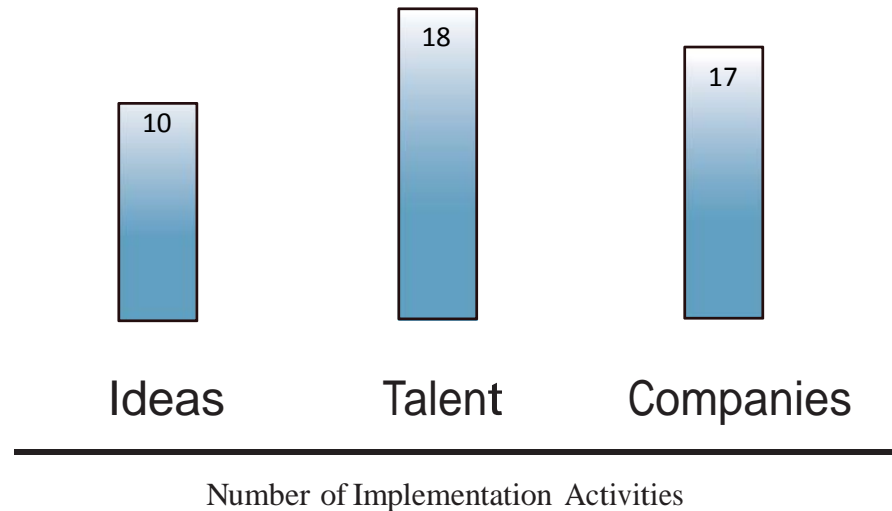


# Implementation Activity

June 2015 - December 2015



Previous activity reports available at [sdeprior.org/2020vision](http://sdeprior.org/2020vision).

## 2020 Vision: The South Dakota Science and Innovation Strategy

### 2020 Vision Management – Strategy Areas

<u>Initiative</u>	<u>Action</u>	<u>Responsibility</u>	<u>Outcome</u>
<b>Strategic Area: Ideas</b>			
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. Construction was successfully completed in October 2015. The building is operational, and a grand opening is planned for May 2016.
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 was completed in June 2015. The Visitor Center is operational.
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 regent universities. Facility outfitting construction was completed in August 2015. The facility is operational, and

			experiment equipment has been moved in to the facility.
Proof of Concept	Expand program--\$250,000 annual appropriation to expand program	GOED	Governor included \$250,000 in his budget. App. Hearing held Jan. Through Dec. 31, 2015—63 POC applications, 41 projects, and 27 repayment agreements in place.
Research Team Development RFP	RFP released-Feb. 2016	GOED,BOR	RFP released to provide planning/team development grants in preparation for future research center competition
Strategic Investment in Research Areas and Assets Aligned with Target Industry Sectors	Board of Regents released its FY17 R&D Collaboration Grant RFP on November 6, 2015, with an award announcement anticipated in late April of 2016.	Board of Regents	Provide up to \$900,000 over three years to foster collaborative research activities or programs in one or more of the seven R&D areas identified in the 2020 Vision.
Industry Partnering Functions within South Dakota Colleges and Universities	NASA EPSCoR and Space Grant research grants promote STEM industry partnerships	SD NASA EPSCoR and NASA Space Grant	Thirteen FY 2016 research proposals include 16 potential STEM industry collaborations (9 in-state and 7 out-of-state)
SDSU/Sanford Profile Collaboration	Sanford Health has initiated a new research emphasis in human nutrition.	SDSU Sanford Health SD BOR	\$440,000 in new research funding has been implemented for human nutrition- and health-related research
Market Analyst Program	SDSU and SDIP have collaborated to train and employ graduate students to review technologies developed by both	SDSU SDIP	Reviews of 25 SDSU technologies and further review of SDIP related technologies.
Animating the Next South Dakota Economy: The 2020 Vision New Value Project (4) Invigorate the On-Campus Innovation Orientation	Improve academic alignment and intellectual integration of Biomedical Engineering program	USD	Move BME to the College of Arts and Sciences. Move to be accomplished January 2016.
<b>14, Strategic Area: Talent</b>			
Build South Dakota Scholarships	Established in 2015	GOED, Department of Education	\$50 million program to fund scholarships for technical schools for high demand areas mostly STEM related.

Position and expand 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	Both minors and the graduate certificate were approved by the Board of Regents in June of 2015.
Position and expand degree programs to produce talent for the target sector industries	Develop PhD in Health Sciences (USD)	Board of Regents USD	The Board of Regents is anticipating taking action on the proposed PhD in Health Sciences at its May meeting.
Position and expand degree programs to produce talent for the target sector industries	Develop BS in Innovation and Entrepreneurship (USD)	Board of Regents USD	The proposed BS in Innovation and Entrepreneurship is pending approval by the Board of Regents in 2016.
Position and expand degree programs to produce talent for the target sector industries	Develop a certificate in Laboratory Science (USD)	Board of Regents USD	The proposed certificate in Laboratory Science is pending approval by the Board of Regents in 2016.
Position and expand 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 is pending approval by the Board of Regents in 2016.
Position and expand degree programs to produce talent for the target sector industries	Develop BS in Operational Analytics (USD)	Board of Regents USD	The proposed BS in Operational Analytics is pending approval by the Board of Regents in 2016.
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 2016, two STEM Teacher awards (total \$6,620) and two Robotics Materials awards (total \$6,371)
	SD NASA Space Grant provides annual Program Innovation Grants for STEM outreach and curriculum enhancement	SD NASA Space Grant Consortium	For FY 2016, four Program Innovation Grants awarded (total \$58,000) for programs at Augustana, SDSU, BHSU-SURF, and Raven-Aerostar
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	SD NASA Space Grant Consortium	In FY 2016, \$98,150 awarded to 34 undergraduate and graduate students seeking STEM degrees at six institutions (38% female, 18% minority).

