IMPACT

Milestones and Horizons

2002-2010

RED RIVER VALLEY RESEARCH & CORRIDOR

Dear Friend:

Over the last eight years, we've been busy building a future for education, training, research and development here in the Red River Valley Research Corridor. We are now home to cutting-edge research, development and production thanks to many advanced scientific and high-tech activities happening in the region.

These initiatives are turning North Dakota into a front-line first-rate laboratory and epicenter of commercialization for the new technology our country needs and to boost our economy. I've worked aggressively to secure federal funding for these activities and help to build world-class facilities around North Dakota. By the end of 2010 I will have directed over $700 million of federal investment toward creating a more innovative and technology-based economy here in the region.

Together we've worked to create new opportunities for some of North Dakota's premier high-tech businesses and helped to forge partnerships between North Dakota's universities, national laboratories and major companies outside the state that are leaders in their technology field.

To expand upon and accelerate these initiatives, I've also held numerous action summits around the state to bring key leaders in business and government from inside and outside the region together to talk about future opportunities and to build new collaborative initiatives involving leaders in innovation and technology. These summits have been purposefully designed and organized to showcase our expertise and facilities and to raise the visibility of the region in the United States and around the world.

I created the Red River Valley Research Corridor to create new economic opportunities and higher-paying jobs. I strongly believe that together we have accomplished this in many ways and from this strong foundation we are now poised for a leadership role in some very exciting industries with high potential for growth and the creation of many more high-paying jobs for future generations.

Sincerely,

Byron L. Dorgan

U.S. Senator

RED RIVER VALLEY RESEARCH CORRIDOR

Milestones & Horizons: Impact of the Research Corridor

When U.S. Senator Byron Dorgan created the Red River Valley Research Corridor his vision focused on making strategic investments in our state's research and technology capacity to accelerate innovation and forge a brighter economic future for North Dakota.

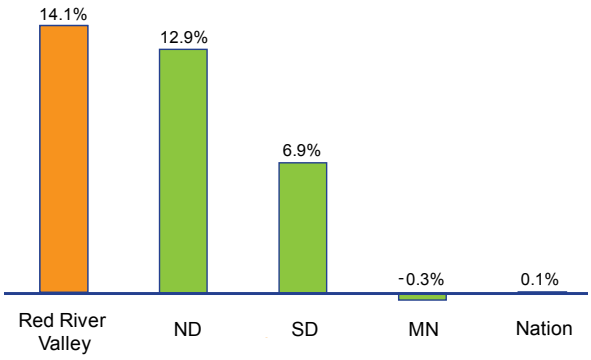
The focus of the Research Corridor is on three essential building blocks of our region's long-term competitiveness: 1) building world-class research centers to address national and regional challenges of scientific and economic merit, 2) translating research from the lab to the marketplace in emerging industries, particularly in those disciplines and industries that match the region's core S&T capabilities and 3) support for the region's growing technology sector.

The goal is to enhance the competitiveness of the region through innovations in science and technology that create new economic opportunities and skilled jobs in emerging industries.

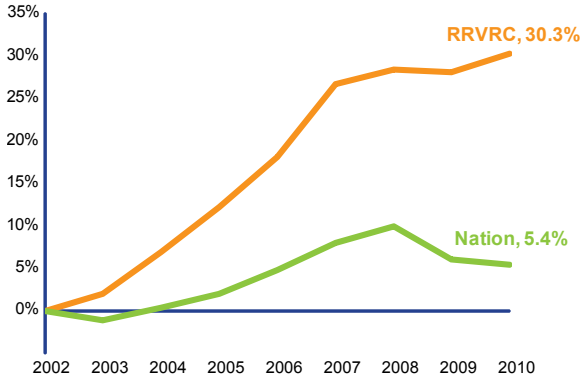
These efforts are paying off as the Research Corridor has sigificantly outpaced the region and the nation in job growth since 2002.

At the same time, the Research Corridor region has added more than 2,200 science, technology, engineering, and mathematics (STEM) jobs since 2002. The region added these jobs - requiring education from associate's to doctoral level degree - at a rate five times the national growth rate, and growth in STEM occupations in the Corridor continued through the national recession.

