

Think Beyond the Possible

Our Strategic Plan for Case Western Reserve University, 2013-2018

Introduction

“Think beyond the possible” is more than a motto at Case Western Reserve. It exemplifies our approach, and obligation, as an institution of higher learning. Every day, we strive **to improve people’s lives through preeminent research, education and creative endeavor.**

This emphasis on **impact** attracts special kinds of people to our campus. People with extraordinary aspirations. People who think they can change the world. People who, over time, actually do.

More than a century ago, two of our professors contributed to Albert Einstein’s theory of relativity. Six decades later, our medical school dean won the Nobel Prize for work on the polio vaccine. In 2012, the email system that one of our graduates designed – Gmail - became the most popular on the globe, with more than *425 million* users.

These days, members of our community play pivotal roles in public policy and polymer science and engineering, organizational behavior and international law. They write seminal works on preventing youth violence and understanding the history of the Bible. They create new worlds under the spotlights of a Broadway stage, and reshape rural villagers’ worlds with systems that provide clean water. In classrooms and laboratories, libraries and far-away lands, they shape the future through what they teach, learn, and do.

Impact need not be immediate to be important. Universities are among the most permanent of institutions precisely *because* of the enduring power of ideas. Many of our most significant accomplishments come through the accumulation of seemingly separate breakthroughs, while others emerge from serendipitous discoveries made en route to other ends. The creation of knowledge holds its own inherent value, and its pursuit must always be an essential element of our efforts.

In our 2008 strategic plan, *Forward Thinking*, we committed to harness our strengths in a more coordinated way. Five years later, we have set new records in **enrollment** and **philanthropy**, advanced **interdisciplinary research**, and **grown robust partnerships** with institutions across University Circle, our region, the nation and the world. Going forward, we will:

- **Advance interdisciplinary initiatives in research and education** that align our expertise with the world’s most pressing needs;
- **Enhance learning** through innovations in teaching, course design, advising and research;
- **Prepare students for leadership** through unparalleled campus and extracurricular experiences;
- **Bring Breakthroughs to Society**
- **Engage and inspire** students, faculty, staff, alumni, and other stakeholders, and provide opportunities for growth and recognition.

Mission, Vision and Core Values

In *Forward Thinking*, our community made a series of declarations about our purpose and principles. These statements remain cornerstones today.

I. Mission

Case Western Reserve University ***improves and enriches people's lives*** through research that capitalizes on the power of collaboration, and education that dramatically engages our students.

We realize this goal through:

- Scholarship and creative endeavor that draws on all forms of inquiry.
- Learning that is active, creative and continuous.
- Promotion of an inclusive culture of global citizenship.

II. Vision

We aim to be recognized internationally as an institution that ***imagines and influences the future***.

Toward that end, we will:

- Support the advancement of ***thriving disciplines as well as new areas of interdisciplinary excellence***
- ***Provide students with the knowledge, skills and experiences*** necessary to become leaders in a world characterized by rapid change and increasing interdependence.
- Nurture a community of ***exceptional scholars who are cooperative and collegial***, functioning in an ***atmosphere distinguished by support, mentoring, and inclusion***.
- Pursue ***distinctive opportunities*** to build on our special features, including our ***relationships with world-class health care, cultural, educational, and scientific institutions in University Circle and across greater Cleveland***.

III. Core Values

Academic excellence and impact

- Eminence in teaching and research
- Scholarship that changes lives and deepens understanding
- Creativity and innovation as hallmarks of our efforts

Inclusiveness and diversity

- Civility and the free exchange of ideas
- Civic and international engagement
- Appreciation for the distinct perspectives and talents of each individual

Integrity and transparency

- Academic freedom and responsibility
- Ethical behavior
- Shared governance

Effective stewardship

- Strong, ongoing financial planning
- Emphasis on sustainability
- Systems that support attainment of our mission

Summary

The pages that follow reflect our commitment to build on historic strengths and recent gains. Ours is a legacy of adaptation; over the generations, we have moved campuses, joined campuses, added and closed programs – all in response to the evolving needs of our immediate community and society at large. Since the adoption of *Forward Thinking* in 2008, we have demonstrated the power of broad collaboration in achieving strategic priorities. We have exceeded many of the aspirations articulated then, yet also recognize that some of our most significant initiatives require more time to realize their full potential. In this context, we have recommitted to key aspects of our previous plan, and also added initiatives that better align our strengths as a comprehensive research university with emerging global opportunities.

Interdisciplinary Initiatives in research and education remain a centerpiece of our efforts. Long a campus-wide strength, **Human Health** has become even more prominent within the university and the nation. **Culture, Creativity and Design** has catalyzed multiple major initiatives across University Circle and greater Cleveland. **Advanced Materials; Energy; Ethics; Origins; Social Justice; and Sustainable Value** all have witnessed major gains – and each holds even more promise for the future.

Innovative education represents one of our historic and ongoing strengths, encompassing the creativity of our curricula and the cutting-edge nature of our pedagogy and technology. More than a century ago, Abraham Flexner cited our medical school curriculum among the nation’s best in his transformational assessment of the preparation of physicians. In 1929, meanwhile, university president W.E. Wickenden’s assessment of engineering education was so influential that it is known to this day as “the Wickenden Report.” This tradition continues to this day. In recent years the School of Dental Medicine won the prestigious Gies Award for Innovation because of the groundbreaking nature of its new curriculum, while the accrediting body for medical schools called our new MD course model “the class of the field.” Finally, in 2013 the law school overhauled its course sequence to increase early hands-on opportunities and add leadership courses that emphasize interpersonal and management skills. This new strategic plan plan calls for us to increase the modern distinctiveness of on-campus offerings, expand nascent engagement in online programs and help our students thrive in a world increasingly dominated by technology.

