SOUTH DAKOTA

SCHOOL OF MINES
& TECHNOLOGY

Quality Summary Report

February 21, 2014

AQIP at the South Dakota School of Mines and Technology (SDSMT)

SDSMT was admitted into AQIP in September 2007 following a highly positive comprehensive review under PEAQ in 2006. Switching to the AQIP was motivated by the usefulness of AQIP as a framework for monitoring and improving campus operations on a continuous basis and by the fact that the "systems" approach inherent in AQIP aligns well with the culture of science and engineering. In 2007, eleven of our 16 undergraduate programs were ABET accredited, and two that were not under ABET were housed in the same department as ABET programs and emulated ABET assessment processes. Therefore, the faculty as a whole was well acculturated to the emphasis placed in ABET and AQIP on defining processes and creating measures to monitor and support their effectiveness. Administratively, we were in a time of change following the retirement of a long-tenured president and believed that the process-documentation work AQIP requires would support institutional continuity during leadership transitions.

AQIP at SDSMT runs inside normal operations as a common language and a shared method of understanding improving institutional processes across units and areas. The AQIP steering group is comprised of the executive-level administrators with responsibility for a given domain of operations. The provost heads up Category 1 and Category 8; the vice president for University Relations leads on Category 9; the dean of Graduate Education and the vice president for Research Affairs lead on Category 2, and so on. The size of SDSMT allows for this structure while the staffing levels do not allow for intricate or redundant committee structures. To achieve campus-wide involvement in continuous quality improvement, we employ broadly representational task forces and action project teams. Task forces and teams with specific charges and outcomes have proven an effective means of generating buy-in and achieving short-term goals. Engineering, as a discipline, has many continuous quality improvement protocols; therefore, we have not introduced AQIP as a "new" way of doing things but as our institutional-level version of what STEM practitioners think of as the way any effective organization runs.

While we do not hold training or informational sessions on AQIP as something separate from all campus operations, we have evidence that the quality culture at SDSMT is at or above average for AQIP institutions. We glean this estimate from the use of the Quality Climate Survey prior to our participation in the spring 2012 AQIP Strategy Forum. The response rate from all employees was approximately 50%, which is very high for long surveys. The results were analyzed using all the AQIP institutions (16 in all) that sent teams to the spring 2012 Strategy Forum. SDSMT was "Institution N" in the results. In all but one of the 17 scale areas the survey measured, SDSMT was above the mean for the 16 AQIP institutions.

SDSMT's quality assurance oversight of its distance education activities

We are authorized to offer up to 20% of all programs via distance and currently offer approximately 5% of all programs via distance. Distance programs are limited to three Master's programs: Mining Engineering, Construction Management, and Engineering Management. SDSMT limits its focus in distance education to serving professionals for whom a campus-based program is not practical. While a few faculty members elect to teach undergraduate courses via

distance through the South Dakota Board of Regents (SDBOR) Electronic University Consortium (EUC) these number no more than 2-5 courses total per year.

The graduate distance programs are administered by the dean of Graduate Education who is advised by a sub-committee of the Council on Graduate Education. The heads or coordinators of the three distance programs are on this sub-committee, which serves to monitor the quality of the distance programs, including the technical infrastructure and support.

Quality control of distance courses and programs is achieved via two primary means. Every semester, all distance courses have a set of common questions added to the IDEA end-of-course surveys given in all distance classes. The questions address key aspects of instructional design critical to the online environment. The results are aggregated by program and analyzed by the program faculty and, if needed, by the dean of Graduate Education. Every year, a common program-level quality satisfaction survey is levied to all distance students. The results are segmented by program and are analyzed by the sub-committee in collaboration with the graduate dean. More information on improvements in distance education is offered below.

State Authorization for distance offerings is handled by the Office of the Provost. Because the total number of graduate students living out of state and enrolled via distance is relatively small (e.g., 48 total in fall 2013), the provost's office obtains a report from the registrar of the home location of all distance students and ensures that SDSMT is authorized to operate in every state in which one of these graduate students reside.

Screening of Criteria for Accreditation and Core Components

As directed by the Commission, we took the evidence of meeting the Criteria presented in the Index to the 2011 Systems Portfolio and pasted it into the Commission's crosswalk chart. For those new Core Components not present in 2011, we have inserted current, additional evidence and shaded the rows in the crosswalk table to make this newly added evidence easy to identify. The 2011 Systems Portfolio text is appended to the crosswalk table, so the hotlinks in the crosswalked evidence remains hot linked to the sections referenced in the Portfolio. Because the resulting file is lengthy, it is posted to the Resource Room rather than attached to this Summary.

Actions taken to capitalize on the strategic issues and opportunities for improvement identified by the last Systems Appraisal (Systems Appraisal Follow Up)

Improvement and advancement items derived from the 2011 Systems Appraisal Feedback Report were organized by the AQIP Steering Committee into 14 themes (listed below), tracked, and addressed to varying degrees. This section summarizes the status of these fourteen themes in 2011 and now, three years hence.

1. STEPS / Mines Advantage
2. Assessment of Student Learning
3. Research, External Funding, Graduate Programs, and Economic Development (i.e., our Distinctive Objectives)
4. Community Relations and Serving Community Stakeholders
5. Employee Engagement, Satisfaction, Motivation, and Leadership Development
6. Strategic Planning, Annual Operational Planning, and the Budget Cycle
7. Feeding Assessment and Performance Data from Units and Departments into Budgets
8. Leading and Communicating
9. Peer Comparisons and External Benchmarking
10. Ambitious 2010 Enrollment Goals
11. Use of Student Complaint and Satisfaction Information
12. Distance Education
13. Academic Advising
14. Retention / Student Support Services

STEPS / Mines Advantage

In 2011, the STEPS (STudents Emerging as Professionals) program was praised for aligning the co-curriculum with the curriculum to further human development in the technical, professional, and affective domains. STEPS aligned Student Affairs programming with the outcomes required by ABET, Inc. and the ACS, and emphasized by our Mission.

Technological improvements (e.g., implementation of a student swipe-card system) and discussions with department heads about how a STEPS-type program could generate data in support of accreditation processes under ABET, Inc. led to a revision and redeployment of the program as Mines Advantage.

The Mines Advantage program is based on promoting and tracking specific student behaviors and experiences that contribute to gains in career preparation, cultural and global diversity, community involvement, personal development, leadership and team work, and communication skills. The program outcomes were designed to ensure consensus amongst all employees regarding the outcomes that all campus activities (in and out of the classroom) must promote.

Since 2011, Mines Advantage has linked 193 activities and experiences to specific program outcomes, developed an online database whereby student completion of these activities is

tracked, and presented the program to incoming freshman such that 500 students have already enrolled and begun to complete the Mines Advantage learning modules.

Work ongoing that we will present to the team includes implementation of the Global Competencies Inventory, further promotion of and enrollment in the Advantage program, and formal planning with the department heads regarding how the Advantage program can reinforce and help assess key program learning outcomes.

Assessment of Student Learning

In 2011, the team noted opportunities to develop institution-wide processes that bridge the gaps between the assessment efforts of individual instructors, individual departments, and departmental/program reviews. Stringent requirements under the ABET accreditation protocol ensure active and well documented assessment processes for 11 of our 16 bachelors programs and strongly supports assessment processes in two programs paired in single departments with ABET-accredited programs (i.e., geology and applied mathematics); nonetheless, commonalities of learning outcomes in all of our STEM-oriented curricula create opportunities to mature assessment processes overall by creating common measures. The use of common measures and instruments facilitates the aggregation of data that can be fed into executive-level decision making and resource allocations.

