

Continued Developments at Dakota State University

Dr. José-Marie Griffiths, President
January 29, 2019



A. Budget and People





Impacts of Budget

- General Fund Increase for Utilities in FY20 of \$71,227 (Budget Brief Page 70)
- Other Fund Authority Increase of \$3.4 million in FY20 (Budget Brief Page 70)
- Increase of 35.0 FTE to account for increased demands on campus due to increased enrollment and increased grant/contract activity (Budget Brief Page 70)

Federal and Other Funds

- DSU Federal Authority FY19 = \$3,000,112 (LRC Budget Brief page 69)
- DSU receives several federal grants/contracts from a variety of federal agencies, the largest are NSA, NSF, and DOD. Examples include:
 - Federal grant from NSF for CyberCorps is about \$1.2M per year; renewal pending for Fall 2019 at \$2M per year for five years
 - Title III grant – U.S. Department of Education - received \$2.247 million award in 2016 to be spend over 5 years
 - NSA contract for Cyclops Lab at just under \$500K this year, with another \$500K pending before the end of the Federal FY.
 - GenCyber awards (3) totaled just under \$500K last FY.
 - Individual MadLabs have received and are seeking various Federal grants/contracts
- DSU Other Authority FY19 = \$33,814,269 (LRC Budget Brief page 69)
Other funds from non-federal sources includes tuition, fees, room, board, and grants/contracts from non-federal sources. Examples of Other Grants/Contracts:
 - State contract with Office of Attorney General – Division of Consumer Protection for the DigForce Lab
 - SD Department of Health contract for CAHIT- Healthlink
 - GOED Grants for Madison Cyber Labs and related projects



DSU Workforce LRC: (Data used from CUPA 2019 survey)

a. Permanent and Temporary Employees = 407

Permanent Employees = 342

Faculty = 105

Non-Tenure Track = 33 Tenure/Tenure Track = 71 Part-Time = 1

Staff = 237

Non-Exempt Part-Time = 7 Exempt Part-Time = 25 Exempt Full -Time = 118

Non-Exempt Full-Time = 87

Temporary Employees = 65

Staff = 19 Adjuncts = 46

b. Benefitted and Non Benefitted Employees

Benefitted Employees = 335

Faculty = 105

Non-Tenure Track = 33 Tenure/Tenure Track = 71 Part-Time = 1

Staff = 230

Non-Exempt Part-Time = 4 Exempt Part-Time = 21 Exempt Full -Time = 118

Non-Exempt Full-Time = 87

Non-Benefitted Employees = 72

Faculty = 46

Adjuncts = 46

Staff = 26

Non-Exempt Part-Time = 3

Exempt Part-Time = 4

Temporary = 19

c. We do not have seasonal or non-seasonal employees.

d. We do not have any positions that qualify under this statement.



Unutilized FTE

a. Employee Turnover Rates

2018:
CSA Benefit Eligible = 12.90%
NFE Benefit Eligible = 12.24%
Faculty Benefit Eligible = 3.77%

2017:
CSA Benefit Eligible = 12.09%
NFE Benefit Eligible = 9.20%
Faculty Benefit Eligible = 4.95%



b. Recruiting Difficulties

- Over the last two years it has taken DSU from 92 days to 140 days to fill faculty positions.
- DSU was unsuccessful in filling 3 new faculty positions from FY'18 to FY'19 in the Beacom College of Computing and Cyber Sciences.
- DSU has been unsuccessful in filling a faculty position in the Health Information Management program in the College of Business and Information Systems for the last two years.
- Over the last two years it has taken DSU from 55 days to 62 days to fill staff positions.
- DSU averages 14.4 applicants for faculty positions and 12.7 applicants for staff positions (Beacom College averages 17.7 applicants.)

c. Long-Term Vacant Positions

DSU has 4 faculty positions that fall under the long-term vacant positions.

d. Vacancy Savings

Unused dollars from vacancies are used then to pay for additional adjunct faculty, overload, which is needed to cover the course offerings provided to students.



B. DAKOTA STATE STRATEGIC GROWTH Leading to Workforce Development and Job Creation



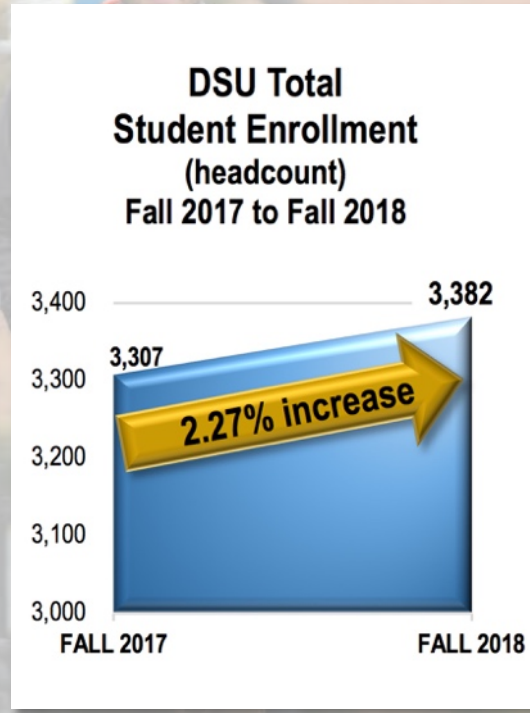
Continued Developments at Dakota State University



