



BROWN

Operational Plan for Building Brown's Excellence

Realizing the Goals of *Building on Distinction: A New Plan for Brown*

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Introduction and Overview

BUILDING ON DISTINCTION

Brown University's 250th anniversary gave us the opportunity to reflect on and reaffirm our core values while also planning for our future. Since Brown's founding, the University has sought to contribute to the community, nation and the world through teaching, research and service at the highest levels. Our mission — to address some of the world's great challenges, be they poverty, environmental change, access to quality health care, or others issues — is fulfilled each day through our work both on campus and across the world. Our approach, which blends interdisciplinary problem-solving with rigorous intellectual inquiry, is what makes us truly distinctive.

Building on Distinction: A New Plan for Brown laid out an ambitious vision for the University's future. The plan's goals focused on four major areas:

- Integrative Scholarship to address some of the world's great challenges.
- Educational Leadership to prepare our students for the challenges of the 21st century through innovation in educational programming, delivery, and experience.
- Academic Excellence to provide faculty and students with the resources needed for success as a community of knowledge creators with the diversity and breadth of experience required for excellence.
- Campus Development to provide the infrastructure needed to support world class education, research, and the community that is so central to Brown's culture.

The following document translates these inspiring goals into concrete actions to be taken over the next ten years so that Brown can fulfill its mission and consolidate its role as a leader in higher education and research. Reflecting Brown's core values, the investments called for are centered on people (faculty, students, community) and academic programming (teaching and research). These are complemented by investments in physical resources in specified areas of need or opportunity. Each section of this academic plan describes a specific theme or initiative from *Building on Distinction* following a standard format: (1) articulating our high level goals; (2) describing the existing assets that provide the foundations for our efforts in a given area; (3) outlining the nature of the investments required to achieve our goals; (4) describing how investments in this particular area will complement, support, and intersect with assets and investments elsewhere on campus; and (5) projecting the impact we expect to have as a result of these investments.

While each section focuses on a particular part of the overall plan, they also — separately and together — illustrate what is distinctive about Brown: the deeply inter-connected and interdisciplinary nature of our academic enterprise that is manifested in our ability to bring together people, disciplines, and perspectives to create truly exceptional teaching and research programs. Brown's integrative character also means that investments in one area naturally blend into and support developments in other areas (even those that might at first appear unrelated). Moreover, support for integrative themes and

interdisciplinary centers explicitly and directly strengthen the traditional building blocks of all great universities — academic departments. For example:

- Investments in the integrative theme *Sustaining Life on Earth* support teaching and research programs in the newly established Institute at Brown for Environment and Society (IBES) while augmenting departmental excellence in geological sciences, ecological biology, environmental engineering, history (environmental history), economics, and political science. New programming focused on environmental change and global affairs also links IBES with the Watson Institute.
- Investments in the integrative theme *Exploring Human Experience* support the Humanities Initiative, and attracts renowned scholars working at the intersection of several humanities departments (philosophy, comparative literature, English, religious studies), which both strengthens these departments and creates new educational and research programs across the humanities and between the humanities and other fields.
- Our Data Sciences Initiative enriches and extends expertise in our traditional quantitative and computational sciences (mathematics, applied mathematics, computer science, and biostatistics) and also creates exciting new research opportunities and educational programs for students and faculty in the physical, social, and life sciences as well as in the humanities.

Each of these examples illustrates the crosscutting nature of our proposed investments and how they will radiate across the campus, strengthen our academic departments, and generate exciting and distinctive opportunities for our students and faculty.

PURPOSE AND CONTEXT

These plans were developed to guide the planning and execution of a comprehensive fundraising campaign for Brown. In addition to guiding academic decision-making, they serve as the basis for a “Table of Needs” — specific fundraising priorities for the coming years — that will be made public upon the launch of the campaign in October 2015.

It is important to recognize that these plans do not encompass all that is important to Brown or all that the University will do in the coming years. They focus narrowly on initiatives that will be fundraising priorities, and gifts are only one of the ways that Brown supports its operations. Other revenue sources include tuition receipts, research grants, and payouts from the Brown endowment. These other revenue sources support a wide range of University priorities — ranging from campus safety, to the health and wellbeing of students, to support of staff for core operations, to the maintenance of infrastructure, to the support of established educational and campus life programs — and they will continue to do so. The strength in Brown’s financial position that will result from a comprehensive campaign will support all of these priorities, whether or not they are mentioned here.

It is also important to note that this is both a working document and a living document. It serves as a road map for the next decade — one that allows us to be flexible and responsive to new opportunities that, like the ones contained in our plan, hold exceptional promise for Brown. Even in the past two

years, our plans have evolved since *Building on Distinction* was approved. For example, a new initiative in data sciences has evolved into a priority. This evolution will continue. Accordingly, the campaign plan will include significant support to promote excellence and innovation across the University through initiatives that have yet to emerge.

Brown is at an important and critical juncture in its long and distinguished history, positioned to contribute locally and globally in increasingly significant ways through distinctive teaching, research, and service. This plan takes advantage of Brown's capacity and culture, and calls upon our broader community of supporters to help us build upon our many assets by investing in continued academic leadership and excellence.



I. Integrative Scholarship

Cultivating Creative Expression

PLAN STATEMENT

Creative expression is used to explore human values and communicate new ideas, to challenge societies, and to draw disparate groups together. At Brown, the creative arts are tightly integrated into the liberal arts. We aspire to foster an environment in which artists operating at the highest levels of their crafts learn from and inform scholars and students in disciplines across the campus.

PRINCIPAL UNITS

Brown has a long and distinguished history of excellence in the arts; artistic activity has been central to its distinctive intellectual environment and mission. Brown recognizes that the arts constitute singular ways of knowing that have a special and important place in the University. As discrete fields of study, the arts are traditionally anchored in academic departments that allow students and faculty to develop high levels of disciplinary expertise. However, at Brown, student interest, faculty scholarship, and creative vision make the arts an integral presence throughout the curriculum and across the campus. In short, the arts are fundamental to Brown's emphasis on creative critical inquiry into the most important questions facing humanity around the world. Our plan is to build on the exceptionally strong connection of the arts on this campus to Brown's distinctive approach to liberal education.

This begins with enhancing further the integration of the arts into the full range of intellectual activities on campus. Whereas the arts are segregated within a separate school or relegated to the periphery at other institutions, Brown is advantageously positioned to combine professional-quality training in the arts with the scholarly depth and worldly commitment of the liberal arts curriculum. The University's strategic plan, *Building on Distinction*, reaffirms our belief that the arts are central to a liberal education, and our goal is for Brown to become the University of choice for faculty and students seeking excellence in scholarship, teaching, production, and performance across the arts. The foundations for the arts at Brown are strong:

1. Academic Departments. The creative and performing arts at Brown are grounded in five core departments: Literary Arts, Music, Modern Culture and Media, Theater and Performance Studies, and Visual Arts. As fully integrated parts of Brown's overall mission for scholarship and education in the liberal arts, these core departments enjoy strong ties to other academic units in the humanities as well as in the social, physical, and natural sciences: not only art history, literature, and culture, but also education, neuroscience and psychology, computer science, and engineering.
2. MFA Programs. Brown offers three outstanding graduate programs in advanced arts practice: Literary Arts, Playwriting, and (in partnership with Trinity Rep) Acting and Directing. All three programs are regarded as among the very best in their fields and are among the most highly selective programs at Brown.
3. Creative Arts Council (CAC). A dozen years ago, the five arts departments established the CAC, which also includes representation from the Rites and Reason Theatre (part of the Africana Studies

department) and the David Winton Bell Gallery. Through its public activities, this collective forum of campus arts leaders works to elevate the visibility of the arts on campus in the local community and beyond. CAC grant programs fund faculty and student projects, short-term artist residencies, and development of new arts courses.

4. Granoff Center for the Creative Arts. Opened in 2011, the Perry and Marty Granoff Center for the Creative Arts is one of the most innovative facilities for the arts in all of higher education. The space and facilities it provides have enabled faculty and students to launch new experiments in arts research, teaching, and production across the boundaries of individual disciplines and among artists, scientists, and scholars.

5. Student Co-Curricular Activities. Brown students are highly committed to the arts. In 2013-14, there were 76 registered student associations in the arts; 5,121 registered student arts events; 16,551 booking hours for the arts on campus. Sixty percent of Brown undergraduate applicants declare a principal co-curricular interest in the arts.

6. Partnerships. The span of Brown's activities in the arts has been significantly enlarged through collaborations at many levels with Rhode Island School of Design (RISD), a world-class school of design, and with Trinity Rep, a nationally renowned repertory theater with which (as noted above) we offer what has rapidly become one of the top MFA programs in acting and directing.

INVESTMENTS

Brown has developed ambitious goals to further elevate the arts and firmly establish the University as a national leader in the creation of art and the education of artists. Major goals include:

1. Center for the Performing Arts. The construction of an innovative new campus hub for music, dance, theater and multimedia arts, to be located in the heart of campus, will highlight the centrality of the arts at Brown. Following two years of intensive and engaged academic planning, the Center will be organized around a dedicated space for performance suitable for the many medium-size to large ensembles that exist at Brown. This 80,000 square foot building will contain the range of spaces necessary to ensure that the building is active day and night, every day of the week. With a design concept that will make it unique in American higher education, the Center's spaces will be acoustically appropriate, flexible, and usable for multiple purposes at the highest levels of quality, and will accommodate music, dance, and theater. Beyond academic need and high student interest, such a space holds appeal for its community-building power, both within the campus and across the Brown and Providence communities.

2. Other Arts Spaces. Renovations and enhancements to existing theater and arts spaces, including the Perry and Marty Granoff Center for the Creative Arts, and the Stuart, Leeds, and Rites and Reason theaters, are also planned.

3. Leadership and Faculty. To achieve Brown's goal of becoming the University of choice in the arts and to build on its special commitment to creative critical inquiry, we need to recruit a set of faculty selected specifically to integrate artistic practice and inquiry in ways that leverage our already outstanding

strengths in the arts departments and to take full advantage of the new and renovated spaces for artistic activity on campus. The Vice Provost for the Arts and a new Executive Director for the Arts will provide, respectively, academic and operational leadership to foster even greater artistic collaboration and connection to the liberal arts broadly on campus, as well as coordination and sharing across the arts that will magnify the impact of the additional facilities and resources. Existing faculty strength will be extended through new tenure-line positions, new Professor of the Practice lines for distinguished artists, and expanding programs for visiting artists and artists in residence.

4. New and Enhanced Academic Programs. Growing Brown's capacities as an arts university will involve new programming, including a significant expansion of institutional partnership activities.

- Global Arts Hubs. We plan to establish a small group of carefully conceived partnerships with groups of academic and arts institutions located in some of the most dynamic arts communities in the world. Under this model, Brown faculty and students would work in these sites with leading scholars and artists; in turn, the scholars and artists would also spend time at Brown on a recurrent visiting basis. The extent, duration, and intensity of collaborations fostered through the hubs will go far beyond conventional faculty exchanges and study abroad experiences, and may ultimately develop into degree programs. Plans are underway for a first arts hub in Berlin.
- Joint and Dual Degrees. More locally, faculty and administrators from Brown and RISD have been engaged in an ongoing process to explore promising areas for new joint degree programs that would significantly complement existing offerings at both institutions. Other possible collaborations with conservatories and arts institutions in the region could also lead to new joint degree programs.
- Colloquium on the Arts and the Liberal Arts. An ongoing faculty seminar will serve as an ongoing laboratory for the development of a distinctive symbiosis between the arts and the liberal arts reflecting the adventurousness and porosity of Brown's academic culture.
- Co-Curricular Activities. An important set of goals for the arts is to work closely with the Office of Campus Life, the UCS, SCAC (Student Creative Arts Council), and Student Activities Office, among other units, to enhance the ways that Brown is able to support students' co-curricular arts commitments in ways that encourage and maximize cross-pollination between students' co-curricular interests in the arts and their academic work across the liberal arts curriculum. This includes developing new curricular pathways linking the study of the arts with fields at the frontier of exciting developments in the 21st century in biology, computational sciences, environmental and sustainability studies, robotics, and many other areas.

4. MFA Student Support. While Brown's MFA programs are among its most distinguished graduate programs and highlight our excellence in the arts, the financial support we are able to provide is less generous than that of our competitors and can create hardships for these talented students committed to arts careers. Enhanced fellowships for MFA students would better enable Brown to recruit the most

promising students regardless of their financial circumstances. This is most pressing for the Brown-Trinity program in Acting and Directing.

5. Related Investments. Because of the rich possibilities for the arts to connect to an even greater degree with other parts of the campus, this theme stands to benefit from investments made throughout *Building on Distinction*. The most direct relationships, however, are likely to be with investments in the humanities and in engineering, particularly as they relate to design.

IMPACT

These investments will make Brown a truly distinctive national and international leader in the arts: a university that gives students outstanding creative opportunities to develop and expand upon their talents at the highest level, not alongside or instead of, but as part of obtaining a world-class liberal arts education. Students will have work and performance spaces worthy of their abilities. In addition to nurturing future artistic luminaries, this initiative will enable the core arts departments to attract genuinely innovative talents to the faculty and as visitors. By fostering strong connections between the arts and other fields, Brown will also become attractive to creative scholars across the academic landscape who are eager to participate in this distinctive approach to the arts at the University. Partnerships with other institutions in the US and globally will open new educational pathways and possibilities while also extending Brown's reputation and visibility. With Providence continuing to emerge as the "Creative Capital," the scaling up of Brown's ambitions in the arts, including greater collaboration with RISD and other local partners, will further enrich the area's cultural life and economic health while also cementing stronger bonds with the local community.

