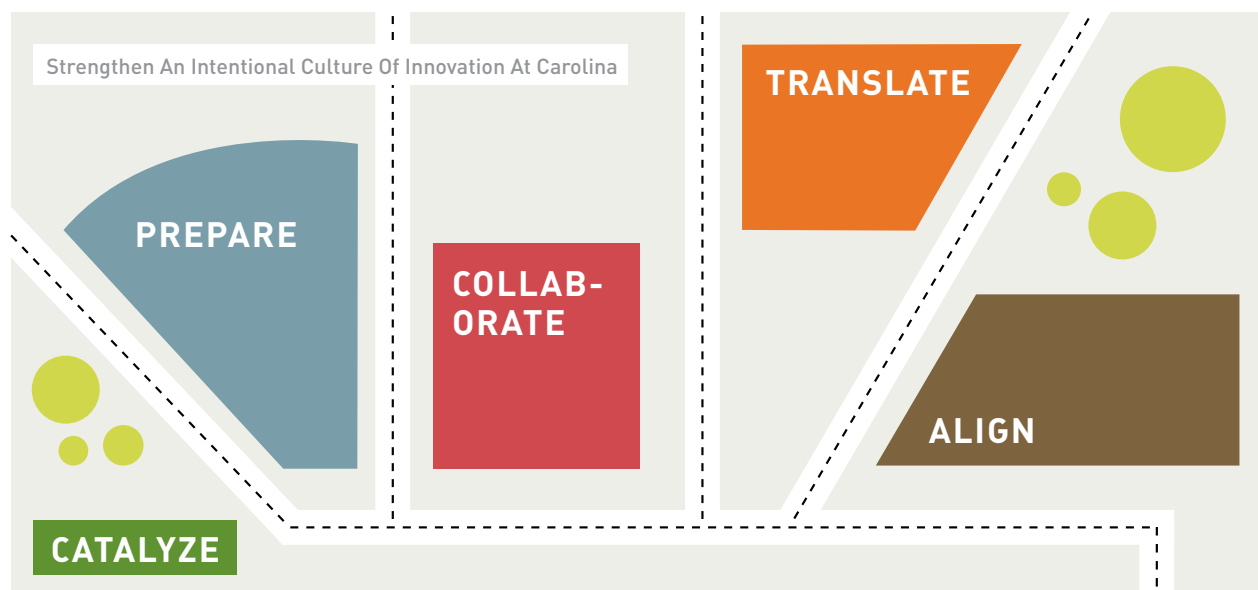


INNOVATE @ CAROLINA

IMPORTANT IDEAS FOR A BETTER WORLD



Important ideas
for a better world ►

A Strategic Roadmap to Accelerate Innovation at The University
of North Carolina at Chapel Hill

Submitted to Chancellor Holden Thorp by the Innovation Circle,
the Faculty Innovation Working Group, and the Student Innovation Team

September 2010
innovate.unc.edu



We have so much work ahead of us. Our to-do list is nothing less than the greatest problems of our time: cure diseases, and get those cures to all the people who need them. Find and invent clean energy. Inspire students in our public schools. Feed seven billion people. Describe the world, and replace conflict with understanding.

— Chancellor Holden Thorp

About the Roadmap

In early 2010, Chancellor Holden Thorp assembled a group of faculty, staff, students, alumni, parents, and friends of the University — many with extensive experience leading innovation in science, business, medicine, media, nonprofits, and academia — to help Carolina investigate what it would take to increase the volume and accelerate the pace at which important ideas created at the University of North Carolina at Chapel Hill (Carolina) are applied for a better world. Our charge was to develop a strategic roadmap that would lay the groundwork to support, develop, and move critically needed new ideas, discoveries, and inventions beyond the campus to have a greater positive impact on our region, state, nation, and the world.

Three groups — the Innovation Circle, the Faculty Innovation Working Group, and the Chancellor's Student Innovation Team — accepted this charge and worked both jointly and independently during an eight-month period to understand the current innovation landscape on campus and to learn from others. Our work included an intensive review of the current state of entrepreneurship and innovation at Carolina, best practice site visits including trips to the Massachusetts Institute of Technology, Stanford University, the University of Florida, and the University of Utah, as well as a meeting in New York City to explore the role of the arts and humanities in creating and translating innovations to wider audiences. The working groups held numerous virtual and on-campus meetings to envision ways to translate Carolina's pool of talent and knowledge into dramatic leaps forward for society. Our groups incorporated extensive input from faculty, staff, and students to develop the recommendations presented in this document.

The University has launched a process to update its Academic Plan, and fortuitously that process ran parallel with the development of this Roadmap. The two groups worked together to ensure that the new Academic Plan currently under development and the Innovation Roadmap would be aligned

and mutually reinforcing. We are grateful to the Provost and members of the Academic Planning Committee for their insight and guidance.

In January 2010, we issued our first report entitled *Innovation and Entrepreneurship at The University of North Carolina at Chapel Hill: Background and Sample of Current Activities*. The report reviewed the then current landscape for innovation and entrepreneurship on campus and compared Carolina to peer institutions on some key indicators. Building on what we learned, the document presented here, *Innovate@Carolina: Important Ideas for a Better World, A Strategic Roadmap to Accelerate Innovation at The University of North Carolina at Chapel Hill* (Roadmap), is a plan for the allocation of energy and resources at a strategic level. As this effort moves forward, it is anticipated that many detailed plans will grow out of the broad strategy. This Roadmap is our collective vision for how Carolina can apply new ideas to dramatically increase our contributions to the well-being of the global community.

On behalf of the three groups, we would like to thank all of those who contributed their time and ideas to this effort.

Submitted by the Core Planning Team:

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John Akin, *Chair of the Faculty Innovation Working Group*

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Section I

The Challenge

In an increasingly interconnected world confronted by complex local and global issues, there are a number of important questions to consider: What are the greatest challenges facing our region, state, nation, and world? What does it take to address them? Who can help the majority of global citizens, including those locally and nationally, who lack access to fundamental resources? What is our role? And more specifically: Who can apply their creativity in powerful ways to inspire and inform people so that they may see the world differently and act more compassionately?

Who can find solutions so that hundreds of millions of people worldwide no longer have to risk their lives to have access to something as simple and precious as clean water? Who can reverse the growing achievement gap of our youth? Who can create viable clean energy alternatives to curb dependence on oil and protect the natural world? Who can help the North Carolina economy grow? Who will launch new enterprises to fuel job creation? Who will help America with its growing competitiveness challenges? Who will help us express and define our human and artistic visions? Who will mentor and develop the intelligent, creative, ethical leaders needed to safeguard our global future?

World Population: 6.8 billion and growing

900 million people do not have access to clean water

75% of all those killed or wounded from war are non-combatants.



Impact, University of Aberdeen



Parr Center

The Parr Center embodies the University's commitment to ethics. It promotes ethical development by providing the necessary resources – theoretical development, empirical knowledge, and discussion opportunities – to explore and advance our understanding of ethical issues. The Parr Center was the 2008 winner of the American Philosophical Association Philosophy Documentation Center Award for Excellence and Innovations in Philosophy Programs.



Carolina's Commitment and Preparation to Meet this Challenge

Around the world, leaders are turning to universities and asking them to assume greater responsibility for developing new ideas and ways to address these and other challenging issues. We need not be asked by others to assume this role, as it is part of who we are at Carolina. The increased expectations from outside the campus, however, do serve as another reminder that we must increase the number of innovations and the speed at which they occur at Carolina. We need to do more, now.

At the core of the University of North Carolina at Chapel Hill's traditions, and central to our future, is a commitment to innovation: put new, important ideas to use for the benefit of society. The founding of the University in 1793 represented an early innovation in education. Carolina was the first public university in the nation, and its emphasis on teaching, research, and service has had a transformative effect on higher education. Further, because of Carolina's commitment to the liberal arts as well as its service to the public, our faculty and students see the world broadly, and think critically and multidimensionally.

Now it is time to build on this legacy and extend our impact even further.

Carolina is both compelled and poised to accelerate and apply innovation and its accompanying entrepreneurial focus in a concerted and deliberate way to grapple with fundamental issues affecting the quality of human life and, in that context, to help solve the world's most pressing problems.

The University's strength comes from fostering creativity and discovery in the classroom, the lab, the stage, the studio, and from inspiring a campuswide culture of inquiry and basic and applied research. Carolina's commitment to a rich liberal arts education and top professional programs equips our faculty and students to assess the current state of knowledge in a discipline, augment that knowledge through rigorous new research, and share the results of this new knowledge in ways that benefit North Carolina, the United States, and the world. From this base of expertise and experimentation, breakthrough approaches are launched.

Like other major research universities, Carolina has a significant brain trust with impressive resources. The University's faculty attracted \$803.4 million in research grants and contracts in fiscal 2010 (a more than doubling of annual research funding in a decade). Many of these resources are devoted to multidisciplinary collaborative research. The University has 3,500 distinguished faculty members charged with doing cutting-edge

research and teaching Carolina's more than 28,000 students, who represent some of the nation's most accomplished high school graduates and graduate students.

A partner in promoting innovation across the state, the University is committed to the work of the North Carolina Innovation Council, established in 2009 by Governor Perdue. The council's charge is to foster strategic investments and policies in the growing knowledge and innovation economy. They will coordinate public and private investments; move innovative ideas from the lab to the marketplace more efficiently; and strengthen collaboration among businesses, academia, as well as state and local governments.

Carolina has a five-year history of cross-campus entrepreneurship upon which to build. Launched in 2004 with a grant from the Ewing Marion Kauffman Foundation, the Carolina Entrepreneurship Initiative (CEI) infused a focus on entrepreneurship across the campus. One of the most successful cross-campus entrepreneurship initiatives in the country, the CEI laid the groundwork for collaboration focused on entrepreneurship.