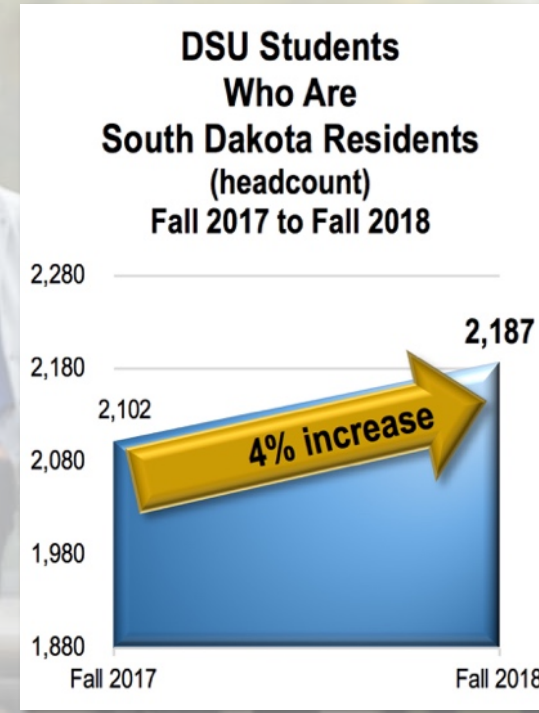
1. Strategic Growth – educating for the 21st century workforce

a. Enrollment – impressive growth

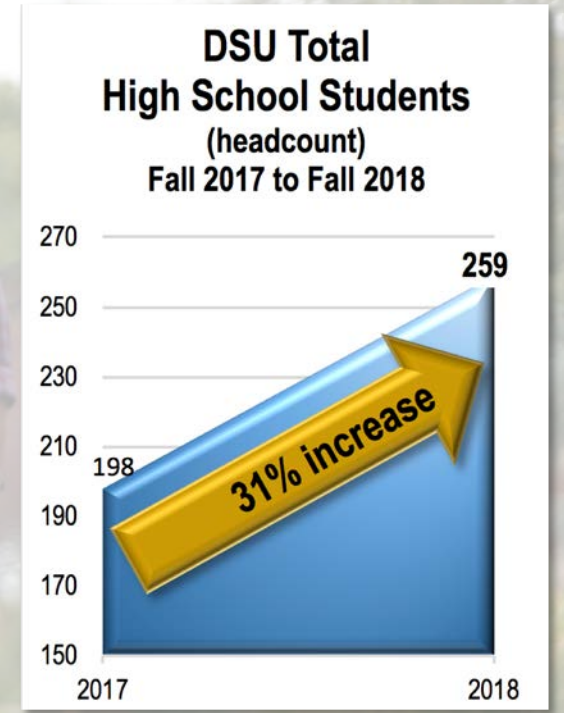
Year-to-year DSU Enrollment Growth: Fall 2017 to Fall 2018



TOTAL NUMBER OF STUDENTS
2.2% increase



SOUTH DAKOTA RESIDENTS
4% increase

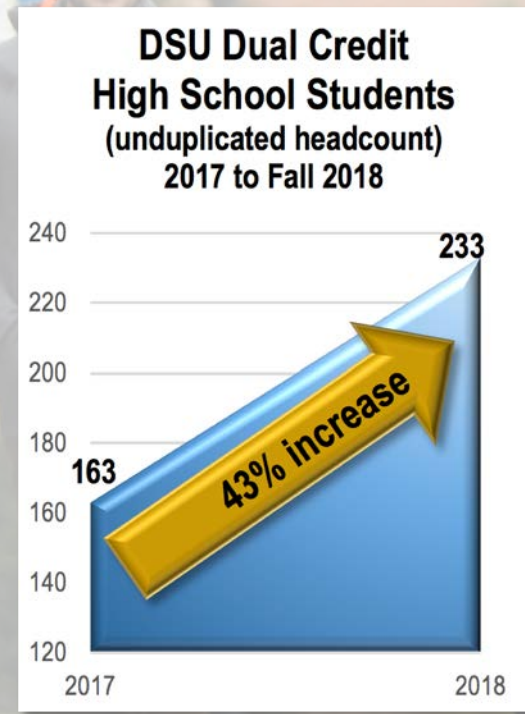


HIGH SCHOOL STUDENTS
4% increase

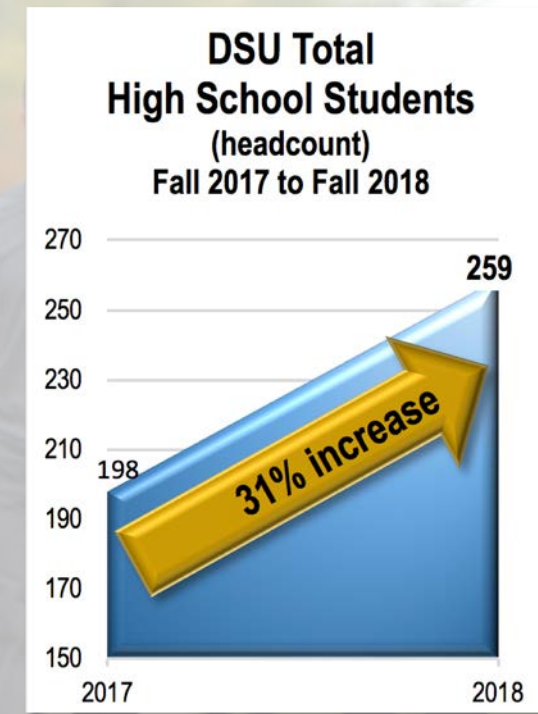
1. Strategic Growth – educating for the 21st century workforce