Understanding the Human Brain

PLAN STATEMENT

The study of the brain and its relationship to cognition, emotions, decision making, behavior, and disease is often described as the “last frontier” in biomedical science. This theme will support Brown scholars in their efforts to understand functions of the brain that distinguish us as humans, and discover treatments for disorders that diminish our capacities, and create technologies to improve lives.

PRINCIPAL UNITS

1. Brown Institute for Brain Science (BIBS). Founded in 1999 as the Brain Science Program, BIBS has established a distinctive identity among brain science centers based on its multidisciplinary approach that brings together a core of 45 faculty in neuroscience, neuroengineering, computation, cognitive, linguistic and psychological sciences, and clinical neuroscience to work on research problems that range from genes and cells to neuronal networks to behavior. In total, about 130 faculty from 19 departments have some affiliation with BIBS, and the future of brain science will include even broader engagement with the humanities and social sciences. BIBS provides the framework for integrating expertise in collaborative teams of scientists to tackle problems that cannot be approached from a single path or by an individual faculty member. Similarly, BIBS promotes interdisciplinary postdoctoral training and graduate education that transcends departmentally focused programs. One in four undergraduates take Introduction to Neuroscience, and many of these students stay in brain science: 170 students in the class of 2015 graduated with concentrations in neuroscience, cognitive neuroscience, cognitive science, and psychology. Students are integral partners in the world-class science that happens in BIBS laboratories.

BIBS core faculty and partners across the campus conduct research at the forefront of the field: developing novel methods to map networks of neurons that underlie specific behaviors, discovering new approaches to understanding how complex brain functions mature during development, innovating non-invasive techniques to dampen down extreme neuronal activity such as occur during seizures, and inventing devices that turn thoughts into signals that can control prosthetics. BIBS has already achieved national and international recognition, and Brown’s brain science researchers and clinicians are making discoveries that relate to autism, Amyotrophic Lateral Sclerosis (ALS), epilepsy, neurodegeneration, addiction, depression, and schizophrenia. At the same time, BIBS has been at the forefront of the development and application of devices to assist people with paralysis, Parkinson’s disease, chronic pain, and obsessive compulsive disorder.

2. Academic and Clinical Partners. BIBS draws strength from and helps strengthen a number of other campus units, including the Division of Biology and Medicine, the School of Engineering, the School of Public Health, and our hospital partners Lifespan, Care New England, and the Veterans Administration.

INVESTMENTS

Over the next decade, Brown has an opportunity to make BIBS a top-ten research program in multidisciplinary brain science. Capitalizing upon its accomplishments to date, BIBS will sharpen its focus on two defining research themes around which there are already strong research teams:

- Understanding how the brain and nervous system produce complex behaviors that make us human, such as learning, memory, creativity, decision-making, and emotion.
- Improving the human condition by restoring and rehabilitating injured brains, and by understanding and treating disease.

1. Faculty Support. Establishing Brown as a world leader in brain science requires a significant investment in new faculty. New faculty positions will consolidate Brown's current leadership in fundamental neuroscience and neuroengineering, while also helping to establish Brown as a leader in computational and translational neuroscience. In order to build and sustain Brown's position as a top-tier center of brain science research over the long term, additional faculty in molecular neuroscience, neural systems, computational neuroscience, and neuroengineering will need to be recruited. In practice, some of this growth may overlap with growth plans in other parts of the campus.

BIBS has developed a highly successful model of recruiting scientists who build broad collaborative networks across Brown. In this way, faculty growth in BIBS is leveraged through sustained and closer partnerships between the brain science core and the School of Engineering, the Alpert Medical School, clinical partners, the School of Public Health, and computational science departments. Moreover, there is great potential at Brown to explore novel ways to integrate brain science with the humanities and social sciences including visual arts, philosophy, economics, and sociology — all aimed at improving educational outcomes, inform rational decision-making, and facilitate human interactions across cultures and languages.

2. Program Support. Enhancing discretionary resources for the BIBS director will permit strategic investments in early-stage, innovative research; shared research infrastructure and technical staff to support leading-edge research; programmatic initiatives; instrumentation upgrades; and new faculty start-up costs.

3. Space. BIBS's goals and ambitions cannot be realized without additional space to accommodate the needed growth in faculty researchers and their associated postdoctoral fellows and graduate students. New space in Providence's Jewelry District would enable BIBS to locate certain laboratories advantageously in close proximity to Alpert Medical School researchers. The plan for the new Engineering building includes a unique shared core facility — a clean room situated close to an equivalently clean space capable of supporting cell cultures — that is vital for the development of implantable neurodevices.

4. Related Investments. The success of BIBS is tightly connected to the success of the School of Engineering and the Division of Biology and Medicine. Engineering priorities include faculty hires and research support in biomedical engineering. The Division of Biology and Medicine's strategic plan calls

for recruiting physician scientists to Brown with links to particular focus areas relevant for brain science. BIBS can also leverage the emerging Data Sciences initiative to play a leading national role in establishing uniform, guiding principles to open brain science data for mining and sharing.

IMPACT

The successful implementation of this plan would cement Brown's place as an innovative leader in critical areas of brain research and care. The work of BIBS researchers will advance new understandings of human brain functions while also developing solutions to brain health problems as well as tackling major societal challenges. Through its postdocs, graduate students, and undergraduates, BIBS will be a major contributor to developing the next generations of exceptional brain researchers who will carry this work forward along with the cross-disciplinary approach that is Brown's hallmark. Innovative research and education supported through BIBS will lead to new ventures for translating technological and clinical discoveries into broadly-available treatments and applications.

Bringing BIBS to the next level will be reflected in, and fueled by, the recruitment of outstanding new faculty whose work will attract substantial new grant revenue and contribute significantly to enhancing Brown's standing as a world-class research university. With new investment in cutting edge infrastructure and continued innovation seed funding, BIBS will be able to double the number of multi-investigator grants within five years, with a corresponding growth in federal funding. In addition, BIBS would expect to double the number of prestigious foundation research awards to its faculty over the next five to 10 years. BIBS would also increase the number of multidisciplinary training grants to fund postdoctoral fellows and a larger number of PhD students. The possibility of establishing a computational neuroscience program in partnership with Applied Mathematics and Computer Science would create a top-5 training program for graduate students.

Sustaining Life on Earth

PLAN STATEMENT

Environmental change can threaten global supplies of food and water, harm human health, and undermine the stability of societies around the world. We will build an academic program focused on the evolving partnership between the environment and human societies combining the efforts of natural, physical, and social scientists, together with humanists, artists, and practitioners, in order to understand the determinants of environmental change and human behavior, consider ethical issues related to sustainability, and develop sound environmental policy alternatives. Research and education on this theme will complement ongoing efforts to improve sustainability on campus.

PRINCIPAL UNITS

This theme centers on the newly established Institute at Brown for Environment and Society (IBES). The Institute's approach differs from that of other environment centers by seeking to improve human, social, and economic wellbeing by convening disciplinary experts to address interdisciplinary problems. In particular, IBES offers a model for successful academic partnership between ecological and social scientists.

The work of IBES is directed toward four key goals:

- Developing insights into today's environmental problems and a new paradigm for solving tomorrow's.
- Educating the next generation of environmental leaders.
- Demonstrating our paradigm in rigorous problem-oriented research and disciplinarily-grounded engaged education.
- Establishing a deeper understanding of human-environment interaction.

IBES examines the challenges of sustainability — *where it matters most* — through collaborative, place-based research focused on the people and systems most at risk. Advancing fundamental knowledge while also addressing real-world issues, research and education at IBES aims to empower vulnerable populations to make informed choices that improve their lives and the environment that sustains them. Scholarship and teaching at IBES are focused on four areas: Natural Systems, Food and Water, Human Health and Wellbeing, and Equity and Governance.

INVESTMENTS

Realizing Brown's ambitions for IBES involves a significant commitment to augmenting faculty expertise and programmatic growth.

1. Faculty Support. IBES's plan calls for adding intellectual and research capabilities related to the environment through new faculty hires, some of which may overlap with faculty investments called for in other areas of the plan.

2. Program Support. To achieve its goals and sustain the level of activity called for in the plan, IBES requires both endowment and current-use funds to support key aspects of its program and operations, including continued graduate support, and expanded program of postdoctoral fellowships, additional technical staff to support the enlarged roster of faculty researchers, and maintaining a robust slate of seminars, lectures, and events in partnership with other campus units to draw greater national and international recognition of Brown's contributions to promoting solutions to critical environmental issues.

3. Space. The University financed the renovation of the former Hunter Lab building into a state-of-the-art facility to house IBES. Like the Institute, the building remains a significant naming opportunity.

4. Related Investments. IBES is strongly committed to advancing both research and policy and will therefore have important alignment with developments under the Creating Peaceful, Just, and Prosperous Societies theme, especially the Watson Institute. There are potential synergies with research in environmental engineering in the School of Engineering, and environmental health in the School of Public Health. Environmental questions have also become prominent in the humanities, which creates possibilities for contextualizing current issues in a broader historical and cultural frame through the Exploring Human Experience theme. Environmental researchers who work on large and complex datasets will benefit from and contribute to both the Data Sciences initiative and plans to strengthen Brown's research data cores.

IMPACT

The University's commitment to establishing IBES has already significantly increased Brown's visibility as a center for research and education on environmental issues. The standing of core departments — Earth, Environmental, and Planetary Sciences; Ecology and Evolutionary Biology; Sociology; and Economics — will rise, and joint faculty hiring will help strengthen a wider range of partner departments in the natural and social sciences. IBES's emphasis on intellectual collaboration across fields will enable these departments to hire faculty with novel ideas and approaches to environmental questions, and the University should anticipate growth in government and foundation grant support spanning the natural and social sciences.

IBES will also collaborate with departments in making postdoctoral appointments, and host advanced PhD students in the humanities and social sciences whose disciplinary training will be enriched through interdisciplinary engagement. IBES's graduate fellowships will help departments to attract and support top doctoral candidates. Moreover, IBES will contribute to Brown's growing strength in policy-relevant research and teaching — for example through developing an environmental policy track in the recently re-launched MPA program offered through the Brown Public Policy program housed in the Watson Institute. In undergraduate education, IBES is home to a revised and strengthened environmental science/environmental studies curriculum that significantly extends learning opportunities for Brown students through developing courses involving international travel, engaged scholarship, and research with environmental scientists, along with internships and summer research opportunities that include international collaboration and field work.

Creating Peaceful, Just, and Prosperous Societies

PLAN STATEMENT

Economic, political and cultural developments are as important as defense and diplomacy in establishing and sustaining peaceful, just, and prosperous societies. Brown's multidisciplinary approach to security within and across countries reflects this understanding. We will establish Brown as a leading center of international and public affairs that integrates rigorous scholarship and education with active engagement in the world of international affairs, and we will support scholarship and public discourse on institutions and ideas that promote social justice and economic prosperity domestically and internationally.

PRINCIPAL UNITS

This theme centers on a set of units that have collectively emerged as a significant area of strength at Brown focusing intensively on scholarship that addresses critical problems in the world that require deep analysis and better-informed policy. Harnessing the collective intellectual and communicative power of these interdisciplinary institutes and centers and their deep interconnection with social science departments will significantly elevate Brown's reputation and visibility as a consequential and unique contributor to debates about major political and social challenges.

1. Watson Institute for International and Public Affairs. Watson is Brown's hub for research and education on international and (with the recent incorporation of the Taubman Center for Public Policy) public affairs. In the midst of a dramatic and ambitious growth plan, Watson's goal is to become a top 5 school of its kind in the US. Watson both integrates and enhances work across the social sciences at Brown around the core themes of Development, Governance, and Security with an emphasis on fostering first-rate scholarship that is relevant to policy-making. Watson also hosts a renewed MPA program and three undergraduate concentrations. In addition, the Institute is home to regional studies programs on India, China, Caribbean and Latin American Studies, Brazil, and Middle East Studies. In recent years, the program in Middle East Studies has seen dramatic growth in its undergraduate concentration and has emerged as a dynamic and expanding area of teaching and scholarship. As the Institute is already demonstrating, Watson has the opportunity to become the first school of its kind fully calibrated to the needs of the 21st-century world.
2. Center for Race and Ethnicity in America (CSREA). CSREA's mission has recently been redefined to focus on scholarship related to race and ethnicity in America and fostering greater public knowledge of the issues investigated by the center's extended research community. Brown has a distinguished history in the area of race and ethnic studies, and strengthening CSREA will further advance the University's role in helping to define, investigate, and raise awareness of this critically important dimension of American society.
3. Center for the Study of Slavery and Justice. This new center embodies the idea called for in the 2006 report of Brown's Steering Committee on Slavery and Justice that investigated the University's relationship to slavery and the slave trade: "We believe that Brown, by virtue of its history, has a special

opportunity and obligation to foster research and teaching on the issues broached in this report, including slavery and other forms of historic and contemporary injustice, movements to promote human rights, and struggles over the meaning of individual and institutional responsibility.” Given the scope and significance of slavery as an institution, the center’s activities are historical, contemporary, and global, positioning Brown to make a distinctive contribution to painful questions that continue to challenge society. The center’s goal is to provide a cohesive research and teaching signature that crosses the humanities, the arts, and the social sciences and that seeks to establish new collaborations with special collections (the John Carter Brown Library, the Hay Library, and the Haffenreffer Museum, for example) and institutes (the Watson Institute, the Political Theory Project, and the John Nicholas Brown Center for Public Humanities and Cultural Heritage).

