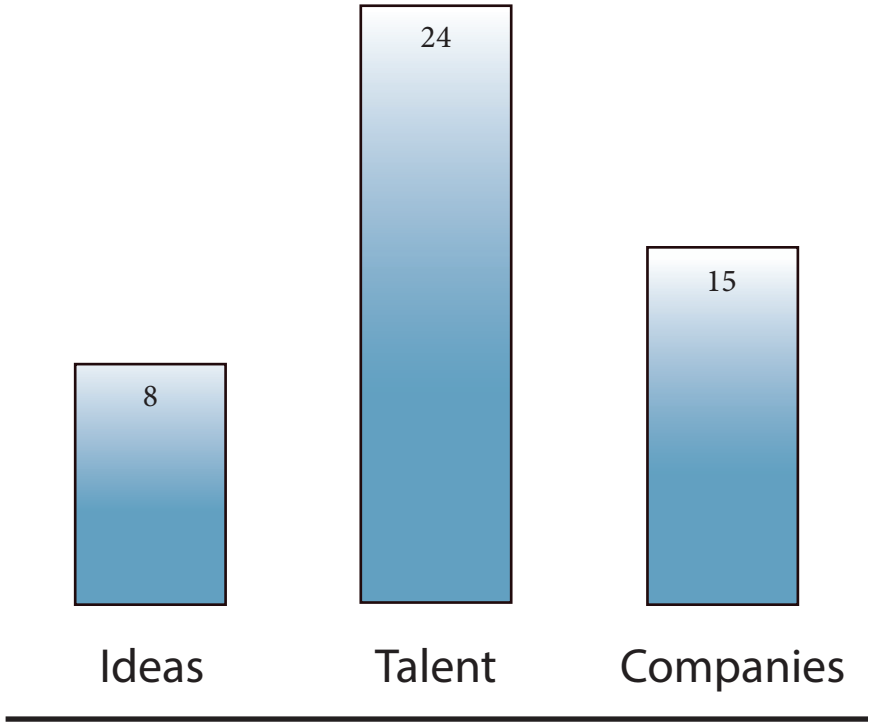
Implementation Activity

December 2014 - May 2015



Previous activity reports available at sdepscor.org/2020vision.

SD EPSCoR
RESEARCH. EDUCATION. ECONOMIC DEVELOPMENT.

2020 Vision: The South Dakota Science and Innovation Strategy

2020 Vision Management – Strategy Areas

Initiative	Action	Responsibility	Outcome
Strategic Area: Ideas			
Proof of Concept	$200,000 in Future Fund was added to the fund	GOED	Funding for at least 8 additional projects. 5-POC research awards and 2 Patent awards issued
Development of STEM education facilities to support training of teachers in STEM disciplines and engagement of K-12 students in STEM topics.	Renovate the Jonas Science Hall at Black Hills State University (BHSU) to support the training of teachers in STEM disciplines.	BHSU and South Dakota Science and Technology Authority (SDSTA)	Facility will prepare K-12 teachers and train university students in STEM. Increased teacher readiness and proficiency in teaching STEM. First two of three construction phases completed. Third phase is underway and set to complete in Q4 2015.
Development of STEM education facilities to support training of teachers in STEM disciplines and engagement of K-12 students in STEM topics.	Construct a new Sanford Lab Homestake Visitor Center in Lead, SD to feature the science of the Sanford Lab to engage all age levels in STEM topics.	South Dakota Science and Technology Authority (SDSTA)	Facility to engage general public including K-12 students in STEM topics. Generate excitement for STEM in general public and K-12. Facility construction started July 2014 and planned to complete in June 2015.
Development of a BHSU multidisciplinary science facility deep underground at the Sanford Lab.	Supporting Black Hills State University (BHSU) proposal to SD Board of Regents (SDBoR) for a new cleanroom facility to be hosted on the 4850L of the Sanford Lab.	BHSU and SDSTA	Expansion of science facility capacity deep underground to support multidisciplinary research for SD universities. Facility will lead to additional opportunities for undergraduate and graduate STEM research for all regental

