MISSION
Missouri S&T integrates education, research and application to create and convey knowledge that serves our state and helps solve the world’s great challenges.

VISION
Missouri S&T will be the leading public technological research university for discovery, creativity and innovation. We will cultivate curiosity, creativity and confidence in our graduates. We will be the institution of choice for partners around the world seeking a highly qualified, talented and entrepreneurial workforce; innovative research; relevant educational programs, products and services; and technology and ideas to solve the great challenges of our time.

STRATEGY STATEMENT
Missouri S&T will provide by 2020 a top return on investment among public research universities to students, employers, research partners and donors through extraordinary access to renowned expertise, services and experiential learning opportunities.

EXECUTIVE SUMMARY
Missouri S&T is dedicated to the implementation of the strategic plan and fulfilling the strategy statement. The campus lever leaders, faculty and staff are focused on planning activities that lead the campus towards its overall vision of being the leading public technological research university. At S&T we are innovators, we live by example, we establish mutually beneficial partnerships, we offer a welcoming learning environment and we are accountable for our actions.

Our commitment and level of accountability can be demonstrated with a 9 percent completion rate of strategic plan actions within the first six months. The S&T plan has 19 levers and more than 100 actions. The campus is actively working on 50 percent of the total actions within the plan. Each department and unit on campus has developed a strategic plan with actions that tie directly into the campus strategic plan. The vision and the focus is clear, S&T will provide a top return on investment among public research universities.

This first six months of implementation have laid an excellent foundation and the building blocks for the future. Analyzing those core foundations allows the plan to be reviewed for efficiencies, evaluated for trends and has provided a framework for a solid plan for FY15.

This report includes an explanation of each lever included in the FY14 plan and an explanation of activities and achievements occurring at the action level.
LEVER 1.1: REQUIRE ALL UNDERGRADUATE STUDENTS TO PARTICIPATE IN SOME SIGNIFICANT EXPERIENTIAL LEARNING ACTIVITY BEFORE GRADUATION

In order to successfully launch a campuswide effort requiring experiential learning prior to graduation, an agreed upon definition and guidelines of what constitutes a significant experiential learning opportunity must first be established. A draft definition and guidelines were created in October 2013 based on input from the academic affairs retreat, department chairs, Student Affairs and the board of trustees. In November of 2013, comments and suggestions from the campus department chairs aided in re-defining experiential learning and this new definition was submitted to the Faculty Senate for consideration. In January 2014, changes were made to the definition and guidelines of experiential learning and were formally submitted to the Department Chair Council. Discussions are planned for February.

The core principles of experiential learning are 1) student centered rather than teacher centered; 2) active learning rather than passive learning; 3) application of learned principles to form realistic solutions to problems, issues and challenges; and 4) reflection upon the learning experience. The base and general definition: Experiential learning at Missouri S&T refers to learning stimulated by a variety of structured activities that differ significantly from the traditional lecture format.

Along with determining the foundational definition, a list of sample activities that support the definition were created as stipulated in **Action 1.1.1: Create a defining comprehensive list of activities that are supported by research as significant experiential activities.** Experiential learning activities are designed to require students to go beyond mastering basic skills and knowledge in the application of that material to problem solving challenges. These hands-on activities involve collaboration and reflective learning and allow students to learn in environments that align with their aptitudes. Sample activities include: undergraduate research such as OURE projects, NSF Research Experience for undergraduates, Honors Academy senior research project; co-op, internships or externships in industry or at a research center; significant participation on a student design team, study abroad, S&T sponsored service learning such as psychology capstone or internship projects, Miner Challenge; significant involvement in national/international competitions such as Chem-E Car, IEEE Robotics; field trip experiences of significant duration and intensity; practicum or formalized student teaching; S&T Student Success Coaches, Peer Learning Assistant, On-Track Mentor; Resident Assistants, Programming Resident Assistants, Chancellor’s Leadership Academy Advisor, Joe’s P.E.E.R.S, Pro Leaders, Admission Ambassadors; leadership positions within student governing boards such as Student Council, Student Union Board, PanHellenic Council, Cultural Activities Council, Interfraternity Council; GLVC Student Athlete Advisory Committee; leadership workshops and retreats such as Backpack to Briefcase or the Sue Shear Leadership Academy.

The definition, guiding principles and appropriate activities will be included in all degree plans once the Faculty Senate approves the definition and the proposed activity examples. The provost will then begin the formal approval process and these approvals are expected in February 2014. Upon definition and activity approval, **Action 1.1.2: Incorporate experiential/service learning into the core curriculum in all degree programs at any level beginning in the freshman year will commence.**
LEVER 1.2: FOSTER INNOVATION AND CREATIVITY FOR FACULTY, STAFF AND STUDENTS

The university determined that fostering innovation for students and employees could be enhanced through collaboration as indicated in Action 1.2.1: Create and promote an innovation team that solicits and considers creative suggestions from S&T family. The first collaborative event based on suggestions from the S&T family resulted in a collaborative meeting and viewing of the award-winning documentary “Behind the White City” in January 2014. Faculty and students from the English and technical communication, history and political science, Sigma Tau Delta, History Club and theatre students attended the event.