Intentional Preparation for Leadership reflects our emphasis on providing an array of classroom and extracurricular opportunities that together allow our students to hone leadership skills in a unique, coherent way. We will expand undergraduate research opportunities, enhance and extend advising, encourage students to explore the myriad learning opportunities across the campus, and also enable all students to pursue global learning opportunities.

Commercialization and Entrepreneurial Thinking exemplify our commitment to bring research discoveries out to the people and organizations who will benefit from them. We nurture a campus-wide entrepreneurial spirit by providing enhanced guidance about translation and extensive new programs to guide the development of concepts to commercial offerings.

“It’s All About Who” is the book that became the 2013 senior capstone project of Morton Mandel, the renowned businessman and philanthropist who received his bachelor’s degree 74 years after first enrolling in college. It is also a clarion call for institutions to find the best people possible, and in turn provide them significant recognition, development and advancement.

To realize our ambitions, we will demonstrate discipline and embrace innovation. We will focus investments on our greatest strengths and seed our most promising opportunities. We will adjust existing administrative and financial practices to support our priorities, including a prominent and concrete emphasis on increasing affordability and reducing the debt students and families incur. Part of that effort involves the alignment of organizational responsibilities with demonstrated expertise. And we will encourage experimentation in all that we do to spur breakthroughs in teaching, research, and more.

Finally, we will measure our results against a broad range of national benchmarks and individual goals. We will report the results each year, and use the information to adapt and improve our approaches and aspirations in the following years.

Context

This plan reflects months of work among faculty, staff, students, alumni and other stakeholders who rallied around a singular goal: ***to accelerate Case Western Reserve's remarkable momentum.***

Our efforts take place amid a rapidly evolving environment. Economic uncertainty and skyrocketing student debt place enormous pressure on higher education. Political gridlock has reduced federal research funds, with steeper cuts forecast. Finally technology allows students to learn from some of the world's leading professors, simply by turning on their laptops.

As change accelerates, we recognize the imperative of agility. We must embrace experimentation, and act quickly - to end *or* add investments – based on results. At the same time, we must preserve our core strengths in the liberal arts to impart the broad intellectual understanding required to participate fully in professions, communities and our larger democracy.

We also must increase engagement beyond the university. Alumni can offer lessons about their campus experiences and trends in their fields. Employers and external graduate and professional school leaders can teach us how we best prepare students. And partners from all sectors can provide advice, insight and support to propel our progress.

In addition, any strategy involving Case Western Reserve must recognize the opportunity our location represents. We sit in University Circle, one of the world's most cosmopolitan and intellectually vibrant neighborhoods. We are nestled between two medical institutions on *U.S. News & World Report's* honor roll of best hospitals, an internationally renowned orchestra, and a world-class art museum. We are blessed with several more exceptional institutions nearby, as well as the 2012 opening of Uptown, a dining, retail, and residential district that has drawn national acclaim for its dynamic new urbanism.

Finally, we commit to expanding two signature priorities from our previous strategic plan: diversity and internationalization.

Diversity and Inclusion

The exchange of ideas and experiences, the development of cross-cultural understanding, and the appreciation of the worth of every individual all are fundamental to our work. Whether in classrooms or residence halls, laboratories or libraries, diversity's importance cannot be overstated.

Since the creation of the university's first Cabinet-level diversity position, the Office of Inclusion Diversity and Equal Opportunity has promoted broad dialogue and completed a comprehensive strategic plan. Over the past four years, the proportion of underrepresented undergraduate students in the entering class has increased by 130 percent. Meanwhile, figures for underrepresented faculty have climbed modestly, with the greatest gains coming among Hispanics.

We will continue to make concerted efforts to increase the participation and success of women and under-represented minorities in all disciplines, placing particular focus on STEM fields where representation historically lags.

Going forward, the office will advance the priorities of the Diversity Strategic Action Plan. In addition, it will collaborate across the campus to provide curricular, co-curricular, and professional development offerings that nurture an empathetic campus climate that values diversity of all kinds.

Internationalization

Over the past five years Case Western Reserve has made dramatic strides toward enhancing the global character of its campus. We have increased undergraduate participation in international experiences by nearly a third and quadrupled the number of international undergraduates in our entering classes. We have appointed our first campus-wide internationalization official, opened a Center for International Affairs, and created the first formal international student orientation.

In addition, we examined our existing international strengths, among them the medical school's global health center and the Jack, Joseph, and Morton Mandel School of Applied Social Sciences' innovative study abroad courses for all university students. Then, we built upon them: The Weatherhead School of Management launched three new international degree programs. The law school dramatically expanded partnerships with law schools abroad. And the university is exploring multiple academic initiatives with universities and other organizations in Brazil.

We will deepen and expand the university's international engagement over the next five years. As part of our efforts to graduate true global citizens, we will ensure that every undergraduate who wants an international academic experience has the opportunity to participate in one. We will seek additional research partnerships around the world. And we will execute the priorities articulated in the university's internationalization strategic plan, completed in January, 2012.

Interdisciplinary Initiatives

- ***We will advance interdisciplinary efforts that align our expertise with the world's most pressing needs.***

Few of the world's most challenging questions fit neatly into a single academic field. Answering them requires excellence within individual disciplines and among collaborative efforts. Our ability to distinguish the university's interdisciplinary endeavors depends first on the quality of scholars within specific subjects, and then on our ability to draw on their diverse strengths. The ability to achieve both of these outcomes depends on many factors, among them resources within and across departments, assets including technology, libraries, and learning and research space, and individual and collective commitment to meaningful breakthroughs. In addition, we must enhance our approach to the recruitment, preparation and support we provide doctoral students to ensure we attract and graduate the strongest possible scholars.

We will continue to enhance our talents within disciplines, and continue the progress made within interdisciplinary areas identified in *Forward Thinking*, among them: **Human Health; Culture, Creativity and Design; Advanced Materials; Energy; Ethics; Origins; Social Justice; and Sustainable Value.**

Human Health

We will apply our depth and breadth in the health sciences and related disciplines to distinguish ourselves as national leaders in health education, research and practice.