As the knowledge and capacity of Carolina grow, and the local, national, and global challenges mount, it is clear that the world needs Carolina now more than ever. The complexity of issues necessitates interdisciplinary collaboration and problem solving. Carolina is in the unique position to educate future leaders and provide understanding and solutions through the work of its faculty, students and staff. With our considerable assets and advantages, we must move more quickly to put important ideas to use for a better world.



A faculty working group on digital arts and humanities meeting at the Institute for the Arts and Humanities. Photo by Eileen Mignoni.

Our academic mission is to create new knowledge, discover innovative solutions to the world's greatest challenges, educate our outstanding undergraduate and graduate students, and contribute meaningfully to the state, nation, and world. Through scholarship and creative work, our extraordinary faculty shed light on the past, communicate new ideas, and interpret the world. They also take on some of the biggest problems of our time: social and economic disparities, drug addiction, climate change, international conflict, life-threatening diseases, and more.

— Karen Gil, Dean, College of Arts and Sciences

Center for Integrative Chemical Biology and Drug Discovery

UNC-Chapel Hill's Center for Integrative Chemical Biology and Drug Discovery is an innovative joint initiative supported by the Eshelman School of Pharmacy, the Lineberger Comprehensive Cancer Center, the School of Medicine, and the Department of Chemistry in the College of Arts and Sciences that creates dedicated, multidisciplinary project teams with other groups on campus in order to advance targets through the drug discovery and development process. Under the leadership of research professor Stephen Frye, the Drug Discovery Center serves as a bridge between basic science and clinical practice by applying a multidisciplinary product approach to translate basic scientific discovery to a practical application.

Nourish International

This nonprofit organization engaging college students across the nation on issues of global poverty, was founded at Carolina in 2003 by then undergraduate Sindhura Citineni. She experienced early success by sponsoring a regular Hunger Lunch on campus, usually a simple meal of rice and beans that raised money for community-based food and nutrition projects in India. Her team placed second in the Carolina Challenge business competition, providing critical funds to expand the organization's reach and impact. Nourish International now has chapters at 30 universities across the nation and has sent more than 80 students and \$100,000 abroad to conduct sustainable development projects in 14 communities.



Our Approach

This Roadmap describes a way to accelerate the number and speed of innovations coming from the University of North Carolina at Chapel Hill. It explains how faculty, students, staff, and the greater Carolina community can translate their ideas into innovations affecting a wide range of issues. We clarified what we mean by innovation, explaining that an innovation is the successful implementation of a novel, valuable idea. In this definition, we emphasize the equal importance of the three elements: Novel – Valuable – Implemented. We refer to innovation as: Important ideas put to use to benefit people and the natural world.

In developing the Roadmap, we looked systematically at the entire campus to find ways to best leverage existing resources and to engage as many participants as possible. We established a vision and mission as well as a set of principles to guide our work.

Vision and Mission

Vision:

With a special focus on urgent challenges, innovators and innovations launched at Carolina consistently translate important ideas for a better world.

Mission:

Continually strengthen an intentional culture of innovation at Carolina guided by entrepreneurial thinking; fueled by talented people, collaborations, and resources; and accelerated by expanded capacity and a sense of urgency.

Guiding Principles

Integrative

This work builds on a commitment to education and inquiry that rewards cooperation, inventiveness, entrepreneurial spirit, scholarly and creative excellence, and dedication to improving the human condition while sustaining the natural world.

Campuswide

Innovation is a campuswide value and pursuit. Bold ideas worth pursuing come from all areas of the campus.

Global

Pressing needs are not limited by geography. In an interconnected world, our University is by necessity and reality a part of the global community.

Urgent

The grand challenges facing the state, nation, and world today will not wait and demand that we address our work with a sense of urgency.

Diverse and Collaborative

Innovation depends on a diversity of points of view, especially in the development of solutions to complex issues. Broader participation by underrepresented groups in our educational and research endeavors can only enhance our innovations. We will promote partnerships among academic disciplines and between the University and external partners to ensure the best outcomes.

Experimental

Innovations evolve from experimentation. We will promote an iterative process of doing-learning-changing. This means we will embrace taking calculated risks and accept the inevitable failures as a necessary ingredient of the innovation process.

Learning from Others

We will learn from the experiences of others and adopt successful programs and practices, modified for our University, whenever feasible.

Incremental and Radical Leaps

We will stimulate both incremental and transformative ideas.

Rigorous

Rigorous measures of success are a standard part of the innovation process. These measures will go beyond our own internal standards and include feedback from a wide range of sources.

Efficient

We will leverage resources by maximizing existing structures and assets of the University whenever possible and promote effective processes with minimal overhead and staffing.



Photo by Chris Carmichael



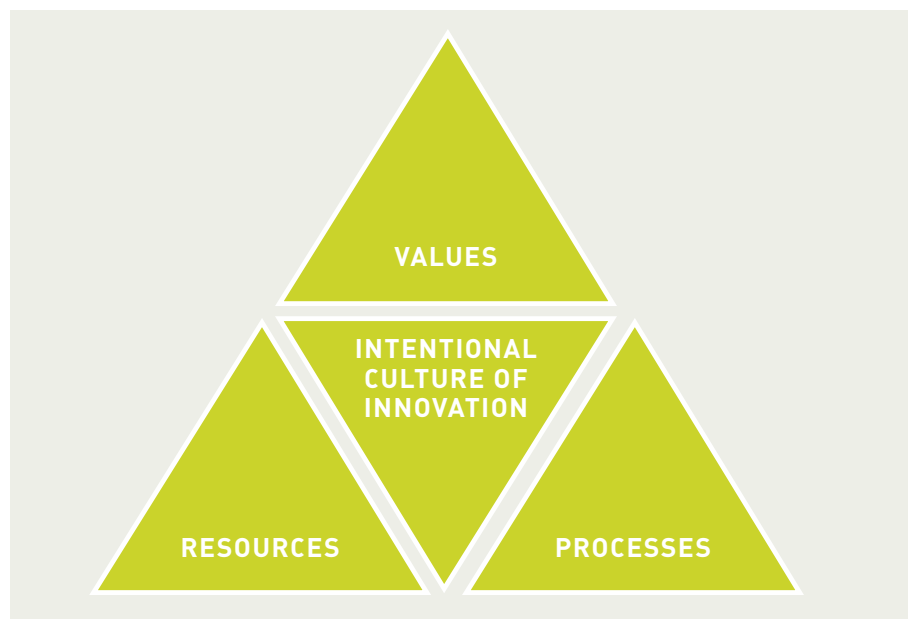
Strengthening an Intentional Culture of Innovation

Given that it is difficult to predict or orchestrate specific innovations, our recommendations focus on providing a supportive climate for the Carolina community so its members can creatively explore responses to major issues. Such an environment requires that leaders make this a priority and implement the structures, incentives, and resources to accelerate the innovation process. Strengthening a culture of innovation requires clarity and alignment among three key elements:

Values: That which is worth doing.

Resources: Required people, time, money, facilities, and equipment.

Processes: Needed structures, rules, and methods.



Our values, resources, and processes must be mutually supportive to create and foster a campus culture of innovation. If we are committed to a goal, then we must allocate appropriate resources to avoid undermining our hopes. If we put resources behind our aspirations, then we must remove bureaucracy that impedes success.

Energy Frontier Research Center

In an effort to discover sustainable solutions to the global fossil fuel crisis, chemist Thomas Meyer launched an Energy Frontier Research Center (EFRC) with a \$17.5 million grant from the U.S. Department of Energy. The Carolina initiative is devoted to solar fuel. The team will investigate the use of light to split water molecules into hydrogen and oxygen, as well as the use of light and water to reduce carbon dioxide to methane and/or other hydrocarbon fuels. The EFRC will link more than 20 faculty in departments of chemistry, physics and astronomy, and scientific collaborators at NC State, NC Central, Duke universities, University of Florida, and the Research Triangle Institute. A goal is to translate research results in the EFRC into marketplace products.

Carolina Express License

The Carolina Express License provides startups with needed flexibility by eliminating challenging negotiations for equity between faculty innovators and the University. It sets standard terms and fees which require minimal payment and obligations by UNC-Chapel Hill startups. In doing so, it eases the procedural and legal burdens they face by allowing them to function independently of the University when seeking approvals for sub-license agreements. By emphasizing early stage development and virtually eliminating the need for lengthy negotiations, the Carolina Express License aims to make UNC-Chapel Hill-based startups even more attractive to investors and partners.



Frank Hawkins Kenan Institute of Private Enterprise: Carolina Entrepreneurial Initiative

The Kenan Institute, located at the Kenan-Flagler School of Business, provides a neutral place where business, government, academia, and civil society can collaborate to develop informed, practical and sustainable solutions to the competitive challenges they face. The Institute's Director, Jack Kasarda, was instrumental in procuring a Kauffman Foundation grant for cross-campus entrepreneurship. The Carolina Entrepreneurial Initiative (CEI) was developed to encourage and support programs across campus to teach and support enterprise creation. The CEI was created with the grant from the Ewing Marion Kauffman Foundation to develop and launch entrepreneurship programs for faculty and students across the university over a five-year period. The University's Minor in Entrepreneurship and First Year Seminars (both in the College of Arts and Sciences), graduate certificate program in entrepreneurship, Chancellor's Faculty Boot Camp for Entrepreneurship, the Carolina Challenge Business Plan Competition, and Launching the Venture development program grew out of the CEI.



Photo by Steve Exum, courtesy UNC School of Law.

An innovation culture grows when faculty, staff, and students start with the seeds of ideas, combine them in unusual ways and discover something new and worthwhile. Since innovation places a premium on novelty, on what has not been done or thought before, it is spurred by entrepreneurial thinking. Entrepreneurial thinkers see problems as opportunities, question everything, conduct analyses, take purposeful action, engage partners, try alternative solutions, learn from failures, make meaning, and persevere to reach the goal.