In 2011, the provost appointed a task force led by the faculty member heading up the research emphasis area on STEM education to recommend an assessment framework (with common instruments and measures) that would span all academic programs while complimenting the ABET, Inc. or ACS processes and criteria. It was believed that such a framework would have the additional benefit of providing Academic Affairs leadership comprehensive data on student learning that could be segmented and analyzed to identify opportunities for improvement.

The head of the Industrial Engineering Department, known for his expertise in assessment and engineering pedagogy, led the work of a large interdisciplinary team of faculty and staff members who worked over several years to identify the shared learning outcomes on which the academic programs placed the greatest emphasis and then to research and select the best measures and instruments. The task force's report and recommendations were finalized in January 2014, and discussions are underway regarding which measures and/or instruments will be deployed across campus in a pilot roll-out of what is intended to become comprehensive and shared processes for assessing the attainment of key learning outcomes across all programs. The Assessment Task Force will present more results and details of the rollout when it meets with the team during the site visit.

Research, External funding, Graduate Programs, and Economic Development (i.e., our Distinctive Objectives)

In 2011, the team acknowledged the significant restructuring within Research Affairs to enhance the productivity of research, external funding for research, and technology transfer. Strategic

planning in Research Affairs generated a cluster of "research thrusts," according to which research and graduate programs were to be developed, and a long-term plan to move the institution to an "institute" model for research. The team cited opportunities in ongoing oversight, coordination, and planning in this area.

Developments in this area stagnated as the full force of the economic downturn and precipitous decline in federal research funding hit the school. In addition to the end of federal earmark funds and the sequester, the National Science Foundation ended support of the underground laboratory in Lead, SD.

The unexpected interruption in presidential leadership precluded any major changes, such as restructuring along the "institute model" described in the 2011 Portfolio. President Wilson, upon assuming leadership in 2013, turned her attention to the topic of the research enterprise, graduate programs, and external research funding as her top priority. She directed a four month review and development of a new research strategy, including external review by a team of five senior research leaders with broad experience in research from industry, national laboratories, government, and higher education in the fall of 2013 to examine the global context within which the School of Mines operates and to advise senior leadership on how to improve research productivity and advance the institution's goal of contributing to regional economic development.

The institution has strengths on which to build with respect to research, particularly in the underdeveloped private sector partnership arena. The decision was made to focus on increasing the number of Ph.D. graduates, growing specific Ph.D. programs, targeting industry partners for closer partnerships involving applied research, and strengthening umbrella agreements with targeted federal sponsors. In the last six months, the school has signed an umbrella agreement with the Army Research and Development Command for work on specialty explosives and has strengthened its partnership with the Air Force on specialty metals research and repair, which may lead to a National Center of Excellence being located in Rapid City. In addition, we are increasing our partnerships with industry, particularly in the area of composites and materials, where a collaboration involving up to sixty companies is underway. We are aligning our Physics Ph.D. program with the Sanford Underground Research Facility and its path breaking particle physics work. A search for a new VP of Research was initiated. A search is well underway, and this position will be filled in the spring of 2014.

Since 2011, great progress has been made in economic development efforts at the School of Mines. Under the umbrella of Research Affairs, the newly formed Office of Economic Development, led by Joseph Wright has been making significant progress in increasing the number of invention disclosures, industry participation and revenue-generating licenses. The table below illustrates the increased activity.

One indicator, invention disclosures, has had a dramatic five year increase from one in FY09 to 19 in FY13. Currently, there are three active licenses with three more licenses in progress which are generating income from university technology for the first time in Mines history. Although the overall amount of research dollars has declined over the past two years, the total number of invention disclosures, patent applications, and successful licenses has increased. A new

Entrepreneur-In-Residence (EIR) program has been established and yielded even further success. The first EIR in the program, Mat Peabody, won the Governor's Office of Economic Development Giant Vision Award in 2013 after reviving a languishing university start-up with promising technology created by Mines researchers.

As a representative of Mines, Mr. Wright participates in the Mayor's Economic Development Task Force and has just been appointed to the Industrial Relations Board for the Black Hills Business Development Center, furthering our community and industry engagement on campus. The President of the University serves on the Board of the Chamber of Commerce, the Black Hills Economic Development Board, and the Destination Rapid City Board. In January 2014, the first group of Angel Investors was established in the Black Hills with a $2.5 million early stage investment fund. Through the efforts of Joseph Wright and Dr. Wilson, this group meets on the campus at SDSMT. Results shown in Figure 1 (below) illustrate the increased Economic Development activity from Fiscal Year 2009 to present.

	FY09	FY10	FY11	FY12	FY13	FY14*
Invention Disclosures	1	3	5	14	19	5
Number of patents applied for	0	2	3	8	6	4
Number of patents granted	1	1	2	2	0	1
Number of patents licensed	0	0	2	0	2	1
*Year to date as of February 07, 2014						

Fig. 1, Invention disclosures and patent activity Fiscal Year 2009 to present

Since 2011, we have made progress made on developing / strengthening our graduate programs despite the external funding climate. A permanent Dean of Graduate Education was hired, an office established, and staffing expanded. The new dean embarked on an initiative to overhaul the entire graduate education catalog and to review and revise all graduate education policies to make them more supportive of the distance education, the creation of professional Master's programs, the creation of accelerated BS-/-MS programs, and the emergence of new interdisciplinary programs. This large effort is approximately 75% complete.

Strategic planning for graduate education was advanced by the work of the external consultants retained by the president in fall 2013 to offer advice on improving research productivity and advancing the institution's goal of contributing to regional economic development (see section above on research and external funding). Since 2013, priority has been placed on growing the quality of the Ph.D. programs and the students they attract. Of the nine Ph.D. programs, four benefit from state funding, and five do not. The graduate office is making a concerted effort to write grants and coordinate the writing of grants to generate needed funding for the non-state-supported Ph.D. programs.

Recruitment and enrollment in graduate programs fluctuates but promises to rebound, partly due to efforts to create five-year accelerated BS / MS programs. Since 2009, ten such programs have been created and four additional programs are in development. Other improvements that will support enrollment goals include the hiring of three new faculty members in the Department of Mining Engineering and efforts by the Office of Graduate Education to attend the graduate fairs and career fairs held for all major "regional west" institutions. Sending representatives to such

fairs has not been done before at SDSMT because of the lack of a centralized administrative structure for graduate education. Lastly, enrollment management in graduate education has been improved through the full integration of graduate enrollment tracking into the EMAS system used to manage undergraduate enrollment. This effort will be complete by summer 2014.

Community Relations and Serving Community Stakeholders

In 2011, the team cited a lack of systematic processes for querying into the needs of community stakeholders and meeting those needs.

An aspect of Mines not well elucidated in the 2011 Portfolio is the nature of our role in serving the community of the Black Hills. The distribution of population and post-secondary public education in South Dakota enables Mines to concentrate on its strengths of K-12 outreach and economic development relative to the STEM disciplines. Nearby Black Hills State University supports outreach in the arts, teacher training and community education. The University Center, Rapid City meets the needs commonly met by community colleges since South Dakota does not have community colleges. The Western Dakota Technical Institute serves community needs relative to technical and trade-specific training. Mines focuses on stimulating interest in STEM professions, serving as a scientific and engineering resource for the community, and fostering technology transfer and economic development. In addition to this emphasis, Mines serves as a cultural hub for the Rapid City Community through our athletics and arts programs which link the school to the community.

Notwithstanding our specialized range of external stakeholders, we have taken steps to improve processes for serving the full range of community stakeholders by dramatically improving and expanding K-12 youth outreach efforts. The Youth Programs office was reconstituted, and a full year-long curriculum of science and engineering workshops, youth-oriented programming, and residential summer camps has been dramatically enhanced since 2011. SDSMT has entered into new partnerships with Caterpillar, Inc. and the local school district to establish and support FIRST Lego Leagues and a FIRST Robotics team.

