable and trackable
• Focused
• Guided by a highly engaged and enthusiastic President and Steering Committee
STRATEGIC PLANNING OVERVIEW

• 45 leaders representing faculty, staff, students, and community
• Over 20 strategic planning sessions, work group meetings, and campus conversations
• Development of Purpose, Vision, and Core Values
• Development of 3 fundamental pillars: Learning, Discovery, and Engagement
• Recently tackled goals, actions, metrics
• Rolling out final plan in May
GETTING TO THIS POINT

Goals, action items, and metrics went through a series of “filters”

Is it relevant to the Purpose and Vision of UND?

Does it address steering committee comments?

Are the goals measurable, relatable to potential students and parents?
Purpose - Chief Opportunity Engine for North Dakota and our Students

Vision - Premiere Flagship University in the Northern Plains
Core Values

• **Community** – A spirit of collaboration and connectedness across the university and beyond
• **Discovery** – An enthusiasm for inquiry, creativity, and innovation
• **Diversity** – An understanding and appreciation of diverse people, experiences, and ideas
• **Inclusivity** – A welcoming, inclusive, and supportive environment for all
• **Liberal Arts** – An educational foundation essential for living an intellectually curious, personally fulfilling, and socially responsible life
• **Lifelong Learning** – A passion for learning, civic engagement, and community leadership
1. Establish and communicate review cycles

2. Embed expectations/goals into performance reviews and SPOL

3. Identify Implementation Teams and support mechanisms

4. Colleges and Divisions create alignment plans

5. Fall update for campus

MAGNIFICATION

Goals, action items, and metrics went through a series of “filters”
COMMUNICATION EFFORTS

• Website and Blog
• Direct mail and email
• Online and Social Media
• Want your input on:
  – Prioritization of action items
  – Recommendations for Implementation Team members
  – Other suggestions for communication efforts
• Survey found at - blogs.UND.edu/strategicplanning
• Open for comment April 19 – 30th
Strategic Plan Pillar 2: DISCOVERY

• Research, Scholarship and Creative Works are integral to the UND mission (Discovery = Research, Scholarship and Creative Activities)

• Through our research, scholarship and creative works we:
  – Address major global challenges (Grand Challenges)
  – Solve practical problems important to the state and nation, benefitting our lives and livelihoods
  – Observe, question, strive to understand and comment on the human condition, our society and our civilization, enriching our lives
  – Show our students the excitement of discovery and give them practical experiences to inform their lives.
By all accepted measures, UND is a Research University.

E.g.,

- Carnegie Ranking as "Doctoral Institution - High Research Activity" (R2)
- Ranking takes into account:
  - Research expenditures across all disciplines (external and internal funding) (FY16~$95M)
  - Ph.D. degrees awarded across all disciplines (FY16=78)
  - Non-faculty, PhD-holding researchers (FY16=60)
- R1 ranking ("Doctoral Institution - Highest Research Activity") is possible: How can we achieve activity consistent with an R1 level?
Discovery Goal 1: Enhance discovery to a level consistent with Carnegie R1 Research Universities

PURSUE GRAND CHALLENGES WITH FACULTY PARTICIPATION ACROSS THE SPECTRUM OF DISCIPLINES AT UND

• Effectively, efficiently, and ethically produce, manage, and securely use information in the age of big data
• Promote energy security and environmental sustainability
• Address health challenges through basic, clinical and translational discovery
• Help rural communities solve their unique health and social problems
• Drive the world-changing developments of UAS and do so in a way that reflects UND’s values
Discovery Goal 1: Enhance discovery to a level consistent with Carnegie R1 Research Universities

- How do we measure this?

<table>
<thead>
<tr>
<th>METRIC #4</th>
<th>DATA SOURCE</th>
<th>TIMELINE</th>
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<tbody>
<tr>
<td>Research Expenditures at $120M level.</td>
<td>Novelution/PS</td>
<td>Define by year</td>
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</table>

- Expenditures are both 'Internal' and 'External'
- 'Internal' includes: faculty salaries and benefits that are related to individual annual research expectations; seed funding; start-up funding; etc.
DISCOVERY

Generate opportunity and economic diversification for the region, state, and nation by creating and delivering innovative and impactful research.

Discovery Goal 1: Enhance discovery to a level consistent with Carnegie R1 Research Universities

ACTION ITEMS

1. Designate champions for each grand challenge and assemble faculty and staff representatives from across colleges to define and drive research goals for each grand challenge.

2. Create department and college level expectations and evaluations for discipline-dependent products of research, scholarship and creative activities and integrate these into promotion, tenure and evaluation criteria.

3. Accurately capture faculty time and effort devoted to research through Page 2.

4. Explore opportunities to redirect more faculty time to research.

5. Recruit and retain star research faculty in areas related to grand challenges.
DISCOVERY
Generate opportunity and economic diversification for the region, state, and nation by creating and delivering innovative and impactful research

Discovery Goal 1: Enhance discovery to a level consistent with Carnegie R1 Research Universities

ACTION ITEMS (CONTINUED)
6. Increase the number of non-faculty post-doctoral researchers in support of grand challenges.
7. Identify select high-potential research based PhD programs supportive of grand challenges.
   • Upgrade stipends to competitive levels.
   • Concentrate graduate student support and marketing on these programs.
   • Deploy doctoral candidates as teaching and research assistants in related departments.
   • Drive an overall increase in the number of PhD graduates.
8. Invest in high performance computing, cybersecurity and data analytics capabilities and infrastructure.
OUR INVESTMENTS

