Campus or Unit: Missouri University of Science and Technology

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The definition of experiential learning has been approved and the catalog has been updated: “All students at Missouri S&T are required to participate in appropriate experiential learning activities. Experiential learning refers to learning stimulated by a variety of structured activities that differ significantly from the traditional lecture format. 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 activities involve collaboration and reflective learning and allow students to learn in environments that align with their aptitude.” To help the campus frame the criteria for understanding what constitutes significant experiential learning, a rating rubric has been created and academic departments have been working with the curriculum committees in defining qualifying activities.

A standardized experiential learning tracking form is being rolled out. This form should save time for both the faculty supervisor and the academic advisor. Once the form is completed, the office of undergraduate studies and the registrar will be notified. The registrar has scheduled all students starting in fall 2015 in experiential learning. The completed experiential learning opportunity will show on the student’s academic record.

Experiential learning is a priority for the campus and the students. Two of the approved experiential activities are Co-ops and internships. Undergraduate students gain valuable work experience on Co-ops and earn on average $3,170 per month; graduate students earn $3,934 per month. This past academic year, the number of students participating on a Co-op increased to 485 up from 382 the prior year; with 182 different employers.

In the academic year, 539 students participated in an internship with 292 different employers. Experiential learning activities such as Co-ops and internships can help the students stay in school and prepare them for lifelong success.

Lifelong success of the students can also be demonstrated with average starting salaries. The average starting salary for undergraduate students at graduation is $63,350 up from $61,412. The average starting salary for graduate students is $75,182 up from $70,700 the prior year.
Action 1.1.2: Incorporate experiential/service learning into the core curriculum in all degree programs at any level beginning in the freshman year

- The degree requirements for experiential learning will be applicable to students entering under the auspices of catalog year fall 2015. This standard would also apply to any student who changes their program of study as listed under this current catalog.
- The approved definition of experiential learning: “Experiential learning at Missouri S&T refers to learning stimulated by a variety of structured activities that differ significantly from the traditional lecture format. 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 activities involve collaboration and reflective learning and allow students to learn in environments that align with their aptitudes.”
- The approved 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.
- Experiential learning implementation guidelines for the campus have been established: 1) activity must be university sponsored or affiliated and the student must receive written approval of the activity from a faculty member or academic advisor; 2) the faculty member or advisor will ensure the activity is of significant duration, intensity, and rigor to demonstrate successful application of learned principles; 3) the focus must be on ‘learning by doing’ in a creative and innovative activity that falls outside of the realm of traditional lecture; and 4) a significant experiential learning activity will include a written summary reflection piece that will document the experience from the student perspective and this piece should be of a quality suitable for inclusion as an attachment to a co-curricular transcript or in an e-portfolio. Each of the departments is utilizing the four guidelines for determining the curriculum requirements.

Action 1.1.2 b: Draft a statement describing degree requirements

- Each department has jurisdiction over their curricula and authority over what activities will meet the significant experiential learning standard. Throughout the spring semester, the department chairs have been working with faculty and curriculum committees to determine the core degree requirements. Statements will be finalized in fall 2015.
- After a department has determined an undergraduate student has satisfied the departmental requirement, the department notifies the office of undergraduate studies who maintains the records. The undergraduate office will notify the registrar’s office who will update the student’s degree audit status.

Action 1.1.2 d: Approval by degree-specific curriculum committees

- Several academic departments have developed a draft proposal which has been approved by their curriculum committee as to what qualifies as experiential learning using the guidelines established in Action 1.1.2. The departments that have approved draft proposals by their curriculum committees are: 1) computer science; 2) civil, architectural, and environmental engineering; 3) history and political science; 4) physics; 5) engineering management and systems engineering; 6) arts, languages, and philosophy; and 7) chemical and biochemical engineering.
• To demonstrate the alignment with Action 1.1.2, achieving the agreed upon definition in Action 1.1.1, and establishing a core curriculum requirement is detailed by the chemical engineering department. Experiential learning can be: 1) undergraduate research (OURE, NSF); 2) Co-op or summer internship; 3) significant involvement in national/international competitions such as the Chem-E Car or IGEM for a minimum of one year; 4) sponsored service learning for one year (Miner Challenge); 5) study abroad for one semester; 6) significant participation on a student design team; 7) paraprofessional positions (tutors, mentors, residence assistants, admission ambassadors); and 8) year-long leadership positions in student government (AIChE, Omega Chi Epsilon Student Leadership Conference Chair, Intercollegiate Athletics team). The activity must first be approved by the department and advisor. Upon completion of the activity, a written reflection must be submitted to the academic advisor within 30 days from the end of the activity.

• The types of activities listed by chemical and biochemical engineering are included on the standardized form allowing the faculty to simply check which activity the student completed.

• Study abroad is an approved experiential learning opportunity. Missouri S&T has joined the Institute of International Education’s “Generation Study Abroad” initiative to double the number of students participating in a study abroad experience by 2020. Several programs have been developed to support this initiative: a Global Scholar Initiative Program to support faculty-led programs abroad; new scholarship opportunities to assist qualified students; and enhanced undergraduate advising services to incorporate study abroad into student academic plans.

**Action 1.1.3: Assign responsibilities associated with monitoring experiential learning activities and maintaining the reporting of those activities to the Vice Provost for Undergraduate Studies, who will regularly inform the Strategic Planning Progress Manager on progress**

• The vice provost for undergraduate studies has been working with the Student Affairs division and the registrar’s office to ensure a proper monitoring system is in place. The vice provost and the strategic planning manager are in regular communication to ensure activities are properly documented.

• The vice provost and the strategic planning manager delivered a presentation to all department chairs regarding tracking experiential learning.

**Action 1.1.5: Career Opportunities and Employer Relations will continue to explore internship and externship opportunities in the summer and inter-sessions as well as during semesters**

• The spring 2015 career fair statistics: 230 employers in attendance which represented an increase of 6 percent; 34 employers were first-time employers attending; 40 employers were hiring international students, representing a 25 percent increase over spring 2014; 127 employers were from the state of Missouri; 28 states were represented; of the 230 employers in attendance 30 were Fortune 500; 2,270 students and alumni attended, a 2 percent increase over spring 2014; and 900 interviews occurred.

• Nineteen employers and 55 students committed to externship over spring break. For the academic year, 74 students participated in an externship with 19 different employers.

• During the academic year, 485 students participated on a Co-op (a 27 percent increase compared to prior year) with 182 different employers (a 33 percent increase); 539 students participated on an internship (a 2 percent increase) with 292 different employers (a 2 percent increase).
During the spring semester, 200 employers provided Co-op opportunities to 259 students which represented a 13 percent increase over the prior year. Students were placed in 41 different states, the District of Columbia, and two international locations.

A total of 971 active job openings were posted in the spring semester; 189 interview rooms were reserved in the spring; 410 different employers were recruiting in the spring and this number does not include the career fair participants; and 3,665 students were registered for employment in MinerJobs.

The COER Advisory Board explored providing additional winter externships.

In the spring semester, COER hosted nine Employer Seminar Series activities with 250 students participating.

The Princeton Review ranked Missouri S&T career opportunities and employer relations 15th in the nation for career services.

**Action 1.1.6: Establish experiential opportunities through peer advising and mentoring**

- Seven students were taken to the St. Louis Regional Business Mentoring Program networking event to meet executives from local companies.
- Student Affairs engaged Joe’s PEERS with psychology students on Fight the New Drug Program as an experiential learning project.
- The Chancellor’s Leadership Academy coordinators led peers in planning and executing five service projects resulting in 233 service hours. They engaged 150 children in educational Earth Day activities, engaged 50 children in an after school carnival, and raised monies for local service organizations.
- The Peer Involvement Program has been revised and has shifted focus to mentoring incoming freshman and first-year students. These advisors were hired and trained in the fall semester. In the spring, the advisors developed a Mini MinerRama which 94 students attended.
- The Health Career Mentoring program provided 379 hours of mentoring in the spring, over 670 hours of mentoring occurred in the academic year.
- Service experiential opportunities are also invaluable to the student experience. Miner Challenge completed its eighth year and hosted five trips engaging 69 students and five staff. A survey was completed following the Miner Challenges and those outcomes were: 88 percent indicated the experience met or exceeded expectations; 91 percent would participate in future Miner Challenges; 98 percent would recommend Miner Challenge to a friend; 95 percent had increased or improved their perspective of issues related to service and involvement; and 97 percent gained a greater awareness of their values, beliefs, and ideas.
- In 2016, Miner Challenge will be expanded to six trips including one international trip during winter break.

**Action 1.1.7: Identify prospective donors to expand activities at the Kummer Student Design and Experiential Learning Center through increased giving and major gifts**

- In spring 2015, university advancement utilized crowdfunding in support of the Mars Rover Design Team, which raised $19,325 from 131 donors.
- Advancement also utilized crowdfunding in support of the Rocket Design Team, which raised $3,780 from 43 donors.
- The Kummer Student Design and Experiential Learning Center serves as the business incubator and support center for 14 multi-disciplinary design teams and provides leadership, networking and technical
learning for 600+ students. The center provides strong levels of engagement with faculty, staff, business, and the community.

- The campus allocated 5,800 square feet to the Kummer Student Design and Experiential Learning Center and the build-out of this addition will nearly double the space to allow for expansion of design teams.
- Advancement has identified donors and prospects who will be approached in FY16 for gifts in support of the center’s expansion.

**Action 1.1.8: Develop promotional materials to promote experiential learning to the community and to promote options for students**

- The new degree requirement for experiential learning has been heavily promoted to prospective students: 1) it has been incorporated into the Open House and Miner Days power point presentations; 2) recruitment emails to prospective students include messaging about experiential learning; and 3) promotional videos are included on the web.
- The marketing and communications department has written stories, developed news releases, posted stories on the main website, and produced video. Additional materials will be developed once the academic departments have established the acceptable activities for the degree requirement.
- Marketing and communications did a casting call in spring 2015 focusing on students involved in experiential learning (specifically design teams or undergraduate research).
Fostering innovation and creativity for faculty, staff, students, and administration can occur in a non-traditional format. Innovation isn’t just creating something new, but can be an innovative approach to a current process. When departments start to look inward at their processes and determine new ways to be more strategic and efficient, innovation has been sparked. Such innovation has occurred in the following:

- The registrar’s office: 1) stopped sending paper grade reports to departments; 2) stopped printing transfer evaluations for freshman engineering; 3) implemented the PDF and EDI transcript processing which includes sending electronic transcripts through the National Student Clearinghouse; and 4) automated testing scripts for PeopleSoft which helped to bundle testing.
- The campus moved from paper graduation applications to electronic applications for increased student efficiency.
- The campus changed supplemental fees from six to two allowing for easier coding of courses and easier billing for cashiers.
- Financial aid contacted 205 students who had been on scholarship in the fall and would not have the scholarship in the spring to help retain the students for the spring semester.
- Academic departments awarded freshmen scholarships earlier to provide incoming students a larger financial award and enhance their ability to make admission decisions earlier.
- The university established a thank-you card process for endowed scholarships to increase donor satisfaction.
- Enrollment management implemented an institutional Work Study program geared toward low income and/or underrepresented minorities. Finding jobs on campus and increased engagement rates should result in increased retention. First-year retention is expected to increase to over 88 percent in fall 2015.
- The campus removed the W2 requirement from verification and then implemented the IRS Data Retrieval instead of submitting a tax return. This yielded efficiencies for the campus as every missing W2 required 30 minutes of follow up.
• Utilizing the early alert system, departments started sending emails and communications to students who have received two or more academic alerts. This alert system identifies students earlier in the process and should improve retention. First-year retention is expected to increase to over 88 percent in fall 2015.

• Student Affairs moved the Chartwells main office to the Havener Center providing a streamlined process and a central location for customers.

• Student Affairs initiated a process for centralizing testing services into one location for improved customer service.

• Student Affairs integrated Titanium software for counseling services providing better tracking and student assistance.

• Athletics utilized ACS software to increase effectiveness with monitoring compliance for intercollegiate athletics.

• Student Affairs integrated Formstack software for reservations and administrative processes for intramural recreation programs and facilities.

• The campus implemented a Dean of Students office structure to improve response to significant student behavior concerns and violations of the student code of conduct.

• Student Affairs revised the UCARE threat assessment rubric and implemented a process for utilization with every student of concern case and integrated access to National Behavioral Intervention Team Association (NaBITA) member resources for exemplary mitigation of crises.

• Student Affairs purchased the electronic medical records software Pyramed which will be implemented prior to fall 2015.

• Athletics expanded the utilization of concussion management software, ImPACT, to better follow the course of recovery and make return to play decisions more effective.

• The provost created an electronic promotion and tenure process.

• The campus implemented smart card technology on new building entrances to enhance safety and efficiency.

• Student Affairs along with finance and administration are exploring new student dining options which will offer additional locations on-campus, increasing dining variety and proximity.

**Action 1.2.1: Create and promote an innovation team that solicits and considers creative suggestions from Missouri S&T family; empower owners for implementation. Create a small fund to implement several each year**

• In order to solicit suggestions from the entire campus, an innovation proposal form has been developed and launched on the strategic planning website. This proposal form remains on the website to allow for ongoing suggestions from the Missouri S&T family and proposals are reviewed quarterly by the Innovation Team. Proposals focus on a description of the innovative idea, the owners for implementation, expected outcomes, estimated budget, and the tie to the Missouri S&T strategic plan.

• The Innovation Team reviews the proposals and determines the status in one of three areas: 1) ready for “immediate implementation;” 2) “future implementation” for proposals that are innovative in nature but may need further discussion or are contingent upon other variables; and 3) “not for implementation” for those proposals not meeting the strategic criteria. This action has a seven-year duration timeframe and will continue throughout the life of the plan.
• The proposal submission process began in July 2014 and 13 proposals were submitted in the fall semester. In spring 2015, nine proposals were submitted. These proposals included: digitizing the miner yearbooks, student innovation competition, entrepreneurial internships, Career Opportunities Employer Relations Miner Trek, Technical Innovators Entrepreneurs Society speaker series, technical innovation minor, women's center, a student health hut, and certification of COER staff for federal job searches.

• One of the approved fall proposals, *Next to Normal* production, was implemented in the spring. This production aimed at increasing mental health awareness. The production offered a pre and post survey. Prior to the production, 78 percent felt they were somewhat aware of mental health issues and the effects on families. After the production, 89 percent felt they had a better understanding on the effects of mental illness. The production offered talk-back sessions and two students made appointments with campus counselors to discuss their mental health. A total of 60 students participated in talk-back sessions.

• A spring student innovation proposal outlines that five student teams will be selected. The teams will outline a product they want to create, primarily based on existing technology, and which meets a need on the campus. The top five projects will be funded to supply parts and components for the team. A maximum of $1000 worth of parts will be provided to each team. Parts will be sourced through Informational Technology Research Support Services (IT RSS) to ensure they are required for the project. Over the course of AY15/16, the projects will progress to build a product prototype. A series of design and production milestones and target dates will be provided and enforced. In April 2016, the student projects will be judged to pick a grand prize winner for the university. IT RSS may elect to turn the student project winner into products or services for the campus. Judging criteria will include usefulness, effectiveness, ability to scale, innovative qualities, and elegance of design. Outside judges will be solicited to augment the on-campus judging.

• Another role of the Innovation Team is to examine campus processes and assist in streamlining those processes which are not effective or efficient. In fall 2014, the scholarship process was completely revised. An analysis of the process revealed: only 20 percent of academic departments listed their scholarships in Academic Works; minimal communication between units; confusion on disbursement report; no policy on carry-forward balances; student finance reviewed fiscal limits annually; and no one person was responsible for scholarships. The core recommendations: 1) place all academic department scholarships in Academic Works; 2) develop a dashboard report; 3) realign the department structure to make one person accountable for the process, a scholarship manager; 4) collaborate between financial aid and the university advancement team to pinpoint endowments that are difficult to award; 5) set a five percent carry-forward limit; 6) develop a communication plan including marketing materials to students; and 7) develop a Scholarship Advisory Board. The Scholarship Advisory Board met five times last year. The board recommended a phased decrease of the carry-forward balance over the next two years rather than an immediate decrease to the recommended five percent. The board felt an immediate decrease might have adverse effects on the students. The board did agree that five percent is reasonable and achievable. In year one, the campus decreased the carry-forward balance by $100,000. The board also developed a new set of scholarship awarding timelines. Departments must submit awards for prospective students by March 10. Departments review currently enrolled students for eligibility and submit awards to financial aid by June 10. Seventeen departments submitted scholarship notification forms for prospective students by March 10, compared to seven departments the prior year. Meeting the deadlines allows the campus to identify sooner any funds that are not spent or underspent so additional awards can be made. A part of the revised scholarship process was
entering all departmental scholarships into Academic Works and was completed in the fall. The second part of that process was to get students to the site. Posters, banners and postcards were created for an awareness campaign. One example of the success of the awareness campaign was the Hatfield Scholarship Opportunity; the campus went from 19 applicants the prior year to 104 this year demonstrating a definite improvement. More students are applying for scholarships in Academic Works.

- The revised scholarship process has offset over $900,000 in general operating revenue for the academic year. This process directly relates to the president’s priority for improving long-term financial viability and improving efficiency and effectiveness.

**Action 1.2.2: Implement 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; training on how to effectively use the commons would be included**

- A list of prospective donors for enhancing the Learning Commons has been identified. Once the final plans are determined, donors will be approached.
- The interior of the library has been examined strategically to focus on usable space designed to promote student collaboration. To assess user engagement, a new survey instrument was created to assess the environmental changes in the library. The survey gathered data on satisfaction with the library space, face-to-face services, physical materials, and online materials. All users were asked to rate their awareness of a variety of services and materials in each of the areas where they had indicated familiarity. Results of the survey indicated: 1) a very positive opinion on the interior updates; 2) undergraduate students rate the face-to-face services offered at the library as 100 percent extremely satisfied; and 3) students are pleased with the mobile whiteboards and the iPad/laptop lending program. The surprising result of the survey is that undergraduates see the library’s top priority as acquiring more textbooks and graduate students and faculty both see the priority as acquiring more journals. These answers indicate that users still have a traditional view of the library as a provider of textual information.
- In 2012, 50 percent of undergrads visited the library at least once per week and in 2015, at least 70 percent of the undergraduates visited at least once per week. The increase in visits is in part due to the transformation of the space to a Learning Commons.
- The Learning Commons underwent a transformation with a new multi-media center with four new high performance CAD 3D graphic work stations, a 3D scanner, a Nonavitra visualization wall, additional quick print stations, co-lab spaces, and enhanced presentation rooms while reference materials were relocated to provide more student space on the first floor.

The library is extremely busy and in comparison to prior years, it is busier. Although the campus has more students and more faculty year after year, the number of visits per FTE has climbed.
Action 1.2.3: Devise a plan for TedX-like series for students, faculty and staff (e.g., experiential learning activities, professional development)

- Many departments on campus have begun utilizing TedX video series installations for professional development. For example, the marketing and communication department holds “TED Thursdays” viewings at least once per month.
- In fall 2015, a First Generation event will be held. This event will bring together first generation students for TedX-like sessions presented by faculty, staff, alumni, and students.