We claim a top-25 medical school, a top-15 nursing school, the country's 14th-ranked biomedical engineering department, and a renowned program in dental medicine. We also offer the country's fifth-ranked program in health law, the ninth-ranked graduate social work program, and nationally recognized leadership in medical anthropology, health policy and health finance. Finally, many faculty in the physical, biological, and social sciences, and engineering, focus on the treatment of disease and delivery of care. In short, human health is an area where the university's expertise is not only enormous, but truly campus-wide. Among our specific priorities are:

Innovative Education

We will catalyze the creation of a new medical education building to spark extraordinary educational innovation.

Health Sciences

Our partnership with the Cleveland Clinic to create a state-of-the-art medical education building provides a rare opportunity to combine cutting edge pedagogical techniques and academic technology. As value is ever-more central in health care, coordination becomes paramount. Along with the Jack, Joseph and Morton Mandel School of Applied Social Sciences, the schools of medicine, nursing and dental medicine already have begun to engage in meaningful forms of inter-professional education, and will expand team-based learning.

Medical Humanities and Social Medicine

In recent months, faculty have explored ways the university's broad strengths could contribute more significantly to the preparation of professionals who provide care, develop policy and influence the nation's health system. From culture and psychology to law, history, politics, social systems and more, our faculty bring understanding and expertise invaluable to anyone involved in this field. We will bring our unique blend of strengths to the challenges of human health – including health disparities - through degree programs, individual courses and a speaker series.

Systems Biology and Bioinformatics

Well before the phrase "Big Data" became ubiquitous, we launched undergraduate and graduate programs in clinical research informatics and applied health informatics led by the School of Medicine and Case School of Engineering. These offerings draw faculty from a dozen departments involving half of the university's schools, and represent the foundation of a growing effort to expand academic programs in data science.

Collaborations to Advance Treatment and Cures

We will grow our existing outstanding research initiatives to advance well-being in dramatic new ways.

Basic research remains the foundation from which most breakthroughs emerge. The more essential knowledge we acquire, the greater our ability to develop effective new approaches and solutions. Whether the subject involves proteins or particles, molecules or membranes, the exploration of fundamental principles and elements provide invaluable information and insight. In more recent years, scholars have found that joining with colleagues – whether in basic or applied sciences or both – provides increased opportunities to draw on diverse expertise and experiences. Oftentimes, the result is more innovative – and arrived at more rapidly – than efforts pursued alone. Not only do collaborations appeal for their enhanced opportunities for impact, but funding organizations increasingly reward team approaches in the structure and award of grants.

This growing emphasis on group effort is evident across many aspects of the campus, as well as associations beyond our own institution. Our Clinical and Translational Science Collaborative – which includes the Cleveland Clinic, the Louis Stokes VA Medical Center, MetroHealth Medical Center and University Hospitals - has secured more than \$128 million to bring breakthroughs to patients. In 2013, meanwhile, the Case Comprehensive Cancer Center—which includes the university, the Cleveland Clinic and University Hospitals Case Medical Center—won a \$23 million renewal and rating of “outstanding.” With this plan, we commit to build on our interdisciplinary and inter-institutional efforts:

Imaging Answers

Along with nearby medical institutions we claim more than six dozen leading imaging scientists, including seven who co-authored a landmark 2013 piece in *Nature* regarding a unique new MRI approach. Industry leaders like Siemens and Philips seek strong collaborations with us, and one of the country’s most promising new imaging companies, QED, emerged from collaboration between one of our physics professors and his doctoral student.

Our imaging progress to date has depended on informal alliances; we now commit to a more coordinated approach to accelerate breakthroughs.

Mapping the Mind

Nearly 30 years ago our technology restored arm movement for a quadriplegic man. Today faculty are developing systems that allow people with prosthetic hands to “feel” the items they touch, and exploring ways to translate brain impulses to electronic signals that activate a limb.

This impressive legacy is particularly relevant with the launch of the new federal BRAIN initiative, a “grand challenge” akin to the 15-year Human Genome Project. With more than three dozen faculty across the university already engaged in neural-related work, and many more pursuing fundamental research related to the brain, we are poised to capitalize on this immense opportunity.

Applying Information

Over the past five years, we have strengthened significantly our health informatics programs. In 2012, the Case School of Engineering created the Center for Computational Imaging and Personal Diagnostics; in 2013, the School of Medicine opened a \$21.5 million Institute for Computational Biology in cooperation with the Cleveland Clinic and University Hospitals

The combination of existing and emerging programs also provides opportunities for related educational programs, for example, in Data Science (see page xx).

Culture, Creativity and Design

We will fire the imagination through artistic endeavors, promote research and education regarding creativity and innovation, and explore ways “Design Thinking” enhances activities and outcomes.

A great university enriches culture through research and scholarship within and across disciplines as well as through artistic pursuits. By emphasizing Culture, Creativity and Design five years ago, we focused new attention and resources to the university’s existing talents and potential in these areas, and nurtured new and existing collaborations.

Bold Collaboration

We will apply lessons learned in creating the Keithley Institute for Art History to new collaborations across the arts and humanities.

When Joseph and Nancy Keithley committed \$15 million to transform teaching and research in art history, they turned a longstanding collaboration into a pioneering national program between the university and the Cleveland Museum of Art. Yet this pledge only happened because of the strengths of the two institutions - and a shared dedication to collaborative innovation. Specifically, faculty and staff from both organizations committed to reimagine their existing partnership and transform it into something far more dynamic and relevant than what long had existed. The result was a model compelling enough to draw significant additional support.