Another innovative area is the Learning Commons as indicated in Action 1.2.2: Explore creating a Learning Commons with state-of-the-art collaborative technology, practice presentation rooms, experimental technology lab with video editing and 3D printing capability for teaching, learning and research dedicated to the student learning experience. In November 2013, meetings were held with the library director and various campus personnel. As a result, it was concluded that the CIO office would contribute $100,000 for various new technologies and architects would analyze the library for effectiveness working with the campus master plan committee. In December 2013, the Library Director began analyzing what constitutes a Learning Commons. In January 2014, the library team visited Grand Valley State University, a best-in-class institution for a Library Commons. Based on the visit, in February 2014, five reference areas on the first floor of the library were removed to create an open space for learning collaboration.

Combining technology and innovation is explained in Action 1.2.3: Devise a plan for TedX-like series for students, faculty and staff. In November 2013, discussions were held with the lever leaders regarding recommendations made by the professional development committee. In December 2013, a new professional development committee was formed. This committee will examine TedX-like programs and the whole development of suite activities.

Along with the series of videos described above, creating new programs will also enhance creativity as explained in Action 1.2.6: Develop minor and certificate programs in leadership, entrepreneurship, humanitarian engineering and science and creativity. In November 2013, Dr. Curt Elmore submitted a proposal for a humanitarian science and engineering minor and Dr. Bonnie Bachman was in the initial stages on a certificate in creativity. In December 2013, the humanitarian science and engineering minor proposal was approved by the vice provost for academic affairs and submitted to the Provost for final approval. The certificate on creativity is still in its initial phase.

Creativity focused on student events is explained in Action 1.2.5: Identify a series of co-curricular events for interdisciplinary groups of students: Events including the Chancellor’s Leadership Academy with 76 completed applications; four students selected to attend the National Leadership Conference in February 2014; five students selected to participate in the University of Northern Iowa Resident Assistant Leadership Conference; 224 students and 10 staff members participated in MLK Day of Service; 19 student Greek governing leaders and four staff members to participate in the Greek Leadership Retreat, among various other events on campus are continually evolving to align with the strategic plan.
LEVER 1.3: ESTABLISH DATABASE OF MEASURES TO DEFINE STUDENT ACCESS TO FACULTY AND STAFF

Establishing a database of measures stems from defining the relationship between the student and faculty and what actually constitutes meaningful interaction as described in *Action 1.3.1: Define meaningful interaction with students*. In November 2013, Dr. Jeff Cawlfield and Dr. Larry Gragg drafted a definition of “meaningful interaction with students” based on research and National Society for Experiential Education survey questions. In December 2013, the Department Chairs Council received the draft definition. The initial discussion proposed to the department chairs suggests that student-faculty interaction has a direct impact on grade point average, retention rates and student satisfaction. The quality of the relationships with faculty members can be one of the most significant variables in predicting learning outcomes. Published research indicates that virtually every type of “outside-of-classroom” interaction between faculty members and students can have positive effects. Interactions may include “functional” or “programmatic” interactions that occur at official events and/or field research or trips to conferences and workshops, whether at university venues or off-campus. Research also indicates even the smallest and most seemingly insignificant informal out-of-class interactions with faculty (and staff) can have value and meaning. Meaningful interaction at its foundational level can be defined as any positive interaction and, especially, out-of-class interaction, either on- or off-campus, between faculty and students or staff and students. Some examples that are noted in research include faculty participation in new-student orientation; faculty serving as mentors; and one-on-one faculty advising.

The initial definition is still under review by the Department Chairs Council and the Faculty Senate. Once there is an approved definition of meaningful interaction from the faculty, the definition will be sent to the provost for final approval. Upon approval, unit plans will be revised to include the accepted standard definition and then measures will be implemented.
LEVER 2.1: EMPLOY TRANSFORMATIVE AND FOCUSED FACULTY HIRING AND RETENTION, INCLUDING CLUSTER HIRES IN SELECT AREAS OF EXPERTISE TO SUPPORT BEST-IN-CLASS (BIC) ACHIEVEMENTS

In October 2013, the timetable was established for identifying four best-in-class, or signature, areas. A committee was formed and this committee was recommended for approval by Provost Kent Wray and Chancellor Cheryl Schrader. In November 2013, the committee met and approved timelines, processes and the proposal format. The committee approved the process for selecting the final proposals and a form was developed to provide community feedback on all submitted proposals. Initially, 15 proposals were received by the deadline. All of these proposals were reviewed by the committee. Of the 15 proposals, 13 were deemed compelling and feedback was submitted to all proposers. In December 2013, an open forum was held for teams to present their proposals.

In January 2014, the first two signature areas were announced as indicated in **Action 2.1.1: Identify two best-in-class areas for investment and initiate discussion on another two best-in-class areas.**

The first signature area is in advanced materials for sustainable infrastructure. The White House Strategy for American Innovation is dedicated to building and rebuilding physical infrastructure, such as roads, bridges and other forms of transit. In order to restore the nation’s bridges by 2028, $20.5 billion will be needed annually. A majority of the nation’s highways are congested and another $170 billion is needed to improve the highway infrastructure. New sustainable construction materials in steel, nano, chemical additives and smart systems are needed for this enormous national undertaking. Materials research is a core research area for Missouri S&T, with 75 percent of the patents and royalty income coming from this area. The university is home to one of seven accredited metallurgical engineering programs, making it a prime location for the permanent home of a National University Transportation Center. The importance of this research area can also be demonstrated through its financial support. S&T receives $1.4 million per year for two years from University Transportation Center, $2.5 million from the Department of Transportation, $2.6 million for equipment from National Science Foundation, and the recent launch of a 12-member industry consortium provides $660,000 annually in funding steel research. This best-in-class initiative is linked to the strategic plan **Lever 1.5, Lever 2.1, Lever 2.2, Lever 2.3 and Lever 4.5.**