Very recently, as part of the emphasis on developing leaders and inspiring more young people to consider engineering President Wilson has asked our SDSMT engineering honor society to develop a Mines Ambassador program that would assign a student leader to every elementary, middle, and high school in Rapid City to promote STEM activities and to serve as a resource for schools to help with science fair projects, math night, and other STEM related activities.

To further SDSMT's service role and connection to the community, President Wilson has placed greater emphasis on student service as a component of developing servant leaders. She initiated an initial Campus Day of Freshman Service in fall 2013 on the premise that all students should be acculturated to a life of service and 'giving back.' The Day of Service is part of welcome week and orientation. In fall 2013, over 400 freshmen and 50 upperclassmen performed over 800 hours of service before their first day of class. Success in 2013 having students work at the Feeding South Dakota food bank, painting and cleaning in neighborhoods near campus, and performing other off-campus services showed us that our goal of focusing service efforts fully

off campus in the community is attainable. In addition, athletic teams, fraternities and sororities, and student groups are very active in service to the community throughout the year, and this service is connected to our Mines Advantage program.

This emphasis on developing servant leaders manifests itself in numerous ways from our decade-long participation in the United Way Day of Caring, to collecting food for foodbanks and sponsoring SD Special Olympics. Virtually every student organization on campus has a service element of their annual calendar, resulting in thousands of volunteer hours a year generated and opportunities for our students to grow through service. Every year, the employees of SDSMT contribute over $25,000 to the United Way Campaign. This represents roughly one-third of all employees participating in the United Way.

To improve and build community relations and to better understand the needs of community stakeholders, the president initiated a Campus-Community Connections Breakfast program whereby five times per year a very broadly representational selection of 50 community members are invited to campus and seated at tables with one member of the Executive Council (who facilitated discussion) and a 'scribe' who captured stakeholder feedback. The feedback from all sessions was compiled, analyzed, and discussed in Executive Council and with the Foundation, and has proven to be a great source for further engaging individual community members in the life of the university. This program continues.

Employee Engagement, Satisfaction, Motivation, and Leadership Development

In 2011, the team noted the following opportunities under Category 4: 1) extending the use of Professional Development Plans from faculty member to all employees; 2) stabilizing processes for determining and responding to employee motivation, engagement, and satisfaction such that trend and comparative data could be generated; 3) developing measures of employee productivity—especially faculty productivity; and 4) supporting leadership development for all employees.

In 2009, the creation of a Professional Development Plan (PDP) by all faculty members was phased in, and, currently, all faculty members have PDPs on file in the Office of the Provost and in the respective faculty member's home department. The time frame for the PDP is five years, and it is structured through guided questions, to help the faculty member think long term and to give the department head the information needed to allocate workload and departmental resources to support the development plan. The PDP is used yearly as a reference during the annual review process, and, if needed, changed. The Office of the Provost tracks compliance with this requirement and notifies faculty members when they are due to do their five-year review of themselves and their plans. The PDP process and its use in annual review supports attention to faculty member engagement, satisfaction, motivation, and—often—leadership development as it prompts the department head to have an annual mentoring and planning discussion with the faculty member. Issues of disengagement and dissatisfaction and the need for resources are readily identified during the annual review and the evaluation of progress on elements of the PDP.

In 2013, the annual Performance Planning and Review (PPAR) process was revised for all non-faculty employees. The revised process places a much greater emphasis on how the annual goals of individual employees align with and contribute directly to the priorities of the strategic plan. The evaluation form is structured around the strategic priorities and employees are required to set annual goals in alignment with each of the eight priority areas established by the Strategic Plan. During the annual review, the supervisor evaluates the employee on the degree of attainment of the annual goals set the year prior and assigns a value from "unacceptable" to "exceptional" for the goals under each priority area. During the same review, the employee's new goals for the coming year are presented in alignment with the strategic priorities and, if acceptable, approved by the supervisor.

This annual goal-setting and prior-year goal evaluation process involves detailed discussions of resources and training needed and ensures that all employees have a formally documented venue in which to discuss with supervisors matters pertaining to development goals, workplace climate, engagement, and motivation.

As described in 2011, the campus employed several measures of employee motivation and satisfaction over the decade previous. In 2012, the Action Project, "Institutionalizing Processes for Monitoring and Improving Employee Motivation and Engagement" was framed to address the need for stable processes in this area that could yield trend data for use in improvement initiatives. The action project team selected the Noel-Levitz Employee Satisfaction Survey for the usefulness of the gap-analysis data and national norming data the instrument produced. The survey was levied during the first week of March 2014; the results will be analyzed and presented at a President's Breakfast, and a formal standing HR committee will be formed in August 2014.

Informal but regular opportunities for all employees to visit with the president about any topic have also been instituted as measures of employee satisfaction and engagement. Every month, President Wilson holds a Payday Coffee and Cookies hour in a different building on campus and devotes the time to listening to whatever is on attendees' minds. The president also instituted a Christmas Open House at the presidential residence for the same purpose.

Since 2011, progress made on developing more formal measures of employee productivity varies. In the case of faculty productivity and the creation of a faculty workload model, the goal of creating a standard campus measure and model has been set aside as not being useful or effective for the School of Mines. Over the past decade, groups, senior administrators, and even individual faculty members have studied the issue and put forth models. All have proved problematic because of the many and heterogeneous roles faculty members play on campus. Faculty members teach labs (some with and some without teaching assistants), guide thesis and dissertation credits, offer independent studies when small-enrollment classes must be taken off the schedule, serve in research centers, conduct their own research, teach regular classes, and perform service—all in varying degrees.

The process for measuring, evaluating, and monitoring faculty member productivity that has evolved as effective for the School of Mines is to have empowered, permanent department heads allocate workload within the department to optimize operations and capitalize on the strengths of

individual faculty members. The department head allocates 100% of an individual's workload across the areas of research, teaching, and service. This process for measuring and monitoring faculty member productivity is used by all the universities in the SDBOR system.

Non-faculty member employee productivity is monitored by Human Resources and is a priority area for developing good measures that can be used across units and areas despite the fact that they deliver very different services. While we would appreciate the team's consultation on this topic, progress is being made, and current ideas for accomplishing broad and common measures of productivity include aggregating and segmenting (by unit) the rating data (derived from the PPAR process described above) for the unit employees' level of accomplishing annual goals aligned to the strategic priorities. Other quantitative data not directly indicative of unit productivity may also be aggregated and segmented in order to identify patterns of productivity or a lack thereof. Examples of the data under consideration for aggregation are those pertaining to leave time taken, travel, turnover, salary equity, participation in professional development activities, the attainment of professional certifications, retirement eligibility, and the expenditure of any grant-specific funds.

Since 2011, to foster leadership skills amongst all employees, executive leadership has continued its practice of forming task forces and working groups based on broadly representational membership and selecting faculty and staff members to serve on or lead these groups. Over the last two years, six major broadly representational task forces have been formed from faculty and staff members: a Naming Task Force, a Research Task Force, an Information Technology Task Force, a Library Task Force, an Assessment Task Force, and an Advising Task Force. In each case the group is charged to study a service, unit, or aspect of campus and to make recommendations to executive leadership. These efforts have been in addition to AQIP action projects. In January 2014, faculty and staff members were intentionally selected and trained to serve as table facilitators and scribes for an all-day campus-wide strategic visioning and planning session. The aggregated input from that planning session was analyzed (for the specific purpose of identifying and prioritizing facilities-related needs) by another small group of faculty and staff members. Those who assist in these efforts are publically acknowledged and thanked, and the modus operandi of drawing out and reinforcing leadership skills amongst employees through the formation and use of task forces has helped nurture several campus leaders.