A similar approach drives the Milton and Tamar Maltz Performing Arts Center at The Temple – Tifereth Israel. The university's partnership with the Cleveland Play House in a graduate acting program has yielded a Tony Award nominee and a star of the television show "Mad Men." In the past academic year alone, nearly 600 students mounted more than 100 performances on campus. When we bring dance, music and theater scholarship, teaching, and performance together in a soaring and historic space, we will increase interactions among these disciplines as well as opportunities for informal and formal collaborations. In addition, the technology and connectivity planned for the space will allow unprecedented sharing of our works as well as exchanges with others around the world. The potential unleashed by this new space is almost beyond our ability to imagine.

Finally, we see remarkable opportunities to capitalize on the synergies possible given our location within University Circle. These are enhanced significantly by our recent partnership with the Cleveland Museum of Art to purchase a four-acre parcel at the corner of East Boulevard and Bellflower Road. This space, now occupied by the Cleveland Institute of Art, provides an opportunity to envision dynamic new opportunities for teaching, scholarship and community engagement within the arts and humanities. Established in 1996, the university's Baker-Nord Center for the Humanities can play a pivotal role in supporting and stimulating existing and new initiatives, including promising efforts in such areas as the digital humanities.

Extending Our Impact

We will seize opportunities to increase the reach of programs that encourage creative thinking.

The Culture, Creativity and Design alliance that emerged from the 2008 strategic plan provided a place for innovative thinking and conversation. Those discussions contributed to the Case School of Engineering's decision to develop and then open think[box] 1.0, a space with the equipment and environment required to translate creative visions into tangible results. This pilot model the precursor to a seven-story, 50,000 square-foot space planned to be opened within an existing campus structure within the next few years.

Among the most critical elements of think[box] involves understanding of design – an area of increasing prominence at Weatherhead in recent years. Four years ago, in fact, *Businessweek* named Weatherhead one of the "World's Best Design Schools." In 2013, the Weatherhead opened a new department of Design and Innovation, the first in the nation within a business school.

Similarly, we have built upon our 45-year collaboration with the Cleveland Institute of Music to develop a world-class musicology program and attract the university's only MacArthur Foundation Fellow. In recent years, previous plan investment catalyzed a new popular music studies program with the Rock and Roll Hall of Fame. We will seek additional opportunities for mutually beneficial partnerships with other institutions.

Advanced Materials

We will capitalize on our legacy of polymer leadership to provide solutions for critical needs.

In recent years, the university has built on the success of its National Science Foundation–sponsored Center for Layered Polymeric Systems (CLiPS), and also launched the Institute for Advanced Materials. In an era when technological advances are revolutionizing our conceptions of precisely what people can make – for example, human organs – materials experts can create solutions once unimaginable. Established as an interdisciplinary research alliance, the institute provides a central space for conversation and collaboration among faculty engaged in materials research across the campus. It also works closely with private industry and government partners to understand their most critical needs and develop projects to answer them. In addition, Institute faculty embrace interdisciplinary efforts to support scholarship, technology and marketable products in such areas as energy, sustainability, and human health.

In addition, the Case School of Engineering played an integral role in a multi-state, public-private team selected for a \$30 million federal award in additive manufacturing. The National Additive Manufacturing Innovation Institute (NAMII), now known as America Makes, since has secured another \$40 million from partner organizations, and our engineering faculty won two of the first awards – one involving the use of 3-D printing to repair and enhance costly manufacturing tools and equipment, and the other, with Carnegie Mellon University, involving advances in unique additive manufacturing technologies.

We will build on these strengths in advanced materials and manufacturing to benefit our economy and society.

Energy

We will be recognized as a leader in addressing pressing global problems through our work in advanced energy solutions.

Over the past five years, more than 90 faculty have engaged in projects through the Great Lakes Energy Institute. Faculty have helped bring wind turbines to Northeast Ohio, and now are collaborating with external partners to design a Lake Erie wind farm with potential to lead to a \$46 million award. In addition, faculty have built a comprehensive solar panel research center that is focused on enhancing the durability of solar energy components. We also have capitalized on our impressive strength in electrochemistry to win funding to develop a new form of large-scale flow battery storage, and discovered ways to make fuel cells far more efficient, cost-effective, and powerful. The university's tremendous talent and commitment to energy is exemplified by recent success in the highly competitive funding programs available through the Advanced Research Projects Agency-Energy (ARPA-E). ARPA-E awards are designed to advance innovations with the potential to transform technology and benefit the economy, environment and national security. In recent years, our faculty have secured four of these prestigious grants, covering areas ranging from wind power to battery flow.

In the coming years institute faculty will build on our strengths in polymers, electrochemistry, sensors/controls, mechanical systems, and materials science to tackle challenges affecting natural gas exploration, solar, wind, energy storage, energy efficiency, and the national electric grid. We will pursue dramatic increases in energy-related funding and enhanced campus-wide collaboration regarding interdisciplinary topics like sustainable practices and energy policy.

Ethics

We will increase the role of ethics in education and the overall campus experience.

The Inamori International Center for Ethics and Excellence embodies our emphasis on education and research regarding major moral questions. Since 2008, we have hosted an international Peace and War conference, published the first edition of a new ethics journal, created a new student ethics group and hosted a series of outstanding guest lecturers, seminars and workshops.

Meanwhile, the 2010 arrival of our Beamer Schneider Professor in Ethics brought new intensity to the intellectual rigor and energy surrounding campus ethics activities. In addition to existing programs such as a summer ethics institute and the Beamer-Schneider Lecture in Ethics, the campus also features a new “Ethics Table” program open to all members of the campus community.

We will identify ways to extend consideration of ethics in more systematic ways across the disciplines.

Origins

We will extend the influence of the Origins alliance on campus and across the world through local and international collaborations, distinctive research and online public outreach.

The Institute for the Science of Origins seeks to increase awareness and understanding of origins ranging from the beginning of the universe to the evolution of humans to myriad complex questions that persist to this day. In the fall of 2013, Origins joined with the Cleveland Museum of Natural History and the Leakey Foundation for an extraordinary two-day public symposium. The event exemplified Origins’ signature successes: ambitious and ongoing public engagement and the enabling of cutting-edge research. For the past four years the institute has offered a weekly public scholars program that features talks from faculty and dinner dialogues broadcast through public broadcasting partner, ideastream.