Action 1.2.3 a: Council of Graduate Students will host Ted Talk style inspirational lectures to showcase ideas and “ignite” the campus and Rolla community

- The Council of Graduate Students was awarded the Chancellor’s Challenge Award for their dedication and focus on moving the Missouri S&T strategic plan forward.
- The Council of Graduate Students hosted a seminar series displaying 6-12 minute talks from faculty, staff, students, and community members designed to inspire and ignite the community. A total of 26 presentations were delivered with 70 attendees. A few examples of the TedX-like presentations: 1) president of the Ozark Toastmasters presented “Get to the Point;” 2) a student presented “Caves of Missouri;” 3) a faculty member presented “Optical Time Machines;” and 4) a spouse of a current student presented, “Being a Dependent Spouse: A Blessing in Disguise.” The baseline established in FY15 is for one event per academic year and this metric has been achieved.
Action 1.2.5: Identify a series of co-curricular events (e.g. intersession or alternative spring break) for interdisciplinary groups of students, faculty and/or staff focused on providing solutions for problem-solving, innovation or leadership

- Plans were developed to expand the Global Leaders Institute to a weekly, semester-long program.
- Student Affairs is collaborating with the National Society of Leadership and Success to extend invitations to 1,860 sophomores and juniors to engage in an ongoing leadership development program.
- The leadership and cultural programs department provided 397 students with cultural competence programming as a part of a co-curricular event.
- Graduate Leadership Development Program (GLDP) had five new students in the spring and will continue through the calendar year. Funding of $10,000 per campus, per year, for three years has been confirmed from System for GLDP beginning spring 2017.

Action 1.2.6: Develop minor and certificate programs in leadership, entrepreneurship, humanitarian engineering and science and creativity

- The new entrepreneurship minor began enrollment in fall 2014.
- The humanitarian engineering and science minor has been completed and students enrolled in fall 2014.
- The new technical innovation and entrepreneurship minor was completed in spring 2015. This minor is based on a different perspective regarding entrepreneurship (evidence-based entrepreneurship) and offers a different pedagogy (high content experiential learning and experiential method learning focusing on technical-based solutions). This minor leverages the student's traditional technical strengths with a learning process where students have the freedom to develop knowledge and skills from experiences outside the academic framework while working on collaborative interdisciplinary teams. The minor is a special program (any major can take the minor) and must still be approved by Faculty Senate.
- A new adaptive leadership minor was approved by the department curriculum committee in spring 2015.
- The creativity minor is still in the developmental process.
- The psychology of leadership graduate certificate had revisions in June 2015 and is awaiting final approval.
- The leadership in engineering organizations graduate certificate had revisions in June 2015 and is awaiting final approval.

Action 1.2.8: Identify ways in which graduate students’ research can be transformed into entrepreneurial application

- Missouri had the 22nd largest GDP among the states in 2013 which increased by 2.6 percent from 2012, while the overall US GDP increased by 4.2 percent in the same period. According to Missouri Economic Research and Information Center (MERIC), Missouri had about 171,059 private sector employers in 2013. Very small businesses comprised a majority of this total, with 76 percent of Missouri businesses employing less than ten people. Firms employing one to forty-nine workers made up 98 percent of all businesses. According to MERIC data, Missouri had 17,509 new businesses in 2014, a 2.3 percent increase from 2013. A study commissioned by the Missouri Department of Economic Development
entitled “Chasing Cheetahs” gave further interesting statistics about Missouri’s small business environment. They found that less than 4 percent of all businesses (6,252) in the state doubled its employment in the past five years creating approximately 130,000 new jobs in Missouri. According to this study, these firms were all under 100 employees before doubling their employment. The need for entrepreneurship in Missouri is great.

• The proposed I-Corps Site program will create a replicable process to develop mindset and skills in students, postdocs, and faculty that will build the capacity and resources needed to take increased numbers of ideas, projects, and research concepts to commercialization. This will be accomplished through resources and infrastructure in Technology Transfer and Economic Development (TTED); College of Engineering and Computing; College of Arts, Sciences, and Business; regional entrepreneurship resources; and key researchers, mentors, and instructors. Leveraging support from the NSF, VentureWell, System, and our alumni, Missouri S&T has moved aggressively in the last few years to lay the foundation for transforming the campus. The I-Corps Site program is a key initiative under the bigger umbrella of a visionary strategic plan for novel enhancement of existing programs and new initiatives to support experiential learning, innovation, and entrepreneurship.

• In spring 2015, students attended a Start-up Career Fair in St Louis where they were exposed to 100 different start-ups.

• The campus has begun steps for developing an innovative culture as depicted by the following: 1) the university sent four teams through the NSF I-Corps program with more in process; 2) trained two instructors in Steve Blank’s Lean LaunchPad® (LLP) principles; 3) taught a new course on Experiential Entrepreneurship accessible to students from freshmen to graduate levels adapted from I-Corps training and LLP model; 4) joined NSF sponsored Epicenter Pathways to Innovation (PTI) and University Innovation Fellows (UIF) programs to gain access to innovative curricula and resources; 5) created a set of experiential courses for technical innovation and entrepreneurship with partial support from the VentureWell Faculty Grant; 6) received an additional $33,000 grant to further develop the student maker/collision space and continued development of the innovation and entrepreneurship minor; 7) proposed a campus minor that will serve as a feeder to the proposed I-Corps Site program; 8) expanded the TTED entrepreneurship programs; 9) generated strong support from Missouri S&T campus, System, and the regional community; 10) filled an entrepreneur-in-residence position with Co-PI John Lovitt; 11) exploring the possibility of a special assistant to the provost for innovation and entrepreneurship to support initiatives such as the proposed I-Corps Site program; and 12) secured a funding stream to implement the I-Corps Site program.

• Faculty and students visited the Stanford/NSF Epicenter. This center connects students and industry, with 200 fellows from 50 different universities in the program.

• The university attends the Midwest Engineering Entrepreneurship Network meetings.

• In the fall, an informational session was provided regarding the Entrepreneurs Workshop. These workshops are designed to offer guidance to faculty, post-docs, and graduate students on how to turn their ideas into successful businesses. The Entrepreneurs Workshop is an eight-session workshop which maximizes student research and increases the success rate of startup ventures. These workshops are free of charge and utilize the Business Model Canvas, Lean LaunchPad and Kauffman TechVenture methodologies.
Lever Summary:

The president’s number one priority is to lead and model attraction, development and retention for the best and brightest leaders, successful new hires, effective performance management, and talent management. All of these priorities directly link to this lever.

The campus is very focused on attracting and retaining the best and brightest. One example of this commitment is demonstrated through University Advancement’s new on-boarding and performance evaluation practices. The Education Advisory Board (EAB) included information about Missouri S&T University Advancement’s new on-boarding and performance evaluation practices in one of their conference presentations as a best practice. The EAB was informed of the practice of junior level gift officers making joint visits with senior development officers. The EAB presented this information as “Building Skills on the Road at Missouri University of Science and Technology.” Pre-visit process: the gift officers together review the prospect or donors background, outline skills of the junior officer, determine the role of the junior gift officer during the meeting, and prepare for the visit. Post-visit process: the gift officers debrief about donor reaction and visit outcomes, review progress on skill development, and outline the next steps for the donor and for the officers. This is a shared leadership process and helps expedite the employee performance while developing collaborative relationships with multiple stakeholders. The EAB also highlighted University Advancement’s use of myPerformance as a great on-boarding and assessment tool.

The campus is fully committed to this lever as demonstrated through development of the new college structure. The new college structure creates leadership pathways by placing two associate deans in each college thereby creating professional developmental opportunities for future academic leaders. The campus reallocated $240,000 in general operating revenue to this priority.
Action 1.4.1: Identify, develop and implement professional development plans to enhance leadership, creativity, and innovation for the staff in each department or unit

- The myPerformance tool is a priority for the campus. The human resource team focused on myPerformance trainings and facilitated 6 preview sessions and 33 training sessions with 401 attendees. Over 83 percent of managers had completed their appraisals by the end of June with a month still to go on the Missouri S&T deadline.
- The Chick Fil-A Leadercast is about changing the way the world thinks about leadership by building leaders worth following. It was a one-day event broadcast live from Atlanta and many faculty and staff participated in this developmental activity. Missouri S&T is an annual sponsor of the event in Southern Missouri.
- Dr. Condoleezza Rice, the 66th U.S. Secretary of State, presented a free lecture on the Missouri S&T campus as part of the Remmers Special Artist/Lecturer Series.
- Missouri University of Science and Technology had many attendees at the Women in Leadership Conference which was held in Columbia. The conference was sponsored by System and provided opportunities for faculty, staff, and graduate students across all university units to share ideas and sharpen their leadership skills. Several Missouri S&T leaders facilitated discussions or presented: Chancellor Cheryl B. Schrader discussed “Insights from Senior Leaders” with a personal question and answer session, Jerri Arnold-Cook discussed “Quitting: The First Step to Leadership Success;” Nancy Stone presented “Networking, Sponsorship, and Mentoring: Getting the Support You Need;” Shannon Fogg presented “A Discussion of Practical Tips for Managing Work and Life;” Bridgette Betz presented “Best Practices in Work-Life Balance;” and Shenethia Manuel discussed “Diversity: Why Is It Important for Academia?”
- Leadership and cultural programs staff participated in a work-life balance workshop; the staff also participated in a webinar for Emotional Intelligent Leadership.
- Several departments had retreats and requested professional development workshops at their retreats. Five departments on campus requested a training analysis and then human resources offered the trainings accordingly.
- The new supervisor training series had 15 supervisors participating. This series is a six month commitment for 90 minutes every two weeks. The format has online prep work prior to each session and bi-weekly discussion sessions. The series includes: Introduction to Management, Cross-Cultural Management Multipliers, myPerformance Overview, Performance Management, Recruiting, On-Boarding, Benefits, Payroll, Compensation Administration, Employee Motivation, Healthy Workplaces, Un-think Discussion, University Police, and Employment Laws.
- The employee specialist facilitated four Teamwork and Trust sessions; two Civility in the Workplace sessions; four Work-life Balance sessions; two Conflict Management sessions; and two Success at Work sessions.
- The University Advancement division had 58 percent of its employees participate in professional development activities in FY15. The division further analyzed professional development and looked at motivation for employee retention and sustainability. The division completed a survey and discovered what makes employees feel valued and motivated. Since job satisfaction is unique for each employee, the areas staff would like to see implemented varied from tickets to football games, financial incentives, gym memberships, a relaxed dress code, clothing allowances, and flexible work schedules. Finding the source of motivation for each employee is a key aspect for professional development and retention.
The University Advancement division created a comprehensive study of employee engagement in FY15 and is piloting their plan in FY16. This plan could become a model for the rest of the university.

- Two staff completed the Advancement Leadership Academy in FY15 and two are scheduled to complete in FY16.
- The American Council on Education (ACE) provides a leadership program for new chief academic officers. This program provides professional development for the provost and the two college vice provost and deans.
- ACE offers a leadership academy for department chairs, an ACE fellows program, an inspiring leaders program, and a women’s leadership forum. Six Missouri S&T women faculty and aspiring administrators attended the women’s leadership forum.
- Department chairs continue to focus on faculty development. In mechanical and aerospace engineering, the untenured faculty mentoring process includes a teaching mentor team. This team arranges for classroom visits and provides feedback on classroom teaching as well as course structure and teaching methods. All untenured faculty are reviewed by a member of this team at least once per year. A similar process is now being developed for research mentoring.

**Action 1.4.2: Develop and implement professional development and leadership plans for students to enhance creativity and innovation**

- In the spring, Student Affairs presented on resilience and mindfulness during the Student Leadership Conference, with 45 attendees.
- Career Opportunities and Employer Relations (COER) provided 74 professional development seminars and presented to 1,949 students.
- In summer 2015, COER launched its inaugural Miner Trek to St. Louis. The two-day trip had 23 students visiting the headquarters for Ameren, AT&T, Nestle Purina, and Swank Motion Pictures. Students met with employers; experienced the company culture; and networked to obtain internships, externships, Co-ops and ultimately full-time employment. The next Miner Trek is scheduled during the winter break and will visit employers in the Kansas City area.
- Leadership and Cultural Programs recruited 45 National Society of Leadership and Success (NSLS) members, engaged 90 students in NSLS training day in the spring, and eight student leaders went for a week-long trip to Washington, DC to meet with legislators and lobby for higher education and NSF funding.
- Three students were recruited to the Sue Shear Institute. The Chancellor’s Leadership Academy expanded to 43, the largest class since 2003.
- Leadership and cultural programs distributed 1,900 leadership brochures; participated in admissions fly-in high school counselor program; and provided 61 educational opportunities and leadership celebrations which comprised 179 hours for 2,239 students.
- Student Affairs hosted a leadership lock-in program for 50 students in residential halls.
- Student Affairs had 269 students participate in Martin Luther King Day of service with 19 teams serving Phelps County, representing a 17 percent increase. Those who participated in the service day completed a survey. Results of the survey: 1) 76 percent stated they had increased recognition of the value of community involvement; 2) 59 percent believed it helped impact their personal life-long development; and 3) 94 percent rated the service as good, very good or excellent.
Action 1.4.3: Identify, develop and implement developmental experiences designed to enhance students’ interpersonal, communication and leadership skills

- Student Affairs hosted eight networking events with employers and 276 students attended; Greeks Advocating Mature Management of Alcohol (GAMMA) hosted a spring leadership training for 50 students; and COER hosted an etiquette dinner and 115 students attended.

Action 1.4.4: Promote a multi-dimensional model of wellness that incorporates a whole-person concept and encourages lifelong health

- Student Affairs efforts: 1) offered 20 students a boot camp on nutritional wellness; 2) facilitated 70 brief alcohol screenings; 3) offered free sexually transmitted disease testing for 585 students; 4) provided sexual disease awareness to 371 students; 5) provided 700 flu shots; 6) provided 65 psychiatry consultations; 7) provided 1,770 counseling sessions; 8) hosted 89 crisis sessions; 9) implemented the measles and meningitis waiver program and completed 21 waivers; 10) created a website for alcohol awareness; 11) launched a social campaign to recognize positive behaviors within the campus community; 12) partnered with Perfect 10 Improv and Alpha Phi Alpha on performances to increase support of GAMMA with 100 students in attendance; 13) facilitated six STEP UP! trainings and 43 pins were given to 234 students who pledged; 14) facilitated 140 students who attended a “Take Back the Night” to raise awareness for personal safety; and 15) created a STEP UP! for a Safer St. Pat’s program.
- Student Affairs hosted Mental Health Awareness Week: 62 students made stress balls and buttons; students were provided with meditation techniques; Joe’s PEERS was promoted; 52 students were referred to counseling; and 97 depression screenings were conducted.
- Athletics implemented the third phase of the myPlaybook for awareness on alcohol and drugs for athletes and gave a presentation on Nutrition and Alcohol to 70 student-athletes.
- Residential Life hosted a Blarney Bash, a series of alcohol free programs, sponsored in conjunction with St Pat’s to provide an alternative, 835 students attended.
- Collaboration efforts between Alpha Psi Omega, the counseling center, and Phelps County Regional Medical Center, resulted in the musical production of Next to Normal.
- The fall 2015 semester will produce a production, Good Kids, aimed at increasing awareness of date rape and its connection to alcohol.
- Future plans are in place for black box theatre productions which are 100 percent developed by students for students. These events are free of charge for students and will cover topics such as alcohol abuse, drug use, mental health, and sexual assault.
- Students are very engaged in intramural activities with 7,652 participating, representing a 14 percent increase.

Action 1.4.5: Increase the percentage of on-campus graduate students who participate in one or more professional development activities

- A thesis and dissertation boot camp was piloted in November 2014 and was continued in March and June 2015. There have been 50 plus students who have attended this boot camp with a waiting list of potential participants exceeding 30 students for each session. Due to the waiting list, the workshops were created to be a little shorter and less labor intensive to meet the student demand. Full boot camps will be offered in September and November 2015. This workshop is a jump-start to enhance thesis or
dissertation skills. The workshops included: Writing Your Thesis, Using EndNote, Stress Management, and Formatting Your Thesis. In summer 2015, 20 students signed up for workshops. The minimum requirement for a Boot Camp Certificate was attendance at two workshops and three writing sessions. Of those students signed up for workshops: nine attended six workshops, nine attended five workshops, and two attended two workshops. Of those students signed up for writing sessions: four attended five writing sessions, five attended four sessions, nine attended three sessions, and one attended one session. In July 2015, 18 Boot Camp Certificates were awarded.

- Collaboration between graduate studies and career opportunities has begun to further enhance the professional skillset of graduate students. A career opportunities specialist will be hired in fall 2015 and will focus on graduate students.
- Technical editing for graduate students increased by 27 percent.
- COER hosted an etiquette dinner in March and trained 17 graduate students to create and present their own elevator speech.
- Educational technology and the library helped students with documenting and citing in theses, dissertations, and articles; 20 students attended this training in the spring.
- Graduate Studies will begin utilizing Starfish/S&T Connect in fall 2015. This software will help track student engagement with the office, advisors, and events related to professional development.
- Graduate Studies conducted a workshop series with the Chancellor’s Fellows. This series included: 1) an “On the Fly” seminar to learn how to create power introductions; 2) editing week to have the power introduction critiqued; 3) “Pitch Perfect” event for students to give their power introductions to undergraduate students; and 4) provided headshots and recorded the power introduction to create a YouTube video. This event had 18 participants and is a requirement for all Fellows recipients.
- Graduate Studies utilized a workshop evaluation tool to ascertain the students perspective and determine any changes needed in the information, format or value added. Graphs of the students responses are provided below:
Action 1.4.6: Create an interdisciplinary student leader certificate program

- The campus identified 20 comparator benchmarking institutions and utilized three professional listservs to gather information on student leader certificate programs.
- A committee was established and they visited the Mizzou Leadership Center as another benchmarking effort.
- The learning competencies and outcomes have been identified and full implementation is expected in fall 2016.
- The certificate program has integrated Kouzes and Posner’s Leadership Challenge Theory core components. The components identified are: 1) participant learning outcomes and benefits; 2) track participation; 3) develop a mentor job description, structure, outcomes, and stipend; 4) implementation plan should recruit and train certificate mentors prior to mid-term of fall semester; and 5) recruiting should begin as a pilot program.
**Lever Summary:**

This lever is tied to three strategic initiatives, one FY14 initiative, one FY15 initiative and one FY16 initiative. The FY14 strategic initiative dedicated three faculty lines to complement each of the four strategic areas. The FY15 strategic initiative dedicated funds for hiring national academy stature faculty for the first two signature areas. The FY16 initiative dedicates funds for the national academy stature hire for the third signature area.