4. Political Theory Project (PTP). The PTP is dedicated to invigorating the critical study of institutions and ideas that make societies free, prosperous, and fair. Through its visiting scholars and postdoctoral fellows programs and through student programs such as the Janus Forum, the Project dives beneath the familiar and easy ideological labels, and creates new spaces at Brown where students and scholars of diverse viewpoints can come together to debate the most pressing political, social, and economic problems of our day.

INVESTMENTS

This area of the plan involves a significant commitment to augmenting faculty expertise and programmatic growth.

1. Faculty Support. Plans call for continued faculty growth associated with the Watson Institute as well as with the Political Theory Project and Middle East Studies. In practice, the number of these new positions will be consolidated based on overlapping interests both within this theme and with other themes.

2. Program Support. Goals include funding for postdoctoral fellowships at Watson and CSREA, graduate fellowships at Watson, and enhanced program activities at CSREA, the Center for the Study of Slavery and Justice, PTP, and regional programs.

3. Space. The renovation of 59 Charlesfield Street for the integration of the Taubman Center into Watson is underway. A new building to accommodate growth in social sciences faculty is in early planning stages. New space needs to be identified to take the place of CSREA’s temporary location in Hillel.

4. Related Investments. In addition to overlapping faculty investments in other themes (e.g., environmental policy), the work of a number of scholars who would be active in the Peaceful, Just, and Prosperous Societies area will be aided through investments in research infrastructure for managing and analyzing large-scale datasets and support for digital scholarship through the library. If successful, the Data Sciences initiative under development should also benefit certain scholars under this theme.

IMPACT

Through strengthening the targeted units in this field, we should expect Brown to gain greater prominence nationally and internationally as a major institution in the social sciences, broadly defined. A part of that visibility and reputation will derive from establishing a distinctive “brand” of social science that is methodologically rigorous, intellectually integrative, and socially concerned. Investments in specific areas like race and ethnicity, slavery and justice, education reform, and dialogue across political divides should be designed to make Brown a highly visible leader in all these areas. The scaling up of regional programs will further emphasize Brown’s innovative and agenda-setting institutional approach to the study of global affairs.

Through investments in faculty, program support, and research infrastructure, we should expect to see a rise in the ranking of the key large departments (Economics, History, and Political Science), increased grant activity in funded areas, and more competitive doctoral programs. Other social science departments should also gain strength from these investments, particularly the growth in the Watson Institute which already has a strong presence of anthropologists and sociologists.

Exploring Human Experience

PLAN STATEMENT

Brown has a long and distinguished record of innovation in the humanities. Learning from the historical record, analyzing present conditions, and comprehending our future possibilities are fundamental to the University's mission and its contributions to society. Investment in this theme will continue to develop a robust environment for the study of human experience in all its diversity throughout history and around the world. Specifically, it will build on the success of the Cogut Center for the Humanities and the Humanities Initiative to promote creative critical thinking and informed public dialogue about the most challenging questions facing humanity.

PRINCIPAL UNITS

Under this theme we will both consolidate and expand upon critical resources for promoting innovation in the humanities, an area of historic and ongoing strength at Brown. In keeping with Brown's tradition of social engagement and intellectual responsibility, particular emphasis will be given over the next decade to *the impact of the humanities on the world and on how we experience the world*. We plan to build on the strength of Brown's openness to cross-disciplinary collaboration in order to promote cooperative teaching and research projects that focus on intellectual and societal problems of broad significance. To this end the initiatives under this theme will support activities that bring humanists together with faculty and students from the arts, the social sciences, and the physical and life sciences to study questions of fundamental common concern.

1. Cogut Center for the Humanities. The Cogut Center will be the hub of our efforts to promote collaboration in and around the humanities. Only a decade old, the Center has become a key asset for the humanities at Brown and an important point of connection for the humanities to other parts of the campus. As confirmed by a recent review by an external panel of distinguished humanists from a range of fields, Cogut has significantly enriched Brown's national profile as a major research university in humanities and related fields, and brought greater international visibility to Brown through the global network of humanities centers. Through its fellowship programs for faculty, graduate students, and undergraduates, the Center is home to a vibrant campus community that is extended by visiting scholars and a highly competitive postdoctoral fellows program in conjunction with humanities departments. The Center provides the base for seminars, conferences, and experimental new courses that push the boundaries of humanistic inquiry and teaching. Building on these accomplishments, the plan calls for elevating Cogut's role and capabilities to a new level. The Center will focus even more on building a portfolio of initiatives that catalyze critical examination of ways that the humanities can inform a deeper understanding of important developments in the world.

2. The Humanities Initiative. In 2010, a commitment was made to create several special professorships in the humanities whose interests and activities would extend beyond a single department and generate scholarly collaboration. These positions afford a special opportunity to recruit outstanding humanists who will be attracted to the openness and intellectual versatility of Brown's culture and the ability to

carry out scholarship and teaching in ways that are different from those at their current institutions. To achieve our goal of attracting the very best scholars who are also the most well suited to the particular strengths of Brown's special culture, we have designed a unique process for recruiting the Humanities Initiative faculty positions that involves asking nominees who emerge from a highly rigorous preliminary selection process to reflect on why they want to come to Brown and to submit formal statements outlining what they would do here if appointed. We think of this as simulating the kind of intellectually adventurous and self-motivated plan that Brown's Open Curriculum asks of its undergraduate students. Going forward, these prestigious Humanities Initiative positions will be constituted as the core faculty of the Cogut Center which will not only magnify the impact of these appointments across campus, but also significantly strengthen Cogut's functions as Brown's principal intellectual hub for the humanities.

INVESTMENTS

This area of the plan involves a significant commitment to augmenting faculty expertise and programmatic growth.

1. Faculty Support. Funding is needed for the Humanities Initiative positions.
2. Program Support. Unlike other humanities centers, Cogut has no core operating endowment, which was cited as a critical long-term weakness in a recent external review. The Mellon Postdoctoral Fellowship Program, supported through several rounds of grant funding, has been one of the Cogut Center's signature activities. Endowing the fellowships is a priority and Cogut has already received a challenge grant from Mellon.
3. Space. Cogut is currently at the limit of its space in Pembroke Hall, and will need more physical capacity for planned growth in faculty and student affiliates and programmatic expansion.
4. Related Investments. Connections to the humanities and humanistic social sciences are featured across the *Building on Distinction* plan. Integrative themes focused on the creative arts, brain science, the environment, data sciences, and society all look to draw strength from engagement with humanistic scholarship. The humanities also feature prominently in plans for strengthening undergraduate and graduate education, as well as in efforts to augment support computing infrastructure and the University Library.

IMPACT

Brown's historic reputation as a major center for scholarship and education in the humanities will be both reaffirmed and renewed with a particular emphasis on an institutional culture that promotes cross-disciplinary valences and fosters a distinctive dialogue between the humanities and work in other academic divisions.

With investments focused on the central agency of the Cogut Center, humanities departments should benefit across the board, but the greatest impact will be in the four larger departments: Comparative Literature, English, History, and Philosophy. These are already strong departments involving the greatest share of faculty, graduate students, and undergraduates. More Humanities Initiative appointments will

increase the visibility and standing of these departments (the first appointments, Paul Guyer and Leela Gandhi, have already done so for Philosophy and English, respectively); build stronger intellectual and programmatic linkages to the arts, social sciences, natural sciences, and other fields; and enable further recruitment of outstanding faculty and increased competitiveness in the graduate programs.

Placing the postdoc program on a sustainable base will continuously refresh departments' intellectual variety and course offerings. Giving these highly promising young scholars an opportunity to experience and participate in the vibrancy of the humanities at Brown will enhance our reputation within the broader academic community.

Enlarged and enhanced opportunities for faculty, graduate students, and undergraduates to affiliate with Cogut will strengthen the quality of their scholarship and help us attract the very best people working in the humanities.

Using Science and Technology to Improve Lives

PLAN STATEMENT

The development of new technology is critical to human progress, and Brown is at the forefront of discovery in areas such as computing, nanoscience and bioengineering. We recognize that the benefits of new technologies hinge on how well they ultimately align with societal needs. Our plan for enhancing the study of science, engineering, and technology will emphasize an interdisciplinary approach to innovation, grounded in a broad understanding of local and global needs and concerns.

PRINCIPAL UNITS

The centerpiece of this integrative theme is enhancing and strengthening the already rich collaboration and interplay between science departments and the School of Engineering.

1. School of Engineering. The elevation of the Division of Engineering to a School in 2010 was accompanied by an ambitious growth plan and innovative academic vision to be nothing less than an international model for creativity and innovation in the 21st century: conducting deep and impactful research at the cutting edge of important disciplines, and increasingly between disciplines; creating new technologies that improve the human condition and fuel economic growth; educating and mentoring the next generation of leaders with innovative approaches that build on the strength of a deeply distinguished liberal arts research university; and providing a welcoming and inclusive environment for all those who aspire to engage with the engineering community. Just as the School of Engineering is an integral part of Brown as a liberal arts university, engineering knowledge is vital to a well-rounded liberal arts education.

2. Experimental Science Departments. Physics and Chemistry are core departments necessary for excellence across all science fields. Enhanced partnership with Engineering around areas that pose interdisciplinary challenges is a pathway to strengthen the departments. Over the last five years, for example, Physics, Chemistry, and Engineering have been the main collaborators in the Institute for Molecular and Nanoscale Innovation (IMNI), the focal point at Brown for interdisciplinary interaction in the areas of quantum, molecular, nanoscale, and materials research on campus and beyond. The Department of Earth, Environmental, and Planetary Sciences, which is central to the Sustaining Life on Earth theme, also presents opportunities for stronger partnership with Engineering and other science departments.

3. Computational and Mathematical Science Departments. Mathematics, Applied Mathematics, and Computer Science are among Brown's most outstanding science departments and are crucial collaborators with Engineering, the physical sciences, and beyond. They (along with the School of Public Health's Biostatistics department) are the core participants in the Data Science Initiative.

INVESTMENTS

Plans for strengthening research and teaching in science and technology involve commitments for new faculty, new programs, and new facilities.

1. Faculty Support. The 2010 blueprint for the School of Engineering foresaw faculty growth in (1) micro/nano technologies, (2) biomedical engineering (partially overlapping with the Division of Biology and Medicine and BIBS), and (3) energy, environment, and infrastructure (with hoped for overlaps with IBES); while also highlighting the importance of entrepreneurship and innovation. In the first phase of growth, Engineering's faculty count has risen to nearly 50, undergraduate and graduate programs have expanded significantly, and funded research has approached an all-time high notwithstanding the more competitive environment for grants. Additional faculty growth over the next several years will be possible once the new building is complete. Over the next decade, faculty hiring will emphasize the following:

- Building on historic strengths in theory and experimental analysis by extending expertise in the creation of technologies ranging from new materials, structures and devices to systems of all kinds, with particular focus on applications to energy, health, and the environment.
- Targeting emerging engineering disciplines where completely new types of physical systems are enabled by cheap, ubiquitous and massive computing power, such as high entropy materials, computational sensing, robotics, new catalyst design, low-dimensional materials, neural-restorative technology, bio-molecular networks and sensing, medical imaging, and many others — all of which require a rich interplay of deep physical insight, physical creation and massive computational capabilities.
- Advancing goals for significantly increasing the number of underrepresented minority faculty and significantly improving the faculty's gender balance.

2. Program Support. Growth in faculty and research activity will lead to further growth in the size of PhD programs in the physical sciences and Engineering. Growth in master's programs will focus on society's need for trained professionals in fields where Brown offers distinctive advantages

3. Space. Major facilities investments are required to advance on our goals for strengthening science and technology at Brown:

- New Engineering Building. This building is being designed to provide the school with approximately 80,000 total GSF of additional space. The project includes a new green space to the west culminating the main campus axis to serve as a gathering space for the complex, landscape connections to Barus and Holley and the other buildings to the South; a main entrance off Brook St leading to a 7,000 GSF cleanroom/imaging suite on the lower level; a first floor to include a lobby, café, teaching lab and secondary entrances/connections to all existing buildings in the complex; 22 research labs with collaboration and support spaces on the two upper floors and in the lower level; an

upper level mechanical penthouse; modifications to the existing Prince Lab loading dock area to support services to the new and existing buildings.

- GeoChem Renovations. Built in 1982, the Geology-Chemistry Research building is no longer adequate to support science at the level required for excellence. Planning work is underway to identify the extensive infrastructure upgrades that are needed.

4. Related Investments. Engineering's relatively small size means that it must establish links with other groups to achieve high impact, and the opportunity to work with colleagues in different disciplines will help attract outstanding faculty whose work crosses traditional disciplinary boundaries. Such collaborative links will expand the ways that the science and technology fields can contribute to the campus-wide initiatives in Understanding the Human Brain, Sustaining Life on Earth, Data Sciences, Deciphering Disease (especially the new Brown Institute for Translational Science), and Improving Population Health. Engineering will also play an important role in the development of the Center for Entrepreneurial Innovation. Closer partnership with RISD will be critical for augmenting Engineering's capabilities for research and teaching on design.

IMPACT

Planned growth of faculty and graduate programs in science and technology should generate a significant increase in sponsored research activity and strengthen Brown's undergraduate curriculum with new fields of study and research opportunities. Joint appointments between the School of Engineering and experimental sciences departments like Physics, Chemistry, and Earth, Environmental, and Planetary Sciences will build up Brown's capacity in applied sciences, while also extending and strengthening the already rich research set of collaborations with Computer Science, Math, Applied Math, the Institute at Brown for Environmental Studies, the Brown Institute for Brain Sciences, the Institute for Molecular and Nanoscale Innovation, the Division of Biology and Medicine, the Rhode Island School of Design, and hospital partners. The Technology Ventures Office, the ScM Program in Innovation Management and Entrepreneurship (PRIME), the new Center for Entrepreneurial Innovation, and the planned Brown Biological Innovation Initiative will all help with translating science and technology research breakthroughs into products and ideas that will generate social and economic value for the local economy, the nation and the world.