Entrepreneurial thinkers ask:

- What is the need?
- What is the opportunity?
- What is the status quo response?
- Does it have to be this way?
- Is it the best way?
- What might be better ways?
- What can I do?

Encouraging faculty, students, and staff to ask these questions and think entrepreneurially means the University has a responsibility to provide a conducive environment for such explorations. This approach requires that the resources and processes be aligned to support people posing such questions and then taking actions that disrupt the status quo in big and small ways. This foundational commitment is far-reaching and such alignment of values, resources, and processes will ultimately affect Carolina's overall impact. It will be a factor in whether top faculty, students, and staff choose Carolina and stay here. Our Roadmap takes seriously this issue of support, and we address it in our recommendations. It will be the sum of thousands of deliberate actions taken by thousands of faculty, students, staff, and partners directed toward accelerating impact that will make this Roadmap take life.

Results

Imagine what we could do by taking a more intentional and integrated approach to drive innovation across the University. By removing barriers, dedicating resources, encouraging and incentivizing collaboration on campus and beyond, and honoring learning through experimentation, we can more effectively translate ideas into impact.

Imagine what role we might play in fostering, developing, and implementing innovations more quickly and attracting talented faculty and students to extend the potential of important ideas. Imagine what we could do if, as a community, we selected a few of the most challenging issues and explored them in depth. What synergies might be exploited and breakthroughs might occur if innovative and entrepreneurial activities were widely encouraged not just accepted? Imagine the exponential effects if we were, as a campus, more intentional and aligned around these actions.

We can imagine Carolina innovations that promote human understanding in a dramatic way, effectively treat life-threatening diseases, help develop the next great playwrights and authors who through their art change how people see the world, deliver to the developing world simple, affordable basic services, help North Carolina economies thrive so that people have the resources to make choices for themselves, reinvent the way people communicate with one another, and make radical leaps forward in addressing global health issues. We can imagine new ideas created at Carolina that establish new relationships, introduce new values, underwrite different judgments, and transform what seems possible.

This Roadmap will move us toward the following outcomes:

- Ideas and discoveries are leveraged across the University and efficiently disseminated.
- Carolina classrooms, labs, and studios are incubators of discovery that yield innovations that serve the public good.
- Carolina attracts the most talented and innovative faculty and students in the world because of its dedication to discovery, experimentation, and innovation.
- Carolina is recognized globally as one of the most innovative and entrepreneurial universities in the world.
- The world is significantly improved because of Carolina innovations and its entrepreneurially minded faculty, students, and staff.

Now is the time for Carolina to become an even greater disruptive force for good.

Population Center

The Carolina Population Center (CPC) brings together 250 researchers in a collaborative setting focused on research to benefit world populations and respond to societal needs, creating a fertile context for the cross-pollination of ideas and resulting in \$47.7 million in research funding in 2009.

Professor Peggy Bentley is leading a study at the Center on Malawi mothers and infants. For more than 20 years, Professor Bentley has blended her background in medical anthropology, nutrition, and public health to examine influences of social and behavioral factors on maternal and child health and nutrition. The study, MaMi: Malawi Mothers and Infants, is of approximately 2,400 HIV-positive mothers and their children in Malawi and examines how inexpensive nutritional supplements might result in improved health of mothers and their infants.

PlayMakers

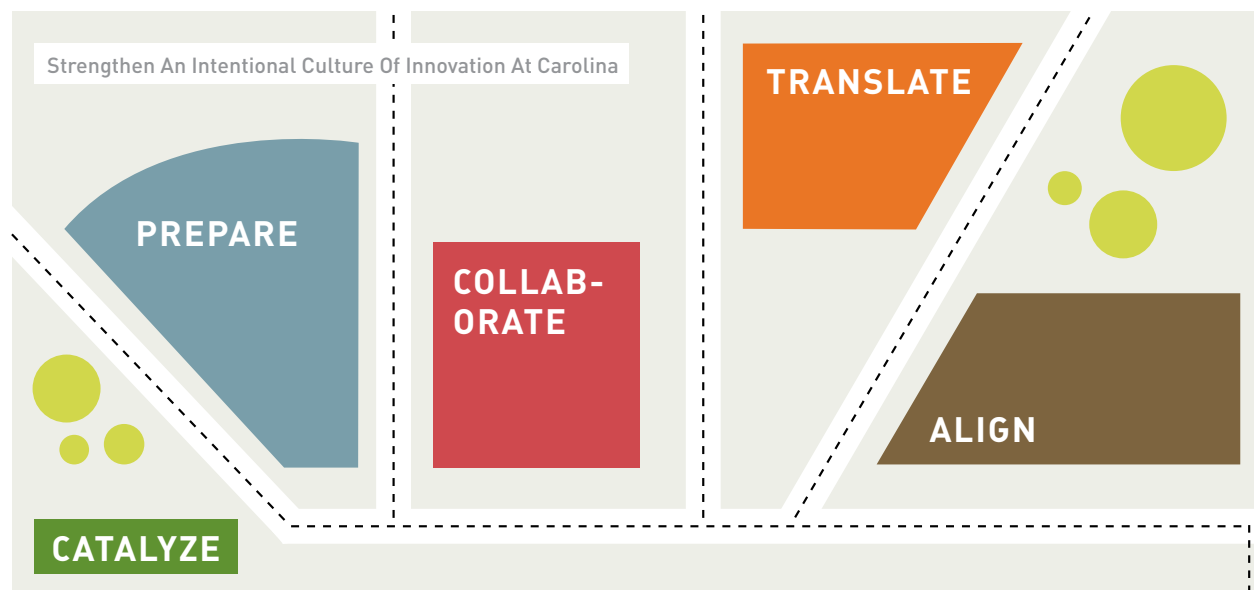
PlayMakers Repertory Company is the professional theatre in residence at the University of North Carolina at Chapel Hill. The company has been honored by the Drama League of New York as one of the best regional theatres in the country. In addition to its excellence in theatre, the PRC2 series features productions that are a springboard to community dialogue. This series explores socially and politically relevant topics with in-depth audience discussion after each performance led by experts and thinkers from the Triangle's rich intellectual and artistic community. Its education and outreach programs have served over 100,000 area youth since their inception in 1984.



Section II

Recommendations

The Innovation Circle, the Faculty Innovation Working Group, and the Student Innovation Team present the following five recommendations designed to foster a vibrant campus of innovators and innovations. Each recommendation describes the current situation and the future desired state, presents goals, and offers specific actions that will help Carolina reach its innovation goals. Five-year resource requirements end each section. The recommendations for the University are to:



Prepare faculty, graduate and undergraduate students, staff, and the broader Carolina community with the knowledge, skills, and connections necessary to translate new ideas into innovations.

Collaborate with diverse groups on campus and beyond to explore issues, options, and creative approaches that may lead to innovations.

Translate important new ideas into innovations that improve society more expediently and at an increased volume.

Align people, incentives, resources, and processes to strengthen an intentional culture of innovation at Carolina.

Catalyze innovation at Carolina by facilitating the work of faculty, staff, and students as they put important ideas to use for a better world.



Important ideas
for a better world ►

Recommendations at a Glance

Recommendation 1: Prepare faculty, graduate and undergraduate students, staff, and the broader Carolina community with the knowledge, skills, and connections necessary to translate new ideas into innovations.

Goal 1.1 Ensure that faculty, students, staff, and the broader Carolina community understand the University's commitment to innovation and the resources available to help them reach their related goals.

Action 1.1.1 Reach multiple audiences.

Action 1.1.2 Provide a one-stop gateway to resources on innovation.

Goal 1.2 Build capacity for innovation.

Action 1.2.1 Provide educational opportunities about innovation.

Action 1.2.2 Connect faculty, students, and staff to a global network of innovators.

Action 1.2.3 Create learning and creative spaces.

Action 1.2.4 Advance research.

Targeted Investments Needed: \$42.15 million (\$25 million endowment, \$17.15 million expendable for a Five-Year Period)

Recommendation 2: Collaborate with diverse groups on campus and beyond to explore issues, options, and creative approaches that may lead to innovations.

Goal 2.1 Enhance robust interdisciplinary collaboration among basic and social scientists, humanistic scholars, and those in hybrid disciplines such as bioengineering and applied sciences to address the great challenges of our times.

Action 2.1.1 Set as a top scientific priority advancing applied sciences, which connect basic sciences and engineering to promote new areas of discovery.

Action 2.1.2 Engage collaboratively across basic and social sciences and humanities to address great problems and challenges.

Action 2.1.3 Remove barriers to interdisciplinary efforts.

Action 2.1.4 Track collaborations and their impact.

Goal 2.2 Collaborate and coordinate around key themes of local, national, and global significance to mobilize the campus toward new understanding of issues and solutions.

Action 2.2.1 Create the Key Themes Initiative.

Goal 2.3 Improve industry collaborations and increase industry funding.

Action 2.3.1 Examine the issues related to industry relations and make recommendations to the provost and chancellor.

Goal 2.4 Extend collaborations with state and regional partners to help North Carolina further develop into a leading competitive, global, entrepreneurial, knowledge and innovation economy.

Action 2.4.1 Attract high-level business ideas and teams to Research Triangle Park (RTP).

Action 2.4.2 Attract the capital needed to fuel the entrepreneurial economy in North Carolina.

Action 2.4.3 Map the RTP entrepreneurial ecosystem to strengthen support for high-potential entrepreneurial firms.

Action 2.4.4 Leverage existing university labs, equipment, and space.

Action 2.4.5 Incentivize collaborations among RTP universities and with other partners.

Goal 2.5 Strengthen collaborations with Carolina's strategic international partners.

Action 2.5.1 Fund research on global innovation needs and remove barriers to working with global partners.