Research Corridor Employment Growth Outpaces the Region and Nation, 2002-2010



STEM Job Growth in the Research Corridor Five Times the National Rate, 2002-2010



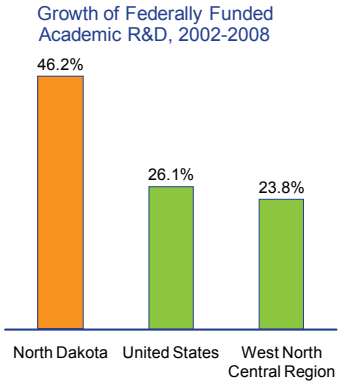
Building World Class Research Centers

Since 2002, over $700 million of federal investments in research, training, advanced services & manufacturing contracts have been directed to universities, colleges and businesses throughout the state. These investments have seeded the establishment of some of the nation's leading research and training centers including:

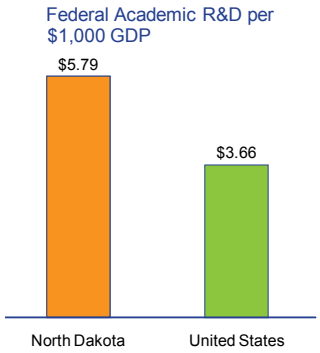
- Center for Nanoscale Science and Engineering at North Dakota State University
- Neurosciences Research Center at the University North Dakota's School of Medicine
- Center for High-Performance Computing at North Dakota State University
- Center for Unmanned Aircraft Systems Research, Education and Training at the UND's John D. Odegard School of Aerospace Sciences
- National Center for Hydrogen Energy Technology at UND's Energy and Environmental Research Center,
- National Energy Technology Training Center at Bismarck State College.
- Center for Biomass Utilization at UND's Energy and Environmental Research Center
- Center for Air Toxic Metals at UND's Energy and Environmental Research Center
- Center for Nanoscience Technology Training at North Dakota State College of Science
- Rural Crime and Justice Center at Minot State University
- Northern Tier Network to provide connectivity to the nation's high-s peed research and education network backbone for universities in North Dakota and other states in the upper Midwest.

On Track to be a National R&D Hub

The Red River Valley Research Corridor is fast becoming a national hub for federal academic research and development activity. According to the National Science Foundation, federally funded academic R&D in North Dakota is up 46% since 2003, making the state the third fastest growing state in the nation.



This rapid growth has placed North Dakota third of all states in academic R&D intensity. The state's $5.79 in research investment for every $1,000 in gross state product is 58% higher than the national level of investment.



$700 million of federal investment to create a more innovative and technology-based economy here in the region.

Action Summits

River Valley Research Corridor Action Summits are organized to showcase the Corridor's science and technology-based capabilities and to create new partnerships among researchers and innovators in business and at universities.

Since 2004, 18 action summits have been co-organized by the Research Corridor, U.S. Senator Byron Dorgan and leading science and technology organizations covering the following topics: hydrogen energy, polymers and coatings, life sciences, cleantech, unmanned aircraft systems, venture capital, animal identification systems, and radio frequency identification (RFID) technologies.

Action Summits Get Immediate Results by

- Connecting with key partners in business and government from outside the region.
- Engaging universities and colleges in economic initiatives and business development projects
- Facilitating learning, networking and collaboration among key stakeholders in the region.
- Formulating actionable strategies by answering the central question: what do we do next to make our community or region an epicenter of research, development, commercialization or manufacturing in a particular economic or technology sector that holds considerable economic potential?

Pathfinder and Discovery Awards

The Pathfinder and Discovery awards recognize the three pillars of successful regions where new economic opportunities are continually borne in technology and knowledge-based industries that create higher-paying jobs. Innovation-driven, high-performing regions are characterized by:

1. Cutting edge scientific inquiry, translation and application,
2. Innovation in technology and business, and
3. Highly effective collaboration of the "triple helix" – university, business and government.

Pathfinder Award

For exceptional achievement in developing and deploying technologies, products, processes or services in the marketplace that have a significant effect on the way business and society operates

2008 **Doug Burgum**, co-founder and Chairman of the Arthur Ventures Growth Fund. Former Chairman and CEO of Great Plains Software and former Senior Vice President for Microsoft Corporation.