The FY14 two-year initiative has resulted in hiring seven tenured, tenure-track faculty for three of the signature areas. These hires are expected in fall 2015. The remaining five faculty are still in the search process and could be hired by the spring 2016 semester. The campus commitment to this priority can be demonstrated through the $3,000,000 in start-up for the 12 faculty supporting the signature areas and $500,000 in reallocation of existing faculty time to support the research. Another aspect of this initiative is to promote multidisciplinary research. The vice provost and dean for the College of Arts, Sciences, and Business sent out a request for research proposals to increase the array of disciplines associated with each of the signature areas. After a structured process, several departments were awarded funds for their research proposals. The economics department will study “Economic Analysis of the Missouri S&T Solar Village and Some Policy Recommendations,” funded for $18,824. The biological sciences department will research “3D Printing of Bone Using Bioactive Glass and Mesenchymal Stem Cells,” funded for $19,000. The math and statistics department will examine “Statistical Tools for Developing and Testing Advanced Materials of Infrastructure and Extreme Environments,” funded for $17,441. The arts, languages, and philosophy department will research “Going with the flow? Adapting to New Cultures and Technologies in Guatemala,” funded for $19,735. The chemistry department will study “Syntheses and Applications of Nanostructured Ceramics under Extreme Environments” to conduct preliminary research funded at $5,000.

The FY15 multi-year initiative focused on hiring national academy stature faculty to support the first two signature areas. Through this strategic initiative funding, Missouri S&T has begun the hiring process of grant writers and a technical illustrator. A national academy stature chair from a comparator university visited the campus in the spring to give Missouri S&T recruiting advice.
The FY16 initiative is dedicated to hiring national academy stature faculty for the third signature area. A plan for hiring national academy stature faculty is under development.

**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**

- The hiring table and hiring criteria have been updated to reflect alignment with the strategic plan.
- All positions are being evaluated in conjunction with unit performance measures to strategically allocate faculty lines.

**Action 2.1.3: Develop and implement a process to allocate faculty raises aligned with the strategic plan to address retention and reward high productivity**

- In FY14, a new process for increasing bumps in pay from assistant to associate professor and associate to full professor was implemented. The increases for promotion to full professor will phase-in over three fiscal years, beginning at $4,000 in FY14 and ending at $10,000 in FY17. The increase for promotion to associate professor and the granting of tenure will phase-in over two fiscal years, beginning at $3,000 in FY14 and ending at $5,000 in FY16.
- In FY15, the faculty hiring process has been redesigned and has adopted a new process flow including:
  1) all open positions are analyzed strategically and allocated appropriately;
  2) the active recruiting process has new guidelines for advertising and responsibilities for the hiring authority;
  3) the selection process for both the candidate and the committee have been changed;
  4) the on-boarding process has changed the roles and responsibilities for both human resources and the hiring authority. This initial process is the foundation to hiring and retention which ties into the president’s goal 1.
- Faculty merit increases for FY16 will be based on a formula which directly distributes the raises based on individual merit. Additionally, the provost is utilizing a hybrid approach where the highest performing departments receive additional funds for rewarding particularly productive faculty.
- A new promotion process for non-tenure track faculty has been explored. When non-tenure track faculty are promoted from assistant to associate and from associate to full, they will receive promotional bumps.
- Post-tenure raises are also being implemented in FY16. At post-tenure review, an additional raise might be warranted to recognize excellence. $100,000 in funds has been set aside for FY16.
- In FY16, an award based system will also be implemented. This is a meritorious achievement raise based on national awards and an individual faculty award. $25,000 in funds has been set aside for FY16.

**Action 2.1.4: Identify and pursue companies, foundations and individual donors for charitable gifts to hire two national academy stature faculty in endowed chair positions in strategic areas #1 & #2**

- Companies and prospective donors have been identified and will be prioritized for solicitation.

**Action 2.1.5: Hire four faculty to complement each endowed chair hired under Action 2.1.4**

- This action depends upon completion of Action 2.1.4.
Action 2.1.6: Identify and pursue companies, foundations and individual donors to fund start-up packages

- Companies and prospective donors have been identified and will be prioritized for solicitation.
- In FY15, a new process was outlined by the provost and the vice chancellor for finance and administration on funding start-up packages.

Action 2.1.8: Identify and pursue companies, foundations and individual donors for charitable gifts to hire two national academy stature faculty in endowed chair positions in strategic areas #3 and #4

- Companies and prospective donors have been identified and will be prioritized for solicitation.

Action 2.1.9: Hire four faculty to complement each endowed chair hired under action 2.1.8

- This action depends upon completion of Action 2.1.8.
Lever Summary:

Faculty hires continue to remain a top campus priority and this can be demonstrated through the campus commitment to reallocate $5,302,049 to start-up funding and $1,000,000 for faculty hires in FY16. This past academic year has focused on hiring in the signature areas as demonstrated below.

### FACULTY HIRES SIGNATURE AREAS

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<th>Tenured, Tenure-Track</th>
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<td>Electrical Engineering</td>
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<td>Civil Engineering</td>
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<tr>
<td>Nuclear</td>
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Tenured, tenure-track faculty lines currently in the interviewing process: civil engineering, mechanical and aerospace engineering, psychological science, three faculty lines in Smart Living, one faculty line in Advanced Manufacturing, and one faculty line in Advanced Materials for Sustainable Infrastructure. A FY16 strategic initiative was funded for at least two joint faculty hires with University of Missouri Columbia. The two campuses have been in communication to develop a hiring strategy. This initiative was funded for $286,574 and will be matched dollar for dollar by MU strategic initiative funds.

One significant way to leverage S&T as Missouri’s technological research university is through memoranda of understanding. Missouri S&T developed a MOU with Phelps County Regional Medical Center (PCRMC) in Rolla. This agreement will form collaboration for research and shared facilities. It creates two groups to govern the activities: 1) the executive board which is comprised of five university and four hospital representatives who holds the primary responsibility of administrative arrangements; and 2) the second group is the Research Education Council comprised of five faculty and five physicians. This relationship will complement the new programs the university is exploring and possibly a program for dual career hires.
The campus signed a Master Research Agreement with Boeing allowing the two organizations to work more closely on research projects. This single agreement allows researchers to work with all aspects of Boeing, including Boeing Defense Systems, Boeing Commercial Airlines and Boeing Research and Technology. An additional research agreement is in process with a large, international corporation in St Louis.

**Action 2.2.1: Increase Missouri S&T’s undergraduate enrollment by 500 by 2020**

- The undergraduate enrollment for fall 2014 was 6,522, an increase of 6 percent.
- Fall 2014 underrepresented enrollment was 706, an increase of eight percent.
- Fall 2014 female enrollment was 1,955, an increase of six percent.
- Expanded FIRST Robotics FTC State Championship from 36 teams to 48 teams, increasing attendance of high school team members from 250 to over 450. The overall attendance at this event at Missouri S&T increased from 1,100 to 1,750. The fall 2015 new student profile demonstrates that 15 percent were involved with First Robotics and 12 percent were involved with VEX Robotics. In February 2016, for the first time ever, Missouri S&T will hold the VEX Robotics State Championship.
- The campus hosted Health Occupation Student Association’s annual conference where 900 high school students interested in health professions attended. The intent is for Missouri S&T to become a college of choice for students interested in biology, chemistry, and psychology.
- Increased the number of Miner Days by seven, 11 in FY14 and 18 in FY15. The number of students attending increased from 458 in FY14 to 982 in FY15.
- Expanded the counselor fly-in activity from six high school/community college counselors from two states to 35 high school/community college counselors from five states.
- Expanded the prospect names for the College of Arts, Sciences, and Business by 29,000 names.
- Working with an external vendor, Kelmscott, for expanding recruitment of students in under-enrolled academic programs and students who are traditionally underrepresented.
- Fall 2015 projections include a 13.6 percent increase in new first-time college students. The average ACT score for incoming freshmen is 28.1. Underrepresented minority enrollment expected to increase by 5.2 percent and female enrollment to increase 24 percent.
- International enrollment has also been increasing. The baseline for international enrollment is 1,044 and fall 2014 enrollment grew to 1,516, a 45 percent increase over baseline. A program was established to aid in recruitment of international students, the Intensive English Program. This program received its initial one-year accreditation from the Commission of English Language Program Accreditation (CEA). The program had to achieve 44 individual quality standards in 11 areas related to U.S. Department of Education requirements. The CEA standards serve as standards of good practice for English language professionals and organizations interested in program improvement and especially anyone interested in developing a new English language program.
- The university offers 16 academic summer camps for pre-college students including: Camp Invention offered to first through sixth graders had 120 students in attendance; Aerospace Camp offered to ages 10-13; Robotics Camp offered to ages 12-15; Explosives Camp offered for juniors and seniors; Minority Introduction to Technology and Engineering (MITE) had full enrollment with 63 attendees; and Building Leaders for Tomorrow had full enrollment with the largest group to date of 27.
- The university also offers camps designed to attract women and underrepresented minorities. One example, camp EcoGirl, is designed to attract high school juniors and seniors who might be interested in environmental issues.
• Chancellor Schrader continued the Show Me Value Tour in the spring and made visits to the communities of Steelville and Waynesville. In Steelville, Chancellor Schrader toured Steelville Manufacturing and spoke with 100 eighth and ninth graders at the middle school. In Waynesville, Chancellor Schrader met with 800 middle school students, community leaders, and representatives from Ft. Leonard Wood. In both communities, Chancellor Schrader met with business and community leaders.

• Chancellor Schrader continued the Show Me Value message with 450 middle school girls visiting the campus for Expanding Your Horizons.

**Action 2.2.2: Increase Missouri S&T’s Ph.D. enrollment by 200-400 by 2020**

• Ten awards were extended for the Chancellor’s Distinguished Fellowship and eight accepted. The awardees have an average GPA of 3.76/4.0; five are males and three females; seven students are in the College of Engineering and Computing; one student is in the College of Arts, Sciences, and Business; seven students are direct to Ph.D. and one student has completed a master’s.

• The university creatively utilized Chancellor’s Distinguished Fellowship funding as a match for eight U.S. Department of Education GAANN program grant proposals. The program provides fellowships to assist students with excellent academic record, who demonstrate financial need, and plan to pursue a course of study in a field of national need. The national need areas include: chemistry, biology, engineering, computer and information sciences, mathematics, statistics and physics. The fellowships are designed to support U.S. underrepresented students who are pursuing their Ph.D. degree. These proposals include: “GAANN Program for Doctoral Training in Civil Infrastructure Condition Assessment, Sustainability, and Resiliency” – Dr. John Myers and four other faculty members; “GAANN Program for Doctoral Training in Hybrid Energy Systems for Increased Environmental and Economic Sustainability and Improved Energy Reliability and Resilience” – Dr. Joseph Smith and two other faculty members; “A Doctoral Program in Cloud-scale Big Data Management and Analytics for Security, Environment and Health Monitoring” – Dr. Sanjay Madria and four other faculty members; “Interdisciplinary GAANN Program in Electrical Engineering and Engineering Management for Smart Grid Technology” – Dr. Mehdi Ferdowsi and four other faculty members; “Doctoral Research and Training in Mechatronics” – Dr. Douglas Bristow and eight other faculty members; “Fellowship Program for Graduate Learning Enhancement in Applied Mathematics and Statistics” – Dr. V.A. Samaranayake and five other faculty members; “Interdisciplinary Graduate Fellowship Program in Materials Science and Engineering” – Dr. Wayne Huebner and five other faculty members; “Inter-disciplinary Program in Graduate Engineering Education for Advancing Emerging Technologies Toward US Energy Security” – Dr. Samuel Frimpong and five other faculty members.

• Fall 2015 projects Ph.D. enrollment at 595, a 15 percent increase over baseline.

• Ph.D. enrollment for fall 2014 was 583 students, a 12 percent increase over the baseline.

• Seven Indian universities and seven Chinese universities were visited to recruit students and discuss various forms of academic and research collaborations.

• A graduate recruitment position was filled and this person is dedicated to increasing Ph.D. enrollment. Analyzing the graduate enrollment data, Ph.D. continues a slight positive trend but the data indicates the need for placing more emphasis on recruiting Ph.D. students.
Action 2.2.3: Increase the number of T/TT (and NTT) faculty members by 67 (33) (12 T/TT in conjunction with Lever 2.1 focused areas phase 1 hiring)

- Faculty positions were approved in the following job classifications/departments:
  Assistant Professors (tenured, tenure-track): engineering management and systems engineering (filled), physics (filled), biological sciences (filled), electrical and computer engineering (filled), mining (filled), chemistry (filled), civil engineering (filled), geological science (filled) and three mechanical and aerospace engineering (two filled; other interviewing), psychological science (in search process).
  Associate Professors (tenured, tenure-track): two computer science (filled) and civil engineering (interviewing).
  Assistant Teaching Professors (non-tenure track): computer science (filled), electrical and computer engineering (filled), chemical engineering (filled) and education (filled).
  Assistant Research Professors (non-tenure track): two materials science and engineering (filled).
- Associate Professors (tenured, tenure-track) for Signature Area hires:
  Advanced Manufacturing: mechanical and aerospace engineering (filled); electrical engineering (filled); and third faculty line in search process.
  Advanced Materials for Sustainable Infrastructure: civil, architectural, and environmental engineering (filled); materials science and engineering (filled); and third faculty line in search process.
  Enabling Materials for Extreme Environments: chemistry (filled); physics (filled); and nuclear (filled).
  Smart Living: searches for three faculty are in process.
- FY14 strategic initiative funds have funded 19 tenured, tenure-track faculty; 6 non-tenure track faculty; and will fund the 8 tenured, tenure-track faculty currently in the search process. FY15 strategic funds will hire 2 national academy stature hires; and FY16 funds will hire 1 national academy stature hire and at least 2 faculty joint hires with MU.
- All of the faculty hires aligned with the strategic plan Lever 3.4 promoting inclusion and diversity.
Action 2.2.4: Transparently allocate as defined in Action 2.1.2 all open and new faculty positions to impact strategic plan and progress on unit performance measures

- The new hiring process includes transparently allocating all new and vacant faculty positions based on their impact to the strategic plan and department determined performance metrics.

Action 2.2.5: Increase the number of technical/specialized staff members to support strategic program activities

- The 2012 baseline for this action: 96 technical staff and 187 professional staff. In spring 2015, the campus technical staff increased to 97. The professional staff increased by 18 for a total of 231.
- In fall 2014, the campus increased the number of staff minorities from 59 to 84, a 42 percent increase over baseline.
- The campus increased underrepresented staff minorities from 42 to 55, a 31 percent increase over baseline.

Action 2.2.6: Missouri S&T will develop specific agreements with UM campuses and possibly other academic institutions to collaborate in delivering courses and degrees that enhance current portfolios on each campus

- An agreement with UMKC Business School has been developed for a certificate in entrepreneurship.
- Several course sharing initiatives with the UM system: 1) MU for introduction to construction management and environmental engineering; 2) UMSL for classical optics, philosophy, ethics sociology, nanotechnology, technical communication, English, and history; and 3) UMKC for electrical engineering and mathematics.
- FY16 strategic initiative funded $286,574 for at least two faculty joint hires with MU.
The campus is focused on increasing its research expenditures and this is related to the president priority number four, improving financial viability. Net grant and contract expenditures through May 31, 2015 were $28,176,835 with preliminary estimates for FY15 at $32,533,382, representing a $5 million dollar decline over prior year and a 12 percent decline from baseline.

NSF Grant expenditures per tenured, tenure-track faculty for FY15 are $19,184 representing a 30 percent increase over baseline, which is good news.

The university had three faculty start-ups on a goal of one and six new student businesses on a goal of three.

Patent and Copyright royalty income for FY15 reached $483,197, a 31 percent increase from FY14 and a record for the university.

The number of license and option agreements increased to 38, a 137 percent increase over baseline.

Research expenditures are just one part to the overarching importance of research growth. Undergraduate research is also a priority. Undergraduate research is an important aspect of student learning at Missouri S&T. With the new undergraduate requirement for experiential learning, undergraduate research should increase. The Opportunities for Undergraduate Research Experiences (OURE) program had 110 program completers both in 2012-2013 and in 2013-2014. The number has increased to 140 program completers in 2014-2015, an increase of 27 percent over baseline. For the 2015/16 academic year, 193 students have signed up to participate in the research program.
Action 2.3.1: Develop and implement performance-based resource allocation models commensurate with degree offerings, including productivity in research, scholarship and creative works

- Each department has completed performance and productivity measures. These measures are in place for FY15 and have been tracked.
- The Delaware Study is being utilized for data analysis and provides a framework for performance-based allocation modeling.

Action 2.3.2: Identify and take actions to improve the metrics that contribute to increasing the national ranking of five graduate programs

- A data analyst started in June who will create a graduate dashboard, analyze metrics for national rankings, and assess graduate learning outcomes.
- MinerAnalytics dashboard developed in institutional research and assessment will assist in data collection and tracking.
- Graduate Studies will engage department chairs and the vice provost and deans of the two colleges to select five programs for metric improvement by spring 2016.

Action 2.3.3: Be selected to lead a National Science Foundation Engineering Research Center-type center

- Sriram Chellappan and Sajal Das received a NSF grant to accelerate the translation of knowledge derived from fundamental research emerging products and services that can attract third-party funding.
- A national stature faculty recently visited the campus and discussed how the university can lead an engineering research center.
- The campus intends to solicit for an NSF engineering research center in summer 2015, which is the designated call for proposals timeline.

Action 2.3.4: Continue establishing new sustainable industry-funded research consortia

- The Kent D. Peaslee Steel Manufacturing Research Center is a consortium of steel companies, foundries, suppliers, and university researchers working together to address fundamental steel casting issues.
- 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.

Action 2.3.5: Establish programs and facilities to host visiting world-class faculty

- With the development of the two colleges, the processes are now in place to host world-class faculty.
- Arts, languages, and philosophy had 2 visiting professors on appointment; electrical and computer engineering had 6 visiting scholars delivering seminars and 3 visiting assistant professors on appointment (1 underrepresented); math and statistics had 2 visiting professors on appointment; mechanical and aerospace had 26 visiting faculty on appointment (3 underrepresented); geosciences and geological and petroleum had 5 visiting faculty on appointment (1 underrepresented); physics had 1 visiting faculty on appointment; materials science and engineering had 1 visiting faculty on appointment (underrepresented); civil, architectural, and environmental engineering had 7 visiting
faculty on appointment (2 underrepresented); and chemical and biochemical engineering had 1 visiting faculty on appointment (underrepresented) and 4 scholars who visited for 30 days.

**Action 2.3.8: Expand research and entrepreneurial opportunities for undergraduate students, including the Opportunities for Undergraduate Research Experiences program**

- The number of students participating in the OURE has increased from 110 program completers in both 2012/13 and 2013/14 to 140 program completers in 2014/15, representing a 27 percent increase over baseline. For the 2015/16 academic year, 193 students have signed up to participate in the research program.
- In the spring, the UM System Entrepreneurial Scholars and Interns program was introduced to develop entrepreneurial principles and practices for undergraduates. In the spring semester, Missouri S&T had two students from mechanical engineering; one information science and technology student; one environmental engineering student; and one electrical and computing engineering student selected for this program. Students took approved entrepreneurial-related courses followed by a 10-week paid summer internship.

**Action 2.3.9: Balance teaching and research relative to comparator institutions by enforcing workload policy**

- IFC endorsed a flexible workload policy which the campuses are encouraged to implement.
- The colleges are in process of implementing this policy.