De/Coding Data Sciences

PLAN STATEMENT

The massive explosion in data availability has profound implications for how we should educate students to be leaders in the 21st century. An increasing number of fields require an understanding of how data are collected, stored, analyzed, and visualized. The growth of “big data” also poses numerous ethical and policy challenges that range from privacy to data security to the protection of intellectual property. Brown must ensure that all members of the Brown community — not only those in fields that have long emphasized data analysis — have the resources needed to become fluent with data and to integrate data science into their scholarship in new and creative ways, as appropriate to their disciplines. At the undergraduate level, we will support data fluency as a learning goal with a new menu of courses offered in a range of disciplines. At the graduate level, we will provide data-focused pathways for master’s degree candidates, and coursework to support PhD students in a variety of disciplines. Graduate and medical students, faculty, and staff also require education and support in the applications of data within their respective disciplines. The humanities represent an area of pressing need and remarkable opportunity. We will develop a new entity gathering the capacities of the University Library, the Center for Computation and Visualization, and Computing and Information Services to provide intensive support for these groups in the collection, analysis, storage, and visualization of data.

PRINCIPAL UNITS

At the core of these broad goals under the plan will be a Data Sciences Initiative that builds on Brown’s outstanding strengths in mathematical and computational fields. The Initiative will generate and enable breakthrough science and scholarship by leveraging and studying data in a way that will establish Brown as a leader in data-driven research and education. The Initiative will bridge and integrate Brown’s strong strengths in core computational and mathematical areas with those in select data-enabled domains that have seen strategic growth and investment recently, establishing new partnerships and creating opportunities that cross traditional disciplinary boundaries. The core areas will produce new data methodologies that will transform discovery in the domain areas, while the work in the domain areas will motivate and inspire new methodologies, creating a self-reinforcing cycle of innovation that will target complex, and evolving real-world challenges. The Initiative will also extend beyond an exclusive emphasis on scientific and technological issues that revolve around data by investigating the societal and cultural impact of data and its increasingly widespread use.

1. Academic Departments. Brown has outstanding strengths in the core quantitative and computational disciplines. The Department of Mathematics and the Division of Applied Mathematics are among our very strongest departments and regarded at the top of their fields. The Department of Computer Science is also highly regarded, not least for its rigorous training and job placement of undergraduates (as reflected in its steep increase in course enrollment and concentrators) as well as its highly sought-after graduate programs. The Department of Biostatistics in the School of Public Health is also exceptionally strong. The emerging collaboration across this disciplinary core gives Brown a unique opportunity to play a distinctive leading role in the emerging field of Data Sciences.

Critical to the success of Data Sciences are Brown's existing and growing strengths across the campus in areas that depend upon collecting, generating, and analyzing large-scale datasets, including Economics, Political Science, Sociology, Physics, Engineering, Biology and Medicine, and Public Health.

2. Institutes and Centers. Brown's core departmental strength in quantitative and computational disciplines is significantly extended by multi-disciplinary centers, including the prestigious, NSF-funded Institute for Computational and Experimental Research in Mathematics, the Center for Computational and Molecular Biology, the Population Studies and Training Center, the Spatial Structures in the Social Sciences Initiative, and the School of Public Health's Center for Statistical Sciences.

3. Computing and Information Services. The University's Office of Computing and Information Services maintains and provides the computing power and support required for data science and data-enabled science to be carried out. This includes the Center for Computation and Visualization.

INVESTMENTS

The goals of the Data Science Initiative include establishing:

- A new research program that uniquely combines the foundational strengths of the four core departments with the challenges of data enabled investigations in other fields, and which integrates scientific, technological and humanistic perspectives.
- New undergraduate and master's programs to train the next generation of "data scientists and scholars," interdisciplinary data sciences training for PhD students, and courses promoting data fluency accessible to all Brown students.
- New internal and external partnerships that will allow Brown to become highly competitive for large-scale multi-disciplinary sponsorship through federal and state grants, industrial gifts and donations.

In order to realize the ambitions of this Initiative, investments of several kinds will be required.

1. Faculty. The Initiative proposes to pursue a truly inter-disciplinary approach to data sciences, encouraging and engaging different disciplines to collaborate towards the common goals from the start. This collaboration will take the form of co-hiring, co-advising and co-teaching.

2. Term Faculty/Postdocs. Junior faculty with term appointments play an important role in Math and Applied Math through expanding the range of research areas while also adding to instructional strength so that senior faculty can teach more advanced topics in their areas of research. Additional term faculty positions in these departments, as well as in Computer Science and Biostatistics would enable more senior faculty to contribute to the Data Science Initiative while also allowing the possibility of bringing in younger scholars with data science-relevant interests. Grant-funded postdoctoral fellows in these and other departments would also directly extend research and teaching for the Data Science Initiative.

3. Program and Support. The Initiative would oversee a seed fund program to foster collaborations between foundational data science and data-enabled domain research, as well as undergraduate

research assistants, visiting scholars, lectures, conferences, and workshops. As the Initiative scales up, a PhD-level staff associate director would be needed to help manage curricular and programmatic activity.

4. Space. It will be important for the Data Sciences Initiative to be a physical center that is independent of the core departments, and can also serve as the home base for undergraduate and graduate students studying data sciences.

5. Related Investments. Building the capabilities of our research infrastructure through creating data analysis cores calibrated to the needs of different disciplinary groups and enhancing the Library's role as a core for digital humanities scholarship will strengthen the means to achieve productive research partnerships involving deep methodological research and data-enabled domain research. Plans to hire faculty in data-intensive research areas such as chemical engineering (Engineering), computational neuroscience (BIBS), medical informatics (BioMed), evidence-based health care (Public Health), health data science (Public Health), environment (IBES), and empirical and policy relevant social sciences (Watson Institute) will all enrich and be enriched by this Initiative, as will the promotion of data fluency through the creation of a Learning Commons for undergraduates.

IMPACT

Brown will be a leader in data sciences, contributing significantly to the definition of this emerging field while at the same time establishing a distinctive integrative approach. The Initiative will enable recruiting efforts for faculty in core methodological fields that might not otherwise consider coming to Brown, as well as faculty carrying out data-enabled research across many departments. The University will be far better positioned for success in garnering sponsored research awards and corporate support for data science work. Undergraduate and graduate students specializing in this area will receive outstanding training and be excellent candidates in several desirable employment sectors. Meanwhile, students with other interests will have enhanced opportunities to take courses that promote data fluency as a core competency of contemporary life.

Deciphering Disease

PLAN STATEMENT

Improving human health requires an integrated approach to understanding the causes of disease and translating that knowledge into new modes of diagnosis, treatment, and ultimately prevention — from bench to bedside to therapies and populations. This theme will rely upon the close alignment of Brown's Alpert Medical School and School of Public Health and synergies with faculty across the campus and at our partner hospitals to create the knowledge on which new therapies can be based, population health can be improved, and skilled professionals can be educated to benefit people in Rhode Island and around the world.

PRINCIPAL UNITS

To advance medicine and health, researchers and clinicians must work together closely to convert scientific knowledge into medical breakthroughs. The traditional organization of universities and medical schools does not foster these cooperative relationships, and can create more silos than solutions. We plan to establish a new paradigm that focuses on translational science, in which basic science discoveries are more rapidly and effectively translated into new knowledge about human diseases that in turn informs therapeutic innovation. By leveraging the University's scientific excellence, culture of collaboration, creative force, and focus on social purpose and global impact, this new structure, called the Brown Institute for Translational Sciences, will drive Brown's evolution into a research-intensive medical school while providing unsurpassed education in biomedical science.

1. Alpert Medical School (AMS). AMS has become a national leader in medical education and biomedical research. By attracting first-class physicians and researchers to Rhode Island over the past three decades, AMS and its seven affiliated teaching hospitals have radically improved the state's health care, from health policy to patient care. The school, now housed in one of the finest facilities of its kind in the country, is renowned for the quality of the progressive, student-focused medical education it provides. It has also launched pioneering innovations in medical education, including the exceptionally selective Program in Liberal Medical Education, which combines undergraduate and medical education in a single eight-year sequence (the only combined baccalaureate-MD program in the Ivy League), and the new MD/ScM Primary Care-Population Medicine program that prepares students for medical and policy leadership roles at the local, state, and national levels.

As Rhode Island's only medical school, AMS provides students with extraordinary access to the state's diverse population and health-related institutions. Approximately 41% of the state's physicians are AMS faculty and the school or its residency programs trained 38% of all physicians in the state. The state's modest population and small size make it an ideal environment for clinical investigation and efforts at population-focused health interventions.

2. Biological Science Departments. Brown's basic biological science departments enjoy a significant research profile, receiving \$47 million in federal research funding this past year. The departments have a reputation for the excellence and cross-cutting nature of the education and training they provide for

undergraduates, PhD students, medical students and postdoctoral fellows to understand and advance biological knowledge at the environmental, organismal, cellular, and molecular levels.

3. Clinical Departments. Biomedical research and teaching also involves 14 clinical departments whose faculty are employed by Brown's affiliated hospitals and practice organizations. These clinicians train AMS students and residents and obtain roughly \$122 million in federal research support yearly, administered through our hospital partners.

INVESTMENTS

Realizing the vision of Brown as a leading and distinctive center for biomedical research will require substantial investment over the next decade. Over this period, the Division will deploy internally generated resources and prior philanthropic support to help launch and support the plan, but to fully realize the vision will require incremental additional investment as follows:

- New endowment to catalyze the expansion of the Division's faculty of physician-scientists and biomedical scientists deployed across the strategic thematic areas identified below. In addition, the Division will invest operating funds over the ten-year period to provide general support for programmatic growth such as graduate students, staff, operating/supplies, and space enabling costs.
- New endowment to support translational science at Brown. This includes exciting foundational investments in the Alpert Medical School MD/PhD program, Brown Biomedical Innovations, Inc., a new Biomedical Informatics Fellowship program, UTRAs, as well as enhancement to Alpert Medical School scholarship funds.
- New current-use funds for other research investments including the Dean's Seed Grant Fund and high-end instrumentation and equipment needed to support these specific initiatives. The Dean's Seed Grant Program will help ensure that there is an ongoing pipeline of innovative cross-disciplinary research ideas generated in support of these broader initiatives that will help keep Brown at the forefront throughout the coming years.

For this growth to be possible the Division will also need considerable new space for laboratories and other translational science needs. Planning has commenced in collaboration with the Brown Institute for Brain Science and the School of Engineering for an appropriately sized building (that may involve a commercial developer who would build and then lease the space to Brown) that would meet the needs of our combined programs.

The investments under this theme will be focused on these areas:

1. Brown Institute for Translational Science (BITS). BITS provides an infrastructure that builds on strengths while expanding our capabilities for translational science. It is composed of horizontally integrated research teams that will allow scientists and clinicians to work together along a common continuum. Many kinds of integrating continuums are possible: focusing on a disease, a biologic pathway, an investigative approach, or a problem in society (such as asthma or aging). In these teams

basic scientists make lab or data-based (computational) discoveries and then work with master clinicians and physician-scientists to evaluate the importance of their findings in well-characterized patient populations. These investigators also work with faculty in other parts of Brown, such as the Schools of Engineering and Public Health and the Watson Institute to foster and evaluate the impact of these findings on patients, populations, and policy. They will also work with experts in commercialization to address ways this knowledge can be used to generate commercial products for patients and companies that augment our regional economy.

BITS will focus on the following initiatives:

- Aging. To build upon existing excellence and national prominence in the basic biology of aging, including collaboration with the School of Public Health's Center for Gerontology and Healthcare Research;
- Respiratory Diseases (The Brown Investigators of Respiratory Diseases, or BIRDs). To build upon existing excellence and international prominence in basic and translational research while more effectively bridging and connecting these advances to patient cohorts and the clinical care setting;
- Genetics, Genomics, and Personalized Medicine. To establish an outstanding new program in human genomics and personalized medicine. This program is a fundamental and essential requirement for remaining competitive in both the clinical and research realms. The vision is not only to enable the Alpert Medical School and its clinical partners to compete, it is to become a recognized and nationally prominent leader in this field;
- Musculoskeletal and Motion Sciences. To build upon existing national prominence and unique Brown strengths in motion sciences and clinical orthopedics. The goal is to expand the faculty cohort in this area of existing excellence and in a programmatic area that spans the Medical School, the School of Engineering, as well as the hospitals and clinical science departments. Brown's Department of Ecology and Evolutionary Biology and Department of Orthopedics are already ranked amongst the nations very best; an incremental investment would both secure and advance this leadership position.

In addition to these initiatives, under the BITS banner, the Division has already launched a research team in Health Care Delivery (in partnership with the School of Public Health) that will augment these areas. In July 2015, Drs. Indra Neil Sarkar and Elizabeth Chen arrived and launched the Brown Center for Biomedical Informatics. Their recruitment brings the science of "big data" to Brown and is integral not only to the Health Care Delivery research team but for all of the components of BITS.

Another initiative that is closely related to BITS is in the area of developmental and regenerative medicine. Led by Dr. Phyllis Dennery, chair of Pediatrics, and Dr. Maureen Phipps, chair of Obstetrics and Gynecology, and in partnership with the School of Public Health, the Child Health Innovation Institute will integrate research, clinical practice, public health efforts, and educational programs to improve the health of children, to address the issue of poverty and how it impacts child health, and to train the next generation of child health leaders.