2009 **James Carlson**, Pharm.D., Presdient, JDC Management. Co-founder of PRACS Institute, Ltd.

2010 **Don Mugan**, Director of the Great Plains STEM Education Center, Valley City State University

Discovery Award

For outstanding leadership and service in building and raising the visibility of the region's research enterprise or for groundbreaking scientific or applied research that has a regional, national or global impact.

2008 **Philip Boudjouk**, Ph.D., Vice President, Research, Creative Activities and Technology Transfer, North Dakota State University

2009 **Richard Schultz**, Ph.D., Associate Professor and Chair, Electrical Engineering, University of North Dakota School of Engineering and Mines

2010 **Joel Jorgenson**, Ph.D., CEO, PacketDigital, LLC

2010 **Barry Batcheller**, President and CEO, Appareo Systems. Founder of four successful companies – including Phoenix International.

CleanTech Partnership

The Red River Valley Research Corridor has joined forces with the Cleantech Open to find, fund, and foster the most promising clean technology companies in the region. The goal is to assist entrepreneurs with big ideas that address the most urgent energy, environmental and economic challenges.

As a program partner, the Red River Valley Research Corridor provides support and assistance in the North Central region including business mentoring, green brand building, program collaboration, developing channels to funding and recruiting judges for the seven-state regional competition.

The Cleantech Open has established itself as the leader in developing clean technology startup entrepreneurs. Since its inception in 2006, nearly 400 promising teams have availed themselves of the Cleantech Open's one-of-a-kind hands-on workforce development, nurturing, and funding programs, with impressive results. Cleantech Open alumni have raised over $280M in private capital.

Positioned for Future Success in Key Industries:

- Advanced Coatings & Surfaces
- Electronics and Wireless Networks
- Remotely piloted aircraft and airborne sensing
- Energy and cleantech systems
- Biosciences

In May 2010, Inc. Magazine recognize the Red River Valley Research Corridor as one of the 20 areas nationwide **"where great ideas are born."**

Growing the Tech Sector

Dynamic entrepreneurs and innovators who are highly competitive in the global market drive North Dakota's technology sector. Senator Dorgan has worked vigorously to link the Research Corridor's tech sector with the federal government to meet national challenges of scientific, national security and economic merit.

Aldevron – in the last 10 years has grown into a world-class service organization specializing in plasmid DNA and protein production technologies, antibody technologies, and custom services with operations in the United States and Europe and a client base spanning the entire globe.. Senator Dorgan has worked to partner Aldevron's capabilities with the needs of the U.S. government.

Alion Science and Technology – is a technology solutions company that develops products for commercial, governmental and military applications. In North Dakota, the company is currently working on research looking at how to improve the reliability of the drive systems, engines and transmissions in Army helicopters and other vehicles. The company is based in McLean, Va., and has a location in Grand Forks.

Appareo Systems – specializes in aircraft training and safety systems. Senator Dorgan has worked to partner the military's flight training needs with the company's Aircraft Logging and Recording for Training system (ALERTS). Inc. Magazine ranked Appareo Systems as one of America's 500 fastest growing companies in 2010. The company is located in Fargo.

Avianax – specializes in antibody and vaccine research using eggs from geese to combat Avian Flu virus and West Nile Disease. The business is based in Grand Forks and Tolna. It is a partnership between UND's Research Foundation and School of Medicine and Health Sciences and Schiltz Foods, Inc., based out of Sisseton, S.D.

ComDel Innovation – is a manufacturing company based out of Wahpeton that supplies precision parts for large companies around the U.S.

Ideal Aerosmith – specializes in premier flight-test equipment and is now based in Grand Forks.

InfoTech – is a software house and systems integration company. Senator Dorgan has worked to partner InfoTech with the military's needs. The company is based out of Manhattan, N.Y., and has a location in Minot.

Killdeer Mountain Manufacturing – has facilities in four communities throughout western North Dakota. They specialize in circuit board assemblies and wiring harnesses. Senator Dorgan has worked to partner KMM with America's defense needs. The company is based out of Killdeer.

Laserlith – specializes in light, micro-electromechanical antennas to be used for military applications. The company's goal is to have their product utilized by unmanned aircraft by 2010. Senator Dorgan has worked to partner Laserlith with the military's needs. This company is located in Grand Forks.