a. Enrollment – impressive growth

Year-to-year Growth in DSU enrolled High School Students: Fall 2017 to Fall 2018



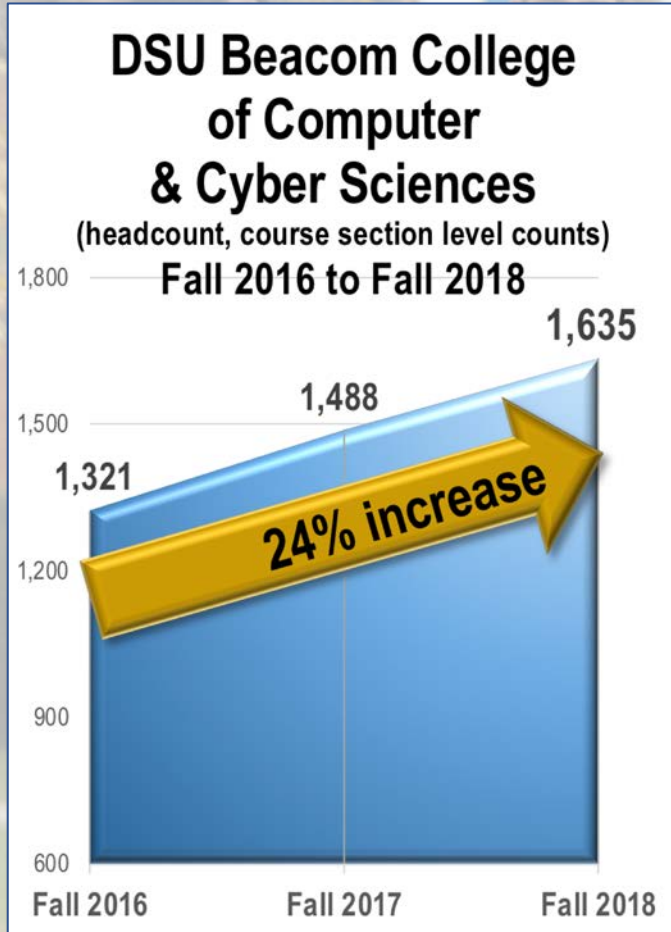
DUAL ENROLLMENT HIGH SCHOOL STUDENTS
43% increase



ALL HIGH SCHOOL STUDENTS
31% increase

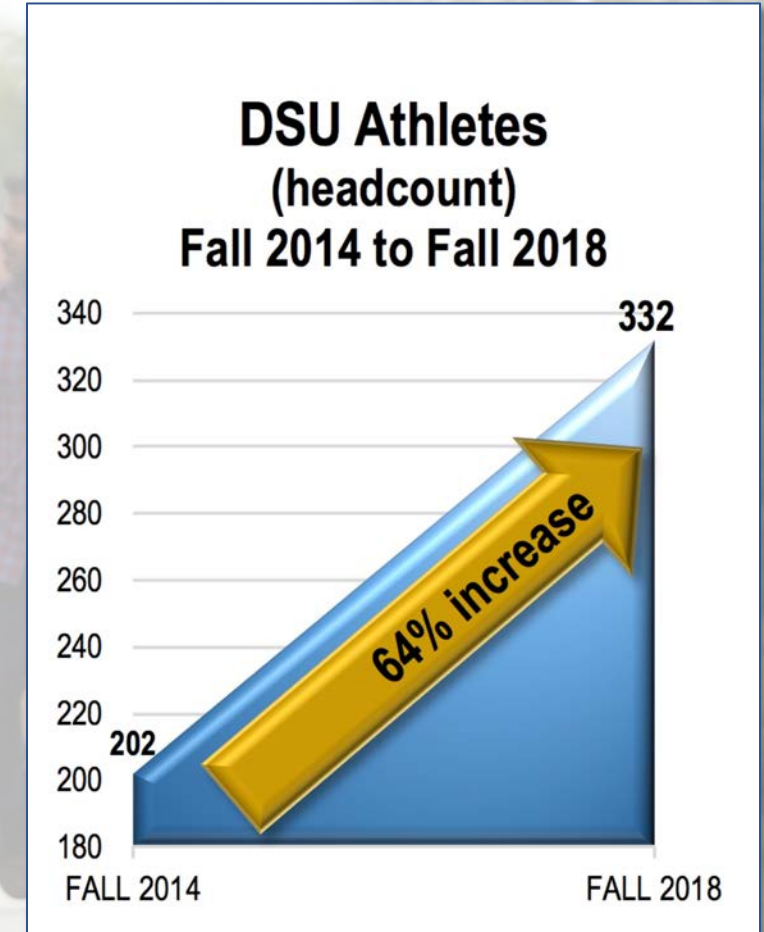
1. Strategic Growth – educating for the 21st century workforce