**Action 2.3.10: Develop and implement a new program to instill a culture of excellence in research, scholarship and creative works in early career faculty**

- New faculty orientation and the freshman faculty forum have been enhanced to instill excellence. These programs have established more contact hours with mentors designed to increase creative works.
- New faculty orientation involves all new faculty for two one-day sessions. These sessions include: 1) library resources for teaching and research; 2) teaching expectations and assessment; 3) developing approaches and viewpoints to achieve career success; 4) getting ready for your first class at Missouri S&T; 5) diversity of scholarship; 6) sponsored research; 7) data management; 8) scholarly tools; and 9) tenure and promotion process.
- The freshman faculty forum meets twice monthly and covers: proposal writing, technology transfer, ethics, social media, proposal budgeting, course design, and learning styles.

**Action 2.3.11: Develop and implement a new program to instill a culture of excellence in research, scholarship and creative works in doctoral students**

- The strategic initiative funding awarded in FY15 provided funding for Graduate Student Research and Teaching Excellence Awards. The framework is currently being developed and this should be completed by fall semester 2015 with full implementation in spring 2016.
Lever Summary:

MEDIA MENTIONS

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<td>21</td>
<td>29</td>
<td>46</td>
<td>55</td>
<td>29</td>
<td>36</td>
<td>28</td>
<td>39</td>
<td>22</td>
<td>28</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Non-daily Newspaper</td>
<td>74</td>
<td>47</td>
<td>44</td>
<td>43</td>
<td>36</td>
<td>33</td>
<td>70</td>
<td>82</td>
<td>61</td>
<td>37</td>
<td>50</td>
<td>33</td>
</tr>
<tr>
<td>Online</td>
<td>61</td>
<td>74</td>
<td>167</td>
<td>181</td>
<td>165</td>
<td>91</td>
<td>157</td>
<td>177</td>
<td>106</td>
<td>95</td>
<td>107</td>
<td>91</td>
</tr>
<tr>
<td>Radio</td>
<td>18</td>
<td>9</td>
<td>5</td>
<td>13</td>
<td>14</td>
<td>11</td>
<td>103</td>
<td>11</td>
<td>23</td>
<td>10</td>
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<td>6</td>
</tr>
<tr>
<td>Trade Press</td>
<td>14</td>
<td>12</td>
<td>9</td>
<td>21</td>
<td>11</td>
<td>11</td>
<td>3</td>
<td>9</td>
<td>14</td>
<td>7</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>TV</td>
<td>205</td>
<td>131</td>
<td>55</td>
<td>171</td>
<td>262</td>
<td>178</td>
<td>72</td>
<td>134</td>
<td>217</td>
<td>116</td>
<td>207</td>
<td>93</td>
</tr>
<tr>
<td>Wire Service</td>
<td>7</td>
<td>11</td>
<td>12</td>
<td>16</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>15</td>
<td>31</td>
<td>47</td>
<td>34</td>
</tr>
<tr>
<td>TOTAL</td>
<td>579</td>
<td>460</td>
<td>585</td>
<td>893</td>
<td>837</td>
<td>527</td>
<td>678</td>
<td>707</td>
<td>647</td>
<td>525</td>
<td>620</td>
<td>442</td>
</tr>
</tbody>
</table>

Raising the visibility of the campus remains a strategic priority and directly relates to the president’s third priority for communicating the value and importance of the University of Missouri System to all Missourians. This lever identifies actions that are designed to enhance the campus reputation. The campus can demonstrate its commitment to this priority through an FY15 resource allocation of $200,000 and an FY16 allocation of $100,000 in recurring funds for marketing and communications. A plan is currently in place to increase the marketing and communications budget by an additional $100,000 in recurring funds per year for each of the next two years. This will allow us to meet the 2020 target metric by FY18.
• All research stories were highlighted on news.mst.edu website and on Discover.mst.edu. The visibility of Missouri S&T research efforts have been enhanced by linking to the annual re:Search magazine. Driving special web presence traffic to research.mst.edu has also aided visibility. Marketing and communications redeveloped the new research website as part of the responsiveness web project. New sub-sites for each of the four signature areas were also a part of the redevelopment process.
• Marketing and communications created two new websites for each of the colleges with an emphasis on research.
• A video series was created for two of the four signature areas (Advanced Materials for Extreme Environments and Advanced Manufacturing) and shared on Discover.mst.edu and the Missouri S&T You Tube channel. Research stories and videos were all shared in social media.
• Videos were made on the geothermal project to raise visibility.
• Marketing and communications completed a video project for global learning. The video promotes educational programs to corporate partners and includes commercial spots. This video aired on a St. Louis cable station. These videos help to increase the reputation and demonstrate the quality of learning at Missouri S&T.
• Increased attendance at Project Lead the Way (PLTW) events from 740 high school students and teachers to over 1,000 in February 2015. PLTW is one of the fastest growing STEM-education programs in the country and Missouri S&T has trained 1,800 teachers in biomedical sciences, engineering, and computer science at the elementary and secondary education levels. Missouri S&T is the state’s education leader and is one of two colleges in the country to offer pre-service teacher training that will incorporate the program’s concepts and certification. Missouri S&T and University of South Carolina seek to develop a national model which increases our visibility.
• Plans are in place for the Missouri S&T students earning secondary certification to complete PLTW training the summer between the junior and senior year. Elementary certification students have PLTW training embedded into the coursework. Because the students are already trained in PLTW concepts, the pre-service teachers can hit the ground running. Students at Missouri S&T earn a bachelor of arts in multidisciplinary studies with a concentration in math or science. Students are also required to declare one additional area of concentration such as English, arts, or social studies. The graduates will raise our reputation and visibility throughout the state and nation.

Action 2.4.1: Marketing Leadership Team guides the development of an integrated, campus wide communications and marketing plan

• The Marketing Leadership Team was established in July 2013. This team continues to meet and ensures the development of an integrated communications and marketing plan.
• The team has been a part of the presentations from SimpsonScarborough and Ologie.
• Postcards announcing the new vice provost and deans and the new provost were sent to higher education peers. Displays and standing banners for the colleges were developed.

Action 2.4.2: Core Marketing Network provides consultation to the Marketing Leadership Team to establish an integrated, campus-wide communications and marketing plan

• The Core Marketing Network was established in July 2013. This team continues to meet and discuss the development of an integrated communications and marketing plan.
• Following a comprehensive request for proposal process involving the Marketing Leadership Team and Core Marketing Network, Missouri S&T has retained two firms: SimpsonScarborough and Ologie.
SimpsonScarborough performed market research to gauge awareness and perception of key customer groups. The qualitative research findings were presented in November 2014 to the campus. These findings were based on focus groups and in-depth interviews with the following key customer groups: prospective undergraduate students, prospective master’s and Ph.D. students (both traditional and online), current students, employers, research partners, alumni, and academic peers.

Ologie is developing a marketing plan based on conclusions from the market research.

SimpsonScarborough will perform a capabilities assessment and communications audit to determine campus readiness to carry out the marketing campaign.

Part of the research process was surveying prospective students (undergraduate and graduate), current students, alumni, faculty, and staff. The amount of surveys distributed and response rates are below.

<table>
<thead>
<tr>
<th>Audience</th>
<th>Surveys Sent</th>
<th>Surveys Completed</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospective Undergraduate Students</td>
<td>21,836</td>
<td>426</td>
<td>2%</td>
</tr>
<tr>
<td>Prospective Graduate Students</td>
<td>10,135</td>
<td>159</td>
<td>2%</td>
</tr>
<tr>
<td>Current Undergraduate Students</td>
<td>6,449</td>
<td>694</td>
<td>11%</td>
</tr>
<tr>
<td>Current Graduate Students</td>
<td>1,974</td>
<td>206</td>
<td>10%</td>
</tr>
<tr>
<td>Faculty</td>
<td>442</td>
<td>99</td>
<td>22%</td>
</tr>
<tr>
<td>Staff</td>
<td>868</td>
<td>215</td>
<td>25%</td>
</tr>
<tr>
<td>Alumni</td>
<td>19,726</td>
<td>1,453</td>
<td>7%</td>
</tr>
</tbody>
</table>

Marketing the campus and raising its visibility comes from a multitude of venues. The campus has expanded the Miner Sports Network as a part of the GLVC Sports Network and began live streaming sporting events.

**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.

- Professional development plans are in place for current staff.

**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 removed “formerly the” language from marketing materials targeting prospective undergraduate students.
Action 2.4.7: Seek matching commitments to fund a portion of campus wide communications and marketing efforts

- The campus has committed to fund campus wide communication in a phased-in approach for a total of $500,000 annually by FY18.

Action 2.4.8: Require all communications and marketing materials (print, web, video, etc.) to be reviewed by a central marketing team to ensure consistency of messaging appearance and tone

- The marketing and communications department has developed materials for the colleges. These marketing materials have a unified look to create consistent messaging.
- The campus utilized a central marketing approach for recruiting hires in the signature areas. The advertisements for the faculty hires that would complement each of the strategic areas were created and approved by a central marketing team to ensure consistency of messaging. The website that candidates utilized to apply for faculty positions was also created by the central marketing team to remain consistent in appearance and tone.
- Marketing and communications has moved 85 percent of university top-level and departmental web presence into a responsive/adaptive design. Redevelopment of the main web presence, future student's site, and other primary websites will occur following the completion of the brand identity work of Ologie.

Action 2.4.9: Obtain commitment from campus leadership to create a recurring budget for campus wide marketing

- Campus leadership has budgeted $200,000 in recurring funds for marketing in FY15.
- A plan is in place to increase the marketing and communication budget by $100,000 in recurring funds in FY16. An additional $100,000 in recurring funds will be budgeted in both FY17 and FY18, resulting in a total investment of $500,000 annually for marketing (roughly one percent of general operating revenue).

Action 2.4.10 a: Continually examine best-in-class institutions' practices and incorporate into Missouri S&T marketing planning, as applicable

- Analysis has begun on the news coverage by media type and social media usage as one aspect of a best-in-class institution. In FY15, the campus looked at the following coverage: blog, college publication, daily newspaper, magazine, non-daily newspaper, online, radio, trade press, television, and wire service.
- Social media was also analyzed including: Facebook, blog, Twitter, and YouTube.

Action 2.4.11: Centralize all communications and marketing operations

- No progress on this action.

Action 2.4.12: Develop an annual publication of the Chancellor’s Fellows Research Yearbook to enhance the visibility of graduate education

- The Office of Graduate Studies published its first Chancellor's Fellows Research Yearbook in FY14. The Chancellor's Fellowship program will be phased out but similar yearbook publications for new
programs such as the Chancellor’s Distinguished Fellowship and Dissertation Completion Fellowship will be developed in 2016.

- The yearbook lists the research topics or areas of interest, student bio, and includes a photo.

**Action 2.4.13: Explore development of Scholars Mine designed for increasing internal and external communication and globally promoting the intellectual work of the campus**

- In FY15, Scholars Mine was transformed and optimized for discoverability in Google and Google Scholar. The data has been migrated to a new platform and is being exposed to a global audience. Since January 2015 there have been 95,000 downloads. The states with the largest visits are California, Texas, and Missouri. The largest visits by country included Canada, United Kingdom, China, India, and the United States.
Lever Summary:
Modifying the conventional methods of teaching and integrating technology is a priority for the campus. Increasing online learning directly ties to the president’s fifth priority to increase online offerings, improve student outcomes, achieve strategic goals, and increase revenue. The president’s priority has a metric of a five percent increase in the number of students enrolled in blended, number of students enrolled online, and student credit hours.

The number of blended courses offered per year increased from the baseline of 27 to 42 this year, a 56 percent increase. The number of students taking blended courses has also increased as demonstrated in the chart below.

<table>
<thead>
<tr>
<th>College of Engineering and Computing</th>
<th>College of Arts, Sciences, and Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRADUATE</td>
<td>UNDERGRADUATE</td>
</tr>
<tr>
<td>Number of Students</td>
<td>Number of Students</td>
</tr>
<tr>
<td>College of Engineering and Computing</td>
<td>College of Engineering and Computing</td>
</tr>
<tr>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>College of Arts, Sciences, and Business</td>
<td>College of Arts, Sciences, and Business</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Transformation in the classroom has shifted the teaching and learning process. In one example, the mechanics of materials course, the professor shifted focus from what happens inside the classroom to how students interact with the course content outside of the classroom. The professor developed modular, asynchronous videos and started computer-based testing. Following the tenets of a flipped classroom, instead of a traditional lecture, students are encouraged to spend the lecture time working in groups. Using Google Analytics, the professor observed whether the exam performance related to usage levels of learning resources. In the spring semester, each student averaged 60 hours of mental engagement with the learning resources. These resources were posted online using Google Analytics. 3,300 different cities from around the globe accessed...
the free resources for 12,000 hours of mental engagement with Missouri S&T developed materials. Those who viewed the resources were not required to be enrolled in the course, but provided an example of how Missouri S&T faculty reaches out to those learning for the sake of learning, as well as those earning a grade in their prescribed program of study.

**Action 2.5.2: Enhance resources for distance and blended learning, particularly with respect to the management and distribution of multimedia objects (Aid professors use in the classroom instead of taking a field trip)**

- All classrooms have been equipped with webcams and Skype capability allowing the faculty to utilize video lectures.
- The classrooms have been equipped with document cameras allowing for 3D objects to be used for problem solving.
- Virtual field trips are also being utilized in the classroom. This technology allows the class to effectively study on a global scale.

**Action 2.5.3: Increase instructional design support and online facilitators for teaching faculty**

- Education Technology has provided workshops for faculty: 28 attended Capturing the Student Learner; 33 attended Making Homework Effective; 50 attended Flipping a Class; 3 sessions were offered in Tackling Emerging Student Issues with 154 in total attendance; 16 attendees for the Building Blocks workshop; 43 attendees for the EdTech iPad U workshop; Syllabus Makeover workshop had 35 attendees; Clicker FLC had 31 attendees; Great Expectations-Bridging the Gap Between Instructor and Student Expectations had 86 attendees; and Active Learning had 60 attendees.
- The eStudio had 43 sessions and 75 hours of recording time.

**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 currently in place to reward faculty. This program has a three-tiered reward approach. Tier One, based on a complete full course redesign, has a stipend of $5,000. Tier Two, smaller scope with just one or more aspects of the course being redesigned, has a stipend of $2,000. Tier Three, has minor changes and not a complete redesign, and has a stipend of $1,000.
- In FY15, there were seven Tier One, five Tier Two and one Tier Three eFellows awards.

**Action 2.5.8: Redesign high-volume courses through integration of new technology and modified teaching methods to enhance student learning**

- A series of high-volume courses being redesigned is Calculus I, II and III. The redesign of the calculus courses is tied to an FY14 strategic initiative granting $132,000 one-time cost dollars matched with Missouri S&T one-time cost dollars of $66,000.
- In fall 2014, Calculus I piloted an interactive lab. The new interactive lab met one day per week for 75 minutes, was open to any student enrolled in a Calculus I lecture, was standardized, interactive, and had limited class size of 30 students. Two faculty taught the pilot labs and worked closely together to develop interactive activities. A survey was given to the redesigned labs and the traditional labs to gauge comparative student reaction to the redesigned labs. The survey indicated the interactive labs were well received by the students.
• The pre-calculus library was piloted in the fall. This library is comprised of short videos, with close captioning. It is available to all Missouri S&T students, not just those students enrolled in calculus. The library is an ongoing project as new videos will continually be added.
• In the spring semester, graduate students taught the interactive lab as a part of the extended pilot. The graduate students went through a new training program. There were 237 students enrolled in the redesigned sections (taught by graduate students) and 149 students enrolled in the traditional sections (taught by faculty). Grades were similar in both groups on the final exam. Interactive labs should increase student success rates while decreasing campus expenses. Graduate students teaching the labs are a more cost effective approach than faculty in the labs.
• In fall 2015, all Calculus I students will be enrolled in a redesigned laboratory.
• In fall 2015, the redesigned Calculus II will be piloted.
• In summer 2015, a redesigned Calculus III online course is being piloted.
• During the annual Mathematical Association of America Mathfest Conference, Missouri S&T presented the overview of the calculus redesign. South Dakota State University received unexpected funding and is implementing a version of the Missouri S&T success for calculus course. Collaboration has begun so our campus can learn from their experiences and vice versa.
• In January 2015, faculty presented the redesign at the Joint Mathematics Meetings in San Antonio, Texas.
• In March 2015, the redesign was presented at the Teaching and Learning Technology conference and the Missouri section meeting of the Mathematical Association of America.
• In summer 2015, the redesign will be presented to the annual Mathematical Association of America MathFest conference in Washington, DC.
• In fall 2015, the new course “Success for Calculus” will be piloted. This course will be an option for those students who are failing Calculus I in week eight. The course will not have a GPA penalty, will be 4 credit hours (3 lecture and 1 lab) and be designed to teach algebra and trigonometry in the context of calculus. The class will be offered in a blended format. This course had the most interest from other universities when presented at conferences.
• The nuclear reactor lab redesign was piloted.
• Cellular biology piloted a flipped lab with video demonstrations and quizzes provided online before wet lab experimentation in the traditional setting.
• Microbiology flipped a lab with video demonstrations and quizzes provided online before wet lab experimentation in the traditional setting.
• General biology developed an online class with lab kits.
• Materials testing lab will be offered online.
• Introductory computer engineering lab and introductory physics labs has been redesigned for an online/blended format.
Lever Summary:
The campus has implemented structural changes needed to facilitate the campus strategy and raise national visibility. The organizational chart below depicts the first phase of structural changes which primarily focused on academic affairs.
**Action 2.7.1: Implement the organizational structure appropriate to the strategic plan**

- Accounting and budget have been merged. Anas Massri, former vice chancellor of finance and administration at Central Louisiana Technical Community College, was named assistant vice chancellor for fiscal services. He is responsible for planning, implementation, and supervising all operations of the accounting and fiscal services department (accounting, budget office, cashier’s office, student loan collections, and campus business management). Massri began his duties in June 2015.

- Human Resources, Affirmative Action, Diversity and Inclusion has been reorganized and renamed to Human Resources, Equity and Inclusion.

- Judy Ricks was named Missouri S&T’s first director of human resources. Responsibilities include overseeing talent management, talent acquisition, Missouri S&T total rewards, and employee relations. Ricks began her duties in June 2015.

- Neil Outar was named Missouri S&T’s first director of institutional equity, diversity and inclusion. Responsibilities include Deputy Title IX Coordinator, equity issues, investigations, diversity and inclusion outreach. Outar began his duties in January 2015.

- Robert Marley was named as the provost and executive vice chancellor at Missouri S&T. Marley began his duties in July 2014.

- Stephen Roberts was named the vice provost and dean for the new College of Arts, Sciences, and Business. He oversees: 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; psychological science; and teacher certification programs. Roberts joined Missouri S&T in August 2014.

- A new associate dean position was added in the College of Arts, Sciences, and Business. Yinfa Ma was named associate dean for research and external relations. Ma facilitates major research initiatives and proposals; oversees responsible research conduct and safety; manages comprehensive external relations programs that engage donors, faculty, students, and other key stakeholders; and works as a member of the college administrative leadership team on issues related to college governance and administration. Ma began his duties in December 2014.

- A new associate dean position was added for the College of Arts, Sciences, and Business. As associate dean for academic affairs, Kate Drowne oversees curriculum and instruction matters; oversees development and implementation of strategic planning related to academic programs; establishes plans for program development, faculty recruitment, and professional development; and coordinates academic program review with the department chairs in the college to review, study and develop curriculum, and improve instruction. Drowne began her duties in December 2014.