L-3 Communications - L-3 Link Simulation and Training is working with the University of North Dakota's Center for Unmanned Aircraft Systems (UAS) Research, Education and Training to provide cutting-edge Predator and Reaper UAS operator education. L-3 Link Simulation and Training is a division of L-3 Communications, one of the largest defense-related businesses in the U.S.

Northrop Grumman – has now opened an office in Grand Forks to help maintain Predator UAS at the Grand Forks Air Force Base. Northrop is a premier U.S. company.

NovaDigm Therapeutics – specializes in vaccine research. They are specifically looking at ways to fight dangerous strains of bacteria. NovaDigm has partnered with UND's Research Foundation and School of Medicine and Health Sciences. The company is based out of Grand Forks.

PacketDigital, LLC – specializes in power management systems that dramatically extend battery life. Senator Dorgan has worked to partner this company with America's defense needs. Inc. Magazine ranked Packet Digital as one of America's 500 fastest growing companies in 2008. The company is located in Fargo.

Pedigree Technologies – specializes in wireless sensor systems. The company has developed tracking systems for private businesses and improved wireless systems for the military. Senator Dorgan has worked to partner Pedigree with the military's needs. The company is based in Fargo.

Praxis Strategy Group – is an economic research and strategy company located in Grand Forks and Fargo. The company specializes in tech-based economic development and innovation-driven leadership. Praxis Strategy Group has provided program management services for the Research Corridor since 2004.

Space Age Synthetics, Inc. – specializes in cutting-edge synthetic building materials. The company's product is used for construction of ambulances, boats, ceilings, floors, locomotives, RVs and numerous other applications. Senator Dorgan has worked to partner Space Age Synthetics, Inc., with the military's needs. They will soon be working on a project to improve the performance of the Spartan, an unmanned Navy patrol vessel. The company is based out of Fargo.

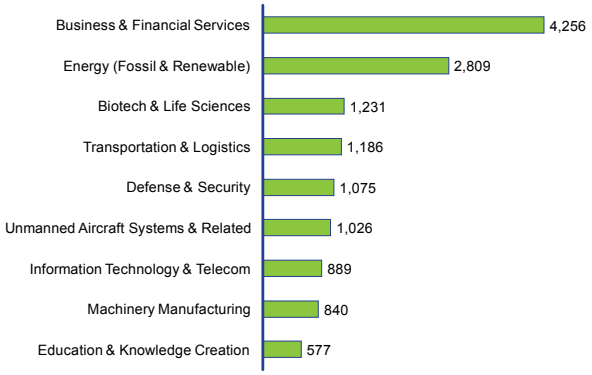
Technology Applications Group, Inc. – boasts a strong, tough coating for magnesium alloy. The company's Tagnite Coating System is more than 20 times more corrosion resistant than any other magnesium coating currently used for aircraft. Senator Dorgan has worked to partner TAG with the military's needs. The company is based in Grand Forks.

Triton Systems – Senator Dorgan secured funding to facilitate NDSU's partnership with Triton to develop a group of antimicrobial coatings that can be embedded on fabrics to block toxins, kill bacteria and control pathogenic biological agents. The fabrics will be used in the manufacture of items such as clothing and shelters for the U.S. Army. Triton's Fargo facility will be housed in NDSU's Research and Technology Park at the Incubator building. Founded in 1992, Triton Systems, along with its affiliates, has two sites in Massachusetts, a life science group in Berkeley, California, and a manufacturing site in Switzerland.

Attracting New Industries and New Jobs

Robust job growth in the region has spread across many key high-value clusters in the Red River Valley Research Corridor. The region's life sciences and biotechnology cluster (not including health care) has more than doubled since 2002, and the region has seen strong growth in machinery manufacturing (40%), unmanned aircraft systems and related industries (38%), defense and security (33%), energy (29%), and business and financial services (26%).

Growing Clusters in the Research Corridor
Employment Growth, 2002-2010



About the Red River Valley Research Corridor

The Red River Valley Research Corridor is a non-profit corporation committed to catalyzing and promoting science, technology and engineering initiatives that create new opportunities in the region.

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