Total Investment Needed: \$23.2 million (\$17 million endowment, \$6.2 million expendable for a Five-Year Period)

Recommendation 3: Translate important new ideas more expediently and at an increased volume into innovations that improve society.

Goal 3.1 Support faculty, students, and staff as they develop understanding of issues and contribute solutions to complex social and environmental problems through social entrepreneurship.

Action 3.1.1 Further refine and develop an integrated campuswide approach to social entrepreneurship, which includes artistic entrepreneurship.

Goal 3.2 Effectively organize and manage the University's commercialization services to maximize the quality and volume of potentially important innovations for society. Return revenue from these innovations to the University to support this work when possible.

Action 3.2.1 Implement a carefully designed commercialization approach.

Goal 3.3 Measure the impact of innovations and innovators launched at Carolina.

Action 3.3.1 Design and implement a study of the social and economic impact of the University.

Total Investment Needed: \$19.975 million (\$10 million endowment, \$9.975 million expendable for a Five-Year Period)

Recommendation 4: Align people, incentives, resources, and processes to strengthen an intentional culture of innovation at Carolina.

Goal 4.1 Encourage leadership across campus to support and promote innovation in their schools, departments, institutes, and offices.

Action 4.1.1 Create a common understanding of the University's innovation goals and evaluate and reward campus leaders for advancing them.

Goal 4.2 Recruit, retain, and reward faculty, students, and staff who show promise, aptitude, and/or achievement in innovation.

Action 4.2.1 Recruit innovators and future innovators.
Action 4.2.2 Reward activities that contribute to the culture of innovation at Carolina.

Goal 4.3 Align the University's internal methods and processes to foster innovation, especially in working across schools.

Action 4.3.1 Align innovation goals with other strategic initiatives.

Goal 4.4 Provide the necessary funds to support nascent and promising innovations on campus.

Action 4.4.1 Establish the Carolina Innovation Fund.

Total Investment Needed: \$36.375 million (\$36.2 million endowment, \$175,000 expendable for a Five-Year Period)

Recommendation 5: Catalyze innovation at Carolina by facilitating the work of faculty, staff, and students as they put important ideas to use for a better world.

Goal 5.1 Leverage the talents of leaders across campus to prepare, collaborate, translate, and align resources and processes to strengthen the culture of innovation at Carolina.

Action 5.1.1 Create management groups of program leaders and their supporters from across campus to provide integrated leadership and support for the innovation goals.

Goal 5.2 Create the Chancellor's Catalyze Group to facilitate the implementation of this Roadmap.

Action 5.2.1 Leverage history by building on the University's strong track record of innovation.

Action 5.2.2 Coordinate and support campuswide efforts to fully realize the vision and goals laid out in this Roadmap.

Total Investment Needed: \$3.3 million (expendable for a Five-Year Period)

**Total Investment
Needed: \$125 Million**

**(\$88.2 Million
Endowment, \$36.8
Million Expendable For
A Five-Year Period) ►**



Recommendation 1: Prepare faculty, graduate and undergraduate students, staff, and the broader Carolina community with the knowledge, skills, and connections necessary to translate new ideas into innovations.

GOAL 1.1 Ensure that faculty, students, staff, and the broader Carolina community understand the University's commitment to innovation and the resources available to help them reach their related goals.

In the future, Carolina's commitment to innovation will be well understood and embraced by the campus community. Faculty, students and staff will consider how their work in the classroom, lab, studio and that of the entire research enterprise can advance Carolina's collective positive impact on society. From the moment they are recruited through the day of graduation, students will have the opportunity to consider how their learning applies to innovation and what they can do to actively participate in the process. Faculty, students, and staff will be drawn to the University because of its commitment to innovation and entrepreneurship.

Action 1.1.1 Reach multiple audiences.

- Provide a sustained, coordinated and focused communications strategy to deliver core innovation messages to various constituents inside and outside the University. Work with campus communicators to craft messages, prepare collateral material, and use the University's websites and existing publications to reach key audiences in multiple ways.
- Create a team of speakers drawn from the broader Carolina community who will make presentations about Carolina's approach to accelerating innovation, the implementation of the Innovate@Carolina Roadmap, and the eventual results.

Faculty: Communicate how the University's innovation goals can connect with faculty research and teaching priorities. Encourage innovative faculty to promote understanding of the Innovation Roadmap goals with their colleagues. Integrate the Roadmap with the Academic Plan by working with Academic Plan Steering Committee members, the Chair of the Faculty, and other faculty leaders.

Students: Communicate innovation messages to Carolina's more than 28,000 undergraduate and graduate students to leverage their creative potential toward greater impact.

- Infuse messages about innovation at Carolina throughout the recruiting process.
 - + Host a recruitment event for admitted and prospective students who have an interest in entrepreneurship and innovation.
 - + Emphasize innovation at Carolina in the application. This emphasis could include a required short-answer question such as 1) What local, national, or global human or environmental world problem do you find most compelling and how would you address that problem during your time at the University? or 2) What does innovation mean to you?
 - + Emphasize innovation and entrepreneurship on campus tours for prospective students led by student ambassadors.
- Create online media, social networking tools, and print publications to build awareness and enhance the reach of existing communication resources.
 - + Create a student publication devoted to innovation that could take the form of a virtual quarterly magazine released by the proposed Innovation Hub.

Current Status

The relevance and importance of innovation are not often presented in a way that entices faculty and graduate students to become engaged and indeed can sometimes be seen as working against the academic goals of the University. The academic base for innovation and entrepreneurship is limited to the research of a few faculty members, and, in the main, their research has not been broadly communicated to campus audiences.

When someone is interested in learning more about innovation, it is not always clear how to get started, what resources are available, and who can help them. Carolina faculty and students have few central dedicated physical places to engage with each other, and with mentors, or to convene teams around ideas.

There are a number of outstanding entrepreneurship educational programs targeting specific audiences but with limited collaboration among them. Significant gaps remain. Further, there is no longer a management team providing integration, and the main grant that funded these programs has ended.



Photo courtesy of Gillings School of Global Public Health



- Expand the website Rev Up Innovation (www.revupinnovation.com) to reach a broad range of audiences at the University and beyond.

- Engage resident advisors (RAs). As one of the first representatives of Carolina to incoming students, an RA plays a significant role in the development of our first-year students' college careers and can inform them of innovation opportunities.

Staff: Encourage staff to consider how they might a) be innovative in the work of the campus, b) infuse the messages of innovation into their own areas of responsibility, and c) translate their own ideas.

- Encourage administrators and campus leaders to work with their staff members to explain the innovation goals and to solicit their involvement.
- Encourage senior administrators and campus leaders to include the innovation goals in presentations to key audiences.

Others: Discuss with boards, alumni, funders, and partners the importance of innovation and how they might become involved.

- Use opportunities to discuss the innovation strategies at Carolina and to learn from others such as North Carolina State University and Duke University. Continue participation in the UNC General Administration's Innovation and Technology Development Task Force.

Action 1.1.2 Provide a one-stop gateway to resources on innovation at Carolina.

Create a user-friendly central online gateway to innovation and a hotline to help the Carolina community learn more about the resources, courses, programs, and people available to support innovation and the opportunities for involvement.

GOAL 1.2 Build capacity for innovation.

In the future, a broad representation of the Carolina community will gain the knowledge, skills, and connections needed to translate their ideas into greater benefit to society. Faculty, students, and staff, and the greater Carolina community who wish to learn about innovation and entrepreneurship will have easy-to-find, appropriate, and engaging opportunities.

The curriculum will offer classes to help participants develop ideas and apply translation methods (see Recommendation 3: Translate). Participants will understand that calculated risks and inevitable failures are part of learning, that translation best occurs by collaborating with a diverse team, and that skills such as negotiating and communicating are important to the process. They will learn how to translate ideas into impact through persuasion and social and commercial entrepreneurship.

Students will have the chance to be involved in one or two campuswide initiatives that address a single topic of importance that yield new understanding and catalyze incremental and radical innovations. Upon graduation, students involved in these programs will appreciate how innovative thinking can help them analyze situations, assess needs, grasp opportunities, create new approaches, test methods, and measure results. They will have experienced the entrepreneurial process and believe in their ability to apply their skills to new endeavors.

Action 1.2.1 Provide educational opportunities about innovation.

Provide tailored, stimulating, and substantive educational programs, experiences, and connections for students, faculty, and staff interested in innovation and entrepreneurship.

- Strengthen successful existing programs, fill in gaps, measure and evaluate, seek constant improvement, implement changes, and phase out programs when appropriate. Integrate these educational opportunities under the direction of a representative management team of program leaders. These

leaders will serve as connectors across the campus (see Recommendation 5: Catalyze).