- Kristen Gallagher was named the first executive director of development for the College of Arts, Sciences, and Business. Her responsibilities include developing relationships with current donors within the college, expanding endowments, and ensuring strategy alignment with the Campus Master Plan.

- Ian Ferguson was named the vice provost and dean for the new College of Engineering and Computing. He oversees: chemical and biochemical engineering; civil, architectural and environmental engineering; computer science; electrical and computer engineering; engineering management and systems engineering; geosciences and geological and petroleum engineering; materials science and engineering; mechanical and aerospace engineering; and mining and nuclear engineering. Ferguson joined Missouri S&T in August 2014.
• The College of Engineering and Computing added John Myers as the new associate dean for academic affairs. Myers oversees curriculum and instruction matters; oversees development and implementation of strategic planning related to academic programs; establishes plans for program development, faculty recruitment, and professional development; and coordinates academic program review with the department chairs in the college to review, study and develop curriculum, and improve instruction. Myers began his duties in February 2015.

• The College of Engineering and Computing added Bruce McMillin as the new associate dean for research and external relations. McMillin facilitates major research initiatives and proposals; oversees responsible research conduct and safety; manages comprehensive external relations programs that engage donors, faculty, students, and other key stakeholders; and works as a member of the college administrative leadership team. McMillin began his duties in January 2015.

• Pamela Rathe was named the first executive director of development for the College of Engineering and Computing. Her responsibilities include developing relationships with current donors within the college, expanding endowments, and ensuring strategy alignment with the Campus Master Plan.

• One of the organizational structure changes is the addition of the vice chancellor for global and strategic partnerships who oversees international and cultural affairs; global learning; and a new office of corporate relations that includes the office of sustainable energy and environmental engagement. The office of global and strategic partnerships became effective in August 2014.

• John Eash, former division director for supplier quality regional operations for The Boeing Co., was named the first executive director for corporate relations. He will be responsible for enhancing existing relationships with corporate partners, identifying new opportunities, and expanding the university’s portfolio of partnerships. Eash begins his duties in August 2015.

• Anthony Petroy, former assistant vice president for online and off-campus programs at Robert Morris University, was named assistant vice chancellor for global learning. He will be responsible to develop a comprehensive strategy for online and distance programs, pursue opportunities to expand, and anticipate trends. Petroy began his duties July 2015.

• Elizabeth Smith was named the new chief of staff. Smith oversees the chancellor’s office support staff, is the primary campus liaison with the chancellor, and the primary contact for external relations. Smith began her duties in February 2015.
Lever Summary:

All academic affairs departments have established productivity measures. These measures have been divided into two primary areas; external measures that are designed for comparison to other institutions and internal measures that are designed for departmental comparisons at Missouri S&T. The measures are demonstrated in Action 3.1.1.

The campus has enrolled 15 students in the multi-disciplinary studies degree. Students in this degree program may choose the new STEM elementary education certification that began in fall 2014. Other new programs offering enrollment in fall 2014: humanitarian engineering and science minor, entrepreneurship minor, master’s in industrial organizational psychology, and a Ph.D. in explosives engineering.

Additional new programs:

- Digital art minor (in development)
- Biomedical engineering minor (new in fall 2015)
- Certificate program contemporary environmental engineering (in development)
- Certificate program in investment (in development)
- Certificate program in solar resources (in development)
- Minor in automation engineering (fall 2015)
**Action 3.1.1: Continue performing comparisons of academic department productivity to peer institutions**

**Department Productivity Measures**

**Materials Science and Engineering**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.10</td>
<td>1.88</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>33.07</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>215,685</td>
<td>176,821</td>
</tr>
</tbody>
</table>

The materials science and engineering department performance has experienced a decline in both Ph.D. enrollment and research expenditures. Data related to publications cannot be aggregated yet.

**Engineering Management and Systems Engineering**

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.80</td>
<td>2.54</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>14.62</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>121,246</td>
<td>110,421</td>
</tr>
</tbody>
</table>

The engineering management and systems engineering department performance has experienced a decline in both Ph.D. enrollment and research expenditures. Data related to publications cannot be aggregated yet.

**Geosciences and Geological and Petroleum Engineering**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>3.60</td>
<td>1.84</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>4.10</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>116,030</td>
<td>109,326</td>
</tr>
</tbody>
</table>

The geosciences and geological and petroleum engineering department performance has experienced a decline in both Ph.D. enrollment and research expenditures. Data related to publications cannot be aggregated yet.

**Chemical and Biochemical Engineering**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.00</td>
<td>2.31</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>5.90</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>36,473</td>
<td>57,661</td>
</tr>
</tbody>
</table>

The chemical and biochemical engineering department performance has improved Ph.D. enrollment and research expenditures. The expected goal is a 10 percent productivity improvement by 2020 and this goal has already been achieved with a 63 percent improvement in research expenditures. Data related to publications cannot be aggregated yet.
Civil, Architectural, and Environmental Engineering

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.40</td>
<td>2.19</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>8.20</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>277,972</td>
<td>287,019</td>
</tr>
</tbody>
</table>

The civil, architectural, and environmental engineering department performance has experienced a decline in Ph.D. enrollment but an improvement in research expenditures. Data related to publications cannot be aggregated yet.

Electrical and Computer Engineering

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.80</td>
<td>2.67</td>
</tr>
<tr>
<td>Publications per T/TT</td>
<td>8.06</td>
<td></td>
</tr>
<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>254,619</td>
<td>202,483</td>
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The electrical and computer engineering department performance has experienced a decline in both Ph.D. enrollment and research expenditures. Data related to publications cannot be aggregated yet.

Mechanical and Aerospace Engineering

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<tr>
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<tbody>
<tr>
<td>Ph.D. Enrollment per T/TT</td>
<td>2.10</td>
<td>2.32</td>
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<tr>
<td>Publications per T/TT</td>
<td>8.00</td>
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<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>125,531</td>
<td>105,553</td>
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Mechanical and aerospace engineering developed a course release program for faculty which is driven by the strategic plan and tied to faculty productivity. A course release is determined based on the sum of three normalized productivity measures: journal papers, Ph.D. students graduated, and research expenditures. Each of these areas is normed and if the sum of the measures is greater than three, the faculty member is released from one course. Performance of released faculty is tracked through faculty scholarly production statistics. Seven faculty were released from a course in AY14-15. The program has been well received and has contributed to increased scholarly production, most notably in journal paper production.

The mechanical and aerospace engineering department performance has experienced improvement in Ph.D. enrollment but a decline in research expenditures. The course release program should help improve productivity measures. Data related to publications cannot be aggregated yet.
The mining and nuclear engineering department performance has experienced improvement in both Ph.D. enrollment and research expenditures. The department has a 10 percent improvement goal by 2020 and has exceeded that goal. Data related to publications cannot be aggregated yet.

The computer science department performance has experienced a decline in Ph.D. performance and an improvement in research expenditures. Data related to publications cannot be aggregated yet.

The biological sciences department performance has experienced an improvement in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

The business and information technology department performance has declined in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.
### English and Technical Communication

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<tr>
<td>Publications per T/TT</td>
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<tr>
<td>Degrees awarded per T/TT</td>
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<tr>
<td>Research expenditures per T/TT(OSP)</td>
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The English and technical communication department performance has improved research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

### Psychological Science

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<tbody>
<tr>
<td>Publications per T/TT</td>
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<tr>
<td>Degrees awarded per T/TT</td>
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<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>4,526</td>
<td>736</td>
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The psychological science department performance has decreased in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

### Arts, Languages, and Philosophy

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<tr>
<td>SCH per T/TT</td>
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<td>Degrees awarded per T/TT</td>
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<td>Publications per T/TT</td>
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The arts, languages, and philosophy department performance has improved the student credit hours per tenured, tenure-track faculty. Data related to publications and degrees awarded cannot be aggregated yet.

### Economics

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<td>Publications per T/TT</td>
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The economics department performance has improved the student credit hours per tenured, tenure-track faculty. Data related to publications and degrees awarded cannot be aggregated yet.

### History and Political Science

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<td>Publications per T/TT</td>
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The history and political science department performance has improved the student credit hours per tenured, tenure-track faculty. Data related to publications and degrees awarded cannot be aggregated yet.
Chemistry

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<td>Degrees awarded per T/TT</td>
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<td>Publications per T/TT</td>
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The chemistry department performance has decreased in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

Mathematics and Statistics

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The mathematics and statistics department performance has increased in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

Physics

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<tbody>
<tr>
<td>Degrees awarded per T/TT</td>
<td>1.40</td>
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<tr>
<td>Publications per T/TT</td>
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<tr>
<td>Research expenditures per T/TT(OSP)</td>
<td>4,526</td>
<td>736</td>
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</tbody>
</table>

The physics department performance has decreased in research expenditures. Data related to publications and degrees awarded cannot be aggregated yet.

**Action 3.1.2: Identify and take actions to improve the metrics that contribute to increasing the national ranking of all graduate programs**

- Graduate studies personnel will attend the Oak Ridge National Lab’s ORAU Graduate Fair in August 2015. The office will have a booth to increase name recognition and recruit doctoral students.
- The Midwest Association for Graduate Schools has membership from 14 states and over 70 graduate schools. The theme for 2016 is “Graduate Education Pathways.” Missouri S&T staff has been awarded the chair-elect position and will be a part of the thesis committee.
- The development of department productivity measures and strategic plan strategy metrics aid in the development of internal processes that improve efficiencies and increase outcomes for graduate programs.
- The campus was awarded strategic initiative funding for increasing Ph.D. enrollment and part of this proposal included adding a data analyst dedicated to graduate studies. This analyst position should be able to provide metrics needed to increase national rankings. These metrics will be determined in FY16.
**Action 3.1.3: Evaluate the need for new or elimination of existing degree programs**

- This action is currently in progress and will continue to be an ongoing process.
The structure for the Office of Global and Strategic Partnerships has been identified. The new vice chancellor for global and strategic partnerships is in place. Reporting to this office is a new Office of Corporate Relations. This latter office will grow and enhance corporate partnerships, develop a web page portal for corporate and industry partners, and create a corporate relations stewardship program. The new executive director of corporate relations has been named and begins in August 2015. The campus views this as a priority and has reallocated $666,000 to support these two offices as they transition to becoming self-sustaining.
Action 3.2.1: Create a corporate relations office and determine the role it should play in assisting the various interests within the Missouri S&T community in establishing appropriate relationships with external constituents

- One of the key criteria for establishing an effective office is the personnel. The search for the executive director for the Office of Corporate Relations was completed in May 2015. John Eash begins in his new role in August 2015.

Action 3.2.3: Develop a funding mechanism to support the office and its activities

- The development of a funding mechanism has been identified.
- A budget for the corporate relations office has been identified and approved.

Action 3.2.6: Broadly identify needs of external constituents that could be met by Missouri S&T

- The executive director will develop and implement a plan to identify the needs of selected external constituents.

Action 3.2.7: Determine mechanisms to develop reciprocal partnerships

- Four Missouri S&T faculty members visited the Smithsonian Tropical Research Institute in Panama City for the purpose of developing a strategic partnership and collaborative research.
- Stephen Roberts, vice provost and dean for the College of Arts, Sciences, and Business, performed research at the Smithsonian Tropical Research Institute in June 2015. This visit enhanced the relationship with the institute.
- The office developed the following international agreements: Cork Institute of Technology in Ireland; Chitkara University in India; University of Bologna in Italy; Singapore Polytechnic in Singapore; Universidad Privada Del Norte in Peru; Housing and Building National Research Center in Egypt; Bangladesh University of Engineering and Technology in Bangladesh; Istanbul Technica University in Turkey; Hiohia University in China; PES University in India; Ministry of Higher Education, Science and Technology in the Dominican Republic; Pontificia Universidad Catolica Del Peru in Peru; Instituto Tecnologico Del Ciabao Oriental in the Dominican Republic; Perm State University in Russia; Universita delgi Studi di Perugia in Italy; and Amrita Vishwa Vidyapeetham University in India.
- The university is developing a proposal to increase interaction with the St. Louis Science Center. This proposal will develop a reciprocal partnership and increase our visibility.
- The university signed a Master Research Agreement with Boeing.
- The campus is developing an agreement with a large, international corporation in St. Louis.
- The university signed an agreement with PCRMC.

Action 3.2.8: Develop a method for evaluating the relative strength and breadth of the partnerships with external constituents (research, student hiring, giving, distance courses, board memberships, etc.)

- The executive director will develop and apply a plan that will evaluate the relative strength and breadth of the partnerships with external constituents and a plan to expand or improve those relationships.
Action 3.2.9: Develop a matrix that reflects the multiple results of Action 3.2.1 above and provides an overall indication of the strength of the relationship and helps identify paths to maintain, strengthen or expand the partnership

- The executive director will develop a matrix in FY16.

Action 3.2.10: Create a concierge approach to corporate relations including a web presence that supports the mission of the office

- The executive director will develop a website and provide a concierge contact approach which allows external companies, organizations, and agencies to make efficient contacts with Missouri S&T.

Action 3.2.11: Develop a marketing plan to communicate the benefits of the office to key customers

- The executive director will develop a complementary marketing plan to the concierge approach.

Action 3.2.12: Work with Information Technology to create a “customer relations” management database that provides easy access to usable and actionable information

- The customer relations management database will be further developed by executive director. A partnership with IT will be utilized to develop the customer relations management database which provides easy access to usable and actionable information.
**Lever Summary:**
This lever is linked to an FY14 funded strategic initiative proposal which called for expansion of instructional laboratory equipment and renovation at a level of $500,000, plus $500,000 in non-appropriated funds. In addition to our original match commitment of $492,500, Missouri S&T reallocated $366,312 and information technology reallocated $100,000 to match an additional $366,312 in gifts. Our original $1,000,000 investment in instructional laboratories has grown into a $1,800,000 investment. The lab upgrades are:

- Computer science, electrical and computer engineering, business and information system technology, and information technology departments are in the process of upgrading servers and adding computer equipment for virtualization and big data usage.
- The physics department upgraded equipment and software to support seven different courses that enroll some 1,000 students each semester. This upgrade is complete.
- Chemical engineering has upgraded computers, data acquisition systems, state-of-the-art Emerson Delta V process control management hardware, and virtual software Mynah Mimic. The undergraduate lab has been upgraded for new experiments.
- Nuclear engineering will add a liquid scintillation detector in fall 2015.
- Mechanical and aerospace engineering upgraded two laboratories, a dynamic systems and controls lab, and a gas turbine facility. The next lab slated for upgrades is a kinematics, kinetics, and power of mechanical systems lab.
- Chemistry purchased new field flow fractionation equipment that is utilized in five courses within chemistry and the chemical and biochemical engineering departments. This equipment is used to separate and detect soluble compounds as well as insoluble particles in solutions and is important for nanomaterial research. This upgrade is complete.
- Chemistry is upgrading the nuclear magnetic resonance spectrometer to determine the physical and chemical properties of atoms and molecules. This upgrade is complete.
- Geology and geophysics department upgraded the high-pressure high-temperature rheometer and upgraded the active collaborative microscopy learning laboratory. This laboratory upgrade included: 16 new student microscopes, one microscope podium, and one high-powered research microscope with advanced capabilities to be used in advanced research.
• Electrical and computer engineering is undergoing a major upgrade adding control systems equipment.
• Mining purchased a rock test system and this equipment arrived in May 2015. Prior to the installation of the new equipment, power supply issues had to be addressed.
• The materials science and engineering lab was upgraded. The rolling mill was refurbished this spring, the Charpy impact system was also upgraded in the spring and the safety equipment and first aid upgrades were installed in the fall.
• Civil, architectural, and environmental engineering upgraded three labs. First, the System and Process Assessment Research Lab was upgraded. Upgrades included: 1) a distributed optical fiber sensing system that is currently one of a few dozen units in the world; 2) a complete process of optical fiber sensor innovation, fabrication, calibration, analysis and application; 3) a fully integrated loading, sensing, corrosion, sensing calibration system; and 4) multiple measurement devices (acoustic, electromagnetic, magnetic, photonic). Second, the Advanced Construction Materials Laboratory was upgraded with 35 pieces of specialized equipment with additional equipment located off-campus at the Hypoint Research Park facility. Third, the Hydraulics Laboratory Enhancement Lab was upgraded with a steel experimental flume which weighs 35,000 pounds with a length of 75 feet and a working channel that is 70 feet long, 3.5 feet wide and 3 feet deep.

**Action 3.3.1: Leverage strategic funds for instructional laboratories with matching funding from non-appropriated sources**

• A plan is being developed for future lab renovations.

**Action 3.3.2: Continue exploring plans and processes for acquiring matching funding for research equipment in areas that have high return on investment to be matched with non-appropriated funds**

• As the campus identifies potential donors for equipment needs, strategies for leveraging those investments through matching programs will be explored.

**Action 3.3.4: Continue evaluating all campus facilities for their readiness for sustainable growth and return on investment**

• The Campus Master Plan has been completed and was approved by the Board of Curators. The plan evaluated all campus facilities for effective space utilization and sustainable growth.
• The university purchased property at 710 W. 13th, 712 W. 13th, 800 W. 13th, 802 W. 13th, 804 W. 13th, 808 W. 13th, and 810 W. 13th.
• The university received state funds for the experimental mine building and plans to begin renovations on Schrenk Hall.
• A 50/50 request was submitted to the state for an addition to Butler-Carlton for an advanced construction materials lab.

**Action 3.3.5: Develop and disseminate a research infrastructure database to help departments share equipment**

• A preliminary process has been developed and the two new vice provost and deans will play an integral role in implementation.
**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.

- Refer to Lever 1.2 and Action 1.2.2 for Learning Commons progress made to date.
- An analysis of the work areas and access for student learning has been utilized to determine preliminary drawings of the Learning Commons which aligns with Lever 1.2, Action 1.2.2.

**Action 3.3.10: Implement Learning Space Design Guidelines based on standard practices to guide the design of all learning spaces on campus**

- Learning space guidelines have been created and provide a framework for classroom spaces that contain presentation technology. The guidelines highlight the most common points of convergence at which architecture and audio-visual technology intersect and are an integral part of the learning environment.
- Space utilization guidelines have been approved by the Space Committee.

**Action 3.3.11: Assess effectiveness of collaborative learning spaces (e.g. learning commons) that can be used for experiential learning opportunities and undergraduate research**

- The library director will partner with the vice provost for undergraduate studies to develop a plan in FY16.