b. Particular Growth in Certain Areas



Cyber Leadership and Intelligence

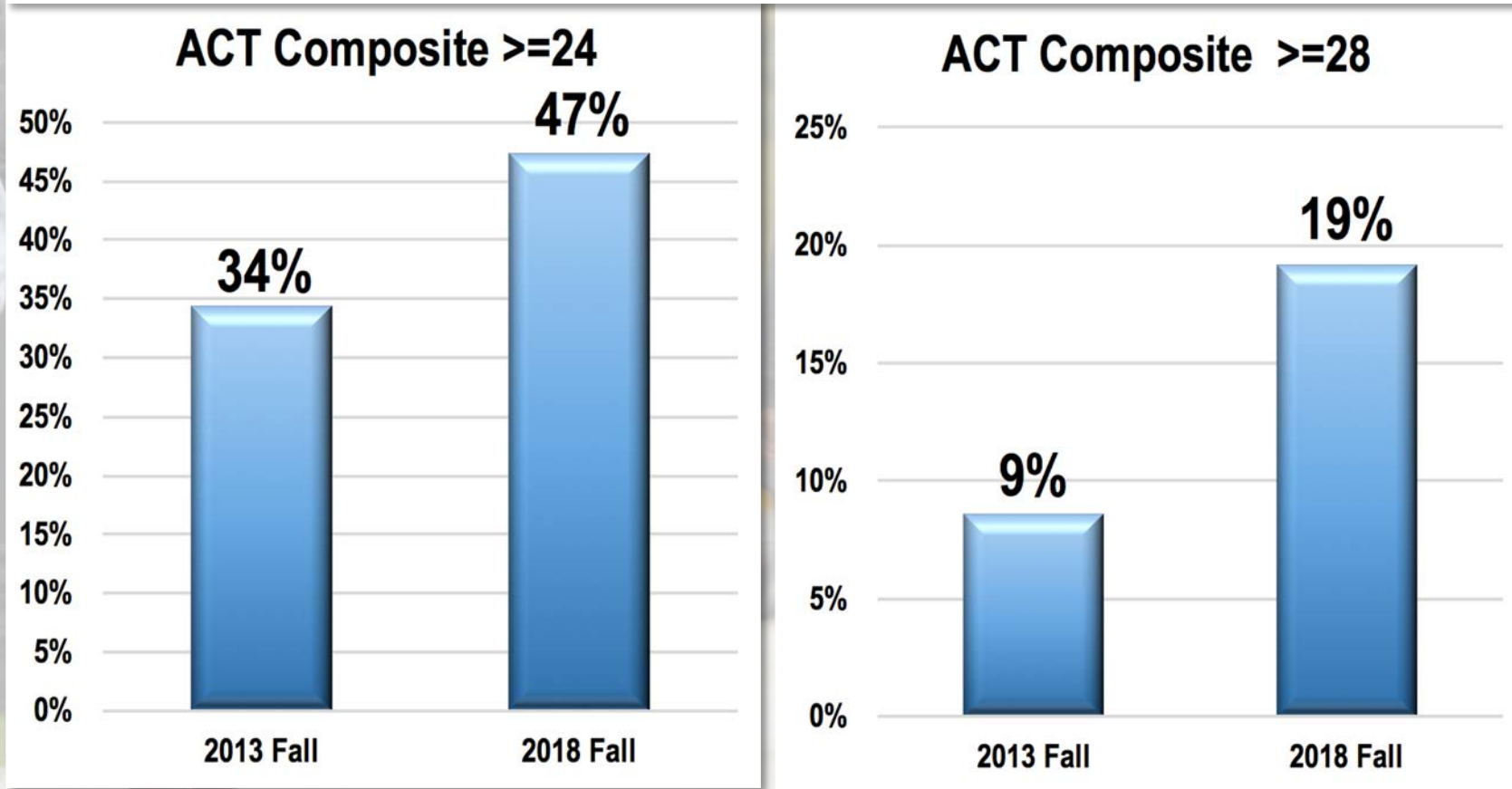
- New interdisciplinary program
- Equips students with the knowledge of cyber systems and world cultures, international politics, human behavior, and leadership
- Graduates will work with government leaders and corporate executives to develop strategies to defend organizations from cyber disruption
- The U.S. Bureau of Labor Statistics estimates more than 28,000 professionals will be needed in these cyber-related fields by 2026



1. Strategic Growth – educating for the 21st century workforce

c. Quality of Students

Increase in Composite ACT Scores of Incoming DSU First-year Students
As a Percentage of All Incoming First-year Students
2013 Fall Compared to 2018 Fall



1. Strategic Growth – educating for the 21st century workforce

d. Research – The Madison Cyber Labs – The MadLabs

- \$18M Madison Cyber Labs construction will be done August 2019
- Will house 200+ researchers
- First research building on campus
- Will be the hub of our applied research agenda.
- Have 16 current MadLabs in a wide array of cyber niches originating from all four colleges at DSU
- Have current funded R&D from federal partners (NSA, DoD), state partners (AG's Office), and private sector partners (two private South Dakota companies)
- Pursuing numerous other funding sources with help from the DSU Sponsored Programs Office

2. Drivers of Growth

a. New Programs

Academic

- Majors
 - 45 programs of study in four colleges, including 7 graduate programs: 2 doctoral degrees, 7 master's degrees, and 4 certificates at the graduate level
- Over half of the undergraduate and all the graduate degree programs are offered online
- Pre-professional tracks offered in 12 fields
- 4+1 PROGRAMS
 - Six programs of study in which students can get a bachelor's and master's degree in 5 years

2. Drivers of Growth

a. New Programs

Academic – new DSU degree programs

New Programs and Major Changes for Fall 2018

- Ph.D. Cyber Operations
- Ph.D. Information Systems
- B.S. Cyber Leadership and Intelligence
- M.S. in Information Assurance & Computer Security name change to Cyber Defense
- M.S. in Applied Computer Science name change to Computer Science
- Certificates:
 - Cybersecurity Certificate (undergraduate)
 - Network Services Certificate (undergraduate)
 - Software Development Certificate (undergraduate)
- New Specializations
 - Artificial Intelligence/Machine Learning to the B.S. Computer Science
 - Information Assurance to the M.S. Information Systems
 - Fast Track for B.S. Computer Info Systems to M.S. Analytics

- B.S. in Computer Information Systems, Data Analytics Specialization changed to Business Analytics
- B.S. DAD, Audio Production Specialization changed to Digital Sound Design Specialization
- New Site Request (distance): B.S. Elementary Education

New Programs and Major Changes for Fall 2019

- New Specializations in BS in Mathematics
 - Information Systems in the B.S. Mathematics
 - Cryptography in the B.S. Mathematics
 - Secondary Education in the B.S. Mathematics
 - Intermediate Education in the B.S. Mathematics
- English for New Language Minor
- Healthcare Data Analytics Certificate (graduate)
- Mathematical Foundations of Cryptography Certificate (undergrad)

2. Drivers of Growth

a. New Programs

Research

- MadLabs
- Awarded grant monies have more than doubled in the last two years, from \$6.2 million in FY2017 to \$12.8 million in 2018
- Growth in the number of proposals submitted for research and other sponsored programs increased 30%
- So far in FY19 there is a 4-times increase in the number of proposals submitted
- Proposed \$5 million of extramural funding to federal, state, and private agencies, as well as one foreign government (France)
- High rate of success in funded proposals - 40.4% have already been funded this fiscal year with another 9 still pending