Going forward, Origins will expand its activities to include online education, innovative programs for students elementary through graduate school and beyond, and strategic research initiatives.

Social Justice

We will continue to advance the university’s legacy of raising awareness of social justice issues.

Social activism has been a hallmark of the university community since its very beginnings.

The first president of Western Reserve College was an avid abolitionist. One of our graduates represented Rosa Parks. And in 1915, we launched what is now the Jack, Joseph and Morton Mandel School of Applied Social Sciences. Today our social work students provide hundreds of thousands of hours of service through their field placements; more recently the school expanded its offerings to include an undergraduate minor in social work. In addition to efforts to engage our community and raise awareness nationally, we will continue to identify effective solutions to alleviate poverty, enhance academic achievement, and reduce youth violence – among other efforts. Significant opportunities exist to coordinate efforts among the Mandel School, the College of Arts and Sciences, and the schools of medicine and law to bring meaningful answers to social problems.

Established in 2010, the Social Justice Institute has sought to build on this legacy through research, education, and community engagement. Institute members have hosted public think tanks and symposia, worked with residents to raise awareness and understanding of issues regarding voter rights and civic involvement, and begin to develop an undergraduate minor in Social Justice. A signature element of its early work as involved the neighboring community of East Cleveland, where two of every five residents lives below the poverty line.

In addition, our Center for Civic Engagement & Learning has provided students significant opportunities to engage in ongoing community service programs to enhance their understanding and awareness of social justice issues.

Sustainable Value

We will increase understanding of the practice and rewards of sustainable value.

True, our 2008 strategic plan emphasized sustainability. But developments globally have led to changes in the implicit definitions of terms relating to this subject - often limiting sustainability to purely environmental concerns. At Case Western Reserve, however, initiatives within our campus have continued to emphasize education and research involving issues and activities directly impacting the earth, but also have extended to include questions of economic and individual sustainability. As a result, we now embrace the broader term of sustainable value.

Many of our efforts involving sustainable value have coalesced around Weatherhead's Fowler Center for Sustainable Value. Created in 2009 with a \$7.5 million commitment from Chuck and Char Fowler, it helped launch a yearlong program for MBA students that drew notice from *Forbes* magazine and produced two major books from Stanford University Press.

In 2013, Chuck and Char Fowler made a \$6 million commitment to establish the Fowler Family Fellowships, which will provide financial support to highly qualified MBA students with a passion for sustainable value. The fellows will conduct research and publish case studies for use at Weatherhead and other schools around the world.

Meanwhile, the university continues to support sustainable practice through the efforts of its sustainability office, the sustainability alliance, and a student sustainability council. Through its 2011 Climate Action Plan, the university has committed to achieve carbon neutrality within the next four decades. Officials have vowed that all future construction will meet LEED certifications, and continue to implement energy-saving technology within buildings and offices. Several schools and the college also contribute to sustainability-related education with courses like "Solar Energy Conversion," "Cultural Ecology: An Epistemological Approach to Environmental Sustainability," and "Environmental Engineering."

Innovative Education

We will increase the value of learning experiences through innovation in how and what we teach, as well as application of technology to enhance assessment of our effectiveness.

Pioneering pedagogy and cutting-edge curricula and technology have long been university hallmarks. A key element of our success in these realms is the commitment of our faculty to teaching and research – that is, the person teaching about advances in energy storage is at same time performing breakthrough research on the subject. This depth of content-level knowledge provides students particularly rich learning opportunities as well as invaluable prospects for participating in state-of-the-art research across the campus and at world-class institutions nearby.

At a time when higher education faces increasing scrutiny, our commitment to enhancing learning provides a crucial advantage. As the university continues to enroll larger and more academically qualified classes, the imperative of providing excellence in teaching, programs and infrastructure becomes all the more urgent. How do we continue to maintain our strengths in pedagogy – not simply in content knowledge, but also in leading-edge approaches to learning and student engagement? In addition to on-campus teaching, we also embrace opportunities to strengthen our academic presence online.

Improve Teaching and Learning On Campus

We will lead innovations that put the university at the national forefront of universities advancing education on campus and online.

We will provide funding for faculty to learn new teaching methods; align school course schedules to enhance interdisciplinary collaborations; and share lessons across the campus. In addition, we will provide the technology and

space to enable new techniques. In 2013, the university provided fellowships for professors interested in modeling a “flipped classroom” approach and also renovated learning spaces to facilitate the practice.

Meanwhile, we will expand our use of analytics to enhance learning and increase retention. Software can track student responses to questions and adjust to provide new challenges; use student course performance to recommend other academic offerings; and allow professors to tell, in real time, which topics a class grasps and which require additional explanation.

In addition, we will expand support for digital scholarship; provide library information content, services and resources commensurate with those of our university peers; and grow the Kelvin Smith Library’s personal librarian program, which gives each first-year student a designated individual to provide assistance in navigating KSL’s many services and collections.

Innovate Within the Curriculum

We will assess existing efforts to ensure they provide the greatest learning opportunities.

Excellence in written and verbal communication, reflective and analytic mastery, and problem-solving prowess all represent essential skills. SAGES, the Seminar Approach to General Education and Scholarship, enrolls every undergraduate in interdisciplinary courses designed to develop these capacities. A decade after its initial pilot initiative, SAGES is ripe for reassessment and reinvigoration. How well does it meet the original goals? What new imperatives have emerged? And how best can this program, and other elements of the undergraduate curriculum, meet those needs?

Similarly, we have not recently examined the ways in which our graduate and professional students and post-doctoral fellows interact with undergraduates. Opportunities exist to deepen engagement among all groups, including offering increased teaching opportunities and encouraging collaborative interdisciplinary projects. To realize the promise of these ideas, we also must ensure that graduate and professional students who provide academic opportunities receive commensurate financial support.