Strategic Planning, Annual Operational Planning, and the Budget Cycle

In 2011, the team acknowledged the significant strategic planning efforts being made by the School of Mines but noted opportunities for improvement in the following areas: 1) full implementation of the strategic plan with processes to ensure that short- and long-term goals drive resource allocations; 2) return to a formal funding model and regular budgeting cycle, 3) processes for feeding performance and operational data to all departments and units and using the data in the budgeting cycle, and 4) benchmarking and developing peer comparisons for processes under Categories 5 and 8.

In 2011, a year-long strategic planning initiative was nearing its conclusion, and departments and units were doing strategic planning based on the newly established strategic foci. The

president's unexpected death in September 2012 led to the appointment of the provost and vice president for Academic Affairs as interim president, the launching of a presidential search, and a pause in the forward momentum instituting the strategic plan. Dr. Heather Wilson assumed the presidency in 2013 and revitalized work on achieving the strategic goals without major modifications. The strategic goals remain intact, yet President Wilson acted quickly to marshal strong focus on strategic planning within Research Affairs, the budget cycle and budget-building processes, and the use of data in driving all planning and budgeting decisions.

A first step regarding the budgeting cycle was to clarify and document the data and information every unit on campus needed to generate and feed (month-by-month) to the executive administration in order to synchronize the campus budgeting cycle with the 12-month calendar set by the Board of Regents and the state legislature. Next, the campus budgeting cycle was formalized and documented so that the data and information needed to have meaningful discussions and achieve effective resource allocations would be generated and fed into the process in a timely manner.

To advance work on the strategic goals, all units, departments, and research centers were invited to participate in a "Mines 2020 Priority Setting" planning and visioning initiative designed to build the case for the next capital campaign and to identify shorter-term goals to advance the strategic plan. Two-page visioning narratives were submitted by 35 units, compiled, and distributed to all. The narratives described unit goals as aligned to the goals of the strategic plan. Accompanying the narrative was a standard spreadsheet detailing the resources needed six years out and the strategic goal furthered by the initiative. All visioning narratives and budget requests were widely circulated.

In January 2014, all directors, department heads, and administrators engaged in an all-day planning session organized by eight topics aligned with the broad objectives set by the Strategic Plan. All input was captured, aggregated, shared, and analyzed by a small working group led by the provost. From the analysis of all the input received from the narratives and the January planning day, the Strategic Plan goals were modified to focus on six goals. The Executive Council has developed and approved strategies to help achieve these six goals and assigned of responsibility for the strategies at the Executive Council level. By the time of the site visit, the goals and strategies will have been defined down to the action-item level and will be accompanied by formal follow-up and benchmarking processes used in good project management.

Simultaneous with the identification of six priority goals has been the revision of a strategic planning/institutional performance dashboard. Targeted and relevant measures are defined for each of the six priority goals. As the strategies are extrapolated into action items, further measures may be added to the dashboard. The Executive Council will provide the reviewers with the planning documents, the dashboard, and further details on this process during the site visit.

Of note amongst the strategies set for the six goals discussed above is the strategy to "develop and implement a systematic process for risk assessment and risk management" under Goal 5, Administration. The 2011 team identified an outstanding opportunity under 8P7 and

recommended work on risk assessment and planning. Since 2011, key improvements have been made that set the stage for more comprehensive processes for risk management and mitigation.

SDSMT expanded its high-level processes for risk management (i.e. ongoing internal annual audit processes, biennial audits by the South Dakota State Office of Risk Management, etc.) by implementing a comprehensive campus emergency response structure. The emergency management team has been trained in Incident Command System (ICS) structure for managing crises, and a Threat Assessment Team have been established, trained, and functioning since 2012. Annual, Environmental, Health, and Safety and Fire, Life, and Safety audits are performed, as are Night Safety Walks. In 2012, a task force completed a hazard analysis for campus, and a continuity of operation plan has been developed as part of a state-wide initiative.

The work that remains to be done pertains to the development of formal risk-management processes in the business, budgeting, and financial management areas of the University. This work is the focus of the strategy defined under the Administration goal articulated as a result of recent planning efforts.

Regarding the fifth opportunity identified in 2011 under Categories 8, less progress has been made. Peer comparisons and standard measures for the effectiveness of planning processes are difficult to find and employing them in the midst of an evolving planning process is similarly difficult. We will appreciate the consultations of the team on this topic.

Feeding Assessment and Performance Data from Units and Departments into Budgets

In 2011, the team noted opportunities to better clarify processes for selecting and distributing key performance data and information to academic and non-academic units as well as processes for using that data and information in resource allocations and planning.

On a parallel track with the Mines 2020 Priority Setting initiative described above, unit and department budget hearings were moved up several months to December / January in order to ensure that the data and analyses from the hearings are used in building the FY15 budget. For FY16, budget hearings will be held in November. Because of the Mines 2020 Priority Setting work taking place in fall 2013, the budget hearings were streamlined. Data sheets were created for all academic departments using standardized quantitative performance data and shared amongst all units. Creating standardized performance data sheets on each non-academic unit for use in budget hearings is next year's goal. An additional important improvement goal for the FY16 cycle will be to include qualitative data (e.g., NSSE, SSI, employer survey results) and assessment data as key performance indicators for academic departments.

Two Action Projects, "Data Sharing: Designing More Effective Processes to Support Departments and Units" (2011-2012) and "Incorporate Academic Program Assessment and Performance Data into Budgeting Cycle" (2013-2014), were framed to improve processes for selecting and distributing data and performance information and its use in planning and budgeting. The projects were moderately successful in that they resulted in a standard Semester Data Report that is distributed to and shared amongst all academic department heads. Now that

the campus-wide assessment task force has recommended standard measures and instruments for student learning, the Academic Leadership Team (i.e., the provost and department heads) are working to select and include key assessment data in the Semester Data Report.

Standard performance data and metrics are being developed for all non-academic units. Because of their heterogeneity in function and purpose, the only standard data for non-instructional units used in the current budget hearing process are those concerning FTE and operational costs. Each unit develops metrics and measures appropriate to its function; however, to move toward the identification of standard performance indicators for non-instructional units, the president invites a member of Executive Council to report the data and performance information for the units under his or her administrative oversight. Every four weeks (i.e., after four such report outs), the data is compiled into a single report and distributed to the University Council.

This process of executive-level reporting out key data on the performance of non-instructional units for all areas of the University is designed to routinize this practice and to build capacity for the next step of turning the data into information that can be used to meaningfully inform the budgeting process.

Leading and Communicating

In 2011, the team urged SDSMT to create regular and formal processes to monitor the quality of internal communications and the effectiveness of institutional leadership.

The team noted in 2011 that good structures and processes were in place to support the effectiveness of leadership (e.g., a flat administrative structure without deans and bi-monthly meetings of all department heads with the provost and vice president for academic affairs, active student and faculty senates, and active councils representing career service employees and administrators); however, no measures of leadership effectiveness have been regularly used such that trend data could be generated.

Similarly, in regard to communications, the team noted the structures and process in place to support effective communication, but cited an opportunity to adopt regular measures that could generate trend data.

While we have made some process on addressing this opportunity since 2011, acting on it has not been one of our top five priorities until recently. In 2011, we had just participated in the Great Colleges to Work For survey, enjoyed a nearly 40% response rate, and interpreted the results as offering us a margin of comfort in taking time to investigate and implement the measure of leadership and communication that would fit the institution and yield trend data. The 2011 results of the survey are given below in Figure 2.