2. Drivers of Growth

b. Efficiencies



Increased our capacity to accommodate students: increased capacity in online enrollment, all general education online and campus courses



Used blended staffing to not restrict areas of high growth and produced position efficiencies



Put in significant Indirect Cost Recovery expectations for new research faculty



Decreased the number of small classes and improved course optimization efficiency



Provided relief through reduction in faculty overload and dependency on adjuncts



Improved facility usage: e.g., scheduled more classes at 8 a.m. and 12 noon

2. Drivers of Growth

c. Partnerships

Partnership with SDSU on Degree Programs in Computer Science and Software Engineering

Partnership with USD in CyberLaw Including Academic Programs, Articulations, Consultation and Academic Conferences

Partnership with Sioux Falls School District: A Pilot Computer Science Academy (Facilitated by SDPaSS: Three Year Pilot Project)

Partnership with SDSU Agriculture, Extension Service, Engineering: Policy/Action Summit on Cybersecurity, Precision Agriculture, Artificial Intelligence, Food Safety





3. Constraints

a. People



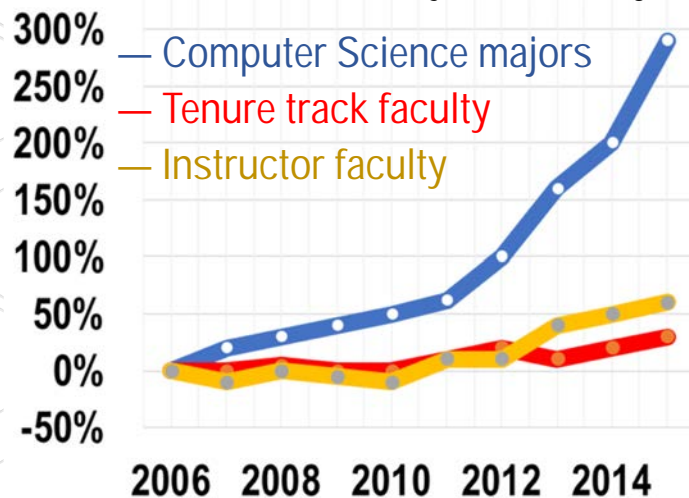
Faculty Recruitment and Retention

Nationally are insufficient cyber faculty for the growing number of computer science majors

- DSU has to compete nationally for faculty talent
- These highly technical positions demand higher salaries (in the range of 20% higher, depending on area)
- With programs competing with DSU nationally, the competition for these faculty is keen
- Only 2% of all degrees conferred in the cyber sciences are doctorates
- Math and cyber continue to have the fewest doctorates awarded of any discipline
- Only 18% of all PhDs take teaching positions in higher education
- 80% of those taking teaching positions go to research-intensive institutions
- Doctoral degree in any of the cyber sciences = corporate salary 5x more than professor
- In 2015 - only 320 new PhDs available to fill cyber faculty slots in 1,577 universities
- Almost 20% of all college and university cyber science faculty searches in 2017 failed entirely¹

- *Salary continues to be the #1 reason faculty offered positions at DSU do not take the job*

Growth rates for CS majors & faculty



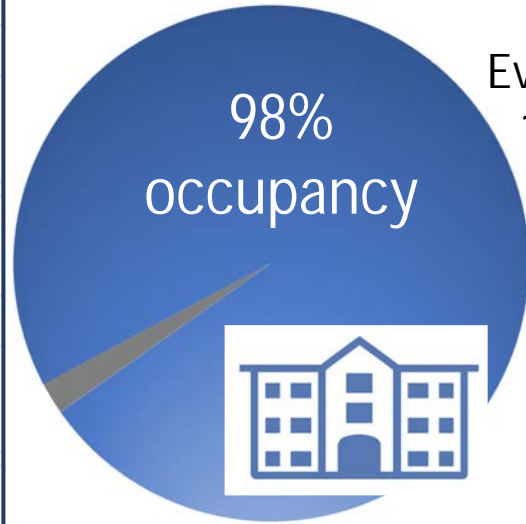
Computing Research Association, Generation CS, February 2017

¹ Computing Research News

3. Constraints

b. Facilities – Housing On Campus

DSU's Residence Halls are at 98% occupancy



Even after adding in 118 more beds (total) in 2017 & 2018



DSU's on-campus enrollment will continue to increase, especially in the Beacom College of Computer and Cyber Sciences, the new Cyber Law and Intelligence program, and Athletics, both traditional sports and the new e-sports program.



3. Constraints

c. Facilities – Housing Off Campus

There are multiple pressures on housing availability in the city of Madison and the surrounding area



IT start up companies

Cyber and IT-related startups will add jobs for students and bring in new professionals and researchers

Planned expansion of other companies

With increased DSU enrollment and area population, many businesses have expansions planned which will bring in new workers needing housing

Other new companies, e.g. new "Shrimp Harbor" bringing in 150 new jobs over the next 2 years

Other new businesses

The area lacks housing for young professionals and starter homes for families

Very little rental housing

There is very little rental housing available in the area and what exists is generally small, older, and expensive