Finally, an essential element of our value centers on our ability to respond quickly to student interests and emerging fields. Through ongoing engagement with industry leaders, we will identify needs and create programs to meet them.

Embrace Our Academic Strengths in New Ways

We will add professional master’s degree programs, enhance graduate programs and explore new hybrid offerings involving both online and residential education.

In addition to the medical school’s degree offerings in Systems Biology and Bioinformatics, the engineering school recently launched two campus-based master’s programs in fire science and translational health technology. The engineering school also offers an online degree in wireless health. Over the next five years we will seek additional opportunities to meet student and industry interests.

At the same time, we will assess existing graduate and professional programs to ensure that their content, structure and delivery align with best practices nationally, and with program goals.

Increase STEM Success

We will begin a pilot program to improve undergraduate engagement and persistence in STEM disciplines.

The nation's need to strengthen and grow programs in Science, Technology, Engineering and Mathematics (STEM) is well documented, as is our expertise in these areas. Over the past several months, we have developed models to increase engagement and increase persistence in STEM fields. We will introduce practical experiences earlier in the course sequence also give students meaningful opportunities to engage with local businesses and other partners. In addition, we will continue to identify opportunities to recruit students interested in these fields.

Provide coordinated education programs for undergraduates considering health careers.

We will launch an interdisciplinary undergraduate initiative for students who wish to pursue the health sciences.

Faculty within several schools have discussed ways to create a focused program that offers the scientific knowledge, cultural and psychological perspectives, and organizational and interpersonal skills required to thrive in the new health care landscape. Many of medicine's most difficult and enduring challenges involve behavior change; with a multi-pronged approach drawing on scholars from several disciplines, Case Western Reserve could emerge as a leader in distinctive undergraduate preparation for this rapidly expanding field. In addition, our medical, nursing and dental schools, along with our hospital partners, provide extraordinary opportunities to incorporate research and clinical experiences, and also develop unique advising and mentoring initiatives.

Capitalize on Data Science

We will create substantive programs—including a concentration or minor—that teach undergraduates about data science.

Our considerable strengths (see "Applying Information," page x) offer an opportunity to develop a unique academic program for undergraduates in one of the nation's most profound employment needs. In 2011, McKinsey & Co. forecast a 300 percent increase in data science jobs between 2008 and 2018. We will show students how data science applies to professions as diverse as health care, manufacturing, marketing, engineering and geology—and enhance their chances to pursue them.

Extend Our Impact Online

We will launch additional online academic programs.

This year the Jack, Joseph and Morton Mandel School of Applied Social Sciences offered an online version of its ninth-ranked Master of Science in Social Administration. The law school is debuting an online master of laws degree in international business law in 2014, and the engineering school is exploring additional distance programs.

We also offered our first two Massive Open Online Courses (MOOCs) that together enroll more than 110,000 students. They proved so successful that each runs again in the fall of 2013, and will be joined by several other course offerings in coming semesters.

Enhance Educational Leadership

We will appoint a Vice Provost for Educational Innovation.

Teaching and learning are central to our mission. Success demands sophisticated understanding of pedagogy, emerging trends, and technology's potential to enhance instructional delivery and learning assessment. This Vice Provost will

support and work closely with faculty to ensure that pioneering programs meet the university's standards for high quality.

Intentional Preparation for Leadership

We will integrate our curricular and extracurricular programs more thoroughly to provide students the knowledge and opportunities they need to become true leaders.

A university is more than the courses taught and discoveries made, degrees conferred and honors awarded. It is a community unique in society, a place whose mission is to advance knowledge and understanding in service of others. Opportunities to hone leadership skills permeate the campus experience, from our emphasis on ethics and experiential learning to classroom assignments that call for collaboration and innovation.

Our extracurricular offerings extend those lessons. Within residence halls and student organizations, athletic teams and performance groups, students learn how to balance individual rights and collective well-being, self-discipline and shared support, creative expression and mutual respect. Programs like Engineers Without Borders or the inter-professional Student-Run Free Health Clinic provide students incomparable opportunities to apply classroom knowledge and deepen their understanding of the challenges individuals and society face daily.

With the appointment of a new Vice President for Student Affairs in 2013, we are assessing existing programs and building on nascent collaborations among student affairs, undergraduate and graduate studies, first-year experience enrollment management and the Kelvin Smith Library. In the coming year, we will convene a task force to enhance offerings that grow emotional intelligence, including empathy, leadership, integrative thinking, and collaboration skills.

Strengthen the Academic Experience

We will provide additional experiential and interdisciplinary learning opportunities.

Our emphasis on hands-on learning translates to undergraduate anthropological research in Nepal, student teams' development of a water system for a remote Latin American village, and research published in peer-reviewed journals. Our health sciences students begin working in clinical settings within their first months - often in their first weeks. We will seek new practical learning opportunities, and extend efforts to include experiences that help students increase empathy for people from all backgrounds and circumstances.

We also value the development of skills across disciplines. By gathering students from multiple majors and schools, we help them understand how applying differing expertise can solve complex challenges. Such cross-cutting initiatives can take the form of university-wide seminars, team-based senior capstones, or collaborative research initiatives.

Meanwhile, Weatherhead long has required courses that develop students' interpersonal skills and self-awareness. In 2013, the law school announced it would add a required four-course sequence in leadership and professional skills that include content taught by Weatherhead faculty. The program seeks to hone abilities essential to success in working with clients, colleagues and even opponents.

Grow the Prominence and Prevalence of Research

We will expand research opportunities to ensure meaningful and high-quality experiences for all students who desire to participate.

Programs like SOURCE (Support of Undergraduate Research & Creative Endeavors) highlight the great ambition and ability of our students. We must increase the resources available for students who wish to pursue research and also for the faculty and staff who guide their efforts. We also must provide new incentives, perhaps through the creation of a special minor in research. The Vice President for Research and Technology Management will coordinate with the Vice Provost for Undergraduate Education and school research deans to grow existing initiatives.