The second best-in-class, signature area, is advanced manufacturing. This area is of national importance. President Barack Obama budgeted $1 billion in FY14 to create a National Network for Manufacturing Innovation. The government is focused on manufacturing partly due to the economic impact; it is estimated that for every $1 spent, another $1.48 is added to the economy. The government is focused on manufacturing but also private industry dedicates 70 percent of research and development spending in the manufacturing sector. Advanced manufacturing is specifically important to the Missouri economy with 23 percent of workers employed in this sector. With this initiative, S&T will focus on additive manufacturing, energy manufacturing, micro/nano manufacturing, network-centric and cloud manufacturing, advanced materials for manufacturing, intelligent and sensor-enabled manufacturing. This best-in-class initiative aligns with **Lever 1.2, Lever 1.5, Lever 2.1, Lever 2.2 and Lever 2.3.**

In order to support the best-in-class initiatives, **Action 2.1.2: Develop and implement a process to transparently allocate all faculty positions to impact strategic plan and progress on unit performance measures** has been implemented. In October 2013, the hiring table and hiring criteria were updated to reflect alignment with the strategic plan.
LEVER 2.2: LEVERAGE S&T AS MISSOURI’S TECHNOLOGICAL RESEARCH UNIVERSITY

Campus growth is an essential part of the overall strategy and is identified in Action 2.2.1: Increase S&T’s undergraduate enrollment by 500 by 2020. The campus has identified the need for expanding the market for enrollment and addressed this issue by first hiring a new 60 percent full-time equivalent recruiter position for the southern California territory. This employee started in August 2013. Another area identified to increase the target market is through the number of national college fairs attended by S&T Admissions; and this has been expanded by 17 percent. By expanding the market the campus has seen an increase in on-campus visits (1,013 campus visits occurred by the end of December 2013 — an increase of 7 percent). Open House participation has also increased by 34 percent; Miner Days participation increased by 9 percent and Fly-In Weekend increased by 92 percent. The fall 2014 projections show admitted freshman are up 13 percent and freshman Preview, Registration and Orientation (PRO) deposits have increased 8 percent over the prior year; these growth areas demonstrate the campus is trending to achieve the strategic plan benchmark action by 2020.

Undergraduate growth is just one facet of the enrollment vision within the strategic plan; another area is Ph.D. growth as stated in Action 2.2.2: Increase S&T’s PhD enrollment by 200-400 by 2020. In October 2013, a 13-person committee was formed to address this action. The committee was tasked with developing a plan to provide fellowships/assistantships and other financial incentives for additional doctoral students and to budget those funds for FY15 and beyond. In November 2013, the committee met to develop a plan to fully cover in-state tuition and fees for doctoral students on appointments; look at bridge funding between faculty grant funding and graduation; investigate the feasibility with university advancement of creating a $10 million endowment for recruiting high-quality doctoral students; and perform a cost analysis on providing dissertation writing fellowships to doctoral students who have completed their comprehensive exams. Subcommittees were formed in each of the areas and are currently working on finalizing the plan to address Ph.D. enrollment.

Enrollment growth creates a need in the classroom for an additional 100 faculty. In Action 2.2.3: Increase the number of T/TT (NTT) faculty members by 67 (33) directly addresses the growth aspect but also helps in achieving the overall mission of the lever as being Missouri’s technological research university. In October 2013, S&T proposed $2.57 million to fund 22 new faculty positions and this proposal was approved by University of Missouri System President Timothy M. Wolfe. S&T committed to funding the additional 11 faculty positions. In November 2013, guidelines for submitting proposals for new faculty were distributed to all academic units and research centers and 53 requests were received. Based on the 53 requests, 18 initial faculty positions were approved in the following job classifications/departments:

- **Assistant Professors (tenure track):** engineering management and systems engineering, physics, biological sciences, electrical and computer engineering, mining, chemistry, civil engineering, geological science, and mechanical and aerospace engineering (2)
- **Associate Professors (tenure track):** computer science and civil engineering
- **Assistant Teaching Professors (non-tenure track):** computer science, electrical and computer engineering, chemical engineering, and education
- **Assistant Research Professor (non-tenure track):** materials science and engineering, and chemical engineering

These faculty hires will also align with the strategic plan Lever 3.4 promoting inclusion and diversity. Targeted recruiting efforts are being performed to ensure underrepresented minorities and women are among candidates who would be considered for these faculty hires. As an Action 3.4.1 incentive, departments that hire underrepresented faculty will receive additional expense and equipment funds.
Developing a culture of excellence with the faculty and staff is demonstrated in Action 2.3.1: Develop and implement performance-based resource allocation models commensurate with degree offerings, including productivity in research, scholarship and creative works. In October 2013, a timetable was established for developing performance based measures. All units within academic affairs, both academic and non-academic, developed a draft of their performance measures. In November 2013, Provost Wray reviewed the performance measures. In December 2013, the academic departments were asked to submit their comparators and 2020 targets. In January 2014, the plans were reviewed by the provost and the strategic planning progress manager. Recommendations were given to each of the departments with final drafts submitted the end of January.