CATEGORY	ALL EMPLOYEES	CARNEGIE CLASS (research universities)	RATING RANGE
Job Satisfaction/Support	73%	74%	Good
Teaching Environment	61%	67%	Fair / mediocre
Professional Development	71%	73%	Good
Compensation, Benefits & Work/Life Balance	66%	71%	Good
Facilities	63%	76%	Fair / mediocre
Policies, Resources & Efficiency	60%	62%	Fair / mediocre
Shared Governance	61%	60%	Fair / mediocre
Supervisors/Department Chairs	72%	71%	Good
Pride	80%	76%	Very good / excellent
Senior Leadership	70%	60%	Good
Faculty, Administration & Staff Relations	59%	60%	Fair / mediocre
Communication	64%	58%	Fair / mediocre
Collaboration	65%	59%	Good
Fairness	65%	62%	Good
Respect & Appreciation	61%	64%	Fair / mediocre

Fig. 2, 2011 Great Colleges to Work For survey results*

Moreover, in 2011 we had embarked on reorganizing our university relations unit. Further turnover in that unit delayed work, but very dramatic work has been accomplished in that area in the past two years. University Relations staff was more than doubled (from 4 to 12 specialists) to more effectively handle the marketing, public relations, event planning, and community/government relations efforts of the institution. The university website was fully redesigned after extensive consultation with all campus stakeholders. Parent focus groups were held during Orientation and Welcome Week to ascertain the expectations of parents with regard to the regularity and type of information they desire from the university. In response, University Relations led an effort to create an integrated parents communication plan in collaboration with the Foundation and Student Affairs. To meet the needs of our broader community, University Relations also launched *Legacy News*, a magazine-style newsletter published entirely online and distributed to alumni, donors, public servants, and community members and made available on the university's website. In 2013 we retained an external consultant to conduct a Communications Audit on the effectiveness of the university's print and electronic communications' efforts. Our intent is to use the audit findings to foster increased coordination between our Foundation, Alumni Association, and Hardrock Club, and to lead to the creation of an integrated institutional communications plan.

Related to efforts to better understand and improve external communications, a new Human Resources director has led a two-year action project to study and select measures for a range of workplace attributes affecting employee morale, engagement, and satisfaction. A broadly representational team selected a Noel-Levitz product because of the usefulness of the gap-

analysis data it yields. The survey was levied in March 2014 and will be analyzed and reported to campus. Goals for this project, in addition to establishing a regular bi-annual measure, are to use the results to inform employee development programming and to create a standing HR committee with oversight for this dimension of campus operations. If available, the survey results will be provided to the team in April.

A parallel initiative has been launched by Human Resources in collaboration with Multicultural Affairs to evaluate and improve the intercultural understanding and competency of all employees. This grant-funded initiative involves having 300 employees take the Intercultural Development Inventory (IDI). Results will be segmented by type of employee, length of service, and other demographics that will aid in its analysis. The team running this project will be available during the site visit to provide further details about the timeline and outcomes of this unusual initiative; however, the broad goals of this project include improving interpersonal communication across campus and fostering a fully inclusive climate in which new leaders can emerge.

Lastly, the Campus Climate Survey levied in 2007 is being re-administered in late March 2014. The instrument is locally developed; however, it is being designed by industrial engineering faculty member experts in statistical analysis. Faculty, staff, and students receive surveys targeted to them, and the results are segmented by this and other demographic data collected in the survey. Plans for the analysis and use of the data will be final by the time of the site visit and can be discussed with the team. The 2007 Campus Climate survey results and the surveys to be used with faculty, staff, and students in spring 2014 are available on the Quality Checkup site.

Regarding further methods and measures for evaluating campus processes for leading and communicating (especially those that generate trend and comparative data), we would appreciate the consultations of the team.

Peer Comparisons and External Benchmarking

In 2011, the team noted many opportunities for the development of peer comparison data and external benchmarks. In the evaluative statement for 7P5, the team urges us to "clearly describe the processes that determine the needs and priorities for comparative data and information and the criteria and methods for selecting sources of comparative data and information within and outside the institution."

Some progress has been made in this area; however, we continue to struggle with the relatively unique niche role and context for the School of Mines. We are a public institution with a modest cost of attendance (i.e., $8,240 tuition and fees per year at 30 semester credits per year) whose students work to pay for college at a significantly higher level than STEM students nationwide (according to NSSE results) and rely heavily on Federal Financial Aid (nearly 50% receive Federal aid). Our most similar peers are Montana Tech of the University of Montana, the Missouri University of Science and Technology, and the Oregon Institute of Technology. We have many aspirational peers but an inadequate number of comparable schools against which to benchmark ourselves.

The major consortium of like institutions, the Association of Independent Technical Universities (AITU), is comprised of 22 private schools with tuition rates and endowments that disproportionately higher than that of the School of Mines.[1] Because the areas in which opportunities exist to mature processes for peer comparisons and benchmarking are various, Figure 3 below summarizes the areas and describes the status of our efforts.

Area	Status
Facilities services and management	A review of the Aramark Facilities Management contract with SDSMT was initiated in July 2013 after comparative information available through the South Dakota Board of Regents (SDBOR) showed that SDSMT was paying a larger amount per square foot for Facilities Management in comparison to other SDBOR universities. Based on a detailed four-month review substantiating higher costs for comparable services, SDSMT brought Facilities management back in house.
Effectiveness of our Foundation, our Hardrock Club, and our Alumni Association	Evaluating the effectiveness of these entities as a necessary first step in making improvements has been a work in progress although efforts have gained real momentum over the last year. In 2013, the leaders of these organizations, in unison with university leadership, agreed to explore how we could collaborate to increase efficiencies and effectiveness overall. A professionally facilitated planning retreat yielded the charge of four task forces on Communications, Database Integration, Stakeholder Engagement, and Fundraising. In February 2014 the full Mines Collaboration Team reconvened and the four taskforces reported out on what they learned about each other's operational requirements, presented recommendations, and outlined next steps to further the collaborative efforts.
Research productivity and External funding productivity	A team of external consultants from business, industry, and non-profit sectors were engaged by the president in 2013 to study the institution in this area and to provide a contextual / peer analysis of institutional strengths, weaknesses, and opportunities for research and external funding.

[1] Institutions in the Association of Independent Technical Universities (AITU) are as follows: California Institute of Technology, Carnegie Mellon University, Case Western Reserve University, Clarkson University, The Cooper Union, Drexel University, Embry-Riddle, Olin College of Engineering, Harvey Mudd College, Illinois Institute of Technology, Keck Graduate Institute, Kettering University, Lawrence Technological University, Massachusetts Institute of Technology, Milwaukee School of Engineering, Polytechnic Institute of NYU, Rensselaer Polytechnic Institute, Rochester Institute of Technology, Rose-Hulman Institute of Technology, Stevens Institute of Technology, Webb Institute, and Worcester Polytechnic Institute.

Contributions to regional economic development	Formal Economic Impact Reports have historically been conducted by the SDBOR to analyze the impact of all regents institutions. Such studies were done in 2003, 2006, and 2010. The most recent report or study that deals with SDSMT and offers a means of developing comparative data was done in 2012 by Rapid City Economic Development. We do not have formal processes for comparing institutional impact and performance in this area.
Internal and external communication and Monitoring employee satisfaction and engagement	This was the subject of a recent action project, the results of which were the selection of a Noel-Levitz Employee Satisfaction Survey for use in spring 2014 and every two years thereafter.
Retention, progression, graduation rates	We participate in the Consortium for Student Retention Data Exchange (CSRDE) of the University of Oklahoma, and rely on data from a few relevant schools (i.e., Oregon Tech, Montana Tech, New Mexico Tech, and the Missouri University of Science and Technology) to evaluate ourselves in this area and to set goals. We pay closest attention to our competitor institutions, South Dakota State University, and the University of South Dakota. While these are not STEM peer schools, they are the institutions with which we compete for students. The CSRDE data was not cited in the 2011 portfolio because the numbers of peer schools that participate in the consortium are too few to generate useful statistics.