**Action 3.3.12: Provide innovative student support facilities to meet customer needs**

- The design team has been selected and construction has begun on new student housing; the campus leased five new properties to accommodate 157 additional spaces; and Altman Hall was updated.
- New scoreboards were installed at the Gale Bullman Building, Allgood-Bailey Stadium, and the soccer field; a plan is being developed for new scoreboards for the softball and baseball fields; the runway resurfacing for triple jump and javelin events has been completed.
- Renovated the locker rooms in the Gale Bullman Building.
- The geothermal project in the Gale Bullman Building and the Student Recreation Center was completed.
- In order to meet student needs, the testing center was enhanced. The testing center administered 7,000 exams; 691 PearsonVUE exams with a 95 percent satisfaction rating representing a 64 percent increase; and 571 Fundamental of Engineering exams, which was a 21 percent increase.
- Career Opportunities and Employer Relations developed a dedicated online interviewing space, with high resolution webcam capabilities, a Missouri S&T backdrop, and appropriate lighting. Several iPads have been purchased to record and assist students during mock interviews.
Lever Summary:

The campus remains committed to creating a diverse and welcoming environment for faculty, staff, and students. The number of staff underrepresented minorities has increased by 31 percent; the number of female tenured, tenure-track faculty has increased by 12 percent; and the number of female ranked non-tenure track faculty has increased by 44 percent. The campus continues to remain committed to becoming competitive in a global environment.

The campus is committed to attracting a diverse pool of candidates, but also is committed to retaining excellent faculty and staff. The campus provided $90,000 in incentives to departments that hired female or underrepresented minority faculty.

To demonstrate commitment to diversity and inclusion, Missouri S&T reallocated $564,728 and matched UM system strategic funds of $464,059 to support human resources, student affairs, and Title IX.
Action 3.4.1: To increase diversity of faculty and staff, provide incentives to the hiring departments that select qualified underrepresented minorities

- To demonstrate the dedication to departments that attract underrepresented minority or female faculty members, each department will receive a $10,000 incentive to their E&E budget. The department will retain the $10,000 recurring funds as long as that faculty member remains with the department. This incentive demonstrates that diversity in hiring practices is a priority at Missouri S&T and is successful. Of the faculty hires who started in fall 2014, 50 percent of those hires were female or underrepresented minorities.

Action 3.4.2: To increase diversity of students, explore scholarship funding to be more competitive with underrepresented minorities/female/student recruitment

- The Chancellor’s Scholarship was revised in fall 2014 to include one $1,500 runner-up scholarship and five $1,000 honorable mention scholarships.
- Scholarships funding sources for women include: Boeing, Ford, AT&T, Halliburton, and UTC.
- Scholarship funding sources dedicated for student diversity include: Ameren, Ballard, Carter, Caterpillar, Chevron, Emerson, Finley, GM, John Deere, NACME, NIDEC Motor Corporation Endowed Scholarship, and Dr. Harvest and Shirley Collier Endowed Scholarship.
- University Advancement is working with a group of donors who have committed $1,000,000 to be paid over time for underrepresented minorities.

Action 3.4.3: Set up transfer articulation agreements with two-year institutions with large underrepresented minority populations

- In May 2015, an articulation agreement was completed with Mission College located in the Silicon Valley. The campus is looking into arranging agreements with additional colleges in the area.

Action 3.4.5: Develop and provide professional development and training for staff, faculty and students that provides awareness of diversity and inclusion issues and encourages them to develop skills that will make our campus a warm and welcoming environment

- Diversity and inclusion training has been developed and delivered to over 130 Missouri S&T faculty and staff.
- The campus created a Title IX Strategic Curriculum Committee which developed a campus plan.
- The Equity Hearing Panel for students has been formed and trained. Six Student Affairs staff participated in the monthly meetings.
- The Dean of Students participated in Title IX training for Athletics and collaborated with institutional equity to serve as a liaison with faculty in Title IX accommodation for students.
- Student Affairs staff has been engaged: five staff attended STEP UP! Committee monthly meetings; two staff attended STEP UP! trainer meetings; two staff attended Title IX Content Working Group for Title IX committee meetings; five staff participated in UM System Intake/Advocacy trainings with ATIXA; and hosted Campus Accountability and Safety Act Implications for Student Conduct.
- The “Not Anymore” bystander intervention program has been implemented on campus.
- The campus has placed focus on creating a welcoming environment and completed the following activities: 1) 1,500 students participated in Sex, Alcohol and Clickers session; 2) hosted a national
speaker on high-risk alcohol and sexual assault; 3) implemented a bystander intervention committee, STEP UP!, and conducted training with 287 participants; 4) implemented training for Stereotypes, Biases and Micro-aggression for student health; 5) worked with alumni relations to recruit alumni who can serve on the Lesbian, Gay, Bi-sexual, Transgender and Ally Advisory Board; 6) facilitated three officer summits on diversity and leadership topics; 7) trained 55 Greek leaders in Title IX; 8) revised the UCARE threat assessment rubric and implemented this rubric for every student of concern case; 9) presented the residence halls with webinars/trainings on students with autism; 10) facilitated an Asperger support group for 12 students; 11) launched additional website content on gender-neutral, disability-accessible restrooms and resources; 12) 15 Pi Kappa Alpha students were trained on STEP UP!; and 13) GAMMA presented Drinking Protective Factors to Lambda Chi Alpha and Sigma Chi with 288 student attendees.

- The Chancellor’s Committee on Diversity and Inclusion held several “Let’s Talk” sessions inspired by unrest in Ferguson.

**Action 3.4.6: Develop a comprehensive diversity and inclusion plan that would incorporate various action items**

- An outside consultant was contacted regarding the development of a comprehensive plan.
- The Chancellor’s Cabinet attended a one-day diversity retreat to broaden their perspective on inclusiveness and to fully understand micro aggressions.
- A total of 23 sessions for diversity and inclusion workshops were offered and 134 employees completed the online compliance training.
- The annual CLERY report reflects changes to UM System policy on the reporting and handling of sexual assault incidents.
- The dual-career hire policy underwent revisions as requested by the Female and Underrepresented Minority Faculty Recruiting and Retention Task Force.
- To help with safety, security, and equality the campus purchased body cameras for all police officers.

**Action 3.4.7: Bring to campus underrepresented faculty as visiting scholars**

- Several departments brought underrepresented faculty to Missouri S&T as guest speakers. The campus continues to work on solidifying a plan for increasing underrepresented visiting faculty.
- During the academic year, there were 46 visiting faculty and 7 of those were underrepresented.

**Action 3.4.9: Review, revise and create policies that support work-life balance**

- A portfolio of existing and proposed work-life policies, procedures, and programs has been developed. The flex work-life policy is ready for implementation.
- Workshops have been provided on work-life balance.
- The telecommuting policy is under review
- The sabbatical process is under review.
Action 3.4.10: Evaluate and enhance faculty recruitment process and practice

- The recruitment process has been enhanced as evidenced by the number of female faculty hires for fall 2014. Targeted advertising will continue to ensure that underrepresented minority and female faculty are appropriately represented and considered in the hiring process.

Action 3.4.11: Explore collaborative partnerships for early childhood education, child development programs and facilities to enhance faculty recruitment and retention. Evaluate opportunities through campus master planning process

- The Rolla school system is leading a community taskforce to study facility and funding options for early childhood education. Missouri S&T is and will continue to be an active participant in these conversations.
- A child development center was considered during the campus master planning process; however, it was not placed as a priority due to the lack of a sound business plan.

Action 3.4.12: Develop and deliver regular workshop training sessions for faculty and staff on compliance, Equal Employment Opportunity and recruitment practices

- Workshops conducted by the employee assistance practitioner cover diversity and inclusion and recruitment practices.
- All search committee members are required to be trained on reducing implicit bias.

Action 3.4.13: Design, launch and maintain a Diversity and Inclusion website to promote inclusion and diversity

- The diversity and inclusion website has been launched. The website consolidates all diversity and inclusion efforts across campus and includes a monthly newsletter, a workshop schedule, and helpful tips.

Action 3.4.14: Enrich campus commitment to diversity and inclusion through recruitment of student-athletes

- In the fall, the campus recruited 133 new student-athletes of which 104 were freshmen and 29 were transfers. Of those student-athlete recruitments 105 were males, 28 were females, and they hailed from 21 states and 7 foreign countries. Fall 2015 has recruited 83 freshmen men and 22 women, 26 transfer men and 6 transfer women hailing from 20 different states and 7 different countries.
- NCAA guides for sexual assault and interpersonal violence have been distributed to all athletes.
- Athletics provided Saturday tours to prospective student-athletes and their families.
- Women’s volleyball was selected for the NCAA National Tournament and two student-athletes were named to the Capital One Academic All-America team.
- Missouri S&T’s swimming program earned the team Scholar All-America award out of 20 in NCAA Division II; men’s track and field won the Great Lakes Valley Conference (GLVC) Championship; men and women’s cross country teams received academic honors from the United States Track & Field and Cross Country Coaches Association earning the organization’s all-academic awards; 14 student-athletes won GLVC individual conference championships; 4 miner teams won the GLVC
Sportsmanship Award for their respective sports; 8 Jackling Jocks have applied to be considered for Academy of Miner Athletics induction; Tamara McCaskill and Jordan Henry, former Missouri S&T student-athletes, were inducted into the GLVC Hall of Fame; 5 swimmers were selected for the NCAA National Swimming and Diving Championship; student-athlete Keith Sponsler was named the GLVC Swimmer of the Year; Coach Doug Grooms was named GLVC Coach of the Year; swimming finished 16th in the National Championship; men’s basketball play was nominated for Geico Play of the Year; soccer coaches hosted a Youth Coaches Clinic for youth coaches to assist in preparation for the upcoming leagues; Academy of Miner Athletics engaged six alumni with student-athletes; Missouri S&T won its first-ever GLVC Student-Athlete Advisory Committee Challenge trophy with 663 points for the academic year in the six attributes of Division II (service, learning, passion, sportsmanship, balance and resourcefulness); and Missouri S&T is ranked fourth all-time nationally in NCAA Division II Academic All-Americans.
A committee was formed to analyze current processes and create a strategy for developing a culture of lifetime engagement between the university, its students, faculty, staff, and constituent groups. The committee was broken into two groups: external and internal.

The external group framed its findings around information provided from the Educational Advisory Board. The information focused on benchmarked universities’ programs and services. The external team concluded there is a need for a streamlined first-year experience program. This first-year program is considered vital for maintaining a connection with its students. The committee recommends that departments look for more intentionally coordinated student engagement opportunities that contribute to transitioning new students in the Missouri S&T campus community with an emphasis on programs beginning with their admittance through the completion of their first year. There is also a need to develop strategies that engage students as they transition from students to alumni. Additionally, there is a need to develop an engagement program for alumni who are close to Rolla in locations like St Louis, Kansas City, Springfield, and Central Missouri.

The internal team conducted an audit of students and alumni. This team determined the campus has many engaging activities but are all independent. One department is unaware of the engagement activities in the other department. The team recommends one central theme such as the athletics “Miner for Life.” An expanded campaign could start with recruitment of incoming students and immersion into campus culture by enhancing freshman convocation, opening week activities, Greek life, Reconnect I and II, Sophomore Summit, and the student e-connection. A unified campaign can help the students affiliate and become engaged members of the campus community.

The committees concluded that enough engagement programs currently exist, but a central owner is needed. The committee recommends that university advancement own the process. This would align with the alumni relations engagement activities and the marketing efforts created by marketing and communications. The committee further concluded that undergraduate studies, student affairs, and enrollment management all

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<tr>
<td>Lever Description:</td>
<td>Create and implement a plan for student and alumni lifetime engagement strategy</td>
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| Lever Metric:   | A significant increase in graduating students maintaining a continued relationship with Missouri S&T  
|                  | A significant increase in the number of donors and money raised  
|                  | An increase in the number of alumni who re-engage with the campus by attending events, activities, organizations |

Lever Summary:

A committee was formed to analyze current processes and create a strategy for developing a culture of lifetime engagement between the university, its students, faculty, staff, and constituent groups. The committee was broken into two groups: external and internal.

The external group framed its findings around information provided from the Educational Advisory Board. The information focused on benchmarked universities’ programs and services. The external team concluded there is a need for a streamlined first-year experience program. This first-year program is considered vital for maintaining a connection with its students. The committee recommends that departments look for more intentionally coordinated student engagement opportunities that contribute to transitioning new students in the Missouri S&T campus community with an emphasis on programs beginning with their admittance through the completion of their first year. There is also a need to develop strategies that engage students as they transition from students to alumni. Additionally, there is a need to develop an engagement program for alumni who are close to Rolla in locations like St Louis, Kansas City, Springfield, and Central Missouri.

The internal team conducted an audit of students and alumni. This team determined the campus has many engaging activities but are all independent. One department is unaware of the engagement activities in the other department. The team recommends one central theme such as the athletics “Miner for Life.” An expanded campaign could start with recruitment of incoming students and immersion into campus culture by enhancing freshman convocation, opening week activities, Greek life, Reconnect I and II, Sophomore Summit, and the student e-connection. A unified campaign can help the students affiliate and become engaged members of the campus community.

The committees concluded that enough engagement programs currently exist, but a central owner is needed. The committee recommends that university advancement own the process. This would align with the alumni relations engagement activities and the marketing efforts created by marketing and communications. The committee further concluded that undergraduate studies, student affairs, and enrollment management all...
should have a vested interest in fostering lifetime engagement. Each department should designate representatives to assist with incorporating the Miner for Life theme into activities.

The campus is vested in its alumni and this can be demonstrated through its commitment of $500,000 in matching funds; an additional $500,000 which is allocated at $100,000 per year for five years to a Hasselmann Alumni House maintenance endowment; and $35,000 per year for custodial and landscape assistance.

The campus-secured property at 605 W. 11th Street engages students and alumni. The campus allocated $600,000 for purchase and renovation of this property to house diversity, outreach, and women’s programs which engages many alumni with current students and programs. An additional $25,000 was allocated to create an innovation and collaboration space for the students.

**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. As we digitize these collections, we can engage alumni in identifying people, events, and in telling stories online**

- The library has fully digitized yearbooks and is discoverable on Google and Google Scholar. The yearbooks have been viewed by 916 current students and 872 alumni.
- The library has implemented a tracking mechanism and developed a sample survey to track alumni satisfaction and usage.
- The yearbooks are currently being viewed from all over the globe from areas such as Finland, France, and in the U.S. from Washington to New York.

**Action 3.5.3: Create a multifaceted engagement program that brings students through graduation and to the Academy levels**

- Career Opportunities and Employer Relations actively engaged with freshman at PRO and during opening week activities, revised and distributed 4,600 Professional Development Plans to guide students through their experience, three alumni participated in interviewing, and 35 students applied to the Boeing Mentoring program. Engaging students at the beginning of their academic program with mentorship opportunities increases student engagement levels and provides professional development.
- The Student Affairs staff engaged students through the following: 1) a residential life House Calls initiative to connect students to the campus, faculty and staff; 2) engaged with the “Miner Today Alumni Tomorrow” initiative during orientation; 3) hosted Greek President’s Kick-off which engaged staff and student leaders; 4) led test anxiety workshops for students; 5) presented to the Alumni Board during Homecoming on the possibility of being in the Mentor a Miner campaign to increase engagement; 6) engaged nearly 3,200 parents and families in communication activities throughout the semester to encourage student engagement; 7) engaged 4,610 students in one or more recognized student organizations; and 8) coordinated a Garmin Programming Showdown with alumni.
Action 3.5.5: Develop a Young Alumni Council and engage alumni through quarterly Young Alumni events

- The Young Alumni Council was created for alumni under the age of 35. This council is designed to engage alumni closer to graduation. The alumni had planned events at the fall homecoming with eight events occurring this past year.
- An event is planned in fall 2015 to bring the Board of Trustees together with the Young Alumni Council.

Action 3.5.6: Explore feasibility and options of expanding our visibility and engagement with international alumni

- The international alumni received the Fall/Winter Missouri S&T Magazine.
- An alumni reception was held in Panama and a dinner was hosted in Turkey.
- The campus reallocated $30,000 for international recruiting; see Lever 2.2 for international enrollment information.

Action 3.5.7: Improve tracking measures of employment data and related feedback to enhance lifelong career development

- Career Opportunities and Employers Relations performed the following: developed a new KPI tracking sheet for better oversight of strategic initiatives; aligned with NACE standards breaking records in 17 of the 29 metric categories; attended graduation; attended the Graduate Fair to collect job reports for graduate students; participated in a regional conference for assessment in career services; facilitated employer, student, and career fair surveys that were integrated in process improvement; attended a webinar on career outcomes and engaged in NACE outcomes survey; and included the employment data survey in the graduation checklist for students.

Action 3.5.8: Promote Miner for Life strategies with student-athletes to encourage lifetime commitment

- Several Miner for Life strategies occurred: 1) the Student-Athlete Advisory Committee sold 408 t-shirts to support the Make-A-Wish Foundation; 2) Miner Pride t-shirts were given to all student-athletes (P is for passion, R is for respect, I is for inspiration, D is for determination, and E is for excellence) and a session was given to understand the meaning; 3) athletes engaged in five Miner Kids Club activities; 4) the student-athlete board collected food items for the community and hosted a reception to present graduating student-athletes with “Miner for Life” sashes; and 5) the Jackling Jocks organization facilitated engagement with the Academy of Miner Athletics.

Action 3.5.9: Strengthen residential living communities to develop lifelong leaders

- A second-year experience was launched in fall 2014 that engaged 40 students. This program focuses on career readiness, professional development, and student success for developing lifelong leaders.
- A connections community was developed for the new student housing establishments in the downtown community. This experience is unique in that it allows students to shape their living community through a common theme or issue of interest.
- The Greek Academy was established as a tiered professional development program designed to enhance the living communities for students in fraternity and sorority housing units.
Action 3.5.10: Promote early intervention engagement strategies for at-risk students

- Student Affairs developed an active engagement strategy: 1) performed BASICS training for residence hall advisors, counselors, and students in the training program; 2) completed a Victim Assistance Training for residence advisors; 3) participated in the Campus Save Committee meeting; 4) provided transfer students wellness information; 5) participated in and promoted suicide prevention training; 6) enhanced the STEP UP! bystander intervention with additional implementation efforts, training, and promotion - the program was promoted during the Civic Engagement Fair and various committee meetings; 7) Walk a Mile/It’s on Us had 125 students participate; 8) implemented tobacco and depression screening process; and 9) promoted ethical and healthy decision making.

- The campus implemented the Starfish retention solutions and early warning system for at-risk students. This system raises a red flag to faculty for any at-risk student and the student receives an email notification when they have been flagged. The campus aggressively transitioned from the legacy system to the improved Starfish S&T Connect. The program was promoted in emails, on blackboard, and on the web for students. It allows students to request appointments with instructors and identify tools and resources available to help.
Lever Summary:

The largest initiative on campus is the sustainable energy geothermal project. This project provides heating and cooling to 17 buildings on campus and is projected to cut energy usage by 50 percent, reduce carbon dioxide emissions by 25,000 tons per year, and decrease water usage by 8,000,000 gallons per year. The BTU usage has been reduced by 60 percent representing a reduced utility budget of $1,200,000 in FY15. Deferred maintenance has been reduced by $60 million.

Campus or Unit: Missouri University of Science and Technology

Lever Number: 3.8

Lever Description: Exercise leadership in sustainability on campus and in the community by modeling sustainable practices in daily operations and practicing environmental stewardship

Lever Metric: A comprehensive sustainability plan created and approved
Action 3.8.1: Stabilize long-term funding for the Office of Sustainable Energy and Environmental Engagement

- The office of sustainable energy and environmental engagement reports to the new executive director for corporate relations.
- The executive director had the opportunity to provide input into the funding plan.