- + Build on existing educational programs and strengthen the most promising courses and offerings focused on innovation and entrepreneurship (e.g., The Chancellor's Faculty Boot Camp for Entrepreneurship, the Minor in Entrepreneurship and the First Year Seminars in the College of Arts and Sciences, programs from the Kenan-Flagler Business School and the Kenan Institute for Private Enterprise, the Public Policy Clinic, Campus Y programs, TraCS, and others.)
 - + Complete fundraising for the endowment for the Minor in Entrepreneurship and First Year Seminars in the College of Arts and Sciences.
 - + Secure funding for effective entrepreneurship programs including those from the Kenan-Flagler Business School's Center for Entrepreneurial Studies and Kenan Institute for Private Enterprise, the Campus Y, the departments of economics and public policy, and others.
 - + Expand undergraduate opportunities with the Kenan Institute's Business Accelerator for Sustainable Entrepreneurship (BASE) on and off campus.
 - + Examine the Carolina Entrepreneurship Club and consider expanding its reach beyond the business school.
 - + Enhance the Carolina Challenge Competition by encouraging more widespread participation and greater collaboration among faculty, students, and staff.
 - + Support C-START (Carolina Students Taking Academic Responsibility through Teaching), which enables students to design and teach courses for their peers on innovation and engage with a faculty mentor to learn how to effectively convey information.
- Create new instructional programs and other educational opportunities focused on innovation and entrepreneurship.
 - + Create First Year Seminars that engage first-year students on innovative and entrepreneurial approaches to address some of the most pressing challenges of our time. Tie the courses into the *Key Themes Initiative* (see Recommendation 2: Collaborate).
 - + Create an innovation subset of the First Year Fellows Program, which connects honor students with opportunities suited to their interests.
 - + Consider offering dual-degree programs (where students can graduate with a B.A. and M.A. in four years). Provide courses clustered around a key theme, internships, and targeted study abroad programs. These programs would include content on innovation and entrepreneurship that can generate the kind of learning outcomes and intellectual excitement that will improve the University's ability to attract the very best students (e.g., interdisciplinary, experiential, problem solving, and deeper community engagement).
 - + Advocate the offering of an entrepreneurship/innovation-themed Summer Reading Book selection to facilitate discussion and create a culture in which entrepreneurship and innovation are topics considered regularly by a large portion of the student body.
 - + Create a Career Services Workshop for Aspiring Entrepreneurs containing material on subjects such as hiring processes.
 - + Build capacity for social entrepreneurship so that students are competent in community needs assessment, project planning, fundraising, monitoring and evaluation, finance, and communication.



Alia Khan, a Public Service Scholar who worked with Resource Development International, Bangladesh Rural Advancement Committee, and with the UNC Chapter of Engineers without Borders.

Campus Y

The Campus Y serves as a hub for social innovation on campus. Social innovation refers to new strategies, concepts, ideas, and organizations that meet social needs and extend and strengthen civil society. For more than 100 years, the Campus Y has embedded an entrepreneurial culture into its work. It engages students, faculty, and staff, involves mentors from the campus and community, and provides resources such as media tools to help students build and support new and existing organizations that contribute solutions to social challenges.

The Campus Y convenes teams around ideas and provides capacity-building workshops. It has helped create Student Stores, intramural athletics, the Center for International and Scholar Student Services, APPLES, the writers-in-residence program, Carolina Symposium, SCALE, Nourish International, and the Carolina Micro-finance Initiative, among others.

Action 1.2.2 Connect faculty, students, and staff to a global network of innovators.

Provide connections to appropriate mentors and experts from around the world with innovation experience and extensive connections.

- Organize a global network of alumni, parents, and friends of the University willing to assist faculty, students, and staff (working title: Carolina Global Innovation Network) in partnership with the Minor in Entrepreneurship in the College of Arts and Sciences, the Kenan-Flagler Business School, the General Alumni Association, Renaissance Computing Institute (RENCI), Office of International Affairs, and others.

Action 1.2.3 Create learning and creative spaces.

Create innovation hubs for students, faculty, and staff that are active learning environments.

- Support the development of a Student Innovation Hub (already under consideration by the Office of the Assistant Vice Chancellor for Student Affairs) to be located in the Student Union's 10,000-square-foot lower level. This would provide a central location, open 24 hours a day, for the Carolina community to engage with students as they explore and launch innovative ideas.
- Consider extending the use of the Institute for the Arts and Humanities (IAH) facilities to include innovation activities and explorations by faculty across the campus.
- Explore the student proposal to create the Carolina Innovation Collaboratory Living-Learning Community designed to foster innovation and entrepreneurial thinking outside the classroom as part of campus housing.

Action 1.2.4 Advance research.

Support research on the topics of innovation and entrepreneurship:

- Expand the community of scholars with expertise in innovation and entrepreneurship by hiring tenured/tenure-track faculty and fixed-term faculty as entrepreneurs-in-residence.
- Support interdisciplinary research that allows faculty to compete for multi-year grants to focus on local, national, and global major challenges and translate findings to benefit society. The winning proposal from the 2010 Chancellor's Faculty Boot Camp for Entrepreneurship developed this idea and will be used as the basis for this action.
- Expand the Center for Global Initiatives Undergraduate Research Circles to provide undergraduate students with the opportunity to pursue their academic passions outside the classroom. Support can be for service-learning projects, speaker series, film screenings, and workshops related to innovation.



Kaylan Christofferson, 2009 graduate and Public Service Scholar, tutored locally and abroad during her time at Carolina.

Targeted investments needed to prepare faculty, graduate and undergraduate students, staff, and the broader Carolina community with the knowledge, skills, and connections necessary to translate new ideas into innovations.

- Prepare and execute a campuswide communication strategy for the first five years of program, including gateway to innovation resources. \$1.4 million (expendable) over five years to support an **Innovate@Carolina communication strategy to reach the Carolina community**. Includes support for communication director, online communities, trainings for new students, resident advisors, and other campus stakeholders.
- **Provide Educational Opportunities**
\$25 million (endowment) for teaching and research, which includes expanding the **Minor in Entrepreneurship** (\$20M) and other successful programs of the **Carolina Entrepreneurial Initiative** (\$4.5M), including

Launching the Venture, the Chancellor's Faculty Boot Camp on Entrepreneurship, the Carolina Challenge and First Year Seminars in innovation and entrepreneurship, and others. Create a **Global Innovation Network** (.5M)

- **Create Learning and Creative Spaces**

\$10 million (expendable) to create a **Student Innovation Hub**. This will serve as a physical nexus on campus where students, faculty and staff, and the greater Carolina community can come together to engage in innovation and entrepreneurial efforts.

- **Innovation and Entrepreneurship Research**

\$750,000 (expendable) over five years to support **academic research** on innovation and entrepreneurship by Carolina faculty and students.

\$5 million (expendable) to support competitive **interdisciplinary faculty research grants** that focus on local, national, and global challenges and translate findings to benefit society. (Winning Proposal from the 2010 Chancellor's Faculty Boot Camp on Entrepreneurship).

Total Investment Needed: \$42.15 Million (\$25 Million Endowment, \$17.15 Million Expendable For A Five-Year Period)



Calvin Young, who majored in Computer Science and Business Administration and graduated as a Public Service Scholar.



Public Service Scholar Mindy Nichamin was able to pursue her interests through innovative Carolina organizations including World Camp for Kids and Globe Med.

Recommendation 2: Collaborate with diverse groups on campus and beyond to explore issues, options, and creative approaches that may lead to innovations.

Current Status

The Carolina community is collaborative, but at times, multidisciplinary collaboration can be difficult due to procedural roadblocks, lack of resources, and/or lack of awareness of others' work. In looking at collaboration overall, there are several issues. First, collaboration at the intersection of disciplines especially in the sciences is key to solving important problems and is often challenging. In the specific area of applied sciences, the lack of an engineering school limits the scope of problems we can adequately address. Second, when those outside the University, such as industry, try to collaborate with Carolina it is not always clear how to approach the University. Some find the barriers to working with us a major disincentive and turn to other universities for collaborative projects. Industry relations is an area that needs to be improved at Carolina, as demonstrated by the relatively low research dollars received from industry as compared to our peer institutions. Third, regional collaborations that lead to innovations need to be strengthened. As part of Research Triangle Park, an area poised as a major hub for innovation globally, we need a more integrated strategy for contributing to its next evolution and benefiting from our proximity to Duke and NC State universities.



The Public Service Scholars Program of the Carolina Center for Public Service encourages students to consider their service in more innovative ways through broadening the traditional concepts of service.

GOAL 2.1 Enhance robust interdisciplinary collaboration among basic and social scientists, humanistic scholars, and those in hybrid disciplines such as bioengineering and applied sciences to address the great challenges of our times.

In the future, collaborations within and beyond the Carolina campus (including with other universities, the private and social sectors, communities, and government) will leverage talent, innovation, and non-traditional partnerships to achieve even greater impact. Those seeking collaborations on campus will find a supportive environment where the rules have been examined and rewritten to smooth the path for interdisciplinary opportunities. Carolina will have highly rated hybrid disciplines such as bioengineering, environmental engineering, and applied sciences all working together with social scientists and humanities scholars on some of the most serious challenges facing society locally, nationally, and globally. This effort is especially important since there is no engineering school at Carolina and complex issues require advanced disciplinary knowledge and the expertise that comes from new disciplines developed by combining multiple fields of study.

Action 2.1.1 Set as a top scientific priority advancing applied sciences, which connect basic sciences and engineering to promote new areas of discovery.

Areas of great need and complexity require expertise that lies at the intersection of disciplines. Maximizing our opportunity to advance applied sciences is critical to the innovation agenda at Carolina. It is imperative that this be structured in a way that catapults the University into new frontiers in science. We must be bold in our approach to be at the forefront of discovery and create and integrate the types of hybrid disciplines required, especially for a university without an engineering school. We need to strengthen teaching and research in the applied sciences so that the University can better address major local, national, and global problems drawing on our expertise in health care, energy, natural resources, technology, and national security.

Action 2.1.2 Engage collaboratively across basic and social sciences and humanities to address great problems and challenges.

Great innovations are built on an understanding of humanistic and cultural values, perceptions and behavioral barriers, including understanding market and policy incentives and barriers as well on technical breakthroughs. Strengthen the involvement of faculty and students and connections across the entire campus (see Action 2.2.1 *Key Themes Initiative*).

Action 2.1.3 Remove barriers to interdisciplinary efforts.

Identify the barriers to interdisciplinary collaboration and prepare a report recommending changes to streamline the process. Present the findings to the chancellor and provost.

Action 2.1.4 Track collaborations and their impact.

Extend the June 2010 Report on Carolina Collaborations (innovate.unc.edu), and create a data collection method for documenting collaborations. Build on the winning proposal from the 2009 Chancellor's Faculty Boot Camp on Entrepreneurship, which recognized this need and explored the feasibility of a central research database for enhancing collaborations. Create a communication strategy to highlight the many collaborations among Carolina and other universities and partners.