Lack of existing needed housing



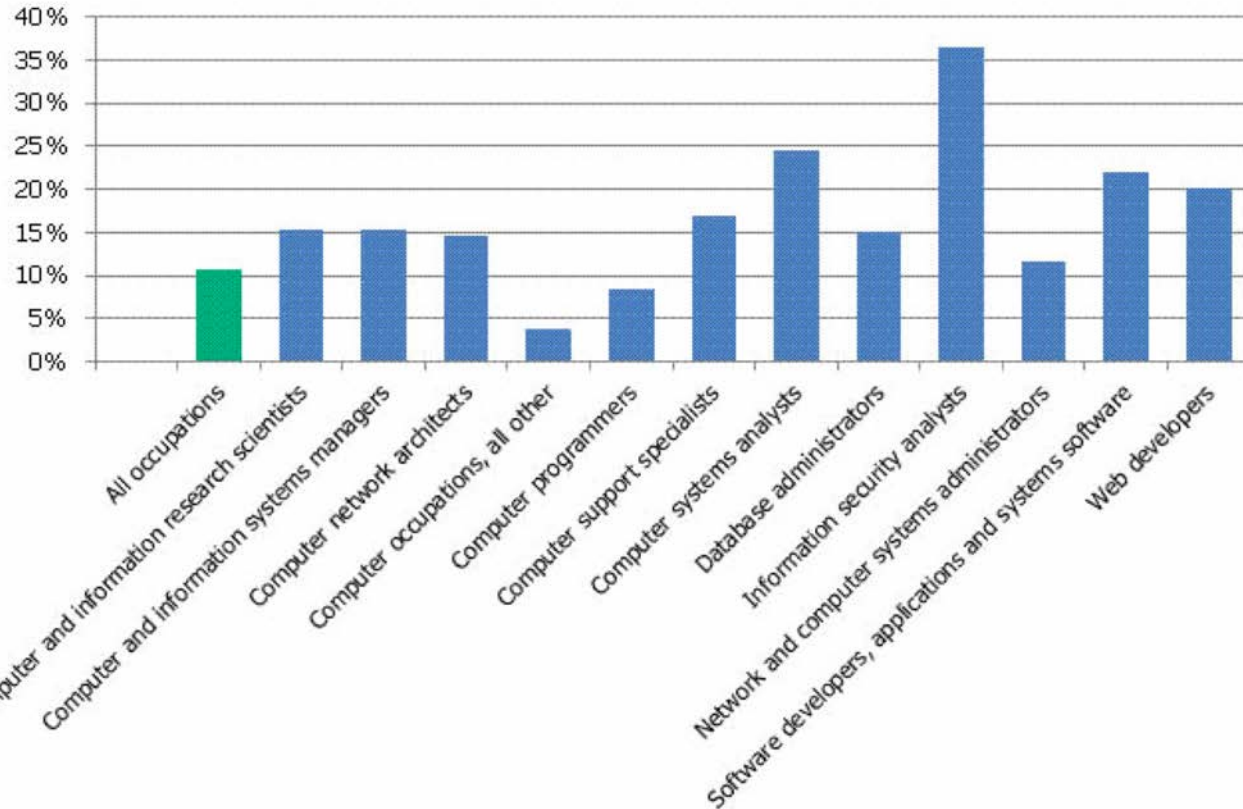
Strategic Growth – educating for the 21st century workforce

DSU strategic growth is important because we are increasing South Dakota Workforce Development and Job Creation

4. Workforce Development

a. Need for college-educated graduates (especially in cyber) is increasing

Projected employment growth rate, computer and information technology occupations (2012-2022)

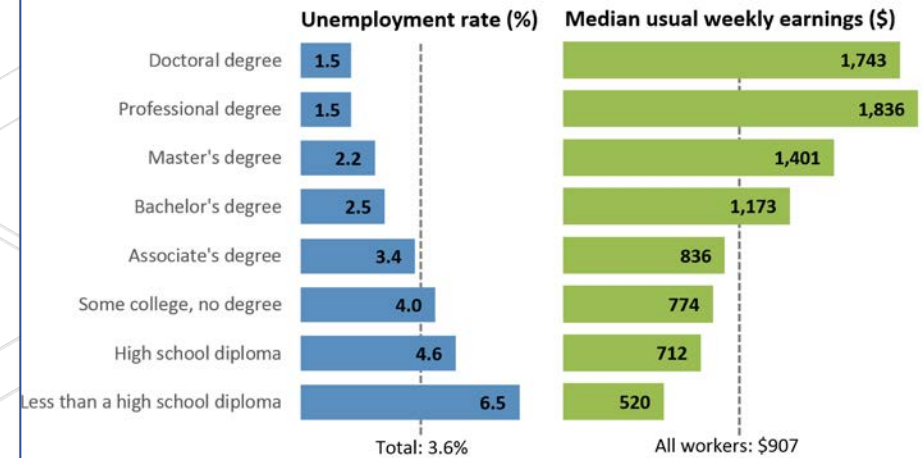


Source: Bureau of Labor Statistics, Employment Projections Program/ Graph by the Women's Bureau, U.S. Department of Labor

Cyber Security

- Market Growth: expected to reach \$170 Billion by 2020 (Forbes)
- Average Salary: \$116,000 (CIO)
- Job openings: Over 209,000 unfilled positions in the U.S., nearly 1 million worldwide (Forbes)

Unemployment rates and earnings by educational attainment, 2017



Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.
Source: U.S. Bureau of Labor Statistics, Current Population Survey.



4. Workforce Development

b. DSU graduates students in HIGH NEED jobs

Examples: Computing/Cyber Security Positions ¹

- Software Engineering – Recently named Best Job in America 2019 (median salary \$101,790, 1.9% unemployment)
- Cybersecurity Analyst -- > \$95,000 median salary; growth in positions MUCH HIGHER than average
- Computer Systems Analysts -- \$88,270 per year , demand higher than average in this economy
- Computer Network Architects -- \$104,650 per year, low unemployment, demand higher than average
- Examples: Health Information Management Positions
 - Chief Technology Officer - \$164,934 average salary, high demand (glassdoor.com)
 - Chief Clinical Information Officer - \$180,000 average salary, high demand (hicareers.com)
 - Director of Clinical Informatics - \$128,000 average salary, high demand (hicareers.com)

¹ <https://www.switchup.org/blog/high-demand-tech-job-cybersecurity> Bureau of Labor Statistics

4. Workforce Development

b. What do you call a DSU graduate? Employed!