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 Student Council President was invited to join the Strategic Sustainability Planning Committee.
- The campus has several initiatives dedicated to sustainable energy. The first initiative is the Solar Village. The Solar Village houses the first four competition entries from the U.S. Department of Energy Solar Decathlon.
- A second initiative and a supplement to the Solar Village is the Sustainability Suburb which will house the 2013 and 2015 decathlon homes and four additional homes in the future. Missouri S&T is the only university that has earned an opportunity to compete in six of the seven competitions. $265,000 was reallocated to provide appropriate infrastructure for the expansion.
- The Solar Village utilizes a solar grid and smart grid power system. The Micro-grid Project offers intelligent switching capabilities for renewable power and advanced energy storage. A grant provided from the American Public Power Association through City Utilities of Springfield funded the installation of the battery array and graduate students conduct research on energy storage. NEC Energy Solution donated a 960V lithium ion battery; Milbank donated the Synap6 energy management hardware and electric vehicle charging station; Ameren in partnership with Electric Power Research Institute provided a residential fuel cell; and Ameren provided a Dynapower bi-directional inverter.
- As part of the university’s commitment to sustainability, Missouri S&T’s Dining Services has a contractual agreement that includes stipulations for effective waste management. Dining Services promotes its activities which minimizes the impact to the environment through reducing, reusing, and recycling – with a primary focus on reduction. This waste reduction program and green initiative is called TrimTax and has reduced food waste by 2,815 gallons.

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

- Members of the Student Council presented a bike-friendly plan to the Strategic Sustainability Planning Committee in the spring. The committee felt that a student-driven plan would be more successful for obtaining funding and for student compliance efforts.
- Public transportation is a viable mode of transportation for Missouri S&T students. To promote energy independence and help protect the environment, an electrically powered bus began routing students in FY14 and the campus has funded this through cost dollars through FY16. A student fee for the future operation of the bus is on the Student Council agenda to approve funding for FY17 and beyond.
- The EBus completes a loop around the Missouri S&T campus twice an hour beginning at 7:30 a.m. to 4 p.m. Monday through Friday. It leaves its terminal at E3 Commons and makes stops at Miner Village, Emerson Hall, Centennial Hall, Havener Center, and Gale Bullman Building before returning to E3
Commons. The bus began a new stop in the fall semester by providing transportation to campus for students living in the new downtown housing. The EBus also helps students without transportation to fulfill their personal needs by making community runs to local grocery stores.

**Action 3.8.6: Investigate existing and new courses for sustainability awareness for faculty, staff and students**

- The Office of Sustainable Energy and Environmental Engagement and student employees compiled a preliminary list of existing sustainability related courses. The full investigation is expected to be completed by December 2015.
- Missouri S&T currently offers minors in sustainability, global studies, and global sustainable economics.

**Action 3.8.7: Create campus sustainability project revolving fund that will allow savings to be invested back into the fund to underwrite future projects**

- A sustainability fund is in place to support future projects. The Office of Sustainable Energy and Environmental Engagement has received several grants and contracts including the AAPA and City Utilities of Springfield. This action will continue to develop as new projects and initiatives are identified.

**Action 3.8.8: Track energy, environmental and sustainable research on campus**

- The Office of Sponsored Programs tracks grants and contracts including those involving energy, environmental, and sustainability. The Office of Sustainable Energy and Environmental Engagement along with student workers are compiling an initial list of sustainability-related research projects utilizing the Annual Reports on Grants and Contracts and the monthly report on grants and contracts.
- The Office of Undergraduate Studies has modified their application process to include a checkbox for undergraduate research projects related to sustainability as this process should help with tracking.
- The new geothermal project tracks usage and energy savings.

**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**

- All new construction can be evaluated with LEED standards and principles. Physical facilities and construction management will continue to monitor.
- The LEED principles were applied to the new James E. Bertelsmeyer Hall for Chemical and Biochemical Engineering; the Technology Development Center; and the Kummer Student Design and Experiential Learning Center.
- These LEED principles have aided the campus in achieving a Silver STARS (Sustainability Tracking Assessment and Rating System) rating. This rating, performed by the Association for Advancement of Sustainability in Higher Education, evaluated the areas of education and research; operations and planning; and administration.
- Bertelsmeyer Hall received a LEED Silver rating in July 2015.
**Action 3.8.14: Produce one-hour monthly program called Energy Today to be broadcasted over KMST and made internationally visible via KMST.org**

- Energy Today explores energy from all angles, how to generate it, how to store it, and how to use it. It is hosted by the director of the Energy Research and Development Center. This program is offered the first Saturday of every month. After the two-year launch plan, a five-year syndication plan is in place.
- KMST is currently evaluating the effectiveness of the program via a listener survey.
- KMST repackaged out-takes of the Energy Talk program as five minute news features. These news modules will be made available to other Missouri stations through the online Missouri Public Radio Network.
- In February 2015 the program “Water, Energy, Fuel Nexus” was presented by Greg Gelles, chair of economics department; Richard Darton, professor Emeritus, Oxford University; and Hank Kohlbrand, consultant, Dow Chemical.
- In June 2015, the discussion focused on energy in Nepal, and featured Jagan Nath Shrestha, founder Center for Renewable Energy, Nepal; Prem Paudel, businessman, Nepal; and Shyam Paudel, Missouri S&T student, citizen of Nepal.

**Action 3.8.15: Model sustainable practices to promote environmentally responsive residential living communities**

- Residential life is collaborating with the City of Rolla to finalize the recycling plan for the downtown housing community.
- Missouri S&T won the Midwest Affiliate of College and University Residence Halls Commitment to Sustainability Award. This award recognized the campus for its commitment to sustainability awareness through student-directed, year-long campus wide sustainability activities for environmentally sustainable living measures.
- Resident hall student workers are trained on customer service, emergency procedures, and front desk operations. The residential living communities completed building coordinator training and were distributed emergency response kits.
Missouri University of Science and Technology

3.9

Conduct a comprehensive fundraising campaign to secure private support for identified campus priorities

Positive annual growth of 1 percent (2020)
Renewal rate of all donors 66 percent (2020)
Renewal rate of alumni donors 75 percent (2020)

Lever Summary:

This year’s gifts reflect a 37.6 percent increase over the $10.1 million baseline. Endowment fundraising had a 12.9 percent increase over baseline. Renewal rates of alumni donors increased from the 68 percent baseline to 71 percent this year. The endowment market value grew 12 percent last year, from $148,100,000 to $169,500,000. Gifts closed on June 30, 2015 at $13,969,873 with $3,388,246 designated for endowment.

The comprehensive campaign remains a top priority for the campus and is evidenced by the reallocation of $750,000 in general operating revenue for FY15 and reallocation of $828,044 for FY16 to hire additional staff to lay the foundation for the campaign. The comprehensive campaign will last for five to seven years and will likely launch in 2015.
Action 3.9.10: Leader review and decision-making by senior campus leadership to identify and prioritize fundraising opportunities based on new strategic plan and updated campus master plan

- University Advancement is seeking input from senior campus leaders to identify and prioritize fundraising efforts.
- All 250 principle tier prospects have been validated by prospect research.

Action 3.9.11: Develop campaign case statement based on prioritized list of fundraising targets

- The case statement is currently under development. It is important to identify and prioritize fundraising opportunities from the strategic plan and the Campus Master Plan.

Action 3.9.12: Recruit and hire staff

- University Advancement received a staffing investment to add five new positions in FY15 and will be allocated additional funding in FY16.
- A new senior development officer, prospect researcher, and administrative assistant were hired in FY15.
- Two executive directors, one for each college, were hired in FY15.
- Paschal Murray is providing executive search and recruitment assistance.

Action 3.9.13: Train new staff

- Training for the new hires has occurred and will be ongoing as additional staff is hired.

Action 3.9.14: Identify prospects for campaign cabinet

- This action will begin in FY16.

Actions 3.9.15, 3.9.16, 3.9.17, 3.9.18, 3.9.19, 3.9.20, 3.9.21, 3.9.22 and 3.9.23 are contingent upon completion of other actions.

Action 3.9.24: Develop campaign report, metrics format and process

- The metrics, format, and process of the campaign reports have been outlined.

Action 3.9.26: Implement Advisor data tool

- The Advisor tool has been installed and is currently being utilized.

Action 3.9.27: Complete iModules installation

- iModules has been tested and the installation has been completed.

Action 3.9.29: Dedicate Hasselmann Alumni House

- Construction has been completed.
- The dedication for Hasselmann Alumni House occurred in March 2015.
Action 3.9.30: Launch online honor roll of donors
- The honor roll of donors has launched.
- Marketing and communications manages the Shillelagh newsletter (electronic and print) to help enhance and increase communication and interaction with endowment donors.

Action 3.9.31: Begin planning and laying groundwork for an Arts, Sciences, and Business Academy
- Preliminary discussions have taken place to begin the planning phase.

Action 3.9.32: Identify and appoint directors of development for each college
- The two executive directors have been hired, one for each college.

Action 3.9.33: Complete reorganization
- This action is dependent on the completion of other actions that are currently in progress.

Action 3.9.34: Explore the feasibility and resources required to create for donors an online repository of personal giving records
- This action is currently being explored.

Action 3.9.35: Plan and host recognition events for lab upgrade donors
- The laboratory dedication ceremony occurred on April 16, 2015 during Philanthropy Week.

Action 3.9.37: Ensure major prospects are visited face to face annually
- A plan is in place to visit the major prospects. With the staffing increases and realignment of the office, this action can be achieved.

Action 3.9.38: Implement RuffaloCody phone-a-thon program
- University Advancement has contracted with RuffaloCody and they are managing the phone-a-thon.
- The phone-a-thon program in FY14 secured $1,159,563 and $1,222,847 in FY15, representing a 5.46 percent increase.
Lever Summary:

Fifteen online master’s degree programs at Missouri University of Science and Technology are ranked among the best in the country in four categories according to US News and World Report. The university’s online graduate engineering programs [aerospace engineering, civil engineering, computer engineering, electrical engineering, engineering management, environmental engineering, explosives engineering, geotechnics, manufacturing engineering, mechanical engineering, mining engineering and systems engineering] were tied for 20th place overall and ranked 17th among public universities.

Missouri S&T’s online computer information technology programs ranks 26th overall and placed 16th among public universities.

Missouri S&T’s online MBA program tied for 55th overall and ranked 41st among public universities.

Increasing online courses, students enrolled online, and blended courses remain a campus priority as demonstrated below:

- The number of undergraduate students enrolled in 100 percent online in spring 2015 increased by 59 percent over spring 2014.
- The number of graduate students enrolled in 100 percent online in spring 2015 increased by 8 percent over spring 2014.
- The number of 100 percent online undergraduate student credit hours in spring 2015 increased by 5 percent over spring 2014.
- The number of 100 percent online graduate student credit hours in spring 2015 increased by 3 percent over spring 2014.
- The number of undergraduate students in blended courses in spring 2015 increased by 44 percent over spring 2014.
- The number of graduate students in blended courses in spring 2015 increased by 240 percent over spring 2014.
The total number of students in blended courses in spring 2015 increased by 47 percent over spring 2014.

The number of undergraduate students enrolled in 100 percent online in fall 2014 increased by 94 percent over fall 2013.

The number of graduate students enrolled in 100 percent online in fall 2014 increased by 9 percent over fall 2013.

The total number of students enrolled in 100 percent online in fall 2014 increased by 52 percent over fall 2013.

The number of 100 percent online undergraduate student credit hours in fall 2014 increased by 51 percent over fall 2013.

The number of 100 percent online graduate student credit hours in fall 2014 increased by 7 percent over fall 2013.

The total number of 100 percent online student credit hours in fall 2014 increased by 28 percent over fall 2013.

The number of undergraduate students in blended courses in fall 2014 increased by 24 percent over fall 2013.

The number of graduate students in blended courses in fall 2014 increased by 1,100 percent over fall 2013.

The total number of students in blended courses in fall 2014 increased by 26 percent over fall 2013.

**Action 4.1.1: Conduct a focused market study analysis to serve as the foundation for a comprehensive distance and online education strategy**

- Conducted a survey of currently enrolled distance students in January 2015. The survey asked the basic question of why they chose Missouri S&T. The survey concluded that 58 percent of the respondents said it was the academic programs and reputation; 47 percent liked the flexibility of online class delivery; and 21 percent liked the responsiveness of their professors. A need for improvement identified was to add more course offerings especially in the summer was identified. The overall survey conclusion noted that 88 percent of the respondents said they would recommend Missouri S&T.

- In spring 2015, a customized market research study, “STEM Completion and Employment Benchmarking,” was completed by the Education Advisory Board out of Washington, DC.

- Funding for this area was linked to a strategic initiative proposal expanding instructional laboratory equipment. A portion of these allocated funds (approximately 20 percent) were used to configure laboratories for remote access.

- The new assistant vice chancellor for global learning, Anthony Petroy, started in July 2015. One of the first priorities is to join distance and online under one umbrella.

**Action 4.1.2: Bring together distance and online programs under one umbrella so as to leverage advantages of both, to pool resources, and to eliminate confusion**

- A policy became effective July 1, 2015 to establish a revenue distribution model. The policy stipulates that instead of assigning a specific dollar amount of overhead when budgets are established, all distance education and off-campus programs will be assessed a full cost charge of 15 percent of gross revenue. In addition to the 15 percent full-cost charge, distribution will continue to be made to the...
provost equal to 5 percent of gross revenue, as well as a 5 percent gross revenue distribution made to the vice provost and deans.

- The campus updated the membership in the State Authorization Reciprocity Agreement in spring 2015.
- The vice chancellor for global and strategic partnerships joined online learning with distance learning to create the global learning unit. The finalization of the merger will occur with the new assistant vice chancellor for global learning.
- The visual communications center was utilized in the calculus redesign for production of 16 hours of video lecture and demonstration. The center also developed several distance courses, continuing education courses, and webinars for a number of departments and centers.

**Action 4.1.4: Increase our focus on the professional non-credit distance education portfolio**

- A contract was developed with the Association of State Dam Safety Officials to deliver “Soil Mechanics for Earth Dam Design and Analysis.”
- In spring 2015, Global Learning launched the online training “Relative Permeability: Petroleum Reservoir Engineering Technology.”
- In the spring, online trainings for General Motors occurred and the GM TEP Letter of Agreement for Paint Technology and Process Control Certificate was renewed. The campus is in the development process of a new area focusing on conveyor systems. In fall 2015, “Introduction to Automotive Conveyor Systems” should be completed.
- Global Learning is providing additional development trainings for Honeywell, “Systems Engineering Training for INCOSE Exam Preparation.”
- Global Learning established a five-year contract with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) for explosives engineering courses.
- The new assistant vice chancellor for global learning will meet with companies and agencies to help them develop and deliver additional non-credit distance education courses.

**Action 4.1.5: Involve library to work on storage, usage and copyright issues involving online resources including multimedia**

- The library is working with Global Learning on a plan for storage, usage, and copyright. The plan will be completed in FY16.
- In FY15, materials were developed and offered to all departments. The library offered a series of workshops and sessions regarding copyright, author rights, and fair use. Three copyright workshops were delivered to faculty and six copyright workshops were delivered to students. There is an online link for copyright guides made available to all students.

**Action 4.1.6: Create an incentive program to encourage departments and faculty to offer more online, blended and distance courses**

- Global Learning acknowledges and supplements distance revenue to departments who utilize adjunct faculty for teaching distance courses.
- Global Learning distributed an instructor booklet on useful tips for teaching distance courses to all faculty in spring 2015.
- The new assistant vice chancellor will work with the vice provost and deans and department chairs to create an additional incentive program to offer more online and blended courses. For some
departments, the additional courses may be taught by full-time tenured, tenure-track faculty and other departments may need to hire adjunct instructors to reduce the workload of current full-time faculty.

- The eFellows program had seven Tier 1 grants, five Tier 2 grants, and one Tier 3 grant.

**Action 4.1.7: Leverage existing success and resources from distance education program to expand into more online or asynchronous course offering**

- Developed VCC studio classroom utilization and revenue generation analysis that indicated additional offerings are limited by classroom availability. Results of this study were reviewed with the Space Committee for consideration of changes in how classrooms are utilized.
- The assistant vice chancellor will evaluate the funds available for expanding the number of online synchronous and asynchronous courses. Discussions with faculty and academic departments that offer online courses will occur in FY16 to focus on expanding the number of online or asynchronous courses.
Lever Summary:

Redesigned instructional lab update provided below:

<table>
<thead>
<tr>
<th>Campus or Unit:</th>
<th>Missouri University of Science and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lever Number:</td>
<td>4.2</td>
</tr>
<tr>
<td>Lever Description:</td>
<td>Enhance instructional labs and methods of developing lab experiences</td>
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<tr>
<td>Lever Metric:</td>
<td>Increase the number of redesigned instructional lab courses by 5 (year five)</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Instructor(s)</th>
<th>Description</th>
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<tr>
<td>Cell Biology</td>
<td>Terry Wilson</td>
<td>Flipped lab with video demonstrations and quizzes which are provided online before the wet lab experimentation in the traditional setting</td>
</tr>
<tr>
<td>General Biology</td>
<td>Terry Wilson</td>
<td>Pilot ed spring 2015: Online lab using lab kits and an online learning platform</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>Klaus Woelk, Shayna Burchett</td>
<td>Blended lab using lab kits and traditional lab with course content supplemented within the LMS (Canvas)</td>
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<tr>
<td>Electrical Engineering</td>
<td>Kelvin Erikson, Amardeep Kaur</td>
<td>Projected Pilot fall 2015</td>
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<tr>
<td>Materials Testing</td>
<td>Jeff Thomas</td>
<td>Online lab using custom lab kits created by the instructor</td>
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<tr>
<td>Microbiology</td>
<td>Dave Westenberg</td>
<td>Flipped lab with video demonstrations and quizzes provided online prior to the wet lab experimentation in the traditional setting</td>
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<tr>
<td>Nuclear Engineering</td>
<td>Ayodeji Alejo, Bill Bonzer, Craig Reisner</td>
<td>Video equipment installed and streaming live class to remote locations</td>
</tr>
</tbody>
</table>
Action 4.2.1: Explore how to partner with other universities, community colleges, high schools or extensions to deliver lab experiences

- The Department of Electrical and Computer Engineering (ECE) hired an NTT faculty member to develop labs to support circuits and electronics courses taught at community colleges.
- This lever is tied to a funded strategic initiative, where a portion of allocated funds (approximately 20 percent) were used toward configuring laboratories for remote access.