2. Supporting Translational Science at Brown. For BITS to succeed, investments in key programs and new partnerships are required. Additional endowment would provide critical support for the following:

- The MD-PhD Program. The purpose of MD-PhD programs is to train a cadre of physician-scientists who are adept at translating findings made in the laboratory to patient care. Knowledge of the clinical manifestations of disease informs and guides the research efforts of physician-scientists. The MD-PhD program at Brown has been limited in recent years only to students enrolled in either the PLME or MD program, and has not successfully recruited students from other institutions. The program must be focused to recognize the unique characteristics of this combined degree program (separate from the individual MD and PhD programs). Reinvestment in this program is a key component of BITS.
- Brown Biomedical Innovations, Inc. A major endpoint on the continuum is the translation of discoveries into real, marketable therapies or tools for disease diagnosis and /or staging that help patients. We know, however, that discoveries are often slow to realize their full commercial potential. This is due to the need to bridge the “valley of death,” the gap between where the NIH no longer funds a research program and the additional knowledge that is required for commercial funding to begin. Brown Biomedical Innovations, Inc. (BBII) will bridge that gap, initially by establishing a “Proof of Concept” fund to provide resources that will allow selected investigative programs to bridge this gap. It will also provide guidance and decrease the effort that is required to undertake a commercial spin off and or apply for NIH small business grants. Over time it is expected that this program will become a self-perpetuating entity that will lead to a commercialization ecosystem at Brown while providing an additional source of research funding for our faculty, a source of funding for Brown, and a boost to our regional economy. BBII will work cooperatively with Brown’s Technology Venture Office and Brown’s new Center for Entrepreneurship and Innovation.
- Other Educational and Training Programs. Under the auspices of the plan, the Division will launch new educational and training opportunities across the continuum. The Division will create a new, innovative Bioinformatics Fellowship program, will provide funding for UTRAs and will continue to build the scholarship endowment for medical student financial aid.

3. Research Support. Lastly, current-use funds will be used to support the plan as follows:

- Provide vital support for the Dean’s Seed Grant Program, a vehicle for stimulating new, creative, and cross-disciplinary research to ensure that BioMed and BITS remain at the very cutting edge of science.
- Provide resources for the procurement of much needed high-end instrumentation to support investigators across the full-spectrum of these initiatives.

IMPACT

The impact of BITS will be wide-ranging and far-reaching. Through new and more fully supported translational research groups and faculty, it will create new courses, research opportunities, and clinical experiences, giving all students—from undergraduate to medical and postdoctoral—direct access to translational research. By establishing an innovative research model and producing high-profile discoveries, it will drive Brown’s growth as a renowned research institution and enable the University to capture new research funding, which is increasingly biased toward translational science. Finally, by expanding existing collaborations and forging new research-clinical intersections, BITS will catalyze the translation of basic discoveries into clinical innovations, commercialize new patient treatments, and improve human health.

Improving Population Health

PLAN STATEMENT

Improving human health requires an integrated approach to understanding the causes of disease and translating that knowledge into new modes of diagnosis, treatment, and ultimately prevention — from bench to bedside to population. This theme will rely upon the close alignment of Brown’s School of Public Health and Alpert Medical School and synergies with faculty across the campus to create the knowledge with which population health can be improved, and educate skilled professionals to use this knowledge for the benefit of people in Rhode Island and around the world.

PRINCIPAL UNITS

1. School of Public Health (SPH). Founded in 2013, SPH builds upon a long history at Brown of studying the many facets of population health, including the complex interactions among genetics, environmental exposures, socio-economic factors, personal behaviors, prevention efforts, health interventions, and public policies. The SPH originated as the Department of Community Health, which in 1971 was one of the founding departments in Brown’s Medical School. Today, SPH’s four departments provide the academic homes for more than 200 faculty, and 11 centers and institutes provide the research environment and infrastructure for faculty in Public Health and collaborating departments and institutions. SPH’s mission is to improve population health by: 1) educating future public health leaders; 2) advancing knowledge through research on risk and protective factors; 3) developing evidence about effective medical and public health interventions; and 4) translating research into effective public health practice and policies.

The school is especially strong in the areas of alcohol abuse and other addictions; aging and health care delivery; screening, diagnostics, and prediction for chronic diseases; and HIV prevention and treatment. The insights derived from the work of SPH’s faculty and students can sharply reduce death and disability associated with chronic and infectious diseases, reduce the incidence of preventable diseases, extend lives while increasing healthy life expectancy, and improve health care delivery.

2. Academic and Clinical Partners. Faculty in public health have strong collaborations across the University, for example working with the Institute at Brown for Environment and Society, the Watson Institute, and the Population Studies and Training Center, as well as many academic departments in the University and clinical departments in Alpert Medical School. Long standing collaborations with the Rhode Island community include state agencies such as the Department of Health and the Executive Office of Health and Human Services, as well the City of Providence and the Rhode Island School of Design.

INVESTMENTS

To continue its outstanding work, SPH's plan involves further growth and investment in its core strengths along with building new initiatives that cut across these established areas and elevate the work of the school:

- Evidence-Based Health Care. Evidence-based health care describes the identification and application of best practices in the care of patients and delivery of healthcare services. This approach has been enabled by development of databases that can help identify best practices for a wide variety of issues including screening, diagnosis, treatments, and public health interventions. Brown faculty are nationally and internationally recognized for developing evidence upon which effective and efficient strategies for improving population health are based, comparative effectiveness research, the analysis and dissemination of best practices, and translation of research into policy and practice. Investments in this area will support developing and expanding data bases and analytic resources to support education and research “collaboratories” with hospital and community partners. In close collaboration with Alpert Medical School’s proposed Institute for Health Care Delivery, these efforts will focus on strategies to study screening, interventions, and outcomes on population health in areas of recognized strengths (e.g., alcohol and addiction studies, HIV/AIDS, aging), as well as emerging areas.
- Health Data Science. Electronic medical records, administrative data, imaging, and genetic testing, as well as large scale population health data, have contributed to massive data analytic and management challenges. As attention to the issue of “big data” continues to grow, health data will require new strategies for statistical analysis and interpretation. As part of the Health Data Initiative a new Health Data Science Center will involve researchers across Brown and from around the world. The proposed Center will focus on creating new methods to respond to the challenges of massive health data and provide the infrastructure and expertise for big data health research. Health data provide an important application for the development of new analytic tools and strategies, and the Center will be a valued resource for affiliated hospital-based clinical programs.
- Early Life Determinants of Health. There is increasing recognition that the prenatal and early life periods are critical in setting the stage for health experiences in early childhood and throughout life. Thus, the first step in improving health of populations is to identify familial, nutritional, socio-economic, and environmental factors in early life that create longer-term health risks or contribute to good outcomes. SPH faculty are working in collaboration with Hasbro Children’s Hospital, Women & Infants Hospital, and Alpert Medical School to develop a Child Health Innovation Institute, focused on rigorous interdisciplinary research that will develop and test interventions to improve maternal and child health. This proposed institute focuses on developing a birth cohort, a data core, and research infrastructure, while supporting a community of learners ranging from undergraduates through fellows and junior faculty. Initial research projects

of the Child Health Innovation Institute will address asthma, autism, and healthy weight. Companion projects draw upon a 50-year longitudinal study designed to identify early life determinants of health throughout the life span. These include the study of how genetics, environmental exposures, and social experiences influence health and development. These companion projects represent translation of public health basic science into applied research, policy formulation, and improved practice. SPH's ambition is to make Rhode Island a national model for early life health.

- Global Public Health. Traditionally, international health is a key focus of schools of public health. Faculty throughout SPH work on public health problems around the world, often in collaboration with colleagues in other academic and clinical departments or centers. These include biostatistics faculty who do HIV/AIDS work in Kenya; behavioral and social science faculty doing alcohol and addictions work in the South Pacific, several countries in Southern Africa and South America; and faculty from the Center for Gerontology and Health Care Research, as well as the Center for Environmental Health and Technology, doing chronic disease research in Europe and China. Many of these faculty are affiliated with the International Health Institute, which provides educational and research opportunities for undergraduates, graduate students, and faculty. SPH plans to build upon these strengths by improving the infrastructure for international public health training and research for students and faculty and launching a new master's degree in Global Health.

SPH's plan calls for some faculty growth, support for building new initiatives and expansion of existing programs, and additional resources for startup costs, seed funds, and other expenses. This provides an important naming opportunity for the School.

Related Investments. SPH's plans are highly interconnected with the aspects of *Building on Distinction* emphasizing the biomedical, computational, environmental, and social sciences: Deciphering Disease; Understanding the Human Brain; Data Sciences; Sustaining Life on Earth; and Creating Peaceful, Just, and Prosperous Societies. They will also gain from investment in research infrastructure, especially data cores. Robust partnerships with State agencies, the City of Providence, hospitals, clinical partners, and RISD are also critical to SPH's success.

IMPACT

Building on the considerable distinction it has already achieved, the additional investments called for under the plan will enable SPH to be a top-tier public health school and its departments among the best regarded of their kind. The insights derived from work of SPH faculty can sharply reduce death and disability associated with chronic and infectious diseases, reduce the incidence of preventable diseases, extend lives while increasing healthy life expectancy, and improve health care delivery. This will be particularly the case in Rhode Island, which can serve as both a laboratory and a model for population health. Additional faculty and expanded research infrastructure will enable the school's grant volume to increase by an estimated 20%. New master's programs or tracks in fields such as maternal and child health and global health will enlarge the cadres of Brown-trained professionals dedicated to tackling significant public health issues throughout the world.



II. Educational Leadership

Enhancing the Undergraduate Curriculum

PLAN STATEMENT

The Open Curriculum prepares undergraduates for productive lives by cultivating critical thinking, independence, and creativity through exposure to a rigorous curriculum in the liberal arts and sciences. In the coming decade, we will strengthen our position as a leader in education with continued emphasis on close interactions between students and faculty in an environment that inspires students to carve their own intellectual and creative paths. In addition, we will enhance our capacity in the creative use of online technologies to increase the quality of education, strengthen the curriculum in key areas, and expand opportunities for Brown students to connect their academic experiences to the world outside of Brown. We will further enhance career counseling and related services to help all our students prepare for a productive and fulfilling life after Brown.

PRINCIPAL UNITS

Departments, centers, and offices across the breadth of the campus underpin Brown's excellence in undergraduate education. The following units, all housed in the Dean of the College Office, will play a particularly prominent role in our plans going forward:

1. Sheridan Center for Teaching and Learning. The Sheridan Center provides a space where faculty, graduate students and postdocs from across the disciplines come together to inquire about, explore and reflect upon teaching and learning as ongoing and collaborative processes.
2. Swearer Center for Public Service. The Swearer Center works to connect the capacities of Brown University with those of the larger community in order to address inequalities in our society and our communities; create, share, and apply knowledge for the public good; and educate and prepare students for lives of effective action. In addition to the long-standing Community Partnerships program, which allows Brown students to address a range of issues through direct service and advocacy, the Swearer Center has developed a thriving Social Innovation Initiative to provide funding, skills training, advising, and coursework to those students looking to create change through ventures.
3. CareerLAB. The Center for Careers and Life after Brown provides advising, programs and resources for Brown students seeking to craft individual career development plans that build on their unique educational pathways through the Brown curriculum.

INVESTMENTS

For decades Brown's global reputation has rested on its innovative undergraduate experience. The University's open curriculum, born in 1969, encourages students to be the architects of their own education. It reflects an independent spirit that reaches back to the era of Francis Wayland, Brown's fourth president, who in 1850 proposed a "new system of collegiate education" that allowed each student to "study what he chose, all that he chose, and nothing but what he chose." Today, with nearly 2000 courses and 80 concentrations, Brown's distinctive learning culture continues to cultivate a spirit

of academic experimentation and intellectual creativity. By pursuing individualized courses of study that reflect their own goals, students develop the knowledge, skills, and values they need to be at home in a world of multiplicity and change.

Over the next ten years we will preserve our deeply held values and continue to offer an education that is student-directed, high-touch, and grounded in a rigorous liberal arts tradition. At the same time, Brown will continue to lead its peers in bold educational innovation as we embrace the new demands and opportunities of the 21st century. Goals for undergraduate education focus on complementing the Open Curriculum by ensuring that students are equipped with the kinds of competencies that are needed and valued in the world while also exploring new opportunities to expand the boundaries of where, how, and when learning takes place.

1. Learning to Learn. Brown students deepen their abilities in reading, research, and writing as well as logic, data analysis, and reasoning skills through their engagement with our rich curriculum. The value of a liberal education at Brown can be enhanced by doing more to link students' experience of the open curriculum with cultivating even stronger core competencies that are important life-long skills for everyone. Brown will make a significant investment in undergirding the acquisition of core competencies by expanding institutional support for writing, reading, data analysis, problem solving, and communication skills. These efforts will center on the Sheridan Center for Teaching and Learning, which will assume a larger set of responsibilities around undergraduate learning through the establishment of a Learning Commons. Partnering with faculty in courses across the curriculum, the Sheridan Center's Learning Commons will train peer educators to help fellow students develop the competencies they will need after Brown. In addition, the expanded Sheridan Center will incorporate Brown's Writing Center, Science Center, and Tutoring Services into a newly renovated larger center all of which will be physically consolidated in remodeled space, centrally located within the Sciences Library. These units, dedicated to ensuring that all Brown students achieve academic success—regardless of background or circumstance—will be supplemented by an expansion of Catalyst, Brown's highly successful summer bridge program created in 2010 to increase retention of under-represented students in STEM (science, technology, engineering, and mathematics) concentrations. We will also expand our support for first-generation college students, providing the mentorship and academic support that is necessary for success.