A key to developing a culture of excellence in research is demonstrated in Action 2.3.4: Establish two new sustainable industry-funded research consortia. In 2013, the Kent D. Peaslee Steel Manufacturing Research Industrial Consortium and Small modular reactor Research and Education Consortium were established. The Kent D. Peaslee Steel Manufacturing Research Center (PSMRC) is a consortium of steel companies, foundries, suppliers and university researchers working together to address fundamental steel casting/manufacturing issues. Focus areas include steelmaking, casting, product development, environmental and safety issues, or any area partners select for collaborative research. PSMRC offers extensive facilities, labs and equipment and a faculty of highly experienced metallurgical engineers, as well as interdisciplinary collegiate collaboration. Missouri S&T has produced 176 metallurgical engineering bachelor of science graduates in the past 10 years. Of these graduates, 75 percent took positions in steel/metal manufacturing, and 50 percent took positions in ferrous metallurgy. During the last six years, there has been a total of 28 master of science and Ph.D. students working on projects associated with steel manufacturing, with more than 90 percent now working in the steel industry or teaching metal manufacturing. The metallurgical engineering program at Missouri S&T combined with PSMRC, offers industry-driven and funded research, education and training to engineers dedicated to keeping the steel industry strong today, and also into the future.

The Small modular reactor Research and Education Consortium (SmrREC) led by Missouri S&T provides its members with research results to advance the design, construction and operation of SMRs by collaborating in the development of precompetitive technologies. The member-driven consortium facilitates the establishment of the highest quality multi-disciplinary teams of researchers to support the specific needs of the consortium, thereby advancing the entire nuclear energy sector. The consortium also provides educational and outreach opportunities to maintain a pipeline of trained engineers and scientists needed to support the nuclear industry renaissance. The group has been awarded a $250,000 grant from the Missouri Technology Corporation for this research. The overarching vision is “Identify and develop transformational technologies supporting Small Modular Nuclear Reactors to improve energy security and reduce climate change.” The consortium has seven key research areas including design and modeling, infrastructure, manufacturing, materials, nuclear fuel, alternative uses of nuclear energy, education and outreach. Two pilot research projects were awarded by the consortium.
LEVER 2.4: CREATE AND IMPLEMENT A COMMUNICATION AND MARKETING PLAN TO RAISE THE VISIBILITY OF THE CAMPUS AND CONVEY OUR RETURN ON INVESTMENT

In order to begin raising the visibility of the campus, core teams needed to first be developed. The first team is explained in Action 2.4.1: Establish a Marketing Leadership Team (MLT) to guide the development of an integrated, campuswide communications and marketing plan. The Marketing Leadership Team was established in July 2013 when an initial meeting was held. The second team is explained in Action 2.4.2: Establish a Core Marketing Network (CMN) to provide consultation to the Marketing Leadership Team to establish an integrated, campuswide communications and marketing plan. The Core Marketing Network was established in July 2013 and an initial meeting was held in August 2013.

These teams collaborate for determining campus readiness needs as stated in Action 2.4.3: Through the Marketing Leadership Team and Core Marketing Network (CMN), develop a request for proposals for professional marketing consultation to: a) conduct a needs assessment regarding the desired outcome of an integrated, campuswide communications and marketing plan and b) conduct a capabilities assessment to determine our ability and readiness to conduct such a campaign (the capabilities assessment will include a communications audit of all marketing materials and assessment of any marketing research). A draft request for proposals was created by the communications department and is awaiting the outcome of research to revise the proposal and share it with the MLT and CMN. Part of the proposal is addressing staffing direction, Action 2.4.4: The Marketing Leadership Team, in consultation with the Core Marketing Network, shall identify marketing staff who will be responsible for implementing the plan and shall create a professional development plan to help ensure those staff are trained to carry out their responsibilities. The director of communications was appointed to the committee for developing Lever 1.4 (Create professional and leadership development opportunities for faculty, staff, alumni and students). Because Action 2.4.4 is closely connected to the Lever 1.4 goal, the creation of a professional development plan for marketing will require coordination with activities of Lever 1.4.

Marketing is an important aspect of a communications plan, Action 2.4.5: Fully commit to the Missouri S&T brand by removing references to “formerly the University of Missouri-Rolla” in all marketing materials targeting the key customer groups. The university has implemented marketing materials targeting prospective undergraduate students. Creating and standardizing all of these materials is addressed in Action 2.4.7: Seek matching commitments to fund a portion of campuswide communications and marketing efforts. A draft proposal for seeking strategic funding to support the marketing efforts is under review with the chancellor’s cabinet.

Action 2.4.10: The Marketing Leadership Team, in consultation with the Core Marketing Network, will identify no fewer than three higher education institutions who are considered best in class in terms of communicating return on investment and will examine these institutions’ practices. The university entered into agreements with the Educational Advisory Board to conduct research on marketing practices of four to eight institutions, the majority of which are technological research universities, to determine best in class status and practices. Research results are expected in early February 2014 and will be shared with the MLT and CMN to inform further research and/or development of a request for proposals.
LEVER 2.5: MODIFY OUR CONVENTIONAL METHODS OF TEACHING TO ACCOMMODATE CURRENT, NEW AND ADVANCED TECHNOLOGY THAT WILL ENHANCE STUDENT LEARNING AND INCREASE FACULTY PRODUCTIVITY

Modification of conventional teaching methods necessitates designers focus on technological innovation as explained in Action 2.5.3: Increase instructional design support and online facilitators for teaching faculty. In October 2013, an ad was placed to hire a replacement instructional designer and this position was reallocated to education technology. In December 2013, an offer was made and the designer started in January.