Fig. 3, Areas of institutional operations for which external benchmarking data was cited as an opportunity in 2011

Ambitious 2010 Enrollment Goals

In 2011, we set very ambitious interrelated goals as follows: "By 2020 we aim to secure $70 million/year in grants, add 100 faculty members, and triple enrollments to achieve 3,000 undergraduate and 1,000 graduate students." To achieve the 1,000 graduate student goal, for example, enrollment would have needed to increase by 13% each year for 10 years. The team understandably cited an opportunity to clarify strategies for achieving such growth and consideration of the impact of such growth on the institution's emphasis on teaching and learning quality.

One response has been to revise enrollment goals to achieving 500 graduate students while maintaining the goal of 3,000 undergraduate students by 2020. Other responses focused on continued optimization of recruitment efforts, and these continue to yield good results. For academic years FY12 and FY13, the institution experienced a 4.6% and10.9% growth in undergraduate enrollment, respectively. These increases resulted in an overall two year increase of 16%. Over those same two years, graduate student enrollment increased in FY12 by 6.6% and decreased in FY13 by 3.4%. This increase followed by a decrease resulted in an overall two year

increase of 2.9%. As of this report, FY14 census undergraduate headcount enrollment is 2,328 and graduate student enrollment is 312.

The adjustment to graduate student enrollment goals was prompted by a $12 million decrease in external funding arising from the elimination of federal earmarks and the federal budget sequestration. Graduate students require considerable teaching- and research-assistant support, and, until the climate for research funding improves, we cannot push for 1,000 graduate students.

Since 2011, the focus for undergraduate recruitment has been shifted to areas of greatest enrollment promise, rather than in traditional recruitment areas. These new focus areas include states where the cost of a college education is high and SDSMT is very competitive (e.g. California, Colorado, and Illinois), or areas for which engineering and science are predominant in business and industry (e.g. Pacific Northwest, Southwest, and Texas). Factors that greatly support recruitment efforts include SDSMT's return on investment (ranked fifth nationally), placement rates (98%), and an average first year starting salary of $62,400 (which was heralded by Bloomberg News as significantly better than that of Harvard or Yale). Undergraduate enrollment is on glide path to meet the stated 2020 goal of 3,000 by 2017 and reach 3,200 students by 2018. Undergraduate enrollment growth may need to be slowed slightly over the next 5–10 years to build the capacity needed in campus facilities, curriculum, and support services in order to maintain our emphasis on high quality instruction.

Since 2011, we have not made much progress on achieving our revised enrollment goals of 500 graduate students by 2020; however, planning, program development, and capacity building in Graduate Education promise to change enrollment trends to the positive. These improvements are described above in the section on "Research, External funding, Graduate Programs, and Economic Development."

Use of Student Complaint and Satisfaction information

In 2011, in response to 3P6, we described the formal processes for collecting, tracking, logging, and reporting complaints from students or parents, and complaints pertaining to intellectual freedom and diversity. We cited additional means of soliciting and analyzing complaint information, including initiatives coming out of the Student Senate and the President's Stakeholder Survey levied in 2008.

Different types of complaints (i.e., parking, human rights/sexual harassment, student conduct, intellectual freedom and diversity, and grievances) are tracked, summarized, and analyzed by the unit responsible (i.e., the Parking Committee, Human Resources, Student Life, and Student Affairs). Information about complaints is reported tot Executive Council (e.g., as in the case of grievances) when merited by an increase in complaints or a trend. Through Executive Council, this information is matched up with other relevant sources of input, such as parent focus groups, campus safety reports, the results of Student Senate surveys, etc., in order to gain a fuller picture of an issue.

One important example of how complaint information and input is gathered, reported to Executive Council, and acted on concerns safety in the neighborhood immediately west of campus. Multiple complaints from students, a parent, and faculty and staff members were recorded via the lines of communication listed above. In December of 2011, an open forum was held with 32 concerned students and representatives from the local police department were on hand. Attention to the issue resulted in a nearby convenience store losing its ability to sell alcohol and the purchasing and redevelopment of many residential properties. Another recent example of the use of complaint information from multiple sources being used to drive improvements concerns crosswalk safety. Complaints over time resulted in the installation of a flashing crosswalk and redesign of the curb area.

In 2011 under Category 3, we cited multiple sources of data on student satisfaction; primary formal instruments included the Noel-Levitz Student Satisfaction Inventory, the NSSE, the Residence Life Survey, and a system-wide survey of students regarding satisfaction with the use of and support for mobile computing in instruction. Since 2011, the SDBOR discontinued surveying students on mobile computing. We continue to levy the SSI (yearly to all rising juniors), the NSSE (every 3 years), and the Residence Life survey (yearly) but have not made as much progress on improving processes for the analysis and use of SSI and NSSE data as would be desired.

The Residence Life survey is a locally developed and highly targeted instrument that is used yearly to generate input that is actionable and specific. The results of this survey are used by the central Residence Life Office to evaluate Resident Assistant performance, evaluate satisfaction with overall campus housing, and evaluate satisfaction with community development in each residential facility. In addition, the directors of Student Affairs receive the full Student Satisfaction Survey results report yearly and meet to discuss specific SSI questions included in a dashboard of performance indicators for the areas within Student Affairs.

In regards to the NSSE, use of the instrument is dictated by the SDBOR and they analyze and compare the benchmark results for all state universities. The sufficient but small sample size of students surveyed precludes the segmentation of results at the academic program level, so institutional-level results are monitored by the Office of Academic Affairs leadership and used when a specific initiative, such as improving advising and retention efforts, aligns well with specific questions in the NSSE survey.

An additional impediment to wider use of NSSE results is the disparity between STEM undergraduates and the two comparison groups used by the SDBOR. These groups are all universities in the state system and the group comprised of all four-year public schools. Comparing SDSMT students to either group is not useful; therefore, we pay to have the results from all NSSE surveys nationwide filtered by the CIP codes of the majors we offer in order to create a custom comparison group of all science majors (i.e., 11,000 students) and a group comprised of all science and engineering majors (i.e., 21,000 students). These custom comparison groups are highly relevant and make NSSE results useful in supporting or initiating specific improvement efforts.

Under the old STEPS program that aligned the co-curriculum with the curriculum, the NSSE results were mapped to the STEPS outcomes. As described above, the STEPS program has been improved and re-launched as the Mines Advantage program. An initiative is now underway to map the NSSE results to the outcomes of the Mines Advantage program. This mapping will provide an additional way to measure the effectiveness or impact of the program.

In regards to the SSI, the resulting data is highly relevant and can be segmented very effectively since 100% of our rising juniors take the survey. Areas of the University that can use the results at an institutional level (i.e., Academic Affairs and Student Affairs) analyze and use the results to monitor and improve the quality of student support services.

Student Affairs personnel monitor and discuss specific Scales within the SSI reports to track the impact of initiatives such as the building of new residence halls, implementation of an emergency alert system, expanded programming by Multicultural Affairs, etc. Figure 4 below shows the trends tracked by Student Affairs.

SCALE	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2006**	**2005**	**2004**	**2003**
Number responding	367	268	301	254	251	269	289	293	294	313
Campus Life	5.03	5.03	4.90	4.99	4.84	4.76	4.73	4.69	4.78	4.80
(Activities, residence halls, orientation, student center, etc.)	5.53	5.38	5.33	5.41	5.39	5.36	5.33	5.28	5.42	5.48
Campus Climate	5.54	5.40	5.32	5.45	5.28	5.19	5.14	5.14	5.23	5.24
(Safety, caring staff/faculty, belonging, runaround, etc.)	5.99	5.89	5.77	5.85	5.75	5.78	5.80	5.82	5.86	5.94
Responsiveness to diverse populations	5.11	4.91	4.94	4.99	4.89	4.80	4.86	4.76	4.99	4.92
Safety and security	4.65	4.46	4.58	4.55	4.67	4.53	4.61	4.60	4.52	4.54
	6.04	6.01	5.83	5.88	5.77	5.78	5.75	5.73	5.90	5.96
Service Excellence	5.27	5.17	5.10	5.16	5.06	4.95	4.87	4.89	4.99	5.01
(Campus staff, counseling, health services, library, etc.)	5.78	5.63	5.60	5.65	5.57	5.59	5.62	5.64	5.69	5.76
NOTE: Scale is 1 (low) to 7 (high); shaded area is student indication of SATISFACTION; non-shaded area is student rating of the IMPORTANCE of the item										

Fig. 4, Scale scores of the SSI tracked by Student Affairs over time

We are encouraged to see student satisfaction regarding campus life and campus climate has increased; this is attributed in part to renovated facilities in the Surbeck Student Center in 2004 and 2009, renovated residence halls in 2009, and, this past year, the leasing of two apartment buildings for sophomore housing. Safety and security has been a major concern; with the improvements in the adjacent neighborhood it is hoped that satisfaction in this area will continue to improve.