2. Engaged Scholarship. Brown attracts students committed to applying their liberal arts education — a tradition that emphasizes reflection/thinking — to problems in the world that must be addressed through action/doing. The new Engaged Scholars Program, overseen by the Swearer Center for Public Service, allows students to integrate both thinking and doing by placing research, internships, social entrepreneurship activities, and community-based work at the heart of their academic study. Participating students complete a series of special engagement-oriented courses within the concentration, work with community and other non-academic stakeholders to effect meaningful change, participate in related programming with a cohort of student engaged scholars, and complete a culminating thesis or capstone demonstrating the relevance of their academic work to external audiences. Drawing on Brown's exceptional alumni base, both in Providence and around the world, the program will also provide students with experienced mentors and advisors who understand the value

and impact of a Brown education. This program is currently being piloted with five concentrations (Environmental Studies, Engineering, Anthropology, Theatre Arts and Performance Studies, and Public Policy) and if successful will be expanded to additional concentrations. Enhancements of the Swearer Center's Social Innovation and Community Partner programs will also provide increased opportunities for students to link learning inside and outside the classroom.

3. Connecting to the World. As we begin to emphasize student action and engaged scholarship, we have found that the campus is simply not large enough for our student's ambitions. Many have a deep commitment to social change, and seek connection to the world outside of Brown. This has generated an exciting expansion of research, internship, entrepreneurial, and global opportunities at Brown as well as new relevance and reliance on our deep alumni base. A central pillar of this part of the plan is BrownConnect. Launched in November 2014 and overseen by CareerLAB (the Center for Careers and Life After Brown), BrownConnect aims at increasing the number of high-quality internships and research opportunities (supported by Undergraduate Teaching and Research Awards, or UTRAs) available to first-years, sophomores, and juniors, regardless of students' financial circumstances. This means providing more eligible students with grants that make it possible to accept lower-paid internships and more Summer Earnings Waivers for students who receive financial aid. A collection of "Bruno" opportunities offered by Brown alumni cements efforts to connect our alumni with students currently at Brown. These programs, along with enhancements to CareerLAB's suite of services, will help more fully prepare students for life after Brown.

4. Technology and Education. Just as our daily lives have been transformed by new ways to see, deliver, and interact with information, so has our educational environment. Brown faculty are experimenting with digital tools in their classrooms and discovering unique ways to enhance faculty-student interaction, create peer communities in large lectures, experience three-dimensional datasets, and customize the learning experience for students. The Sheridan Center, the School for Professional Studies, the Computing and Information Technology office, and the University Library have joined forces to support faculty in every aspect of digital education ranging from simple lecture capture, to "flipped courses" with lectures delivered online and class time used for interactive learning, "blended" courses delivered mostly online with intensive face-to-face sessions, and courses delivered entirely online. We have also sought to measure the effectiveness of these diverse approaches. Early results indicate that technology can enhance the personalized learning culture that is so central to Brown's mission and reputation. A natural extension of faculty experimentation has been the development of a small but growing selection of fully online, for-credit courses for Brown students. Among other things, integration of technology into our education creates new possibilities for extending the reach of Brown professors to students engaged in activities off campus, such as study abroad; allowing for more engaged student-faculty interactions in high-enrollment STEM courses; and providing greater flexibility for faculty teaching and research agendas.

5. Related Investments. All of the plan's Integrative Themes involve exciting enhancements to the undergraduate curriculum, strengthening key departments and their concentrations, and new opportunities for research and other work for students in the College. Under Cultivating Creative Expression, Brown will make a major strategic investment in supporting student co-curricular activities

in the arts. Exploring Human Experience and Creating Peaceful, Just, and Prosperous Societies will extend opportunities for undergraduates to affiliate with important interdisciplinary centers and support new kinds of courses and activities in the humanities and social sciences. Investments in the School of Engineering and the Data Sciences Initiative will significantly extend educational and research opportunities in the physical and computational sciences. Deciphering Disease, Improving Population Health, and Exploring the Human Brain, will do the same across the life sciences. The planned Center for Entrepreneurial Innovation will provide students with access to innovation expertise, entrepreneurial knowledge and practical toolkits, new coursework, applied learning experiences, and powerful networks. Improvements to Brown's research infrastructure will allow undergraduates to work with more sophisticated equipment, data handling, and information resources as they partner with faculty to make significant contributions to knowledge.

IMPACT

For 250 years, Brown has demonstrated the power of a liberal education to prepare students to become citizens of the world. Our efforts to strengthen and expand the reach of the open curriculum emerge from this long history while acknowledging the shifting global landscape facing current Brown students. By investing in structures that complement and augment the Open Curriculum through engaged learning opportunities, enhanced skills acquisition, digital technologies, and global education, our students will be far better equipped to transfer the skills and knowledge they have mastered at Brown to the broad range of 21st-century opportunities and challenges they will face after leaving campus.

Catalyzing Entrepreneurial Innovation

PLAN STATEMENT

Brown attracts extraordinarily talented and innovative students and faculty who seek to make a significant impact on the world. Our distinctive culture fosters creative problem-solving, and inspires our students to challenge assumptions and pursue solutions to seemingly intractable problems. As articulated in our strategic plan, *Building on Distinction*, we are committed to doing more to unlock the potential of our students, faculty, staff, and alumni to tackle the world's most pressing challenges, and to do so by collaborating across disciplines. A new Center for Entrepreneurship will build upon a host of existing strengths and competencies in research, instruction, and co-curricular activities to amplify our impact, extend our reach, and educate the next generation of Brown students with the knowledge and practical skills required to actively engage in entrepreneurial activities in the United States and internationally.

PRINCIPAL UNITS

Brown is already a vibrant center of entrepreneurial activity and interest, with a rich, multi-layered network of stakeholders, including students, faculty, alumni, and local institutions. Plans for raising Brown's profile as an institution that spurs entrepreneurship and innovation draw not only upon the enthusiasm of these stakeholders, but also a number of important existing campus organizations:

1. Program in Innovation Management and Entrepreneurship (PRIME). Offered through the School of Engineering, this distinctive ScM degree program is designed to introduce students from an engineering or science discipline to the workings of technology start-up companies (and to the technology innovation process in larger firms), and to provide enough background so that the student can be effective in such an environment.
2. Business, Entrepreneurship, and Organizations (BEO). BEO is one of Brown's top-10 concentrations, with around 150 declared concentrators. One concentration track focuses specifically on entrepreneurship, and all BEO students are required to gain a foundation in entrepreneurship.
3. Swearer Center for Public Service. As part of its overall mission to foster and support public service by students, the Swearer Center oversees the Social Innovation Initiative, which provides grants for students to develop and implement social venture activities; academic course offerings and an independent concentration in social innovation; special initiatives and support for student groups; and help for students seeking jobs, internships, fellowships and other opportunities relevant to social innovation.
4. Student Organizations. A robust set of student organizations is dedicated to entrepreneurship in various forms, including the Entrepreneurship Program, the Social Enterprise Ecosystem and Economic Development (SEED Summit), Social Action House, A Better World by Design (BWxD), and Design for America (DFA). These organizations also draw in (and upon) faculty and alumni.

INVESTMENTS

Building upon the high level of interest and organization in entrepreneurship throughout the campus and beyond, creating a new center for entrepreneurship that will serve to amplify Brown's impact, extend its reach, and educate the next generation of Brown innovators. This center will support an array of new classroom and co-curricular offerings that will provide students with access to innovation expertise, entrepreneurial knowledge and practical toolkits, new coursework specifically tailored to promote entrepreneurial excellence, applied learning experiences, and powerful networks.

A proposed Center for Entrepreneurial Innovation was initially part of the 2010 plan for the new School of Engineering, approved by the faculty and the Corporation. However, as discussions about this new center progressed and interest in the center developed across the campus, the potential for a University center that involves all disciplines—from the sciences to the arts and humanities—became apparent. Following intensive consultation with stakeholders and benchmarking against programs at peer institutions, the vision for the new center is unique within the constellation of entrepreneurship programs across the country for its ambition to address the entire range of entrepreneurial ambitions of our students and faculty, its high quality curriculum and programs, and for its integrative, multi-disciplinary ethos grounded in the liberal arts.

A center for entrepreneurship will be organized around a set of core activities:

- Enhanced Entrepreneurship Education. Education will be at the heart of this initiative. A coherent and rigorous entrepreneurship program for students from any discipline will provide them with a robust foundation in core principles and concepts (e.g., entrepreneurial finance, business strategy, and organizational behavior), followed by more advanced specialized courses related to their particular areas of interest (e.g., technology, social ventures). These new courses will complement and fortify existing offerings through BEO, PRIME, and the Swearer Center. The center will sponsor a certificate in entrepreneurship that will be available to all students who complete a designated sequence of courses and co-curricular activities.
- Brown Breakthrough Lab (B-Lab). Launched June 2015, this new venture accelerator is a structured, immersive, 8-week program designed to arm student teams with critical tools, concepts, experience and expert input as they tackle venture development. In its initial run, 18 teams were selected from 50 applications spanning a wide range of disciplines, including healthcare and medicine, arts and music, software, engineering, and social enterprise. The curriculum includes business model development, lean principles and tools, and a range of complementary content and structured practica. Eventually, the B-Lab will run several times a year.
- The Forum on Entrepreneurship Analytics, Scholarship, and Thought (FEAST). Also launched in June 2015, this program is designed to attract and catalyze a network of faculty who are committed to exploring innovation theory and practice. Conferences, symposia, and applied field work with Brown innovation teams will produce new

insights and scholarship on the innovation process, the entrepreneurial mindset, and innovation patterns across sectors.

- Grand Challenges Competitions and Fellowships. The center will sponsor a series of campus-wide challenges designed to mobilize cohorts of innovators from across disciplines around developing practical solutions to society's pressing problems. The challenges will be organized around a rotating set of themes such as alternative energy, healthcare, the environment, and the aging population. Teams will compete for funding and the curriculum will be aligned with and linked to these challenges, offering students the opportunity to study issues, and then apply what they've learned in practical contexts, connecting them with partners beyond our walls.
- Brown Active Mentoring Program. Enhancing and formalizing our innovation mentoring model, we will offer access to both academic and practical expertise, through mentors, experts and entrepreneurs-in-residence, and on-campus and visiting scholars. We also foresee curating best-in-class content, with physical and digital libraries featuring new practical toolkits, on demand.

Once the new center for entrepreneurship has been fully launched and this rich set of curricular and co-curricular initiatives is in place, a second phase of development envisions creating a venture incubator that can translate innovations developed at Brown into commercial ventures.

The initial phase of establishing a robust and successful center requires resources of several kinds.

1. Leadership and Faculty. New funds will be required to support an Executive Director, additional faculty, and practitioner experts.

- Executive Director. The Executive Director, a practitioner who will report directly to the Provost, will oversee the activities of the center along with an Academic Advisory Committee made up of respected faculty.
- Faculty. Additional tenured/tenure-track faculty who will teach in the entrepreneurship program. These chairs would be held by the new center and used to support faculty who would hold appointments in a number of departments such as Economics, Sociology, CLPS, or in the School of Engineering.
- Professors of the Practice. Positions for individuals whose experience equips them to be excellent teachers in different areas of entrepreneurship.

2. Program Funds. A start-up endowment would support the center's activities in its initial phases, including visiting entrepreneurs-in-residence, developing co-curricular activities, and other forms of programming. Once the center is founded, we anticipate raising current-use funds annually to support programs.

3. Space. This center will require a visible, multipurpose space on or close to campus for the Executive Director, new entrepreneurship faculty, professors of the practice, and entrepreneurs-in-residence, along with room for classes and co-curricular activities.

4. Related Investments. Entrepreneurship is a central element in plans to grow the scale and impact of the School of Engineering, BIBS, and the Division of Biology and Medicine. Investments in the entrepreneurship area will also dovetail with the broader investments proposed for undergraduate education, which focus on cultivating competencies and engaging broader definitions of learning in conjunction with the Open Curriculum.

IMPACT

A new center for entrepreneurship will advance Brown's scholarship, reputation, and reach in the world. The educational programs and activities will expand students' capabilities in entrepreneurship and innovation, and create an encouraging structure for realizing their ideas. At the faculty level, the creative interaction between scholarly and practical expertise will stimulate new knowledge and applications addressing problems affecting society. Delivering economic impact and creating social value, these new programs will foster the diffusion of new models, methods, and concepts that will inspire other innovators at Brown and elsewhere. The center will also serve as a focus for activating the powerful Brown network, leveraging the vast potential of our alumni.

Supporting Innovative Doctoral Education

PLAN STATEMENT

Doctoral education has been a fundamental part of Brown University since the awarding of the first doctorates in 1889, and it remains a cornerstone of its standing as a world-class institution recognized for high-impact education and research. Many of Brown's doctoral programs are recognized nationally and internationally for their excellence and attract remarkably talented students. Broad opportunities for interdisciplinary research and superb faculty enable academically rigorous, cutting edge training while maintaining a high-touch Brown feel in doctoral education.

Growing and attaining even greater excellence in doctoral education is central to Brown's ambitions to be a top-tier university. Doctoral students are the next generation of intellectual leaders who will contribute insights and provide solutions to complex global problems of the future. Robust PhD programs that attract outstanding students are vital for recruiting and retaining world-class faculty to Brown and further elevating the standing of our academic departments. Brown's undergraduates want to learn from scholars who are actively generating new knowledge and seek opportunities to contribute to that work. Graduate students are essential partners for faculty in discovering, communicating, and preserving knowledge while also making critical contributions to undergraduate education as instructors, teaching assistants, mentors, and role models.