To further enhance student learning it was determined that Calculus I, II and III needed redesigned. Those courses are required for 75 percent of all undergraduates and are often a barrier for student success. This initiative is linked to a funded strategic initiative proposal. A one-time cost of $198,000 provides operational and incentive funds to faculty members to redesign the existing high-enrollment courses.

Using the success from the chemistry redesign, the first changes were to add technology. Calculus daily delivers and records all lectures and discussions for students. This allows students who are not in the classroom or those students who want to utilize the recordings as a supplemental learning tool the opportunity to review lectures and discussions. Online homework offerings were also a part of the initial redesign. The department is collecting information to ensure the redesign will be successful. Surveys were distributed to all students and that feedback is being analyzed, conferences have been attended, and comparator institutions are being contacted and visited.

Integrating technology into teaching methods is a priority at S&T. The campus will host its seventh annual Teaching and Learning Technology Conference in March. This is a free conference offering presentations, workshops and demonstrations from around the country focusing on incorporating technology in the classroom.

Incorporating technology into the classroom and creating a new vehicle for teaching can be a difficult challenge and rewarding those who have stepped up to this challenge can be seen in Action 2.5.6: Create and implement a stipend program to reward faculty who incorporate Blended Learning techniques into their courses. The eFellows program is the only reward system currently in place. This program has a three-tiered reward approach. For tier one, based on a complete full course redesign, the reward is a stipend of $5,000. Tier two is a smaller scope redesign with just one or more aspects of the course being redesigned; it has a stipend of $2,000. Tier three is the adoption of technology and the teaching strategies to improve learning. This tier includes minor changes and not a complete redesign with a stipend of $1,000. The instructors work with the education technology department to ensure their technological and pedagogical needs align. Meetings for examining an additional or new reward system are still occurring.
LEVER 2.7: ADDRESS ADMINISTRATIVE STRUCTURAL CHANGES TO FACILITATE STRATEGY AND ENHANCE NATIONAL VISIBILITY

The strategic plan is vast in that every aspect of the campus is addressed with levers and action items, which necessitates that administrative changes occur to implement the plan. One example of the structural changes is explained in Action 2.7.2: Hire Strategic Planning Progress Manager (SPPM) and this was completed in January 2014.

Additionally, in Action 2.7.1: Implement the organizational structure appropriate to strategic plan, other administrative structural changes have been determined and changes will be made starting in the spring of 2014. The current position of vice provost for academic affairs will be eliminated and two new vice provost and dean positions will provide academic oversight.

One vice provost and dean position will oversee the following: Army and Air Force ROTC; arts, languages and philosophy; biological sciences; business and information technology; chemistry; economics; English and technical communication; history and political science; mathematics and statistics; physics; and psychological science.

The other vice provost and dean will oversee chemical and biochemical engineering; civil, architectural and environmental engineering; computer science; electrical and computer engineering; engineering management and systems engineering; geological science and engineering; materials science and engineering; mechanical and aerospace engineering; and mining and nuclear engineering.

In order to find the right candidates for these two positions, a search firm (Isaacson, Miller) is assisting the campus in these searches. Once candidates are identified, the campus search committee will begin the screening process. All campus search committees are attending a diversity and inclusion workshop to ensure underrepresented minorities and women are considered in the search process, which ties in with Lever 3.4.

Another organizational structure change is the addition of a vice chancellor for global and strategic partnerships who will oversee international affairs, global and online learning; and a new office of corporate relations (this new office is explained in Lever 3.2).

Ensuring the campus faculty, staff and students were aware of these structural changes, an extensive communications plan was developed. Information about these new structural changes was disseminated in the State of the University address by the chancellor, at homecoming, graduation, alumni events, on the campus website via newsletter and discussed in general open forums.

Isaacson, Miller is also helping us recruit a provost and executive vice chancellor for academic affairs as the current provost will become the new vice chancellor for global and strategic partnerships.
LEVER 3.1: EVALUATE CURRENT ACADEMIC PROGRAMS AND CREATE, MODIFY, ELIMINATE OR COMBINE IN ORDER TO ENSURE A RELEVANT PORTFOLIO THAT SUPPORTS A CARNEGIE RANKING AS A NATIONAL, RESEARCH UNIVERSITY

Utilizing comparator universities is an excellent tool for aiding in the decision making process as explained in Action 3.1.1: Perform a comparison of academic department productivity to peer institutions. In October 2013, a draft of comparator institutions for each academic department was completed and submitted to the provost. The provost provided comments and many of the department chairs are still working on the revisions. In January 2014, the engineering and computer science department chairs submitted their revisions to the provost, and the remaining chairs are working to improve their comparator listings.

Based on an initial examination of programs, the campus has added new degree offerings: master of science in industrial organizational psychology (spring 2014), and STEM focused elementary education (fall 2014). S&T is awaiting final approval on a Ph.D. in explosives engineering. Further examination of the current programs is planned.