To encourage use of the data at the academic program level, the benchmark scores and the results for individual questions for "Academic Advising," "Concern for the Individual," and "Instructional Effectiveness" are broken down by major, charted for a five-six year moving trend, and given to the department heads twice yearly as part of the Department Heads Data Report. Use of the data within academic programs is mixed because the survey is given to rising juniors. The results can be equally attributable to students' experience of the general education curriculum or to their experiences within the major. Discussion about moving the survey to the senior year is ongoing but impeded by the difficulty of identifying a way to capture the responses of all seniors.

To expand the use of SSI results by academic departments and non-academic units that provide student support services, we plan to integrate program-specific SSI results into the metrics that are being expanded for use in the annual academic program budget cycle. Specific questions and benchmarks within the institutional-level SSI results will be aligned with specific student support services and integrated into the metrics used in the annual budget cycle for resource allocation to those units. This initiative will be more fully explained for the team during the site visit. In addition, the SSI Benchmarks of Instructional Effectiveness and Service Effectiveness are being incorporated into the dashboard of performance indicators used to track progress on the priority goal pertaining to "people." (See section above on Strategic Planning.)

Distance Education

The 2011 Systems Portfolio did not offer a full composite picture of the institution's role in distance education because formal planning for that role was still in process. The institution belongs to the SDBOR Electronic University Consortium (EUC).

The EUC was created in 2000 to create a one-stop portal for distance courses and programs offered by the six regents universities. Over the past few years, online distance education operations have expanded to include the Dakota Digital Network (DDN), faculty led travel, video streaming, rising scholars, dual enrollment, and multiple off-campus locations including the University Centers in Rapid City, Pierre, and Sioux Falls. Additionally, online resources, such as the course management system, Desire to Learn (D2L); online conferencing via Elluminate, and online access to system library resources are either administered or supported at the system level for all Regents universities. Historically, very few faculty members at SDSMT teach online (i.e., two-six courses per year total) via the EUC, and, at the undergraduate level, the institution's presence in online education was—and remains—insignificant.

In Graduate Education, however, we have offered an engineering management (EM) program via distance for over a decade. In spring 2012, we initiated two additional distance Masters-level programs: construction management (CM) and mining engineering (ME). The institution is currently authorized by the Commission to offer up to 20% of all programs online, and, even with growth in distance graduate programs, we do not anticipate surpassing that limit in the next decade. These three programs (EM, CM, and ME) are small (i.e., headcount in all three programs is currently 66 students (41 Engineering Management, 16 Construction Management and 9 Mining Engineering). Demand for online graduate programs comes predominately from

practicing professionals seeking to advance their careers for which campus-based programs are impractical.

The institution sees distance graduate programs as an area for slow but steady development; therefore, capacity-building initiatives related to the administration, quality assurance, and support of students in distance programs has been a strong focus of the Office of Graduate Education since 2011. Capacity building efforts include improving the one-stop web resource for distance graduate students; creation of an administrative oversight structure, including an advisory sub-committee of the Council on Graduate Education; creation of a common set of questions for use in the end-of-course IDEA surveys; creation of a common program-quality assessment tool; and processes for aggregating data from the course- and program-level assessments for use by the Sub-committee and the dean of Graduate Education in identifying areas for improvement. Greater detail regarding these efforts will be available to the team during the site visit.

Academic Advising

In 2011, institutional attention was focused on academic advising by a Student Senate Resolution that called upon the administration to take steps to ensure that the quality of advising was both high and uniform across all academic programs.

Advising at SDSMT is a contracted element of faculty workload. Each department develops its own processes and workload model to provide advising although all programs designate one or two faculty members as specializing in freshman advising. The only common measures or assessment of advising quality comes from the Academic Advising benchmark and questions in the SSI survey. Within individual programs, the quality of advising is assessed as part of five-year program review. Each semester, department heads receive SSI results broken down by academic program, and while departments can access the data (including trend data) for all programs, the timing of the survey at the rising junior level limits the perceived usefulness of the results as measures of advising within the major.

In response to the Student Senate Resolution, a 12-member task force comprised of faculty, staff, and students was appointed to study advising practices and to gather input from faculty and students on possible improvements. The task force report was detailed but divided between those who regarded current practice as good and preferable to centralization or standardization and those who did not. To probe the matter further and to explore, in particular, what might be possible in terms of supplementing advising within the departments with a success center or other resource, SDSMT signed up to participate in a 'student success' focus theme for its 2012 Strategy Forum work and reframed an action project on "Improving Advising" by using the Strategy Forum team as the action project team.

The 2012 Strategy Forum Team focused intensely on the global topic of student success while placing quality academic advising and mentoring at the center of its thinking about how to improve the full interrelated range of student support services. Data produced by the previous task force was combined with NSSE and SSI results and a detailed analysis of all academic

appeals filed since 2006. The result of this work was a detailed plan to create a Student Success Center where freshmen and sophomores would access a full range of advising, mentoring, and other support services. The need to renovate and design facilities for the center delayed its opening until spring 2013, and at that point budget shortfalls prevented the facility from being opened and staffed. The Chemical Engineering Department moved into the space, and plans for a Success Center were placed on hold.

Given these developments, a further action project was framed, "Using the Academic Appeals Process to support Advising and Retention" and used the Academic Appeals Committee as the project team. The Committee studied the data amassed by prior efforts and analyzed record of all academic appeals by course, ACT scores, GPA, causal factors, major, and other variables to identify patterns that would point out opportunities for improvement. Creation of a success center where support services for freshmen and sophomores could be aligned and concentrated remained the recommended course of action. Out of the committee's work came an initiative (also framed as an action project) to study the implementation starting in fall 2013 of an early alert system that utilized the Starfish software platform. The Office of the Registrar and Academic Support developed measures and metrics by which the effectiveness of the early alert system would be assessed by the end of spring semester 2014. The Academic Appeals Committee contributed to the effort by conducting a hardcopy review of the transcripts of every freshman in order to see if indicators of student distress could be discerned that were not being detected by current means. And, as an exciting new development, the Student Senate requested access to NSSE and SSI data in fall 2013. After studying it and refining areas of interest the Senate wanted to investigate in greater detail through repeat surveys, student focus groups, and other methods, the Senate requested trend data for the SSI scale (and questions) for Academic Advising segmented by academic program. The data was delivered in early March, and the Senate's work is ongoing. More detail on these ongoing efforts and the preliminary results of the action project assessment will be provided to the team during the site visit.