GOAL 2.2 Collaborate and coordinate around key themes of local, national, and global significance to mobilize the campus toward new understanding of issues and solutions.

In the future, through the collaborative *Key Themes Initiative* that examines one important topic at a time such as water, poverty, economic disparities, climate change or fossil-fuel scarcity, the Carolina community will stimulate intellectual exchange and discovery across the humanities, fine arts, social and natural sciences, and professional schools. This approach will yield a dramatic positive impact on our community's understanding of the issues it seeks to address, build collaborative bridges between disciplines, produce new collaborative teaching and research, and result in significant innovations.

Action 2.2.1 Create the *Key Themes Initiative*.

The initiative is designed to encourage broad participation by selecting one grand challenge of local, national, or global significance at a time investigated from multiple perspectives, reflecting Carolina's areas of expertise. Provide resources and support to encourage creative and collaborative approaches to addressing a selected topic.

- Convene a representative group of faculty, students, staff, and a *Key Themes* Coordinator (TBD), to plan the *Key Themes Initiative*. Develop a plan for three specialty themes to be explored sequentially via new and established courses and course clusters across a range of disciplines. Integrate this curriculum, where possible, with fine arts programming, student life initiatives, and public activities designed to engage wide community involvement. Provide for undergraduate and graduate research.
- At the end of each theme's cycle, hold a global conference on the topic. Seek collaboration with NC State University's *Emerging Issue Forum*, the Friday Center's *What's the Big Idea* series, and other regional programs.
- Work with the Student Innovation Team as they investigate whether to establish a Kairos Society chapter on campus that unites bright young minds toward solutions to global challenges. Currently, 20 universities have Kairos chapters including Babson College, Duke University, New York University, Massachusetts Institute of Technology, Harvard University, and Princeton University.
- Begin the focus on key themes at orientation. The Carolina Testing & Orientation Program Sessions (C-TOPS) could introduce the *Key Themes Initiative* and begin to engage incoming first-year students around the innovation culture at Carolina.

GOAL 2.3 Improve industry collaborations and increase industry funding.

In the future, Carolina will have strong industry partners, working collaboratively toward mutually beneficial goals. Research dollars will grow significantly in the next five years due to our strategic attention to this opportunity. Industry will view Carolina as a smart, fair, speedy, and service-oriented partner with brilliant researchers working at the cutting edge of their fields.

Action 2.3.1 Examine the issues related to industry relations and make recommendations to the provost and chancellor.

The Innovate@Carolina initial report issued in December 2009 entitled *Innovation and Entrepreneurship at The University of North Carolina: Background and Sample of Current Activities* (<http://innovation.unc.edu/wp-content/uploads/2010/01/09-1974-URL-Innovation-Circle-Report-11.pdf>) compared the University with its peer institutions on a number of measures. The lowest performance area was in the amount of research dollars received from industry. This is a major opportunity for improvement and ties into the strategic analysis of our research strengths, needs, and opportunities.

Convene a representative team of people, chaired by a member of the Innovation Circle to lead this analysis. Develop a strategic plan and present it to the provost and chancellor.

Innocence Project

The Innocence Project, a non-profit national litigation and public policy organization, is dedicated to exonerating wrongfully convicted people through DNA testing and reforming the criminal justice system to prevent future injustice. As a clinic, law students handle case work while supervised by a team of attorneys and clinic staff. Carolina is a founding member of The Innocence Network, a group of law schools, journalism schools, and public defender offices across the country that assists inmates trying to prove their innocence. They consult with legislators and law enforcement officials on the state, local, and federal level, conduct research and training, produce scholarship and propose a wide range of remedies to prevent wrongful convictions.



Photo by Steve Exum, courtesy UNC School of Law.

University of Chicago Institute of Molecular Engineering

The University of Chicago has endorsed a new academic program in molecular engineering, a hybrid discipline, as a top scientific priority. The University of Chicago received funding from the Pritzker Family to fund this institute, which reports to the provost, and a new scientific complex. The University of Chicago states: "...The University has no preexisting engineering programs and thus is not constrained to follow or copy existing programs at other universities. By combining the deep analytical approach that has historically characterized science at the University of Chicago with problems in engineering, the Institute for Molecular Engineering will be positioned from the start to develop novel engineering tools and approach fundamental problems of societal import from new perspectives."



Photo by Dave Johnson, courtesy of The Charlotte Observer

Theme-Based Collaboration

During the 2010–2011 academic year, the University will host an examination of the American Civil Rights Movement. Classes, seminars, excursions, lectures, and performances will focus on the Freedom Riders, Parchmen Prison, Pauli Murray, and others. This exploration will involve more than six academic departments, the Center for the Study of the American South, the Institute for the Arts and Humanities, Duke University, UNC Press, the Carrboro Board of Aldermen, and the Chapel Hill Town Council.

Carolina Creative Campus

Carolina Creative Campus uses the arts to engage students in campus and community-wide conversations on a specific topic each academic year. Through interdisciplinary collaborations with artists, speakers, academic leaders and key community partners, the program works with partners across campus and in communities to engage in creative dialogues. During the 2007–2008 academic years, members of the campus and local community examined the death penalty from a range of perspectives through more than 25 arts events designed to stimulate critical thought about the issue, including exhibits, plays, and films.

GOAL 2.4 Extend collaborations with state and regional partners to help North Carolina further develop into a leading competitive, global, entrepreneurial, knowledge, and innovation economy.

In the future, the Research Triangle Park (RTP) region will be a leading entrepreneurial engine in the United States. Governments and industry leaders around the world will contact North Carolina leaders when considering significant investments, partnerships, and resource allocation. Entrepreneurs will have the knowledge and skills they need to grow companies and will be connected into a strong network of seasoned business people. The path will be smoothed for them and the needed funding available. The Governor's Innovation Council and other strategic initiatives will have been successful in solidifying North Carolina's economic future.

Action 2.4.1 Attract high-level business ideas and teams to RTP.

RTP and North Carolina have a shortage of fundable, scalable business plans and the accompanying entrepreneurial talent. Universities worldwide are doing more to address this issue for their regions, as are RTP universities (see Recommendation 3: Translate). The reality is that the majority of ideas coming out of universities are too early stage for the venture capital community.

Create the RTP Million Dollar Business Idea Challenge (RTP Challenge) to bring in top business teams and ideas from around the world annually, some of them from universities. Regional colleges and universities would continue to run their own business plan competitions as experiential learning activities, and the winners would be given special attention in the RTP Challenge. Large competitions in other regions engage hundreds of investors, professional service providers, and entrepreneurs who wish to mentor entrepreneurs and get a first look at novel ideas. The MASS Challenge, the Rice Business Plan Competition, and the University of Texas Moot Corp are examples. A combination of \$250,000, \$100,000, \$50,000, and \$25,000 prizes would be offered by various organizations totaling a million dollars in cash, products, and services. Duke, NC State, NC Central, and Carolina faculty and students would help with the RTP Challenge and each university would receive \$20,000 annually for their own business plan competitions or other entrepreneurship programs.

Action 2.4.2 Attract the capital needed to fuel the entrepreneurial economy in North Carolina.

- Create a bridge between national venture capital and Carolina. Work with Innovation Circle members who are venture capitalists to explore ways the University can contribute to the state's innovation goals.
- Generate financial returns for the University by investing in companies in partnership with the world's best venture capital firms.
- Contribute to a powerful network within North Carolina to identify, access, and nurture compelling entrepreneurs and high-growth opportunities within the state ready for investment.

Action 2.4.3 Map the RTP entrepreneurial ecosystem to strengthen support for high-potential entrepreneurial firms.

Mapping a regional entrepreneurship ecosystem is an important step in assuring that a region has the right mix of resources needed to serve its entrepreneurial community. Mapping begins with identifying the required criteria of a successful ecosystem. Assessment of existing resources against the criteria provides information on what is available, missing, which areas are strengths, and which require attention.

Create a brief high-level map of the needed criteria for an ideal entrepreneurial economy. Researchers such as Porter, Atkinson, Feldman, and others have researched this topic and identified required criteria. Gain agreement from economic development leaders, investors, entrepreneurs, and researchers on the kinds of resources needed

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Required Components of an Innovation Economy

In the future, entrepreneurs will have the knowledge and skills they need to grow companies and increase their connections to a strong network of seasoned business people. The path will be smoothed for them and the needed funding available.

Required Components of an Innovation Economy	Carolina's Role
A high concentration of scientists and engineers.	Continue as a leading research university hiring and graduating top scientists and producing intellectual property.
Increased intellectual output in science, engineering, and technology.	Advance applied sciences and have stronger commercialization output (increase patenting activity, licensing, and more viable startups). Collaborate with NC State, Duke, and regional organizations.
Greater R&D investment by industry.	Advance industry collaborations and increase industry funding.
Abundance of fundable business plans and entrepreneurial talent.	Prepare people and translate ideas into innovations. Participate in the RTP Challenge.
A savvy entrepreneurial support community.	Faculty and programs officers contribute to this community. Map the regional entrepreneurship ecosystem and strengthen it.
Investment capital for seed to scale stages, including venture capital from local, national, and global firms.	Review the venture investment section of our overall investment portfolio.
Global partners.	Leverage relationships with the University's strategic international partners and the proposed Carolina Global Innovation Network.
Knowledge-based clusters providing high-tech jobs.	Leverage our areas of strength. Help deliver on the vision, promise, and opportunity for North Carolina as THE Innovation State.