Action 3.1.2: Identify and take actions to improve the metrics that contribute to increasing the national ranking of all graduate programs. The university is waiting for feedback from peer institutions.
LEVER 3.2: CENTRALIZE CORPORATE RELATIONS TO IMPROVE SERVICE TO EXISTING PARTNERS AND TO IDENTIFY AND ESTABLISH NEW PARTNERSHIPS FOR THE PURPOSE OF INCREASING/ENHANCING RESEARCH, ECONOMIC DEVELOPMENT, CREDIT AND NON-CREDIT EDUCATION, PHILANTHROPY, AND THE HIRING OF OUR GRADUATES

In September 2013, the chancellor determined a corporate relations office was needed at S&T and highlighted Action 3.2.1: Create a corporate relations office and determine the role it should play in assisting the various interests within the S&T community establishing appropriate relationships with external constituents. An examination of similar departments at comparator institutions began in November 2013 with the provost and associate vice chancellor for human resource services, affirmative action, diversity and inclusion visiting comparator Michigan Tech. The new director of the corporate relations office position will be posted in the spring of 2014. Based on comparator information; Action 3.2.2: Determine the reporting structure of the office within S&T; this office will report to the newly created position of vice chancellor, global and strategic partnerships. The title of the leadership for this office will be assistant vice chancellor based on information gathered from the comparator and this is explained in Action 3.2.4: Determine the internal organizational structure of the office (title of leadership, professional staff and support staff).

In order for the office to become fully operational, all aspects must be strategically planned as indicated in Action 3.2.3: Develop a funding mechanism to support the office and its activities. Currently, the development of a funding mechanism is being studied and the results from Michigan Tech will be considered when structuring funding for the office. Action 3.2.6: Broadly identify needs of external constituents that could be met by S&T. A study to determine the needs of external constituents has been completed and is ready for implementation once leadership is hired.
LEVER 3.3: IMPROVE FACILITIES TO ENHANCE RESEARCH AND STUDENT LEARNING, AND EXPAND EXPERIENTIAL LEARNING

The university underwent an extensive examination of all facilities and developed a campus draft master plan for improving the facilities to foster innovation, creativity and expand experiential learning as explained in Action 3.3.4: Evaluate all campus facilities for their readiness for sustainable growth and return on investment by engaging a campus master planning consultant. In October 2013, campus master planning efforts began. Plans have been presented and data has been under review. In January 2014, the draft final plan was presented to the advisory committee, steering committee, staff and students. This draft master plan created action plans for many of the action items in Lever 3.3. For Action 3.3.1: Leverage strategic funds for instructional laboratories with matching funding from non-appropriated sources, an action plan has been devised and is in the process of being implemented. Lever 3.3 and its action items are linked to a funded strategic initiative proposal. The proposal states that expansion for instructional laboratory equipment will be at a level of $500,000, plus $500,000 in non-appropriated funds. In addition, S&T will provide $460,000 for personnel time and $32,500 for grand openings. A proposal format was developed. Departments have submitted requests for funding that are currently under review.

Action 3.3.7: Investigate building a Learning Commons to enhance student learning and research. This facility should allow for reconfiguration as needs change, technologies evolve, and the student population changes. It should include as much hands-on technology as possible, available to all, in an interdisciplinary environment. An analysis of the work areas and access for student learning were utilized to determine preliminary drawings of the Learning Commons and this aligns with Lever 1.2, Action 1.2.2. For more information, refer to this lever and action described in detail earlier.
LEVER 3.4: PROMOTE INCLUSION AND INCREASE DIVERSITY OF FACULTY, STAFF AND STUDENTS TO REMAIN RELEVANT AND COMPETITIVE IN A GLOBAL ENVIRONMENT

Inclusion and diversity are important to every organization and Action 3.4.1: *Increase diversity of faculty and staff, provide incentives to the hiring departments that select qualified underrepresented minorities* focuses on this importance. In October 2013, several diversity offices from universities that use incentives to encourage departments to hire underrepresented faculty were contacted. Based on those initial contacts with other universities the following action has been implemented. In January 2014, a letter was sent to all departments stating that “a list of all applicants to be invited to campus for interviews shall be submitted to the provost in advance of invitations to an interview being extended.” The letter also stated that “if the list of applicants of those to be invited to campus for interviews does not include a sufficient number of underrepresented minority or female applicants, the process will be delayed while the committee extends its search and broadens the applicant pool.” This process, along with increased support and training for search committees offered by human resources, should encourage and verify that diversity in hiring practices is a priority at S&T. To further demonstrate the dedication, those departments that attract an underrepresented minority or female faculty member to join the department will receive a $10,000 incentive to the department’s expense and equipment budget. The department will retain the funds as long as that faculty member remains with the department.

Increasing faculty and staff diversity are important to the overall strategy, but another important and accountability metric for the university is increasing student diversity as noted in Action 3.4.2: *To increase diversity of students, explore scholarship funding to be more competitive with underrepresented minorities/female/student recruitment.* The university has already awarded four diversity scholarships this last quarter. The three state matched scholarships were $40,000 each to benefit Pell-eligible African Americans. One scholarship was the Carter scholarship for $100,000 and benefits Hispanics and females. Another way to increase student diversity is explained in Action 3.4.3: *Set up transfer articulation agreements with two-year institutions with large underrepresented minority populations.* This action is specifically aimed at increasing admission efforts to underrepresented minorities. In October 2013, the top 100 Associate Degree producers list from the publication “Diverse Issues in Higher Education” was analyzed. The campuses selected two states for new transfer partnerships, Texas and California. There are regional recruiters represented in those states. In January 2014, Richland College, a Dallas area campus, was selected. Scholarship amounts will be similar to those provided to the Atlanta University Consortium.
LEVER 3.5: CREATE AND IMPLEMENT A PLAN FOR
STUDENT AND ALUMNI LIFETIME ENGAGEMENT
STRATEGY