			universities. Facility outfitting construction underway and expected to complete in August 2015. Experiment installation will occur in Q4 2015.
2020 Vision Value Project	Industry Partnering Functions within SD Colleges and Universities	Each SD College and University	1. Partnering with small companies to commercialize BOR technologies: AMI, Permara (for licensed USD technologies), Alumend, etc. (for provision of research and GMP space in GEAR Center) 2. BioSNTR-funded seed project between USD Basic Biomedical Sciences and SAB Biotherapeutics. 3. BioSNTR-funded seed project between USD Biomedical Engineering and Sanford Research. 4. Implementing NSF Partnerships for Innovation (PFI) project, working with HP and Troy Group. 5. Collaborating with industry (3M, HP, MHI) for proposal for internships in a graduate traineeships (NSF-NRT).
Industry Partnering Functions within South Dakota Colleges and Universities	NASA EPSCoR research grants promote STEM industry partnerships	SD NASA EPSCoR	Eleven FY 2015 research proposals include 11 potential STEM industry collaborations (2 in-state and 9 out-of-state)
SDSU/Sanford Profile Collaboration	Sanford Health has initiated a new research emphasis in human nutrition.	SDSU Sanford Health SD BOR	$430,000 in new research funding has been implemented for nutrition-related research
South Dakota Innovation Funds	Brookings Economic Development Corp and	GOED SDSU	The idea is currently being incorporated into the SD Proof of

	SDSU developed an idea to partner with SD GOED to team SD based companies and universities to hasten research on near commercialization ideas	BEDC	Concept funds.
Strategic Area: Talent			
Code Camp	Training	GOED, Falls Foundry, Think 29,	One-day programming classes held and 8 week code camp started in Sioux Falls with 6 participants.
Entrepreneurships	Training/Outreach	GOED, SDSU, USD, Think 29	Launch, Wire Me Awake, I2I competitions held introducing high school and college students to entrepreneurship. Several hundred participants.
Entrepreneur in Residence	Engineering Accelerator Pilot Program (EIR Boot Camp) at SDSMT	SDSMT, USD, GOED and Board of Regents	The Enterprise Institute received a $100K grant from the Blackstone Charitable Foundation to create an Engineering Accelerator Pilot Program in partnership with SDSM&T. As part of that effort, SDSM&T, in conjunction with the Beacom School of Business and GOED, will host a week long EIR Boot Camp this summer.
Position and expand Master's Degree programs to produce talent for the target sector industries	Develop BS in Precision Agriculture (SDSU)	Board of Regents SDSU	The proposed BS in Precision Agriculture (SDSU) is under review by the Board of Regents.
Position and expand Master's Degree programs to produce talent for the target sector industries	Develop PhD in Health Sciences (USD)	Board of Regents USD	The proposed PhD in Health Science (USD) is currently in development.
Position and expand Master's Degree programs to produce talent for the target sector industries	Develop minors in Environmental Science and Global Engineering and a graduate certificate in Petroleum Systems (SDSMT)	Board of Regents SDSMT	The Board of Regents will take action at their June meeting on the proposed minors in Environmental Engineering and Global Engineering and the graduate certificate in Petroleum

			Systems (SDSM&T)
Expand Successful Middle and High School STEM Activities Creating Greater Exposure for Students Around the State	Competitive grant program for middle and high schools to increase awareness of and access to STEM education.	Department of Education	Awarded grants to 10 schools to implement STEM curriculums, train teachers, acquire needed lab equipment, construct makers space, host exploratory engineering camps and robotics competitions.
Expand Successful Middle and High School STEM Activities Creating Greater Exposure for Students Around the State	Collaboration between Division of Career & Technical Education, Division of Instruction & Learning and BioSNTR on teacher training and BioSNTR education outreach strategies.	Department of Education	In progress. Identifying areas for collaboration in 2015-16 and beyond for teacher training and K12 outreach.
Expand Successful Middle and High School STEM Activities Creating Greater Exposure for Students Around the State	SD Reduced Tuition Dual Credit Program	Department of Education	Postsecondary-level courses in math, science, computer science and other technical subjects are being offered to 11th and 12th grade students at a rate of $40 per credit from 2- and 4-year public institutions in the state. 2014-15 was the first available year and enrollments exceeded expectations. Student pass rates were near 94%. Specific data on enrollment numbers and success in STEM-specific courses is still being analyzed.
Expand Successful Middle and High School STEM Activities Creating Greater Exposure for Students Around the State	SDMyLife – STEM Careers	Department of Education	Through outreach activities, career camps, technical education programs and other awareness efforts, student interests in STEM-related careers in SDMyLife increased 7% throughout the 2014-15 school year (increase of nearly 600 students).