Photo by Chris Carmichael



The CHAT Festival

CHAT (Collaborations: Humanities, Arts & Technology) showcased the array of resources in the Research Triangle Park region in digital arts and humanities. The University of North Carolina at Chapel Hill hosted the festival, coordinated by the Institute for the Arts and Humanities in the College of Arts and Sciences. Robbie Bach, UNC alumnus and former Microsoft executive presented the opening keynote of the CHAT Festival, sharing his views on the future of entertainment and his advice for the industry's most promising creators.



The Kairos Society

The Kairos Society is an international student-run not-for-profit foundation based in the United States. It started with the belief that the key to improving the world lies in uniting the next generation of leaders to develop globally impactful innovations. To this end, Kairos has built a member base consisting of some of the brightest students from 20 top universities around the world.

Rice University Business Plan Competition

The Rice University Business Plan Competition, widely supported by community leaders, annually awards \$1 million in prize money and gifts and engages more than 200 local judges who are professional service providers, entrepreneurs, and investors. Since the competition is open to teams globally, the Chamber of Commerce offers a \$250,000 prize to one of the top teams if they relocate to Houston. Specialty prizes are offered such as the Best Life Science Technology Company, the Best Energy/IT/Nano/Aerospace Company, the Dow Sustainability Award, and the NASA Earth/Space Life Science Innovation Award.

for a region, and post on the Web a simple top-level map using visualization software. The mapping could be a collaborative project between Duke University, NC State, and UNC-Chapel Hill researchers. Once the map is in place, regional partners can assess where they fit into the ecosystem and post their information. This type of mapping and its Web-based visualization method would foster collaboration, policy adjustments, and other changes in RTP since the information would reveal strengths and weaknesses within various organizations, sectors, and the region. It will also reduce redundancies and leverage resources.

Action 2.4.4 Leverage existing university labs, equipment, and space.

Specialty scientific labs and facilities are often needed by high potential companies. In RTP, as an example, the Hamner Institutes provide such services for life science companies, thus leveraging facilities and equipment across multiple teams. Duke, NC State, and Carolina each have sophisticated facilities with state-of-the-art tools, often costing millions of dollars, which are unused at times. The non-peak hours could be leased to a non-university organization that sub-leases facilities and tools to regional scientists. Setting up one organization to negotiate with universities, handle schedules, and provide quality assurance for the universities would make the exchange smooth for the universities and the innovator who needs access. This approach would reduce the costs of providing such dedicated space in the Triangle and bring added revenue to the university. It would insure that scientists have the tools they need to explore potential innovations.

Action 2.4.5 Incentivize collaborations among RTP universities and with other partners.

Establish the Triangle Innovation Fund to provide small competitive awards to support innovation projects that best exemplify successful collaborations among RTP area institutions. To qualify, a collaboration must be innovative and have at least two RTP area universities participating.

GOAL 2.5 Strengthen collaborations with Carolina's strategic international partners.

In the future, Carolina will enhance and leverage the relationships with our emerging roster of close strategic international partners — schools such as National University of Singapore, King's College-London, Tsinghua University, and Universidad San Francisco de Quito, which is instrumental to our Galapagos projects, and other partners. When working on important complex global problems, these strong, complementary institutions offer vital knowledge, resources, and access.

Action 2.5.1 Fund research on global innovation needs and remove barriers to working with global partners.

Work closely with the Office of International Affairs to:

- Encourage and better support appropriate research partnerships with international institutions.
- Smooth the way for foreign personnel to be able to come to campus when they are needed.
- Establish the Global Innovation Fund to provide small competitive awards to support innovation projects that best exemplify successful collaborations between Carolina and global partners.

Targeted investments to collaborate with diverse groups on campus and beyond to explore issues, options, and creative approaches that might lead to innovations.

• Create Applied Sciences Professorships

\$15 million (endowment) to create five **Applied Sciences Professorships**.

The faculty filling these positions will bring the expertise that lies at the intersection of disciplines. They will help colleagues across campus connect

the basic sciences with engineering, propelling the University into new areas of discovery and application.

- **Key Themes Initiative**

\$6 million (expendable) to fund grants addressing the **grand challenges of local, national, and global significance**. Every two years for the next six years, the campus will coalesce around a theme that addresses a pressing global priority, such as water quality and its critical role in supporting healthy communities around the world.

- **Triangle Collaboration Fund**

\$1 million (endowment) to fund grants for collaborative innovation projects in the Research Triangle Park region. **\$200,000 to map the RTP entrepreneurial ecosystem.**

- **Global Collaboration Fund**

\$1 million (endowment) to fund research and collaboration grants for Carolina faculty and staff work with international partners.

Total Investment Needed: \$23.2 million (\$17 million endowment, \$6.2 million expendable for a Five-Year Period)



Active in TABLE, 2010 Public Service Scholar Bryan Gaston was able to experience ways to address issues through organizational as well as direct service.



Catherine Ekeleme had experiences in the Public Service Scholars program that she said allowed her to grow at the same time she was helping others.



Recommendation 3: Translate important new ideas more expediently and at an increased volume into innovations that improve society.

Current Status

Carolina lags behind its peers in formal commercialization outputs and in industry research dollars received. There are four important groups advancing commercialization working together informally: The Office of Technology Development (OTD), the Office of Sponsored Research, and the Kenan-Flagler Business School (Center for Entrepreneurial Studies and Kenan Institute of Private Enterprise), and the Carolina KickStart program at TraCS at the School of Medicine. A more deliberate approach is needed that incorporates the best thinking on how commercialization can flourish at a major research university. For social entrepreneurship, there are pockets of excellence throughout the University and program leaders are beginning to work together. As with commercialization, a more deliberate approach to integration is needed.



GOAL 3.1 Support faculty, students, and staff as they develop understanding of issues and contribute solutions to complex social and environmental problems through social entrepreneurship.

In the future, social entrepreneurship will flourish resulting in innovations that help address some of the most challenging issues locally, nationally, and globally.

Action 3.1.1 Further refine and develop an integrated campuswide approach to social entrepreneurship, which includes artistic entrepreneurship.

Ideas for social innovation often are based on the knowledge gained in the arts and humanities as well as in a broad-based, problem-focused liberal arts and sciences education. Collaborative processes, including social experiments, also help define issues more clearly.

- Assess existing social entrepreneurship programs and create an integrated strategy for the campus that will create and grow social ventures. Appoint a committee to lead this strategic planning effort to be chaired by a member of the Innovation Circle. Groups to be included are Campus Y, Office of Student Affairs, Office of Diversity and Multicultural Affairs, the Kenan-Flagler Business School Center for Entrepreneurial Studies/Kenan Institute for Private Enterprise, the Public Policy Clinic in the Department of Public Policy, the Urban Investment Strategies Center, BASE, APPLES, the Minor in Entrepreneurship in the College of Arts and Sciences, student representatives, social entrepreneurs, investors, professional service providers, representatives from schools and/or institutes and centers that have faculty, students, and staff who create social ventures or assist those who do, and others as identified.
- Allocate resources to provide rigorous academic foundations for students pursuing social entrepreneurship. Provide more advanced educational opportunities in such topics as measuring performance and outcomes of social ventures, organization-building, creative funding of not-for-profit organizations, and related topics.
- Ensure that student and faculty social entrepreneurs have access to seed funding and a mentor/assistance program with Entrepreneurs-in-Residence, faculty experts and other mentors.

GOAL 3.2 Effectively organize and manage the University's commercialization services to maximize the quality and volume of potentially important innovations for society. Return revenue from these innovations to the University to support this work when possible.

In the future, more innovative ideas will be developed at Carolina and launched efficiently into the commercial sector. Carolina will be recognized as one of the top leaders in technology development and transfer because of the breadth of our innovations and the effectiveness of our leadership, people, strategies, policies, and our resulting impact.

Action 3.2.1 Implement a carefully designed commercialization approach.

Create an integrated strategy for the campus for formal and informal commercialization. Create a plan for commercialization that together forms an optimal formal (IP licensed by OTD) and informal (startups without licenses) commercialization approach.

- Build the plan around the required elements for maximizing resources and output.

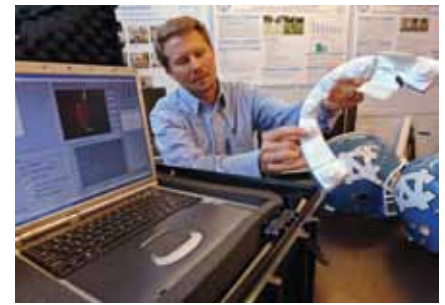
Three Methods for Translating Ideas into Impact

New ideas and innovations generated by University faculty, students, and staff are applied to real challenges and issues beyond the campus in three ways.

1. **Launch innovators into the world.** Graduates armed with technical knowledge, grounded in the liberal arts, and inspired to action by example multiply our impact. At Carolina, we want our students to graduate with the knowledge, tools, and confidence to apply entrepreneurial thinking and action throughout their lives. This renewable asset – intelligent, compassionate graduates prepared with knowledge, skills, and connections – is a powerful ongoing innovation engine.
2. **Persuade.** Faculty who want their ideas, research, and knowledge to be applied outside the academic setting often use persuasion to influence positive change. Faculty research regularly influences government and corporate policy, advances science and medicine, and through artistic endeavors creates broader understanding and more positive actions.
3. **Create social and commercial enterprises.** This encompasses the formal technology commercialization progress (university-owned intellectual property) and informal enterprise creation (no university intellectual property). Due to patent tracking, the formal type is officially reported while the informal type can go unpublicized and uncouned. The following examples of student ventures from other universities demonstrate the value of such informally created ventures and of recognizing their potential early in their development: Google, Facebook, Nantucket Nectars, Microsoft, Dell, Teach for America, and kiva.org.