• Post-Doctoral Award Program
  – Provides funding to faculty to hire a post doctoral associate for 2 years
  – Meant to provide faculty awardees additional time to manage greater research loads, write more proposals and produce more results
  – VPRED teamed with college deans to provide funding for 10 awards starting last summer (~$1.2M+ commitment)
  – Interim reports indicate multiple proposals submitted, manuscripts submitted, papers published, conference proceedings accepted and presentations made.
  – New round to be announced shortly
Post-Doctorals and Advisors (3/31)
OUR INVESTMENTS

• Early Career Award Program
  – Provides funding to tenure-track, pre-tenure faculty (~$100K commitment)
  – Meant to provide faculty with funding to help kick start research programs.
  – Specifically targeted to help faculty build positive tenure files
  – Funding provided by UND Alumni Association and Foundation
  – New Round to be announced soon
OUR INVESTMENTS

• Research Equipment Award Program
  – Provides funding for acquisition of equipment with costs in the 'valley of no funding' (too large for departmental resources, too small for federal grant programs)
  – Funding provided by VPRED ($160K) commitment
  – 4 awards made

• Research Infrastructure Award Program
  – Provides funding for materials, supplies, student support
  – 12 awards made over two years (~$350K commitment)
  – Ongoing program
OUR INVESTMENTS

• New Faculty Start-up Program
  – Provides new hires with funding to support establishment of facilities and to hire research personnel
  – EPSCoR supported (typically ~$400 - $500K annually)
  – Ongoing program
OUR INVESTMENTS

• College of Arts and Sciences Research Initiatives
  – 40 proposals were funded in FY16 for a total of ~$244K
    • Applied Research to Address the State’s Critical Needs
    • Undergraduate Research/Creative Activity Fund
    • Faculty Grant-Writing Initiative
    • Fine Arts & Humanities Scholarship Initiative
  – College funds and UNDAADF
Defining transcription factor networks during cell state transitions
PIs: Archana Dhasarathy, Manu, Travis Desell
Postdoctoral associate: Janani Kumar
One genome, many epigenomes

CELL DIFFERENTIATION
The human body contains about 10 trillion cells. Because the cells have identical genomes, each cell must be assigned to read or ignore different stretches of DNA to form one of the 200 types of cell used within the body. For example, different genes are required to turn a stem cell into a specialized liver cell (left) or neuron (right).
Snail is a classic C2H2 zinc finger transcription factor that recruits chromatin modifiers to repress gene expression.

Snail is thought to repress transcription of many genes, including E-cadherin (CDH1) via recruitment of several different epigenetic factors.
Different cells have unique networks of genes that are ‘ON’ or ‘OFF’, and the sum of these ‘switches’ defines the cell state.
Nieto (2002)
Nature Reviews Molecular Cell Biology 3:155-166

doi:10.1038/nm.2437
We propose an interdisciplinary approach using a combination of molecular biology methods, computational biology with volunteer computing (DNA@home), and integrated systems biology methods, to address a fundamental question of how cells alter their gene networks and move in response to the environment.
Proposals submitted since start of award (between May 2016- February 2017)


Agency: NSF  Dates: 08/16/2017 – 08/15/2022  Role: Senior Personnel with PI Turk Rhen and others  Title: NRT: Integrative Systems Biology  Status: Submitted Feb 2017

Agency: NIH (4DN-TCPA)  Dates: 05/01/2017 - 04/30/2017  Role: Co-PI  Title: Higher order chromatin dynamics during epithelial to mesenchymal cell state transition: role of non-chromatin scaffold proteins  Status: Submitted January 2017

Agency: NIH  Dates: 09/01/2017 - 08/31/2019  Role: PI  Title: Maternal diet and offspring obesity: role of alternative splicing and epigenetics  Status: Submitted February 2017
Proposals submitted but not awarded

Agency: NIH; Parent R21 ($250,000)
Dates: 01/01/2017 – 12/31/2018  Role: PI
Title: Role of alternative splicing in endocrine disruptor toxicity
Status: Not funded

Agency: Department of Defense Breast Cancer Research Program (BCRP) ($375,000)
Dates: 01/01/2017 – 12/31/2018  Role: Co-PI (Dr. Sergei Nechaev, PI)  Title: Epigenomic profiling of breast cancers defined by a novel class of noncoding RNAs
Status: Not funded
Submitted by the postdoctoral fellow

**Agency:** Susan G. Komen PDF Basic/Translational and Clinical ($180,000)
**Dates:** 01/01/2017 – 12/31/2020
**Role:** PI: Janani Kumar, Mentor: Archana Dhasarathy
**Title:** Building Genome Wide Networks for Personalised Medicine in Breast Cancer
**Status:** Submitted June 2016, Not funded

Applied and was accepted with scholarships to the prestigious Cold Spring Harbor Labs annual course:

Publications since start of award (between May 2016- February 2017)

1) Yan Ye, Ping Lin, Weidong Zhang, Shirui Tan, Xikun Zhou, Rongpeng Li, Qinqin Pu, Jonathan Koff, Archana Dhasarathy, Feng Ma, Xin Deng, Jianxin Jiang and Min Wu. DNA repair interacts with autophagy to regulate inflammatory responses to pulmonary hyperoxia. Accepted to The Journal of Immunology.

*Co-corresponding author


PUBLICATIONS IN PROGRESS

1) **Upregulation of SNAIL by TGF-β is dependent on calcium signaling through Orai3**
   Janani Kumar*, Humaira Qureshi*#, Atrayee Bhattacharya, Kole Hermanson, Danielle Perley, Adam Scheidegger, Brij Singh and **Archana Dhasarathy**

2) **Snail interacts with the splicing machinery to regulate alternative splicing during EMT.**
   Janani Kumar, Shawn Krueger, Humaira Qureshi, Adam Scheidegger and **Archana Dhasarathy.**