Developing lifetime engagement strategies must start with a solid foundation as explained in Action 3.5.1: Utilize the library and archives in creating collaborative online areas where alumni can view yearbooks, the Miner, photos and other memorabilia. Advancing this action item has been the primary objective of the lever team. Until this phase is completed, an effective blueprint for advancing efforts to increase student or alumni engagement cannot be determined. In October 2013, the team expanded and it now includes six Student Affairs members, three University Advancement members, two undergraduate studies members, one enrollment management member and one communications member. The first effort was to compile a list of existing campus engagement activities. Each team member submitted a list of current activities hosted by their department/area where they engage with prospective students, enrolled students and/or alumni. Following this task, the team was divided into two primary sub teams: internal audit and external audit. The external audit team consists of three University Advancement members and four Student Affairs members. This sub-team was tasked with reviewing lifetime and engagement best practices in higher education. To date, this sub-team has generated a list of comparators institutions for further review of lifetime engagement practices and has also submitted a research request form to the Education Advisory Board (EAB). In January 2014, this sub-team was asked to conduct a study on the various stages and facets of integrating and sustaining a campus culture of lifetime engagement. The team expects that the EAB study will be complete prior to the end of March 2014.

The internal audit team consists of two Student Affairs members, one University Advancement member, two undergraduate studies members, one enrollment management member and one communications member. This sub-team was tasked with reviewing the lifetime engagement activities that are already occurring on the S&T campus and determine what populations they are impacting. To date, this sub-team has been using the engagement activity summary provided by department representatives and is in the process of categorizing these activities into three themes: academic engagement, social engagement and campus engagement with the following general definitions:

- **Academic engagement**: interaction/participation with faculty and/or activities directly related to an academic discipline or provision of academic support
- **Social engagement**: co-curricular activities that facilitate interpersonal connections with any/all members of the campus community
- **Campus engagement**: activities that promote a direct connection to the success of the university and its interests and to further delineate these themes.

Categories are also being identified into population categories of pre-college, first year, second year and beyond or post college.

Remaining in contact with alumni is stipulated in Action 3.5.3: Create lifetime accounts that support contact and engagement. This action item is substantially complete. The university system's technological capabilities allow assigning lifetime email addresses to members of the Missouri S&T community (students, employees and alumni).
LEVER 3.8: EXERCISE LEADERSHIP IN SUSTAINABILITY ON CAMPUS AND IN THE COMMUNITY BY MODELING SUSTAINABILITY PRACTICES IN DAILY OPERATIONS AND PRACTICING GOOD ENVIRONMENTAL STEWARDSHIP

Prioritizing sustainability on campus can be seen in Action 3.8.1: Stabilize long-term funding for the Office of Sustainable Energy and Environmental Engagement. The office was funded by $160,000 in GRA funds for FY2013.

The campus dedication to improving its environmental footprint can be seen in Action 3.8.2: Led by the office of Sustainable Energy and Environmental Engagement, initiate and create student awareness programs and associated funding vehicles to promote our sustainable research and campus initiatives. The campus has several initiatives dedicated to sustainable energy. The first initiative is the Solar Village, a living laboratory consisting of four solar powered homes that utilizes a solar grid and is in the development phase of a smart grid power system. This village has won the “Chill Out” sustainability award. Missouri S&T competed this fall in its fifth Solar Decathlon. This solar house will be placed in a new Solar Village near the existing village and will become the anchor of this enhanced development.

The second campus initiative is the geothermal project. This project has been awarded the 2013 Climate Leadership Award. The geothermal project consists of drilling 750+ wells that provide energy to 17 campus buildings and supplies the campus chilled water system. This project will cut energy usage by 50 percent, reduce carbon dioxide emissions by 25,000 tons per year and decrease the water usage by 8,000,000 gallons per year. Initial estimates are an annual savings of $1 million with future projected savings of $2.8 million annually. This project has an estimated completion in 2014.

Action 3.8.5: Create and promote an alternative transportation culture, focused around simple transportation methods, including pedestrian and cycling, to improve alternative transportation infrastructure over the next five years. Public transportation is a viable mode of transportation for S&T students. An all new electrically powered bus will begin routes for students in the spring of 2014. This electric bus is a first for the city of Rolla.

Another form of transportation is pedestrian biking. New bike paths are being developed around the campus and additional bike racks were installed.

Action 3.8.13: Analyze new construction with U.S. Green Building Council LEED (Leadership in Energy and Environmental Design) principles, and pursue LEED certification when appropriate. Prior to beginning construction on the new James E. Bertelsmeyer Hall for Chemical Engineering, LEED standards and principles were applied. The Technology Center and the Student Design Center also utilized LEED principles prior to construction.