In addition, we will encourage innovation in graduate research by supporting use of digital scholarship and application of digital media to disseminate findings.

Enhance Advising, Mentoring and Professional Development Programs for All Students

We will increase collaboration among undergraduate deans, academic advisers and career services staff to provide students more coordinated support and relevant opportunities.

By providing multiple avenues for guidance, we help students maximize the value of their time on campus. When advisers press students to reflect early and often regarding their passions and aspirations, young people are more likely to pursue a strategic educational path. This direction does not eliminate unanticipated opportunities, but does encourage increased deliberation about choices. As part of these efforts, we will expand experiential learning options including internships, community engagement and formal employment.

Grow Graduate Students' Career Opportunities

We will provide graduate students a professional development center that offers training in interviewing, networking and other essential skills.

The discipline-focused nature of graduate education means students' experiences often depend on their specific mentors and departments. Yet students also share common needs- such as health benefits - distinct from their academic focus. We will launch a professional development center to help them increase skills in networking, interviewing, career planning and more. This center will emphasize professional development - through engagement of faculty *and* students - in a way that enhances student experiences and effectiveness as teachers and scholars and also encourages strategic approaches to consideration of future opportunities and how to realize them.

Bring Breakthroughs To Society

We will increase faculty opportunities to bring breakthroughs to market and encourage entrepreneurial thinking across the campus.

Lab to Life

We will bring more of our important discoveries out to society more quickly.

In Fiscal Year 2013 alone, the university received funding for nearly 1800 individual research projects. In many instances, their purpose involved no immediately evident application; rather, they represent critical efforts to hone in on the unique characteristics within different organisms and materials – and, in some instances, attain greater understanding of how they act and interact. This type of exploration, known variously as basic or fundamental research, seldom grabs headlines in mainstream media. But look at nearly any discovery that directly impacts our lives, and typically a series of individual basic breakthroughs created the platform for the transformational product or treatment. We always keep in mind the essential role such research plays in findings that carry direct application; at the same time, we appreciate the

increasing imperative to translate investments from government, philanthropy and other sources into tangible outcomes.

In recent years we have moved aggressively to involve industry in research and commercialization. We added a university Chief Innovation Officer and two medical school translational officers. The medical school also launched the Council to Advance Human Health, a group of nationally renowned experts who offer advice regarding internal investments and external opportunities. In addition, the university and the Case School of Engineering catalyzed support from the Wallace H. Coulter Foundation to create a sizable endowment to expand our Translational Research Partnership.

Now that a broad ecosystem exists, we will increase collaboration among translational leaders to secure new investments. In addition, we will support faculty eager to take research out to those who need it most.

Entrepreneurial Spirit

We will grow initiatives like Blackstone LaunchPad, think[box] and FUSION.

We have pioneered entrepreneurial education for graduate students through initiatives like the Physics Entrepreneurship Program. In recent years we have used this foundation for programs like Blackstone LaunchPad, which helps students transform ideas into products—and which already has seen award-winning companies emerge.

LaunchPad follows the 2012 opening of think[box] 1.0 [also mentioned on page xx] , the first phase of a \$25 million initiative that catalyzed creation of electromechanical clothing and USB signal master oscilloscope.

In 2011, meanwhile, the law school created FUSION, a certificate program designed to teach graduate and professional students about intellectual property and innovation. The law school since has launched a pilot Intellectual Property Venture Clinic.

We will:

- Complete fundraising and construction for think[box].
- Explore opportunities to grow the nascent FUSION initiative into a more formal academic program.
- Complete the redesign of the Freedman Center for Digital Scholarship as an incubation space for creative and collaborative endeavors available to faculty and students who wish to engage in advanced research employing digital scholarship methods and technologies.

“It’s All About Who”

We will apply a systematic strategy to engage and inspire faculty, staff, alumni, industry and other stakeholders.

Morton Mandel’s book includes the observation, “Only great people build great institutions.” He is right. To build on our existing momentum, we must increase engagement among our faculty and staff, and draw on the immense insight and expertise of our alumni.

Attract Top Faculty and Staff—and Keep Them

We will apply lessons from ‘strategic hiring’ across the campus.

In 2010 our trustees invested in a strategic hiring initiative for the Case School of Engineering. Faculty identified key criteria: pioneering, nationally relevant research; a record of collaborative and cross-disciplinary work; and leadership experience and potential. Three years later, the school had appointed 11 new professors, including five from underrepresented groups. As our schools pursue their own strategic plans, this approach offers lessons on how to attract highly talented and collaborative scholars.

We will increase recognition and advancement opportunities for accomplished and promising faculty.

Our success depends not only on attracting outstanding faculty, but keeping them. We have expanded recognition and offered leadership programs, but still must grow support for our most promising faculty.

We will:

- Engage faculty at all levels of experience to learn how we can provide relevant recognition and opportunities to grow and add skills.
- Open a Faculty Development Office to address identified needs, including leadership development.
- Pursue additional avenues to answer systemic concerns.

Increase Staff Engagement

We will collaborate with staff to identify avenues for increased engagement across campus.

Every day our staff advance our mission. They play critical roles in student life, education and research. They engage the community, our alumni and our corporate and government partners. They manage buildings, patrol and protect the entire campus, and provide meaningful guidance through student counseling, human resources, finance and procurement and more.

We recognize their exceptional performance through annual staff awards and provide training in leadership and essential skills. Still, we must do more to underscore staff value—and find ways to enhance their influence and development. We will work to be more intentional in developing opportunities for growth and advancement, including training and preparation for more challenging roles. We also will seek to become even more effective in recruitment and evaluation processes, and also identify areas where our definitions of positions – particularly those in discrete research areas - do not reflect adequately the diversity of skills required to complete them.