PRINCIPAL UNITS

Brown's doctoral programs are distinguished by their ability to provide highly rigorous disciplinary training while at the same time reflecting the University's overall academic culture through fostering broader cross-disciplinary connections. An equally important aspect of doctoral education at Brown, in keeping with its overall educational mission, is the high level of attention given to the intellectual and professional development of each individual student. The campus units most directly engaged in doctoral education are:

1. Academic Departments. Brown offers 51 PhD programs through 41 departments, centers, and institutes. A number of departments are already considered at the top of their fields, and this is closely connected to the excellence of their PhD programs. Achieving greater excellence in doctoral education is vital for realizing Brown's goal of increasing the number of top-ranked departments.
2. Interdisciplinary Institutes and Centers. Many of these units host or support doctoral students as part of their intellectual community, and would benefit from a greater or more regular ability to do so. For the centers most closely associated with Brown's strategic Integrative themes, doctoral students play a significant role in advancing their plans as part of *Building on Distinction*.
3. The Graduate School. Underpinning and augmenting departmental efforts, the Graduate School provides essential coordination and support resources for doctoral programs and their students. As a partner with departments, the Graduate School oversees policies and processes that guarantee the academic integrity of graduate programs institution-wide, manages campus appointments and an array

of academic and professional development opportunities for graduate students, and provides a wide range of support services and programming to support student needs.

INVESTMENTS

Brown aims to provide nothing less than world-class training for the next generation of scholars, scientists, and professionals that graduate from its PhD programs. In addition to the academic rigor of our departments, this involves generating opportunities that encourage breadth of methodological preparation and scholarly skills.

1. Core Support. As we seek to strengthen departments and recruit outstanding faculty, we must build upon our ability to attract the best graduate students, enable them to do the highest-quality work, and train them to be exceptional members of their professions. To keep pace with peer institutions, we must increase our regular academic-year stipends and ensure that doctoral students across the disciplines receive a first-year fellowship and a dissertation fellowship. To address a lack of critical mass and high teaching demand, certain programs should be scaled to a proper size. Doctoral training in the Humanities and Social Sciences typically requires more time than Brown's current five-year financial support guarantee, so that we need to extend opportunities for sixth-year students in these fields and enhance their summer stipends. And to help ensure that doctoral students can give complete focus to their studies, we also need to offer competitive health insurance, dental care, enhanced child-care support, and a funded parental leave policy. To underwrite these needs, our goal is to raise significant new endowment.

2. Other Initiatives. In addition to addressing these kinds of core support needs for doctoral students, the endowment funds we raise would also be used in part for other special initiatives to strengthen PhD recruitment and training, including:

- Presidential Fellowships. In the past two years, we have initiated a successful program in which departments compete for funds that support higher-than-standard stipends to the strongest doctoral students they admit. Additional endowment would allow us to expand these fellowships.
- Fellowships at Institutes and Centers. These units can offer advanced PhD candidates interdisciplinary opportunities for faculty mentoring and peer collaboration, providing students with professional experiences and critical resources that complement their disciplinary scholarship and align with the integrative emphasis of *Building on Distinction*. To increase the availability of these important developmental opportunities, some of the endowment for graduate fellowships raised above will be allocated to these interdisciplinary centers and institutes.
- Diversity. Brown is committed to making its own faculty more fully representative of the nation; correspondingly, graduate programs producing the next generation of faculty also have a strong commitment to recruiting and retaining a student body that is fully diverse across all fields. Achieving these goals requires resources for fellowship support and targeted outreach to applicants from underrepresented groups and women in fields

where gender parity remains a challenge. In particular, the Graduate School would like to launch a distinctive fellowship program designed to attract students from traditionally underrepresented groups and women in certain disciplines to doctoral studies in STEM fields, with the goal of enlarging the pool of diverse future faculty leaders.

- Global Mobility. The impact of Brown doctoral education reaches beyond the walls of the University. Through archaeological digs in the Middle East, the study of diseases and epidemics in Africa, the discovery of nuclear particles at an accelerator in Geneva, deep investigation of documents in remote archives, and countless other activities, our PhD students have a profound impact that reverberates globally. In support of these global ambitions, we will expand the Global Mobility: Graduate Research Fellowship program that enables research-related travel to conferences, archives, and field sites.

3. Related Investments. Brown's investment in its doctoral programs is closely tied to realizing the goals of virtually all parts of *Building on Distinction*. Conversely, most other areas of investment under the plan will serve to make Brown's doctoral programs more attractive and powerful, especially where they involve new faculty hiring, new academic programs, strengthening departments, and bolstering research infrastructure.

IMPACT

In the coming decade, the University will aim for the highest level of excellence in graduate education by building out doctoral programs through integrative scholarship, distinctive University-wide opportunities, and through fostering a positive community and enhancing doctoral students' financial security. These initiatives are guided by Brown's core values of a partnership of students and teachers. Our investments in doctoral education will shape the future of Brown's interdisciplinary research, teaching, and scholarship and will distinguish Brown as its graduates become the scholars and researchers of tomorrow.

Success will be measured in several ways. The strength of doctoral programs is directly related to the reputations and rankings of departments, in part because doctoral programs are an important factor in the ability to attract top faculty talent. Thus, investments in PhD education will be reflected in the rising standing of departments. Making Brown a more intellectually compelling and supportive center for doctoral study will be evident in the ability to recruit students of ever higher quality, and to compete more effectively against Brown's peers for the most remarkable applicants. Diversity of the doctoral student body will increase. Brown will be recognized for its innovative approach to PhD education, and graduates of its doctoral programs will go on to secure the most sought-after positions in academia and industry.



III. Academic Excellence

Undergraduate Financial Aid

PLAN STATEMENT

Brown believes that admission decisions should be based on the academic ability and promise of the students who apply—not on the economic means of their families. The University remains committed to generating the support necessary to meet 100% of the demonstrated financial need of our undergraduates. In the coming decade, Brown will enhance the generosity of financial aid packages for lower- and middle-income students and increase financial aid for international students. Increased support for financial aid will complement a number of other initiatives described in other sections of this plan, such as the Catalyst summer program for science students and the financial support for summer opportunities provided through BrownConnect.

INVESTMENTS

Every year since 2001, the University has increased the resources available for financial aid and taken steps to ensure that our financial aid programs are effective and competitive. Over this period, we have launched (with a transformative \$100 million gift) the Sidney E. Frank '42 Scholars Program, providing significant financial assistance for our highest-need students and totally eliminating the loan burden for their families; reduced loan burdens for lower- and middle-income students and their families; and grown the scholarship resources available for transfer and international students. Brown's financial aid budget has more than doubled in the last nine years, rising from \$44 million in 2004-05 to \$104.1 million for domestic students and an additional \$9.8 million for international students in 2014-15. A recent gift of \$15 million will support the Resumed Undergraduate Education (RUE) program over the coming decade. This gift has made it possible to double the size of the program.

In recent years, the number of families demonstrating financial need has surged. In the current class, 88% of all undergraduates who applied for financial aid received a need-based award—and the cost to the University has escalated accordingly. To be even more effective in competing successfully for the most academically gifted students regardless of need and giving them the opportunity for unconstrained exploration of questions, possibilities, and purpose, Brown has set an ambitious goal for raising new endowment for undergraduate scholarships, including funds dedicated to increasing our ability to address the financial needs of middle-class families. We also aim to raise a permanent endowment to support the RUE program beyond the coming decade. Undergraduate financial aid is supported by the Brown Annual Fund, which will also be a priority in the future.

IMPACT

The remarkable expansion of financial aid at Brown has enabled the creation of an academic community rich with diverse life experiences and opinions, significantly broadening everyone's education. Scholarships not only ensure that the students we admit can attend Brown, they also allow those students the freedom to pursue the academic interests and career possibilities that are best suited to their talents and passions without the constraint of overwhelming loan burdens.

Developing and Sustaining Diversity

PLAN STATEMENT

Diversity as a component of academic excellence is a central theme in *Building on Distinction*. We will continue to cultivate a community of faculty, students, and staff with the diversity and breadth of experience required for excellence and to provide members of this community with the opportunities and resources needed for success. A diverse faculty is an essential component of scholarly excellence in all disciplines and of ensuring that the University meets the complex needs of Brown's student body. While continuing our Target of Opportunity Program, we must look to additional strategies to make progress. We will implement a comprehensive plan for diversifying the faculty that focuses on developing the pipeline of young scholars and attracting them to join the Brown faculty and on heightening the awareness of our community to issues of diversity in recruiting, mentoring, and retaining an excellent faculty. With respect to students, the plan calls for making special efforts to identify applicants who come from backgrounds that are underrepresented at Brown, including those who are the first in their families to attend college, as well as veterans and children from military families.

PRINCIPAL UNITS

1. Office of Institutional Diversity and Inclusion (OIDI). OIDI has overall responsibility for Brown's diversification strategies. It provides general oversight and management for the programs that foster diversity and reports on the University's progress in creating and supporting initiatives.
2. Diversity-Related Offices. A number of other offices make promoting and supporting greater diversity and inclusion a significant focus of their work. These include the Brown Center for Students of Color, the Sarah Doyle Center, the LGBTQ Center, the Office of the Chaplains and Religious Life, Office of Diversity and Multicultural Affairs, Student and Employee Accessibility Services, the Office of Student Veterans and Commissioning Programs, Human Resource's Office of Diversity and Inclusion, the Office of Student Life, the Science Center, and the Leadership Alliance.
3. Campus Leadership. Improved diversity and cultivating a more inclusive academic community is an institution-wide goal, so all campus units are responsible for its promotion. Leadership is critical, so the President, Provost, deans, and vice presidents will all bear significant responsibility for realizing greater diversity, as will department chairs, center directors, and administrative office heads.

INVESTMENTS

Brown's Diversity Action Plan re-affirms the University's commitment to address the underrepresentation and barriers to broad participation of U.S. minorities (African American, Hispanic/Latino, Native American, and Asian American) and women across academic disciplines in the humanities, social sciences, and sciences. This plan also considers the definition of diversity in the broadest sense to encompass the multiple ways in which we affiliate and express our identities, including race/ethnicity, gender, sexual orientation, disability, veteran status, religion, first generation,

language, and socioeconomic background, just to name a few. The investments called for under the plan are directed toward the overall goal of making Brown a leader in the establishment of innovative and effective policies and practices which facilitate and sustain a more inclusive academic community, where there is both an understanding and valuing of the broad participation of diverse students, faculty and staff in fulfilling the mission of a 21st century liberal arts university.

1. Faculty. Brown will make significant progress in diversifying the faculty, with particular attention paid to the recruitment, retention and support of scholars who have historically been underrepresented in the academy.

- We will double the proportion of underrepresented minority (URM) faculty at Brown through strategic mechanisms of outreach, recruitment and faculty development undertaken by the relevant deans, in partnership with the Vice President for Academic Development, Diversity and Inclusion and with oversight by the Provost. A Faculty Diversity Fund would assist enhanced recruiting efforts for outstanding underrepresented faculty.
- In addition to enhancing diversity-oriented recruiting overall, new faculty positions will be specifically directed towards science and engineering for a “cluster hire” of underrepresented scholars working on related topics or themes. This kind of hiring helps to allay candidates’ concerns about isolation from peers and has demonstrated its effectiveness for recruiting diverse faculty.

2. Diversity Postdoctoral and Predoctoral Fellowships. There continue to be limited numbers of scholars from diverse backgrounds, particularly scholars of color, who are able to fill the faculty ranks at academic institutions. Postdoctoral fellowships are an essential mechanism for early identification of promising recent PhD graduates who can then be competitively positioned to begin tenure track faculty positions. We will identify and develop young scholars from diverse backgrounds through the establishment of the Brown University President’s Diversity Postdoctoral Fellowship Program.

Similarly, President’s Diversity Predoctoral Fellowships would support PhD students from diverse backgrounds who are in the final stages of completing their dissertations. In addition to giving these students an opportunity to finish their doctoral work under highly conducive conditions and acknowledging their promise as scholars, these fellowships would enlarge the multi-generational community of diverse scholars on campus while also establishing positive connections to Brown among this cadre of future faculty.

3. Fund for the Children of Providence. This ongoing program, for which we will seek additional endowment, provides college scholarships to graduates of Providence public schools.

All of these investments must be accompanied by a system of assessment and an annual review of progress towards fulfilling the goals and objectives of the Diversity Action Plan. To this end, OIDI will produce a Diversity at Brown Annual Report which will provide data and information on progress towards the specific objectives of the Diversity Action Plan during the previous academic year. Each department or unit will develop its own specific diversity action plans in order to establish diversity goals

and objectives that take into account their unique circumstances and needs. External reviews of departments and units will include specific consideration of diversity and inclusion efforts and the extent of progress made in diversifying its faculty, staff and/or students.

IMPACT

In 10 years Brown will have developed a significantly more diverse faculty and student body, including doubling the proportion of URM faculty. It will have significantly improved academic support, advising, mentoring and resources for all students from underrepresented backgrounds. Graduate programs will have doubled the number of underrepresented doctoral and master's students. In addition, Brown will train at least 30 Presidential Diversity Postdoctoral Fellows who will enter the professoriate. A larger number of new and improved courses, training, and other educational opportunities will allow students, faculty and staff to have an informed understanding of the histories, experiences and issues faced by diverse communities, locally, nationally and globally. Brown will have a more inclusive climate across the University, where there are distinctly visible spaces, mechanisms and resources to meaningfully engage across the many identities and backgrounds that make up our diverse communities.