These principles have aided the campus in achieving a Silver STARS (Sustainability Tracking Assessment and Rating System) rating. This rating was performed by the Association for Advancement of Sustainability in Higher Education evaluating the areas of 1) education and research, 2) operations and 3) planning and administration. The overall rating gauges our progress toward sustainability.
LEVER 3.9: CONDUCT A COMPREHENSIVE FUNDRAISING CAMPAIGN TO SECURE PRIVATE SUPPORT FOR IDENTIFIED CAMPUS PRIORITIES

There are many variables to consider for an effective fundraising campaign. One preliminary area is to examine data as explained in Action 3.9.1: Conduct wealth screening and data validation. The wealth screening was completed in August 2013. A comprehensive review and validation of those results by S&T Prospect Research staff is currently in progress and expected to be completed this summer. Another aspect to a fundraising campaign is noted in Action 3.9.2: Initiate partnership with consulting/research firm. The partnership was initiated in July 2013 and this partnership is producing custom research to aid in the fundraising process. The research will assist in prioritization of actions. Along with generating research is a further understanding of feasibility as explained in Action 3.9.7: Conduct feasibility study. The feasibility study is currently in progress with an estimated completion date of June 30, 2014.

Research is important. However, ensuring policies align with the strategic plan is crucial as explained in Action 3.9.3: Review, update and approve gift acceptance policy. This policy has been reviewed and updated by the development staff. This update should be approved by the end of FY14. Another policy under review is explained in Action 3.9.4: Review update and approve naming policy. Review is currently in progress with recommended updates expected July 2014. Once the updates have been determined, the next step is for senior administration to approve.

Action 3.9.6: Develop plan and proposal for staffing requirements. A plan is in progress, with expected completion in March 2014.

Action 3.9.8: Participate in process of updating master plan to advise on fundraising opportunities and targets. An initial meeting was held in September 2013. Consultants are on target and an updated plan is scheduled to be reviewed and approved by the Board of Curators at the April 2014 meeting.
LEVER 4.1: CREATE A COMPREHENSIVE DISTANCE AND ONLINE EDUCATION STRATEGY

Recognizing that distance and online education needs will only be increasing in the future, Action 4.1.1: Conduct a focused market study analysis to serve as the foundation for a comprehensive distance and online education strategy was considered. A task force is being developed to conduct a focused study. Funding for this area has already been provided as Lever 4.1 is linked to a strategic initiative proposal, expanding instructional laboratory equipment at a level of $500,000 and matched by $500,000 in non-appropriated funds. A portion of these allocated funds (approximately 20 percent) will be used to configure laboratories for remote access.

Creating the foundational structure for distance and online education is explained in Action 4.1.2: Bring together distance and online programs under one umbrella so as to leverage advantages of both, pool resources, and to eliminate confusion. The structure was put into place establishing one umbrella organization overseeing distance and online programs. In November 2013, a presentation was given to the board of curators discussing combining resources for distance and online learning. An instructional designer was hired by global learning and is physically housed with current instructional designers in education technology. The new vice chancellor of global and strategic partnerships will oversee a combined unit further eliminating any confusion and leveraging resources for both distance and online.

Non-credit distance education is an integral part of the overall strategy as explained in Action 4.1.4: Increase our focus on the professional non-credit distance education portfolio. A new series of non-credit courses were developed focusing on addressing issues in the pipeline industry. These courses were added to the paint technology courses that are marketed to General Motors. In the spring of 2014, five additional courses will be developed for GM (including one in corrosion) and one additional course is planned for pipeline technology. Discussions are being held with the Ravens Group as they have expressed interest in creating online versions of their face-to-face trainings.

Action 4.1.6: Create an incentive program to encourage departments and faculty to offer more online, blended and distance courses. In October 2013, an incentive program was created that returns 40 percent of the gross revenue to the academic department that produces the distance courses. This incentive encourages departments to develop new distance offerings. In December 2013, discussions revolving around a 15 percent revenue sharing with UMKC to encourage the development and sharing of online courses in the entrepreneurship arena took place.

Action 4.1.7: Leverage existing success and resources from distance education program to expand into more online or asynchronous course offering. The new instructional designer has been hired and is housed with the chief information officer’s instructional designers to promote idea sharing.
LEVER 4.2: ENHANCE INSTRUCTIONAL LABS AND METHODS OF DEVELOPING LAB EXPERIENCES

Supporting the courses at community colleges was deemed a priority of Action 4.2.1: Explore how to partner with other universities, community colleges, high schools or extensions to deliver lab experiences. In November 2013, the department of electrical and computer engineering submitted a request for a strategic non-tenure track hire to develop labs to support circuits and electronics courses taught at community colleges. In December of 2013, this request was approved. Human resources is beginning the hiring process.

This lever can also be tied to a funded strategic initiative, where a portion of allocated funds (approximately 20 percent) will be used toward configuring laboratories for remote access.
LEVER 4.5: ENGAGE IN TRANSFORMATIVE DOCTORAL STUDENT RECRUITING/RETENTION AND PLACEMENT

Recruiting transformative doctoral students is noted in Action 4.5.1: Develop a plan to provide fully covered tuition for doctoral students on appointments and explore implementation. A 13-person committee has been formed to address all issues relating to Ph.D. enrollment, retention and placement. The committee met in September 2013 and was tasked with developing a plan to provide fellowships/assistantships and other financial incentives for additional doctoral students and to budget those funds for FY15 and beyond. Subcommittees were formed in core areas: analyzing GRA bridge funding; creating an endowment to recruit high-quality doctoral students; and initiating a cost analysis on providing dissertation writing center to doctoral students who have completed their comprehensive exams. The recommendation reports from this subcommittee are being analyzed by the lever leader.