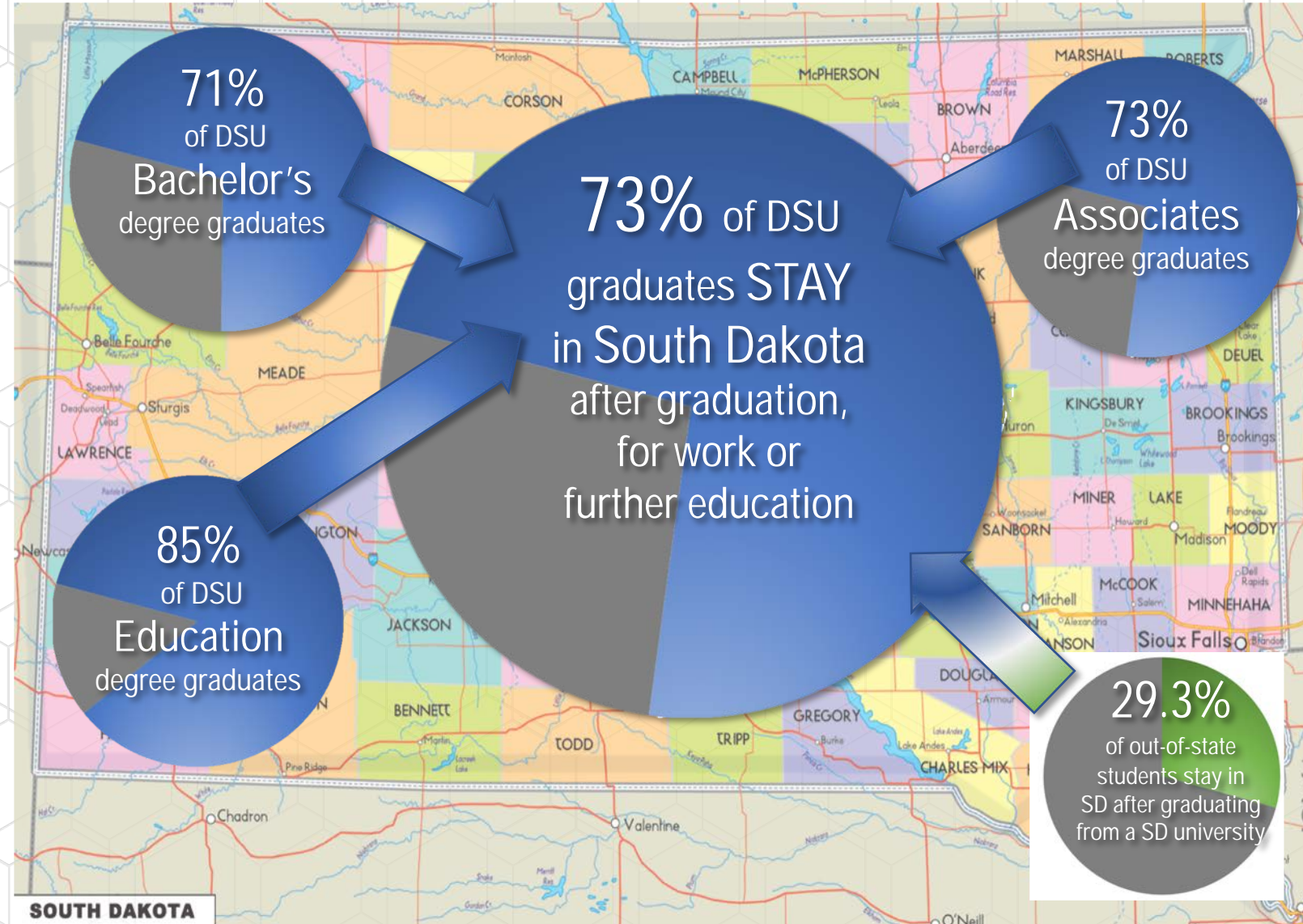
99%
Placement Rate

99% of DSU's 2017 graduates are either employed or pursuing further education

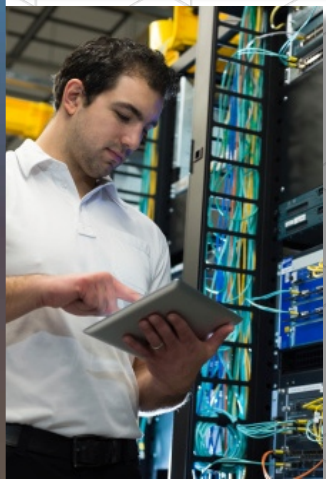
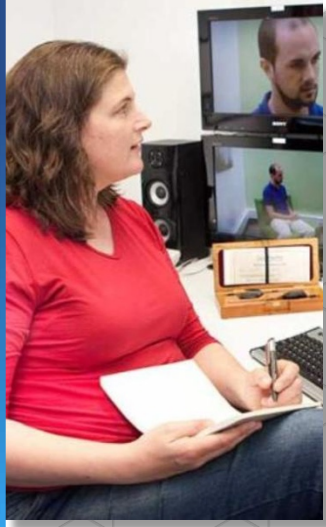
84%
Employed