We will:

- Survey staff to learn their perspectives about their experiences and opportunities for professional growth.
- Identify meaningful ways to enhance staff engagement and support their advancement.
- Seek more opportunities to celebrate staff successes.

Enhance Involvement from Alumni and Friends

We will increase engagement among alumni and friends regarding how the university can improve its research and education programs as well as those that involve and inspire graduates throughout their lives.

Our 105,000 graduates represent one of our most valuable resources. In recent years we have increased outreach, adding new lifelong learning opportunities and reinvigorating chapters and admissions-related programming.

We long have benefitted from regular meetings with alumni and other advisory committees, but in recent years we have sought more targeted perspectives. The engineering school's Silicon Valley Computing Think Tank, for example, involves professionals with unique expertise regarding computing's trends and challenges. These leaders offer concrete suggestions on how to seize emerging opportunities. Going forward, we will nurture formal and informal networks among alumni and with campus constituents.

Build Healthy Communities

The ingredients of a healthy campus extend from health and wellness to a sense of community connectedness.

Wellness

We will provide incentives to increase healthy activities, and also make more of these activities available.

Our wellness initiatives include classes in food selection and preparation, weight-loss support groups, nicotine cessation programs and more. In 2012, we also offered basic health screenings and an online health risk assessment. Going forward, we will provide employees benefit savings and other incentives to participate in healthy activities and avoid unhealthy behaviors.

Child Care

We will seek a partnership with a qualified provider to create a sustainable child care center on or near campus.

Child care emerged as the Faculty Senate's top budget priority in 2008, and in 2009 President Barbara R. Snyder answered a committee's calls to add back-up child care programs and child care travel subsidies. A more recent presidential committee launched "school's out" spring break programming and conducted an extensive assessment to identify a site and private partner for an on-campus center. We will pursue philanthropic support to construct the center and coordinate development of operational models.

Next Steps: Making It Possible

We will provide the resources, structures and timelines needed to translate these commitments to meaningful action.

Realizing the goals of this strategic plan demands energy and focus, accountability and execution. We will reduce spending in some areas to allow meaningful investments in others. We will provide funds for faculty and staff involved in the development of new programs. And we will eliminate redundancies and legacy structures that increase costs without providing value.

As much as this plan is about enhancing our programs and supporting our people, our efforts over the next five years must also include comprehensive and aggressive measures to control costs and manage expenses. The current national conversation – from the White House to statehouses to family dining rooms – makes clear that affordability and debt

are central concerns involving higher education. The university cannot continue to grow spending at its current rate, but instead must seek opportunities to increase efficiency and eliminate redundancies.

An essential part of our efforts must involve attention to affordability. We have increased funds for student support (including scholarships and fellowships) dramatically since the launch of our capital campaign. But we also must find more ways to constrain tuition growth, efforts that will include through securing additional revenues, enhancing efficiency and identifying additional ways to reduce spending overall.

Incentivize Desired Outcomes

We will align the priorities articulated in this strategic plan with budget policy and practice.

In 2013-14, we will adjust our funding model to meet the goals of this plan. Financial stability and affordability are fundamental, so we must find other ways to constrain costs, among them increased efficiency and reduced investments in areas that do not yield commensurate value. In addition, we will identify ways to enhance customer service across the campus.

Align Accountability with Expertise

We will examine existing organizational models to ensure that responsibility rests with units that hold relevant expertise.

To fulfill our mission, we must organize ourselves in ways that advance our priorities. We will restructure functions in ways that best meet current needs, align organizational responsibilities with demonstrated expertise, and establish clear expectations and measure results.

Complete School and College Strategic Plans

We will encourage coordination and communication among planning groups and alignment with our overarching priorities.

In the coming months we will encourage schools and the college to identify ways to align their plans with priorities articulated here. We also will encourage interactions among planning groups to nurture increased collaboration across the campus.

Make a Master Plan

Using this strategic plan as a guide, we will embark on a comprehensive master planning process for the university campus.

This fall we launched a comprehensive master planning effort to identify the best uses for open space and ways to enhance and even repurpose existing structures. The process will involve extensive consultation with campus stakeholders, as well as alumni and partners in University Circle and beyond. We will continue to celebrate the energy and dynamism that Uptown has brought to the eastern edge of campus, and to ensure that we provide adequate classrooms and housing to accommodate growing undergraduate classes.

Some of the projects already underway or anticipated are: the Tinkham Veale University Center; The Milton and Tamar Maltz Performing Arts Center at The Temple – Tifereth Israel; think[box]; the Wyant Athletic and Wellness Center; the medical education building with the Cleveland Clinic; an interdisciplinary science and engineering building on the Case

Quad; a space for arts and humanities at the corner of East Boulevard and Bellflower Road; renovation of the Kelvin Smith Library; a pedestrian connector between East Boulevard and the West Campus; and the Linsalata Alumni Center.

Finally, the university's continued emphasis on interdisciplinary research, as well as an enhanced commitment to pedagogical innovation, requires the thoughtful development of both remodeled and additional spaces to meet ongoing and existing needs. The increasing prevalence of team-based research, for example, requires laboratories and offices designed in a way that maximizes interaction. Active learning, meanwhile, calls for specific technological capability and classroom layouts. The master planning process, and the developments that result, must include deliberations about the best ways our physical environment supports our academic needs.

Act on Our Priorities

We will provide stakeholders the resources and expertise required to advance the proposals in this plan for the benefit of students, staff, faculty alumni and our larger community.

Nearly all of our proposals involve additional planning and iterative execution. Advancing our priorities will require engagement of individuals across the campus in specific working groups, as well as an overarching committee that coordinates initiatives.

Report on Our Results

We will report to the community each year regarding our progress in meeting the goals of this plan.

Accountability is an essential element of any change effort. We must ensure that those responsible for outcomes understand expectations, as well as relevant timeframes. To provide clarity regarding our priorities, we have developed metrics that are attached at the end of this document. We will report regularly on progress.