Retention / Student Support Services

In the 2011 Portfolio, we signaled our intention to improve retention and the alignment of student support services. IPEDS cohort retention rates have held steady at between 79% and 80% for the past five years. Levels of student satisfaction with the items and areas included under the SSI Scale scores for student support services have remained well above national results since 2011. And the NSSE Benchmarks for Supportive Campus Environment" and individual questions about advising and support have improved since 2011. (See Figure 5 below for SSI results and Figure 6 and Figure 7 for NSSE results.)

benchmark scores for satisfaction*	2006		2007		2008		2009		2010		2011		2012		2013	
	M	Nat'l	**M**	Nat'l	**M**	Nat'l	**M**	Nat'l	**M**	Nat'l	**M**	Nat'l	**M**	Nat'l	**M**	Nat'l
Academic Advising	5.26	5.16	5.31	5.20	5.22	5.18	5.16	5.25	5.18	5.33	5.25	5.33	5.26	5.36	5.36	5.40
Student Centeredness	5.11	5.03	5.26	5.08	5.14	5.24	5.24	5.12	5.45	5.20	5.29	5.20	5.42	5.21	5.52	5.23
Concern for the Individual	4.98	4.89	5.12	4.96	5.06	4.93	5.05	4.99	5.18	5.08	5.13	5.08	5.23	5.11	5.28	5.14
Campus Support Services	5.07	5.21	5.22	5.23	5.17	5.25	5.26	5.30	5.39	5.38	5.32	5.38	5.35	5.41	5.44	5.45

*Satisfaction is rated on a 7-point scale with 7 being the highest level of satisfaction

Fig. 5, SSI scores for SATISFACTION for key benchmarks compared to national averages

		2008			2010			2012		
"**Supportive Campus Environment**"		Mines	Eng	Sci/ Eng	Mines	Eng	Sci/ Eng	Mines	Eng	Sci/ Eng
*Benchmarks show the weighted mean scores from 6 questions.	FY	57.3	59.1	59.1	62.0	61.5	62.2	59.6	62.5	63.1
	SY	51.9	54.6	54.6	55.1	57.4	58.1	56.6	57.5	58.4

[1]as compared to students nationwide in engineering only and science and engineering majors matched to School of Mines majors by CIP codes ("n" = 11,000 and 22,000, respectively)

Fig. 6, NSSE Benchmark scores for "Supportive Campus Environment"

Mean scores on individual NSSE questions		2008[1]			2010			2012		
		Mines	Eng	Sci/Eng	Mines	Eng	Sci/Eng	Mines	Eng	Sci/Eng
To what extent does [the School of Mines] emphasize providing the support you need to help you succeed academically? *1=Very little, 2=Some, 3=Quite a bit, 4=Very much*	FY	3.01	3.05	3.05	3.16	3.12	3.15	3.14	3.19	3.18
	SR	2.79	2.82	2.83	2.91	2.92	2.95	2.89	2.93	2.95
Overall, how would you evaluate the quality of academic advising you received? *1=Poor, 2=Fair, 3=Good, 4=Excellent*	FY	3.01	2.97	2.98	3.23	3.06	3.10	3.22	3.10	3.12
	SR	2.91	2.77	2.80	3.00	2.90	2.94	3.00	2.95	2.99

[1]as compared to students nationwide in engineering only and science and engineering majors matched to School of Mines majors by CIP codes ("n" = 11,000 and 22,000, respectively)

Fig. 7, Scores from individual NSSE questions

While the trends in the SSI and NSSE results are encouraging, we believe we can achieve an IPEDS retention rate of 85% and further improve student support services. To that end, we have taken the following steps since the creation of our 2011 Systems Portfolio:

- In spring 2012 the Starfish Early Alert System was implemented. Utilizing information from the current student information system (Colleague), the Desire2Learn learning

management system, and faculty and staff observations, the system tracks information related to student at-risk behaviors. However, Starfish also takes a holistic approach to student support rather than concentrating solely on students with classic at-risk characteristics. Full implementation occurred in all undergraduate classes in the fall of 2013. The system provides two early alert surveys to canvass faculty and staff regarding students who are struggling with poor attendance, participation, and homework and test performance. In addition, faculty and staff can use the system at any time in the semester to flag and contact students demonstrating at-risk behaviors or to send them kudos for their successes.

- An improved degree audit tool is being implemented. Since the Colleague student database was implemented in 1998, the SDBOR system has used its degree-audit module to track students' progress toward their degrees and ensure they have fulfilled their graduation requirements. Now the requirements of degree audit are increasing and cannot be met with just that module. The improved degree audit tool can help students migrate through their programs of study by letting them know what they have to do every step of the way. "Student Planner," which is fed from degree audit, enables students to plan an entire degree program semester by semester, make adjustments at any time, and then see how those adjustments affect graduation plans. It also will alert the registrar regarding courses needed to enable students to complete their plans of study.

- In the spring of 2012, the university created a Transfer Equivalency Database to provide potential transfer students a means to assess for themselves whether classes they had taken elsewhere would transfer to SDSMT. This service eliminated some of the bureaucratic barriers that hold up student enrollment. It is also a useful tool for current students wanting to make degree progress when not on campus to assess whether taking a course elsewhere and transferring it back to SDSMT is feasible. The database is accessible from the university's website.

- In September 2013 SDSMT became an NCAA Division II school. In preparation we implemented the NCAA tracking and degree progress system in the spring of 2013. The system assists faculty and athletic staff to reach out to intercollegiate athletes and keep them on track to graduation, insuring that no infractions occur which will impede their academic progress.

Action Projects at SDSMT

In keeping with the institutional approach to AQIP, university leadership does not foreground certain initiatives as being AQIP Action Projects and other initiatives as being non-AQIP projects. Projects and initiatives are carried out by task forces or already extant committees or groups that provide a natural focus for the work to be accomplished. Projects and initiatives are neither given primacy nor less attention based on their designation as AQIP Action Projects. For example, the action project on using the academic appeals process to support and improve academic advising utilized the Academic Appeals Committee as its project team while an

entirely new initiative, such as selecting an instrument and measures for employee satisfaction and engagement necessitated the forming of a new group in order to have an action project team.

The challenge of defining action projects under AQIP at SDSMT has been one of selecting amongst competing pressing needs. Prior to the submission of the first Systems Portfolio in 2011, projects were selected and defined by the AQIP Steering Committee based on the needs uncovered through our initial AQIP work. This is to say that the steering committee identified several poorly defined or non-existent processes in the course of examining the institution via the AQIP framework. Early action projects were directed at addressing those deficiencies. After we received our first Systems Appraisal Report in fall 2011, action projects were defined and approved by the Executive Council as a means of working on the opportunities identified in the report.

Currently, the members of the AQIP Steering Committee sit on Executive Council with the exception of the dean of Graduate Education and the Associate Provost for Assessment and Accountability. The latter is our AQIP liaison; therefore, the most efficient use of time and energy for us is to discuss, select, and approve action projects within Executive Council.

The following is a listing of all action projects to date, including all reports and reviews to date.

2008 Transition to a New President
2008 Graduate Program Capacity Audit
2008 Coordination of ABET Accreditation Review Process

2009 Setting 10 Year Strategic Enrollment Goals
2009 Development of a Comprehensive Research Plan
2009 Developing Sustainable Relationships with Key Partners
2009 Identify Key Administrative Support Service Needs

2010 Improve Service to Online Master's Degree Program Students
2010 Valuing People through the Advanced Connections Program
2010 'Rolling up' discrete planning efforts into a Comprehensive Strategic Plan

2011 Improving Academic Advising
2011 Data Sharing: Designing more effective processes to support departments and units
2011 Transforming Library Holdings to Meet Changing Student and Faculty Needs

2012 Using the Academic Appeals Process to support Advising and Retention
2012 Institutionalizing Processes for Monitoring and Improving Employee Motivation and Engagement
2012 Youth Programming and Conferencing: Effort to reinvent, revitalize, and achieve sustainability

2013 Incorporate Academic Program Assessment and Performance Data into Budgeting Cycle
2013 Early Alert System Implementation and Assessment
2013 Strategic Plan and the Budgeting Cycle: Links, Measures, Accountability, and Cycle for Review