Action 4.2.2: Develop model frameworks and strategies for evaluating and redesigning instructional lab courses for blended/online delivery

- A model framework has been developed by Educational Technology.
- A handbook for use by the instructors has been developed by Educational Technology.
- This academic year, CivE4448 was taught and offered as an elective to MU for CE4500 which had not been taught for several years at MU. Enrollment was limited to 15 MU students and the class filled on day one. Missouri S&T had 65 students enrolled and the cooperative program in Springfield had 20 students enrolled. The class was well received by all students.
- Civil developed the new online course, phytoremediation and natural systems, and the new distance composites design course.
- Engineering management developed new blended courses: ENG MGT 1100, ENG MGT 1210 and ENG MGT 3320. The department completed the redesign of ENG MGT 4907.
- Materials science developed new online courses MSE 6110 and MSE 6120 and a new blended course CER 3230.
- Geological developed three new online courses: GEO ENG 6400, GEO ENG 5415 and GEO ENG 5332; new blended courses GEO ENG 5471 and GEO ENG 6477; and a new course for the humanitarian engineering minor, GEO ENG 1880. It was determined to combine GEO ENG 1150 (Introduction to Physical Geology, a three credit course with lab component), GEO 1110 (Physical and Environmental Geology, a three credit lecture), and GEO 1119 (Physical and Environmental Geology Laboratory, one credit). The campus curriculum committee approved the combination of these courses to create a corresponding/co-listed, one credit lab (GEO ENG 1119). These courses will be offered in fall 2015. The decoupling of the lab from the lecture may accelerate the evolution of these courses into a blended course.
- Chemical and biochemical engineering created a new course, bioprocess safety. The bioreactor course was redesigned and transformed from a textbook-based course into a primary courses-based course.
- Psychological science developed a new online course, personnel selection.
- Physics developed new shared courses with UMSL as part of the Ph.D. cooperative program: Physics 4301 and Physics 5301; Optics (Physics 4503) was modified for online delivery; and Engineering Physics I and II (Physics 1135 and 2135) were both redesigned to include blended options which allowed enrollment to increase from 450 to 600 per semester for each course.
- History developed a flipped course, History 1200; a blended course History 1300; History 2430 and History of Science are now offered as both online and blended; History 2790 is now offered as a blended course; and History 3360 is offered as a seminar-style course.
- Math developed new blended courses, analysis of categorical data and statistical shape theory. As part of the shared courses with UMKC, the mathematical foundation of finite element methods was developed.
• Electrical and computer engineering redesigned EE 2120 into a blended format which begins enrollment in fall 2015.

• Arts, languages, and philosophy developed a new digital art course (Art 3001) and a new philosophy course (Phil 300). Nearly half of the philosophy courses are now blended, one Russian course is blended, and French is developing a blended course.

• English and technical communication is course sharing with the UMSL English department for technical communication. The department also redesigned 12 courses.

• The campus also participates in the System funded inter-campus course sharing model. Missouri S&T offers courses through this system which combines online, video conferencing, and traditional teaching: 1) Civil Engineering 4448, Fundamentals of Contracts and Construction Engineering Architectural and Environmental Engineering, and offered to students at MU; 2) Electrical and Computer Engineering 5600, Interference Control in Electronic Systems, and Computer Engineering 5620, Signal Integrity was taught in spring 2015 and offered to UMKC; 3) Mathematics 6602, Mathematical Foundation of Finite Element Methods, offered to students at UMKC; 4) Introduction to Ethics, offered to students at UMSL. (Missouri S&T students are enrolled in UMSL’s ethics in science course); 5) Physics 4503 (Classical Optics), Physics 4533 (Nanotechnology), Classical Optics and Nanotechnology courses are offered via the Missouri Physics Collaboration (UMSL is teaching relativity and cosmology to Missouri S&T physics students); 6) four technical communication courses – International Dimensions of Technical Communication (4450), Usability Studies (5530), Proposal Writing (4550) and Technical Editing (4510) – will be taught by Missouri S&T faculty and offered to UMSL students (Three UMSL courses – Advanced Business and Technical Writing, Editing, and Special Topics in Writing: Technical Presentations – will be taught by UMSL faculty and delivered to Missouri S&T students); 7) two Missouri S&T history courses – History of Technology (2510) and Architecture, Technology and Society: 1750-Present – offered to UMSL students (two UMSL courses – The Networked Society and Social Informatics – are offered by UMSL to Missouri S&T students).

• Environmental and civil engineering students at Missouri S&T will enroll in watershed management and water quality, a course offered by MU in collaboration with Missouri S&T.
Lever Summary:

This lever is tied to a FY15 strategic initiative. This initiative enhances the recruitment process for Ph.D. students by providing stipends for GRAs/GTAs and a premier Chancellor’s Distinguished Fellowship. The campus has reallocated $500,000 in general operating revenue and provided a 2,875 square foot newly renovated space dedicated to Graduate Studies by allocating an additional $250,000 in cost funds. Marketing materials were developed and samples are provided below.
Experience S&T - program developed to increase enrollment. This program invites graduate candidates on the Missouri S&T campus and includes hotel, meals, travel allowance (up to $500), dinner with the faculty, campus tour, lab visits, and faculty visits.

Chancellor’s Distinguished Fellowship - designed to be a highly competitive package. The fellowship includes all tuition, fees, $28,000 stipend, and a $1,250 travel allowance to conferences.

Dissertation Completion Fellowship - developed to increase graduation rates. The program provides in-state tuition, fees, and a $24,000 stipend.

**Action 4.5.3: (Recruit) Develop memoranda of understanding and articulation agreements with reputed national and international schools to recruit high quality doctoral students**

- There were 15 memoranda of understanding signed in academic year 2014-2015.

**Action 4.5.4: (Recruit) Develop a marketing plan to promote comprehensive Missouri S&T graduate leadership and excellence**

- An “Experience Missouri S&T” was planned for the spring semester. This experience is a visitation program for prospective doctoral students. A flyer was created and mailed for marketing purposes.
- Experience S&T visit dates for fall 2015: September 17-18, October 1-2, and October 16.
- Universities marketed to in the spring: St. Ambrose University, Valparaiso University, Milliken University, Truman State, University of Tulsa, Texas A&M, University of Maryland, and John Brown University.
- A graduate recruitment staff member was hired and started in spring 2015.
- Graduate Studies is attending the Oak Ridge National Lab’s graduate fair in summer 2015.
- GRE names were purchased for mailings.

**Action 4.5.7: (Retain) Conduct a feasibility study and develop a plan for a Graduate Resource/Success Center/Graduate Learning Commons to help students in the timely completion of their degrees, and to facilitate greater student/faculty/staff interaction**

- Graduate Studies, design and construction management, and the library director met to discuss moving forward with a graduate resource center being housed in the library.
- A survey was conducted with faculty and students on the type and usage preference of a graduate resource space. The conclusion from the survey indicated an academic, social, and collaborative space would be utilized and welcomed.

**Action 4.5.9: Develop and implement a plan for a comprehensive graduate student division of Career Opportunities and Employer Relations (COER)**

- Initial discussions revolving around this action have occurred with the Office of Graduate Studies and Career Opportunities and Employer Relations. It was determined in April that a COER staff member would be hired to focus on job opportunities for graduate students. An ad was placed in June and the position is expected to be filled by fall 2015.
Action 4.5.11: (Recruit) Provide funds to encourage prospective domestic doctoral students to visit the campus for one day and/or a few weeks to work closely with a professor

- Based on the approved FY15 strategic funding initiative, the campus implemented a visitation week for prospective doctoral students. The program includes: hotel, meals, travel allowance (up to $500), dinner with the faculty, campus tour, lab visits, and faculty visits.
- The first Experience S&T had: seven males; four females; six students visited the College of Engineering and Computing; five students visited the College of Arts, Sciences, and Business; and all students who attended were planning a direct Ph.D. after they completed their undergraduate.

Action 4.5.17: (Retain) Promote workshops/seminars/social events to encourage more camaraderie and exchange of research ideas among doctoral students from various disciplines

- In the spring, a graduate student success specialist was hired to promote workshops, seminars, and social events.
- Boot camps were held in November, March, and June, each with 50 attendees. The boot camps consisted of the following workshops: Thesis/Dissertation, Using Endnote, Stress Management, and Formatting your Theses/Dissertation.
- Promote U series was conducted with the Chancellor’s Fellows and seminars were offered on editing and creating a powerful personal introduction.
- A graduate student lunch and learn month was created offering the following seminars: formatting, learning about copyright, social networking, academic writing skills for ESL graduate students, learning about LaTex, creating a style sheet in Word, and writing your thesis/dissertation.

Action 4.5.22: (Recruit/retain/placement) implement comprehensive graduate student/program data collection mechanism, tracking mechanisms, (student inquiry thru placement), graduate learning outcomes rubrics, etc. to benchmark time-to-degree, doctoral retention, program improvement, timely response to student application/graduation status, and improve graduate student services

- Starfish S&TConnect will be utilized to track student engagement.
- Graduate learning outcomes rubrics are being redesigned and will be implemented in fall 2015.
- A graduate dashboard is being developed.

Action 4.5.24: Determine the feasibility of implementing a fully electronic graduate application management and review system

- The Slate application management system was purchased, designed, and went live in the 2015 spring semester and fall 2015 applications. The customer relations management software, Slate, replaced Hobson’s to provide a better application management experience.
- Faculty and graduate staff training sessions were held in the spring.
Campus or Unit: Missouri University of Science and Technology

Lever Number: 4.6

Lever Description: Improve student, faculty, staff and administrator mentoring and advising

Lever Metric: Improve the quality of mentoring and advising sessions while also increasing the number of sessions

Lever Summary:

Faculty mentoring for all junior faculty has been developed on a departmental level. The objectives of the mentoring program are to conduct a systematic review of faculty’s teaching, research, and service. The intent is to provide guidance and support for the faculty professional development. Many of the departments have created mentoring teams which consist of full-time or senior faculty. The team members should be at least one rank above the junior faculty while most mentor teams consist of tenured faculty. Most teams are very focused with one member focusing on research, another member focusing on teaching, and the other member focusing on service. The team provides written reviews.

A new pilot program is being rolled out in fall 2015 for staff mentoring. The premise is identifying the goals of the staff and connecting them with a sponsor. The sponsor will become the champion for that individual. This program is being developed by the human resources department. Matching the staff to the right sponsor is critical for its success. The sponsor is not required to be within the department of the staff.
Action 4.6.1: Explore development of an online math assessment for incoming students

- Currently during the student’s registration and orientation one-day session, students are given the Missouri Mathematics Placement Test and trigonometry exam to determine their math classes. The algebra exam was developed as a statewide exam in 1970. The trigonometry exam was developed by Missouri S&T. The algebra exam is 40 questions completed in 40 minutes. The trigonometry exam is 25 questions completed in 60 minutes. Both exams are given without the use of calculators. The tests are scored and the math advisor looks at high school grades, incoming credit, and ACT scores to determine the appropriate math class. Results are shared the same day with the student and they are registered into class.
- A task force was developed to analyze the feasibility of an online math assessment. Math assessments at comparable universities and online assessment software will be investigated. The task force will be meeting over the summer to discuss their findings and next steps.

Action 4.6.2: Develop and implement a campus structure of staff advisors for undergraduate students

- A plan is being developed to hire non-tenure track faculty who would have split appointments to serve as “super advisors” as well as teach within programmatic areas. This could provide instant relief for departments that need assistance in both advising and teaching loads.

Action 4.6.3: Complete feasibility study of upgrading degree audit software and implementing academic mapping planner

- As part of the Comprehensive Retention Initiative, the four campuses have determined to upgrade the degree audit. The decision has also been made to move forward with academic mapping planner, U Direct.
- The degree audit software is interactive and tracks student academic progress in meeting degree requirements.
- The academic mapping planner software creates a semester-by-semester roadmap for student course enrollment based upon their approved degree audit. The software informs students of appropriate course sequencing and provides alerts so advisors know when a student is on or off track. The possible go-live is slated for FY16.

Action 4.6.4: Explore the feasibility of a Center for Teaching and Learning

- A plan is being developed to start on many aspects of a center for faculty excellence in teaching and learning. Although full implementation may not be feasible in FY16, certain programs will be rolled out to begin the process.

Action 4.6.5: Implement best practices and promote widespread use by the faculty, students and advising staff of the Missouri S&T Early Alert and Connect advising tools

- The S&T Connect system offers a comprehensive online advising and mentoring tool. This tool was implemented in 2015.
The Comprehensive Retention Initiative team at Missouri S&T, which consists of enrollment management, information technology, and undergraduate studies, continues to plan for the full implementation of academic mapper and planning software (U Direct), update to the degree audit system (U Achieve), and addition of class scheduler resources.

Campus staff participates in regular meetings and shares best practices with other System campuses.

Action 4.6.6: Create a “10 Before Tenure” program where untenured faculty can participate in 10 career development programs

- The provost office is developing this program.

Action 4.6.7: Enhance the new faculty orientation program

- One aspect of the center for faculty excellence is new faculty orientation. This is a preliminary program element and provides a foundation for faculty development. Discussions are occurring on integrating additional enhancements in FY16.
- The current new faculty program begins with a two-day orientation. A campus welcome and strategic overview is provided by the Chancellor. Professors present on: “Teaching Expectations and Assessment;” “Developing Approaches and Viewpoints to Achieve Career Success;” “Getting Ready for your First Class at S&T;” “Diversity of Scholarship at Missouri S&T;” and “Working with Students.” The Provost discusses leadership and campus organization. An introduction to sponsored research is provided. The library provides information on data management and scholarly tools. The campus promotion and tenure committee discusses the tenure process.
- After orientation is completed new faculty are connected with a mentor.

Action 4.6.8: Develop guidelines for faculty mentoring focusing on three core areas: teaching, research and service

- Mentoring occurs at the departmental level. A plan is being discussed about feasibility of addressing this as a part of a Center for Faculty Excellence.

Action 4.6.9: Explore the feasibility of a comprehensive staff mentoring program

- Pilot programs are beginning in FY16 and additional plans are being developed.

Action 4.6.10: Explore and create additional programs to assist in professional development, leadership and mentoring of graduate students

- The Graduate Leadership Development Program (GLDP) provides students from various disciplines at Missouri S&T to network and collaborate with each other and graduate students from System campuses.
- Evaluation feedback of this program has been provided and is extremely positive. One student explained, “through this program I was able to learn about and implement new ways to approaching leadership and the delegation of tasks. It has become invaluable in a personal and professional context.”
Action 4.6.11: Create and enhance resources for campus graduate staff and coordinators (e.g. Guidebooks, Staff Storm, Graduate Council meetings, etc.)

- An Office of Graduate Studies “Policy and Procedure Manual” will be completed in fall 2015.
- The graduate staff training manual is under revision and expected completion is fall 2015.
Lever Summary:
The campus has been exploring the barriers to graduation and has taken measures to remove those barriers. As an example, based on preliminary analysis, calculus posed a challenge for students and recognizing that need, calculus is being redesigned.
Action 4.7.1: Explore the feasibility of a first-year success course

- The Student Success Center performed 742 one-on-one tutoring sessions (an increase of 515 sessions over the fall semester).
- The On-Track student success course for probationary students served a total of 113 students.
- Elements of a first-year success course will be rolled into freshmen engineering.

Action 4.7.2: Identify the feasibility for restructuring freshman engineering

- The vice provost and dean for the College of Engineering and Computing is working with faculty to transform freshman engineering. A core foundation that is being explored is the notion of creating students to think innovatively.
- Advisors have been hired and dedicated to freshmen engineering to help with student success.

Action 4.7.3: Enhance student mentoring program

- The student success mentoring program is the formalization of the assistance available in the Student Success Center. This center is focused on providing early intervention assistance. These students are identified during the admissions process. During their PRO day each student will meet a Success Coach. This coach will connect with the student during their first and second semester about resources and programs available.
- Faculty maintain a presence in the Student Success Center. Brown bag lunches are offered so the students can have lunch with the faculty. There are posted faculty hours to inform the students of the importance of talking with their professors.
- The Sophomore Year Experience is a celebration for sophomores. Topics include: study abroad, careers, involvement, alumni involvement, leadership, Co-ops, and internships. The first offering was during the academic year 2014-2015.
- Undergraduate advising and the Student Success Center hosted mid-term recovery in April 2015. Students received information about how to bounce back and raise their grades before the end of the semester.
- Two students were hired to work with the veteran population.
- In spring 2015, the Student Success Center began a monthly newsletter that highlighted their services, mentoring, and outreach programs.
- Developed the “Mentors across Campus” program. This group of campus mentors meets to discuss challenges and new ideas for students they assist. The group includes: Success Coaches, LEAD PLA’s, Mash Mentors, On-Track Tutors, Writing Center Tutors, Greek Scholarship Chairs, Joe’s Peers, Voyagers RA’s, Graduate Guides, and Diversity Mentors.
- The LEAD tutoring program which uses faculty-directed peer-learning assistants has grown to a record 65 classes with LEAD sessions for this academic year.
- The Writing Center mentors saw a record number of undergraduate students using the center. The fall 2013/14 academic year conducted 2,700 sessions and the number increased to 2,935 in the 2014/15 academic year.
- The campus increased the opening week mentors. In the fall semester, the campus had 80 mentor groups focused on 17-18 new students. For fall 2015, there are 90 mentor groups focused on 17-18
new students. The mentors go through intense one-day training along with two meetings a day for one week. Also selected were 25 transfer transition mentors to assist with transfer students’ acclamation to the campus.

- Hit the Ground Running summer bridge program for incoming freshmen has expanded from 78 students in summer 2014 to over 90 students in summer 2015.

**Action 4.7.4: Generate a time-to-degree template and analyze baseline demographic data of graduate student cohorts for Ph.D. completion**

- Graduate Studies and institutional research met to develop a dashboard.
- FY15 Strategic Initiative funds provided a graduate data analyst to create the dashboard and analyze national rankings. The staff member started in June 2015.

**Action 4.7.5: Explore and identify graduate policies and procedures that impact the doctoral plan of study and students’ multiple career pathways (e.g. time limits, residency requirements, etc.)**

- The Ph.D. Residency Policy was passed by Graduate Faculty in May 2015 and will be in the Graduate Catalog for fall 2015. This policy will provide the necessary flexibility for professional students to pursue distance Ph.D. education.

**Action 4.7.6: Implement a pilot program to assist graduate students with theses/dissertation completion**

- The campus piloted the Dissertation Completion Fellowship (DCF). This program is available to current doctoral students to help them focus their energy on completing their dissertation and provides full coverage of tuition and fees for one year and a $24,000 stipend. Eleven students were awarded the DCF, nine were full-year commitments and two were fall only. The average GPA of those in the pilot was 3.9/4.0; nine were males; 2 females; seven students from the College of Engineering and Computing; and four from the College of Arts, Sciences, and Business.

**Action 4.7.7: Explore additional work study opportunities and other student engagement programs**

- In the fall, there were 30 socioeconomically challenged students with a projected below-average retention rate. These students became part of the institutional Work Study program. Early projections demonstrate that students in a program, which heavily emphasizes engagement with the student, will have a higher return rate than similar students.
- Programs targeting second semester students are being designed. A new engagement program, “Beyond First Semester,” is under development.

**Action 4.7.8: Explore the feasibility of spring, summer and winter intersession courses**

- The provost is reviewing the feasibility of intersession courses.
Action 4.7.9: Identify measures to enhance course enrollment projections and implement adaptive instruction funding model

- The registrar has restructured the freshman course projection report to improve the consistency of formulas and also expanded the courses that are included. The report is generated and distributed in March after the first freshman projections are released. The distribution of this report is provided weekly to the vice provost and dean for enrollment management, the vice provost and deans of each college, and the impacted department.
- Discussions are occurring over the summer to connect the instruction funding model to this course projection report.

Action 4.7.10: Investigate offering courses in an innovative modular format

- The provost is examining the feasibility of an innovative modular format.