	public, private, and tribal institutions in state.		
Ongoing Approach for Aligning Higher Education within this Science and Innovation Strategy	SD NASA EPSCoR annual calls for research and project initiation grants require alignment with the "2020 Vision."	SD NASA EPSCoR	Twelve of thirteen FY 2016 proposals show direct support for the "2020 Vision." Two seed grants awarded (total \$46,000 NASA) with focus on energy, materials, and visualization. Research proposal funded by NASA (\$750,000 NASA) with focus on advanced materials. Research proposal submitted to NASA headquarters (\$750,000, NASA pending) with focus on energy and 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	8 interns are underway and the minor has students enrolled.
Campus Training Workshop Series	The Division of Research and Economic Development has begun an series of seminars and workshops on funding, technology transfer, compliance, export controls and other important research topics	SDSU	Started in Fall of 2015.
Refining the Role of Postgraduate Higher Education within The 2020 Vision Strategy	Increase research potential through increased human resources in BME	BME-USD	Two new faculty hires in BME Zhongkui Hong and Yu Huang
Refining the Role of Postgraduate Higher Education within The 2020 Vision Strategy	Increase research potential through increased human resources in BME	BME-USD	Two other faculty joined BME from Computer Science.
Promote Science, Technology, Engineering, and Math (STEM) Study at All Educational Levels.	Expand Successful Middle and High School STEM Activities Creating Greater Exposure For Students Around the State.	USD - BME	BME is working with EmBe – statewide STEM initiative for elementary & middle school (camps and robotic programs designed for summer 2016)

Create a Culture of Entrepreneurship on the Campus	Establish Entrepreneur in Residence Program at USD	USD- School of Business	
Promote Science, Technology, Engineering, and Math (STEM) Study at All Educational Levels	1.Prepared certificate program in GLP 2. Prepared program for Certificate in Regulatory affairs Proposed AS degree in Integrated Science (BOR Apr 2016)	USD - BME	Creating training opportunities for post-secondary students. Workforce development
<b>Strategic Area: Companies</b>			
Build South Dakota Program	Implemented in 2013 and amended in 2016  Infrastructure & workforce	GOED	\$30 million appropriated for FY 20015-2017 to support development of local infrastructure, workforce education, and local revolving loan funds.
Pilot GMP Facility	Infrastructure	USD/GEAR Center-GOED	Pilot scale GMP facility developed for use by companies to produce products for pre-clinical and clinical trials.
Governor's Giant Vision Business Plan Competition	Outreach	GOED-SD Chamber of Commerce & Industry	31 business applications and 26 student applications
Economic Development Administration I6 application	Proposal Submitted	GOED-USD-SDSM&T, SDSU, Enterprise Institute	Application not awarded
SBA FAST Program	Proposal Submitted	GOED	Application Pending
South Dakota Equity Fund	Equity financing	GOED-Equity Fund	Fund raising & SBA application submitted—SBIC
Expand Angel Funds	Equity Financing	Enterprise Institute	New funds in Sioux Falls and second Black Hills fund established
International Bio Conference	Outreach	GOED, BioSNTR, SD Bio	Gov. Dugaard will be attending 2016 conference in 2016 in San Francisco. Participating in Governors panel.
NSF EPSCoR Entrepreneurship Workshop	Ecosystem	GOED, Universities, Equity investors	South Dakota team participated in NSF sponsored workshop to develop action plan.

See SDSU/Sanford Health Collaboration listed above			
Startup companies resulting from university-based intellectual property	Seven startup companies have been established from SDSU-IP. There were 7 and 6 licenses executed with these companies in 2014 and 2015, respectively.	Seven startup companies have been established from SDSU-IP. There were 7 and 6 licenses executed with these companies in 2014 and 2015, respectively.	Seven startup companies have been established from SDSU-IP. There were 7 and 6 licenses executed with these companies in 2014 and 2015, respectively.
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.	Agreement templates have been developed. Training events for faculty and staff have been presented and will expand in 2015/16.	Agreement templates have been developed. Training events for faculty and staff have been presented and will expand in 2015/16.
		USD – BME	Partnered with Sanford on development and patenting of drug coated balloon catheters. Executed a research agreement.
		USD - BME	Applied for (and won) two BioSNTR seed grants & 1 POC for above with Sanford.
		USD - BME	Developing an NDA and MTA with POET for using zein (byproduct of EtOH production) for tissue scaffolding material.
		USD - BME	Developing an NDA and MTA with SynZyme for PNA for integration into tissue scaffolding material.
		USD - BME	Working with Immutrix for their use of the GMP labs for production of materials for clinical trials.