Strengthening Scholarly and Research Infrastructure

PLAN STATEMENT

For Brown faculty, and the University as a whole, to excel, we need a research environment that does more to incentivize and support scholarship in all fields at the highest level. More and better shared resources are needed for Brown scholars to pursue team-based efforts that make use of the cutting edge instruments, data processing power, and expert staff vital for success in many disciplines. In addition, we must improve the support we provide to faculty members as they develop research proposals, and streamline the processes for proposal submission and project oversight. Scholars and students today also need a new kind of library that can manage and help create sophisticated digital content while continuing to furnish a full array of materials and services that support education and scholarship.

PRINCIPAL UNITS

Brown has invested heavily in its research infrastructure over the last decade and a half. Existing assets include:

1. Laboratory Research Cores. Brown currently has 14 laboratory core facilities, that contain broadly useful instrumentation housed in and managed by academic departments and centers, and which are available to investigators from anywhere on campus. The availability of cores with fully up-to-date equipment plays an important part in recruiting and retaining faculty researchers and enabling them to compete successfully for grant funding.
2. University Library. As a vibrant learning and research center on campus, the Brown University Library provides ready access to a wide array of research resources and expertise. The Library develops and manages a dynamic set of collections and services critical to today's students and faculty. While continuing to support traditional methods of scholarship and learning, the Library has moved boldly to promote and support digital scholarship, digital literacy, and digital asset management across campus. This transformation of library staff expertise and physical space includes the creation of the Center for Digital Scholarship, the Digital Scholarship Lab, and the Digital Studio.
3. Research Computing. In 2009, Brown invested more than \$2 million in high performance computing capacity, including the purchase of an IBM supercomputer, providing Brown faculty with much greater computing capabilities than had been available in the past. Also, by centralizing the facilities in the Center for Computation and Visualization (CCV), Brown offered researchers a much more economical method of accessing high performance computing capabilities. Since 2009, Brown's high-performance computing capacity has grown from 14 trillion calculations per second to 125 trillion — a nearly nine-fold increase — and the number of users annually has grown from around 100 to roughly 500. A critical factor in the growth of users for this equipment has been Brown's commitment to providing specialized staff and training to guide faculty and students in the use of the equipment. Brown implemented an NSF-funded upgrade to the optical network to support transfer of large datasets, high definition video, and connectivity to Internet2 at broadband speeds.

4. Office of the Vice President for Research (OVPR). OVPR supports Brown's research mission by facilitating the development of major, cutting-edge research programs; providing a central support infrastructure for research administration and related services; and organizing processes to ensure compliance with regulations on the conduct of research.

INVESTMENTS

In order to be one of the world's great research universities and bring our capabilities up to a level on par with our aspirational peers, Brown must continue building upon the substantial investments of recent years and develop ongoing investment models to ensure that these resources remain highly relevant. Additional support will enable us to offer an improved and more sustainable structure of research support that is also more strategic and purpose-driven. Brown's plans give particular emphasis to catalyzing research teams in high-potential areas, building out our network of shared instrumentation and computing cores serving different kinds of research needs, strengthening research support in the social sciences, and ensuring that the University Library's resources and services can be fully responsive to the priorities of *Building on Distinction* and the rapidly evolving technological landscape.

1. New Research Initiatives Development Fund. In many fields, pursuing significant research questions demands the collective insights of large, collaborative, multi-disciplinary teams that often span departments. Brown needs to be strategic and selective in identifying research areas where there is a convergence of faculty expertise, societal need, external funding opportunities, and the possibility of becoming world leaders. But even when all those elements are in place, initial investments are needed to consolidate research teams and position them for future success through initial data gathering and other foundational work. We should have the capability to provide that kind of support to several such research programs, typically for 2-3 years each, as a proof of concept phase to demonstrate their strength in obtaining external funding and value as a major new program that may justify more substantial investment.

2. Shared Equipment Fund for Laboratory Cores. Faculty working in fields ranging from geology to bioengineering require access to costly advanced instruments for the precise study and manipulation of matter. Brown's faculty regularly seek external funding to purchase such equipment, and successful proposals increasingly require significant institutional matching funds and commitments to ongoing support. While we have generally been able to meet those needs, we need a more systematic and strategic approach to investing in cores. Similarly, we need a structure to ensure that the highly trained research staff needed to operate the facilities and train users are not so widely distributed across the University and have stable funding. There is a predictable need to replace equipment as technology evolves. This is often quite expensive, and we need to do better in anticipating and planning for such needs. More broadly, decisions about when to open, close, or sustain a core facility need to be made carefully with an eye towards realizing Brown's strategic goals. A combination of new resources and improved organization for laboratory cores will significantly improve Brown's ability to attract and retain leading scientists and support first-rate experimental research at the frontiers of knowledge.

The creation of a Shared Equipment Fund would support and expand core facilities serving multiple sectors of the University, including biology and medicine, the physical sciences, and engineering. The Shared Equipment Fund will also provide a more deliberate and effective mechanism for leveraging external support opportunities from agencies (like NSF and NIH) that provide instrumentation grants and related research funding, as well as campus-based resources such as faculty start-ups and departmental research funds. Decisions on how to invest Shared Equipment Fund resources would be made by a committee of expert faculty and the program would be administered by a new staff position requiring expertise in securing external funding for equipment and developing business plans for core resources.

3. Shared Data Analysis and Computation Cores. Just as new instrumentation can open up research avenues in the laboratory sciences, the increasing availability of vast and unprecedented amounts of data is providing an exciting new basis for investigation and discovery based on large-scale datasets such as the coded human genome, population-scale medical information, richly detailed results of particle physics experiments, internet usage, and consumer economic transactions. The demands for data acquisition, storage, and analysis exceed what individual investigators can manage effectively, and require investment in equipment and personnel to develop data analysis and computation cores for research in social, biomedical, and physical sciences. Many of these same technological capabilities are germane to digital work in the arts and humanities.

Brown will provide investigators with a range of data services through a combination of centralized capacity in data storage and computing technology and domain-specific facilities serving biomedical, population health, social science, and physical science researchers. A newly created data science officer within Brown's IT organization will lead this effort and also oversee institutional data practices. Support for secure data will be available on specially configured servers, and technical expertise will be provided by data application specialists who have a broad set of experiences in data-enabled science spanning areas such as bioinformatics, social science, physical science, and text-based scholarship.

4. Social Research Institute. There is great strength, but also substantial unevenness in research support available to Brown's social science faculty. Given the investments in faculty called for in *Building on Distinction* and profound societal impact of their research, we need to ensure that research is well supported across the social sciences. For faculty researchers working on questions related to demography (broadly defined), the Population Studies and Training Center (PSTC) offers a model of the kind of flexible and integrated research infrastructure that brings together grant, project, methodological and data support increasingly needed by all social scientists. A proposed new Social Research Institute would build upon PSTC's service model in order to offer cost-effective research support to all social science faculty whose work would benefit from this kind of integrated support for project development and management, identification of funding sources, proposal development, Institutional Review Board protocols, pre-award and post-award grant management services, and computing staff support.

5. University Library. To provide resources and capabilities required for Brown to achieve its goals under *Building on Distinction*, the Library will (1) support integrative scholarship by meeting the information

needs of scholarly disciplines at Brown, particularly those that arise from themes in the strategic plan; (2) further Educational Leadership by providing access to a burgeoning set of online teaching and learning resources, and redesigning library spaces to accommodate new forms of teaching and learning; and (3) further Academic Excellence by building deeper research collections, facilitating faculty research and publications, and customizing services to individual programs, faculty, and students.

In order for the Library to accomplish these objectives under the plan, investments are needed to strengthen collections, improve and adapt facilities, and enhance support for digital scholarship.

- Collections and Resource Support. New endowment and current-use funds will enable the Library to support the escalating costs of purchasing and accessing scholarly information resources; maintain a core set of discipline-specific and interdisciplinary collections (both analog and digital); selectively enhance special research collections; respond to new digital capabilities that will emerge for enhancing the delivery, use, and preservation of scholarly content both acquired for and created by Brown's faculty and students; and support a range of programming and smaller-scale facilities upkeep needs.
- Facilities. The Brown libraries are some of the most heavily used spaces on campus and, following upon a number of highly successful recent renovation projects, a suite of new projects offer opportunities for much needed augmentation of Brown's capacity to support scholarship and teaching, including improved study areas for undergraduate and graduate students; a new large collaborative classroom; better spaces for special collections users; and venues for academic conferences and events. In addition, creating a state-of-the-art conservation lab would improve the preservation of and continued access to Brown's valuable but aging print materials.

5. Related Investments. Building the research infrastructure will meet the needs of priority growth areas across the whole of the University's plan.

IMPACT

These investments are fundamental for building Brown's reputation as a leading center of research tackling our most important societal challenges. Improving our capability to foster and support cutting edge research in the humanities, social sciences, life sciences, and physical sciences will contribute in important ways to Brown's competitive advantage in recruiting top faculty and attracting outstanding postdoctoral fellows, graduate students and undergraduates. Further, investments in shared equipment cores and large data management will provide opportunities to recruit scientists and scholars whose work we would previously not have been able to support but who are critical for realizing the University's academic goals. Greater research capability and support will lead to significant growth in Brown's research volume and market share of federal research dollars with an increase of up to 50% potentially attainable in the next decade. Growth in sponsored research will support larger cohorts of graduate students in the funded fields whose work will further enlarge Brown's research profile. Undergraduates will gain new learning and research opportunities through being able to work with faculty, graduate students, and staff technicians on state-of-the-art equipment in cutting-edge research environments.

Enhancing Campus Life

PLAN STATEMENT

Brown's campus must support its academic and extracurricular aspirations at the highest levels, while also providing up-to-date services reflecting the way that students, faculty and staff live and work. This means providing spaces where members of the Brown community can socialize, meet, and dine; creating athletic facilities that support the aspirations of Brown's student-athletes; and supporting organizations that serve a range of student groups on campus. An important component of the plan is for College Hill to remain the core location for undergraduate instruction, as well as the center for extracurricular and athletic activities. The Jewelry District is envisioned as a vibrant hub of medical education, scientific research, administrative offices, and the home for Brown's School of Professional Studies.

PRINCIPAL UNITS

1. Office of the Vice President for Campus Life (OVCL). OVCL is responsible for all aspects of campus life, including student life, health services and counseling and psychological services, athletics and physical education, residential life, and chaplains and religious life. This office oversees centers that are important to the entire Brown community, including the Brown Center for Students of Color, the Sarah Doyle Women's Center and the LGBTQ Center, and it provides services for students who are veterans or in commissioning programs and international students.
2. The Office of the Executive Vice President for Finance and Administration. This office oversees two important aspects of campus life. One is Dining Services, which oversees student eateries across campus. The other is the Department of Facilities Management, which is responsible for ensuring that the planning, design, construction, operation, and maintenance of all University facilities and grounds support the academic, research, and administrative functions of the University.

INVESTMENTS

A number of the components of the plan described elsewhere in this document discuss investments in buildings and infrastructure on both College Hill and in the Jewelry District, as well as support for student-centered academic and co-curricular programs. Additional investments include the following:

1. Renovations. Brown's philosophy regarding its campus is consistent with our strong commitment to sustainability. We will renovate space where possible, and turn to new construction for needs that cannot be accommodated with existing buildings. Over the past decade, Brown has made major commitments to improving students' residential, social, recreational, and co-curricular spaces. However, a number of critical needs remain that will require the renovation of buildings, including buildings that are vacated by the relocation of a number of administrative offices to South Street Landing in the Jewelry District. These buildings, located across College Hill, will both serve academic and co-curricular needs. They include Alumnae Hall, Nicholson Hall, and the Brown Office Building, among others.

A priority for renovation in the coming years is the Sharpe Refectory—known affectionately to generations of students as “the Ratty.” The Sharpe Refectory, which was built in 1950, continues to serve as a vital social center of campus. However, it no longer provides students with the dining options expected in a 21st-century university. The facilities for food preparation are badly out-of-date, and the space is not optimized to meet the needs of students to hold meetings, socialize and create community. A renovated Sharpe Refectory will meet the growing demand for better and more flexible dining, and additional student-focused co-curricular and social space.

2. Athletics. A recent strategic planning study for Athletics identified the following priorities:

a. Sports Facilities. In recent years, Athletics has been moving aggressively to make significant improvements in team facilities and playing fields. These include the construction of Goldberger Field, the resurfacing of Stevenson Field and the construction of the men's and women's lacrosse locker rooms in the Pizzitola Sports Center. Following the successful completion of fundraising for these projects, the highest-priority capital investments in Athletics' strategic plan are: renovating the Olney Margolies Athletic Center; renovating and rebuilding Marston Boathouse; and improving the baseball and softball fields.

b. Team Support. The Brown University Sports Foundation (BUSF) is the conduit for philanthropic support to all of Brown's 38 varsity and numerous club sports as well as for the general-use athletic facilities and programs that provide for the well-being and fitness of the entire Brown community. In addition, to continue recruiting and retaining outstanding athletics staff, Brown will seek to raise additional endowments for coaching positions.

3. Other Campus Life Priorities. Although a number of campus life needs were identified in *Building on Distinction*, we recognize the value in creating a new strategic plan that focuses specifically on a range of campus life priorities, including the physical and mental health of students, the protection of students against the threat of sexual assault, and the development of programs that support groups such as international students, first-generation students, students veterans, and members of the Brown community with physical, psychological and learning disabilities. Brown is currently searching for a new Vice President for Campus Life, and this person will have the opportunity to lead the development of this strategic plan. The campaign plan will include space for new campus life priorities that emerge from this plan.

IMPACT

Much of the learning that takes place at Brown happens outside of the classroom — in co-curricular activities and programs, on athletic fields, and in dining and residence halls. Investments in campus life will contribute to the overall quality of the student experience and Brown's academic mission; will help to recruit the most talented students to Brown; and will play an essential role in preparing students for lives of usefulness and purpose.