Of those 99%, 84% are employed, 16% are pursuing further education

16%
Further Education



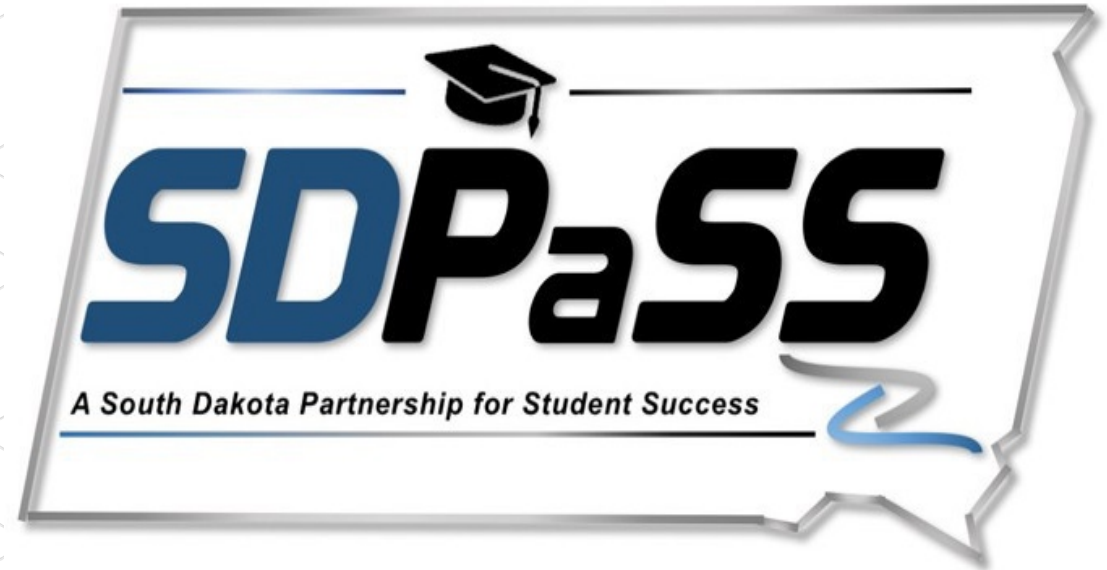
29.3%
of out-of-state students stay in SD after graduating from a SD university



4. Workforce Development

c. South Dakota Partnership for Student Success

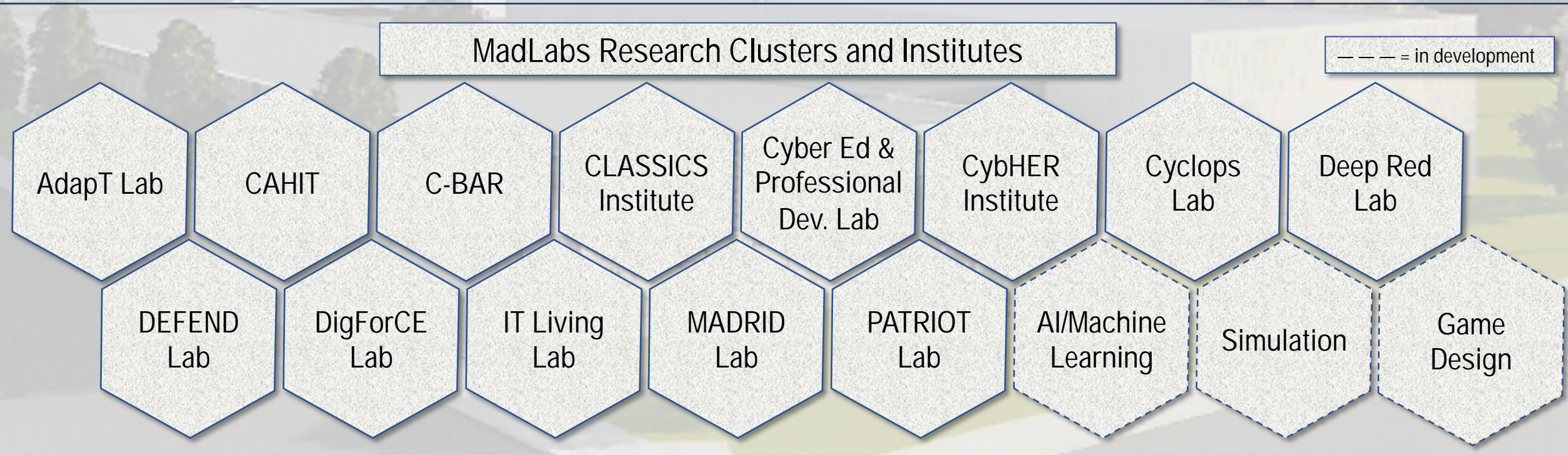
- Intentional collaboration through a consortium: University, Technical Institute, Public School District, Department of Labor, Corporations, Government
- Tools (Multiple on & off ramps): Courses, Internships, Apprenticeships, Certificates, Digital Badges, Associate degrees, Baccalaureate degrees – Stackable, Industry Relevant
- Strengths in the SDPaSS Model:
Partnership brings multiple strengths,
Flexibility for students and their families,
Market Ready Skills, Informed Decision Making, Adaptable to multiple need arrays,
Not time-bound: Asynchronous, Multiple Pathways, Replicable
- Access + Timing = EMPLOYABILITY!



6. Job Creation

a. MadLabs

- On pace to generate around 200 well-paying jobs in Madison
- Solidifies DSU Reputation as Cyber Leader
- Research clusters and institutes have already grown from 9 to 16 even prior to the completion of the MadLabs facility
- Multiple MadLabs already have external funded partnerships (state, regional, and national) and many more partnerships are in development



6. Job Creation

b. Incubation for new businesses

- Establishing a “make-over” plan for the Heartland Tech Center (HTC)
 - 10,000 sq. ft., recently purchased by the DSU Foundation
 - Envisioned as DSU’s hub for economic development/entrepreneurship/spin-off /tech transfer agenda; beginning of a “research park”
 - Will soon house two private companies and DSU has not yet done any advertising of availability
- DSU’s CEO Group (College Entrepreneurship Organization) is an official chapter of the national organization and under the direction of Dr. Mike Roach (Business Professor). They received an SBIR grant to have a business plan competition in spring 2019 with an eye towards the Giant Vision Competition



Continued Developments at Dakota State University





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