On-campus Entrepreneurial Culture	Faculty release time for entrepreneurial ventures	Each SD College and University	Research-active faculty are typically given 25%-50% release time for research. They may choose to invest that release time in technology transfer entrepreneurial ventures that relate to SD-BOR technologies and intellectual property.
On-campus Entrepreneurial Culture	On-campus policies, training and systems to facilitate entrepreneurship, commercialization, and IP Development	Each SD College and University	1. Intellectual Properties is presented as a topic annually under USD's lunchtime Responsible Conduct of Research program 2. Tech Transfer Panel and Workshop October 21, 2014. (participation by SD Innovation Partners, BOR-VPR, Industry, and faculty inventors)
Science at Sanford Underground Research Facility Conference	Outreach	SDSMT-USD-BHSU-DSU	The first conference on science at SURF was hosted at SDSMT on May 18-20, 2015. Over one hundred twenty-five participants from major U.S. universities and national laboratories and other countries participated in this conference.
Mechanical Behavior of Salt VIII Conference ("SALT MECH 8")	Outreach	SDSMT-RESPEC	This international conference was hosted by SDSMT on June 26-28, 2015. Over ninety researchers from U.S. and different countries attended this conference.
Expand Successful Middle and High School STEM Activities	SD NASA Space Grant provides annual grants for middle and high school STEM Teachers and Robotics Materials	SD NASA Space Grant Consortium	For FY 2015, two STEM Teacher awards (total $6,350) and four Robotics Materials awards (total $14,174)
Stronger Links among all	SD NASA EPSCoR and SD	SD NASA EPSCoR and SD NASA Space	In FY 2015: (1) SD NASA EPSCoR

Postsecondary Institutions to Ease Transition for STEM Interested Students	NASA Space Grant funding to enhance STEM capacity at Tribal Colleges and Technical Institutes.	Grant Consortium	Tribal College Collaboration Grant ($11,500; Sinte Gleska, BHSU, SDSMT) for NASA microbiology research at SURF; (2) SD NASA EPSCoR Travel Grant to three faculty and four students from Sinte Gleska and BHSU to visit NASA Jet Propulsion Lab, NASA Ames Research Center, and University of Southern California; (3) nationally-competed NASA Space Grant award to Lake Area Technical Institute ($500,000, 2 years) to expand targeted STEM programs and assist students to transition to four-year universities.
Incentives to Encourage Students to Pursue STEM Degrees (and Rewards to Institutions for Producing Graduates in High Need Areas)	Annual call for stipends to support STEM higher education students, student STEM research, and NASA internships. Target 10 public, private, and tribal institutions in state.	SD NASA Space Grant Consortium	In FY 2015, $113,500 awarded to 35 undergraduate and graduate students seeking STEM degrees at six institutions (37% female, 17% minority).
Ongoing Approach for Aligning Higher Education within this Science and Innovation Strategy	SD NASA EPSCoR annual calls for research and project innovation grants require alignment with the "2020 Vision."	SD NASA EPSCoR	Eleven FY 2015 proposals include alignment with the "2020 Vision." Two seed grants awarded (total $50,000) with focus on energy, materials, and SURF. Research proposal submitted to NASA headquarters ($750,000, pending) with focus on advanced materials.
SDSU/Raven Industries collaboration on precision agriculture	Establish internship program at the SDSU Research Park. Initiated a new undergraduate minor in precision agriculture	SDSU GOED	6 interns are underway and the minor has students enrolled.

Established the PhD program in Agricultural, Biosystems and Mechanical Engineering	New PhD program was approved by the SD BOR. SDSU redirected resources.	SDSU	Recruitment of students is underway.
Established the PhD program in Biochemistry	New PhD program was approved by the SD BOR. SDSU redirected resources.	SDSU	Recruitment of students is underway.
Expand the Office of Technology Transfer and Commercialization	Hire a new marketing and licensing specialist	SDSU	A new person has been hired and will begin July 1, 2015.
Intelligent Community Forum	Promotes the use of high speed fiber to help build a good community based primarily on STEM related fields	Innovative Systems, City of Mitchell, Mitchell Area Development, K-12, MTI, DWU, and many private businesses	Increasing awareness of the benefits of STEM and broadband related to education and businesses
Maintain an office on the SDSMT campus	Work cooperatively with SDSMT on senior projects in the software area	Innovative Systems	Continues to have an office on the SDSMT campus for 8 to 15 software interns
Strategic Area: Companies			
Provide teachers in K-12 STEM education an opportunity to tour industry and use information gathered in classroom	3 high school teachers toured and interviewed 6 biotech companies. Video was taken to show use as support in the classroom.	SD Biotech SD EPSCoR	Twelve videos produced are accessible on SD Biotech's website and Sanford PROMISE's website for any educator to use. Plans are to continue these tours as the money is available.
USD Discovery District	Research Infrastructure	GOED, USD, Sioux Falls Dev. Corp.	Study has identified three buildings to be built in the near future—SAB Biotheraputics cGMP facility, NanoBlood cGMP facility and multi-tenant facility.
Synzym/Nanoblood	Company relocation	GOED, SD Technology Business Center	Synzym and NanoBlood relocated from California to South Dakota R&D facility and plan to build commercial manufacturing facilities in South Dakota, USD Discovery District, Synzym has received more than $20 million in SBIR and other federal funding with $4 million remaining on NIH and DoD Phase II award.

SynZyme/NanoBlood	White House Seminar	GOED-SynZym	Dr. Carleton Hsia was invited by White House Office of Science Policy to present their nano-blood technology to invited federal agencies May 18, 2015
International Biotech Conference	Outreach	GOED-BioSNTR	Governor Daugaard attending and participating on Governor's panel with two other Governors and also kicking of Food and Ag day at the conference in Philadelphia. NanoFiber Separation and SynZym were sponsored by NSF and NIH to participate in the show and make presentations on their technologies.
SBIR/STTR	Awards	Antimicrobial Materials & VRC Metals	Received first SBIR awards
Technology Business Accelerator	2015 programs	SD Tech. Business Center, SDSM&T, Enterprise Institute,	Accelerators in Sioux Falls and Rapid City underway with 15 entrepreneurs/companies participating
Governor's Giant Vision Competition	Outreach	GOED, SD Chamber of Commerce	10th Governor's Giant Vision open and student business plan competition held. Tie for first place by Equinox and VRC Metals and the student winner was from SDSM&T.
SBA FAST Program	Proposal Submitted	GOED	FY 2015 FAST Proposal submitted to SBA to support Entrepreneur in Residence and tech accelerator program companies.
Engineering Accelerator	New program launched at SDSMT	GOED-SDSMT-USD-Enterprise Institute	In June 2015, SDSMT will host twelve technology development teams. Students and faculty from SDSMT and USD as well as entrepreneurs in residence will participate in these activities.
Startup companies resulting from university-based intellectual	Seven startup companies have been established from	SDSU SDIP	Companies such as Prairie Aquatech and Medgene are

property	SDSU-IP. There were 7 and 6 licenses executed with these companies in 2014 and 2015, respectively.		scaling up, in pilot scale and will soon be selling products,
SDSU has developed procedures and support infrastructure to facilitate collaborations with industry.	Agreement templates have been developed. Training events for faculty and staff have been presented and will expand in 2015/16.	SDSU	There were 248 research related agreements executed in FY14 and there will be a greater number in 2015.
BIO World Livestock Congress in Sioux Falls September 2014	SDSU was involved in planning and sponsoring the event. We partnered with SD Bio to host an industry visit to Brookings and SDSU to promote industry collaborations.	SDSU SDSU Research Park SD Bio GOED	
SDSU graduate student marketing and commercialization program	The program was developed and university resources were allocated	SDSU	Graduate students assess new invention disclosures and obtain education to graduate students in STEM fields.
APLU Innovation and Economic Prosperity Program	SDSU participated in the 2014 program and applied for designation as an Innovation and Economic Prosperity University	SDSU APLU BEDC SDIP SDSU Research Park	SDSU was one of 14 universities nationally to be designated in 2014.