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- Create a strategic planning committee to be chaired by a member of the Innovation Circle.
- Clearly define roles and responsibilities, signed off by those responsible for implementing the plan and their supervisors, the provost, and chancellor.
- Include the following units: Office of Technology Development (OTD), Corporate Relations, Office of Sponsored Research, Carolina KickStart at the TraCS Institute, Kenan-Flagler Business School/Center for Entrepreneurial Studies/Kenan Institute for Private Enterprise, student representatives, serial entrepreneurs, investors, professional service providers, representatives from schools and/or institutes and centers who have faculty, students, and staff who commercialize or assist those who do, and others as identified.
- Expand Carolina KickStart to serve the entire campus in partnership with the Center for Entrepreneurial Studies and Office of Technology Development.
- Establish a tracking system across the campus for social and commercial startups and their impact. (See Recommendation 5: Catalyze)
- Incorporate the following required elements for maximizing resources and output:
 - + Good ideas, tested for viability and improved through market-relevance testing.



Football Helmets

Kevin Guskiewicz, a Kenan distinguished professor in exercise and sport science, has pioneered a football helmet that measures the impact of concussions and other head injuries on athletes at all levels. His research shows that even seemingly minor head injuries can have a cumulative effect on the long-term health of athletes, and that often football players are sent back into the game too soon after an injury, increasing their chances of having Alzheimer's or other brain diseases later in life. His work is regularly cited by policy-makers, sports officials and major news media as the sports world debates how to address the potential health consequences of athletic competitions from high school and college through the professional level.



Autism

In collaboration with colleagues in the Division of Allied Health and the Carolina Institute for Developmental Disabilities, Professor Steve Reznick of the Department of Psychology has recently received funding from the Autism Speaks Foundation to expand ongoing research on identifying infants who are at risk for an eventual diagnosis of autism spectrum disorder (ASD). This research has implications for our understanding of ASD not only in the laboratory, but also in the interventionist's clinic and the pediatrician's office.



Carolina for Kibera

In 2001, undergraduate Rye Barcott launched Carolina for Kibera (CFK) with Kenyans Tabitha Festo and Salim Mohamed in the Kibera slum of Nairobi, Kenya, where more than 300,000 people live in an area the size of UNC-Chapel Hill's campus. CFK empowers young leaders in Kibera and prevents violence by using an integrated, locally led approach that combines sports and education with high-quality health care provision and business training. Housed at Carolina's Center for Global Initiatives, CFK has a robust student volunteer program. The organization has been recognized as a Time Magazine Hero of Global Health and was awarded the Oklahoma City National Memorial and Museum's "Reflections of Hope" Award in 2008 for its relief and reconciliation work during Kenya's post election violence.



- Create a system for proof of concept assistance to establish the feasibility of an idea, invention, process, or business model. This can include rapid prototyping and require access to sophisticated scientific and engineering equipment.
- Provide access to incubation space and tools.
- + Talented teams that develop the ideas and enterprise management teams that build startup companies.
 - Use talented interdisciplinary student teams as early in the process as possible. Build on models at other universities such as BioX at Stanford.
- + Time
 - Pay for release time for faculty to work on ideas. (See Recommendation 4: Align, Action 4.2.2)
- + Mentoring and support early in the process from subject matter experts and deal makers (seasoned entrepreneurs, professional service providers, and investors).
 - Involve people who know markets, have connections, and have relevant experience. Build on models from other universities: Deshpande Center, Lassonde New Venture Development Center, Venture-Mentoring Program, Faculty Mentoring Program at Utah.
 - Use a team of experts to serve as Entrepreneurs/Experts/Executives in Residence (EIRS) who will bring in knowledge of the marketplace, call upon their extensive networks for the benefit of the University, and serve as mentors to faculty and staff as they explore potentially commercially-viable ideas.
 - Create a formal volunteer mentor group (working title: Catalysts) based on the MIT approach (high-level serial entrepreneurs, venture capitalists and others who volunteer to mentor faculty and students).
 - Appoint well-connected individuals on and off campus to serve as University liaisons with industry.
 - Create a small cadre of faculty members with multiple experiences successfully commercializing IP to serve as Faculty Peer Mentors similar to the University of Utah's approach.
- + Connections to key people around the world.
 - Use the proposed Carolina Global Innovation Network to make hard-to-secure connections. (See Recommendation 1).
 - Continue to leverage Carolina's relationships and reputation to create new collaborations and expand on existing ones.
- + Service-oriented professionals in the Office of Technology Development (OTD) and other key offices.
 - Establish measures of success for the OTD and other key offices and measure against them.
 - Create the necessary data management and reporting tools to effectively manage IP, possibly in partnership with other universities.
 - + Form an advisory committee of external experts and Carolina patent holders to seek the most effective ways to structure the University's patent practices.
 - + Bring the marketplace into the analysis of early stage ideas as soon as possible to enhance the use of patent dollars. Involve investors early in commercialization activities.
 - + Reduce costs of securing patents. Explore alternate fee models regarding patent costs. Identify and negotiate with a small cadre of top patent law firms to form a group of

preferred vendors with Carolina so that the University will receive a significant discount on patent fees. Coordinate with the UNC General Administration.

- + Allocate additional funds for patent costs after all efforts to reduce costs have been exhausted.
- Effectively handle increased patenting activity.
- + Appropriate funding at various stages.
 - Provide pre-seed and seed funding.
 - Investigate starting a Carolina Angels Network. Target successful entrepreneurs and other qualified investors among University alumni and friends to invest in firms created by innovative faculty and students.
 - Create a program whereby investors pay a nominal fee to preview ideas of potential interest to them.
 - Provide forums for investors to learn about new technology and businesses.
 - Increase the pipeline by increasing the number of invention disclosures and the number of first-time inventors.
 - Increase the number of companies formed and/or technologies licensed.

GOAL 3.3 Measure the impact of innovations and innovators launched at Carolina.

In the future, the University will know the extended benefit of Carolina innovators and innovations to society.

Action 3.3.1 Design and implement a study of the social and economic impact of the University.

- Document the significant role Carolina plays in our local and regional economy.
- Replicate the study, *Entrepreneurial Impact The Role of MIT*, which analyzes the economic effect of MIT alumni-founded companies and its entrepreneurial ecosystem.
- Study the broader contributions in terms of innovation and our influence on political, social, cultural, environmental benefits as well as the economic impact. Convene a group of researchers to include the Vice Chancellor for Research and Economic Development, Office of Institutional Research and Assessment, the Odum Institute for Research in Social Science, and others to discuss the options for this study.

Targeted investments needed to translate important new ideas more expediently and at an increased volume into innovations that improve society.

- **Provide support for social innovation**
\$1.25 million (expendable) at \$250,000 per year for five years to promote social innovation among faculty, staff, and students, including seed funding and mentors for startups.
- **Implement a commercialization and enterprise development approach**
\$25,000 (expendable) to create a plan for commercialization.
\$15 million (\$10 million endowment and \$5 million expendable) to hire up to 18 entrepreneurs-in-residence (EIR). Would include at least four EIRs for social and artistic entrepreneurship.
\$3.3 million (expendable) at \$660,000 per year over five years to extend Carolina KickStart at TraCS to serve the entire campus.

Lung Transplant Registry

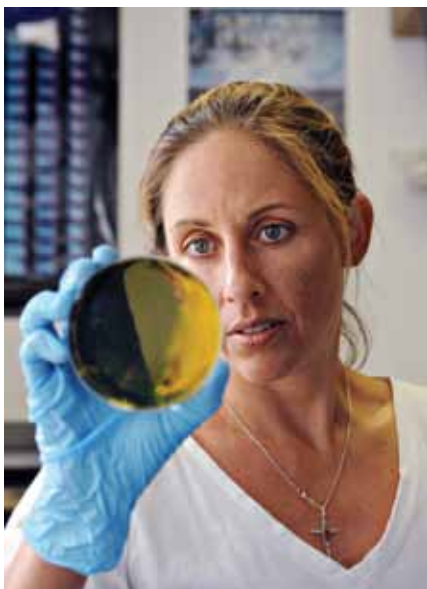
Tom Egan, Professor of Surgery at Carolina, used his influence as a leading lung transplant surgeon to improve the global policies regarding the allocation of lungs for transplant. An outspoken opponent of the status quo, Egan developed an alternative lung allocation system and led a group that designed a new approach to allocating lungs. After the new system was implemented, waiting list deaths were cut in half, and lung allocation became more efficient, resulting in a 40 to 50 percent increase in the number of lungs being transplanted. Other organ committees in the United States are now considering similar policies and other countries are evaluating the new United States system for implementation.

Deshpande Center

Established in 2002 with a \$25 million gift from Desh Deshpande, the Deshpande Center at the MIT School of Engineering seeks to increase the impact of MIT technologies in the marketplace. The center depends on the financial and professional support of successful alumni, entrepreneurs, and investors to provide a sustainable source of funding for innovative research and guidance and has funded more than 80 projects with over \$9 million in grants. Eighteen of these projects have become commercial ventures and have collectively raised more than \$140 million in outside financing.

Hamner Institutes

The Hamner Institutes for Health Sciences is an independent, nonprofit organization that offers an open, collaborative, and cross-disciplinary approach to translational biomedical research. It actively partners with Carolina and, through the Hamner incubator, lab space, and extensive network of partners, makes collaboration among multiple organizations a reality.



MIT Study

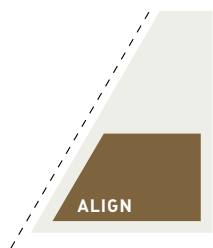
According to the study, “Entrepreneurial Impact: The Role of MIT,” which analyzes the economic impact of companies founded by MIT alumni, if the active companies founded by MIT graduates formed an independent nation, their revenues would make that nation at least the 17th-largest economy in the world. Within the United States, these companies currently generate hundreds of billions of dollars and hundreds of thousands of jobs to regional economies, particularly in Massachusetts and California.



- **Measure impact of innovation and innovators at Carolina**
\$400,000 (expendable) to engage on-campus groups including Vice Chancellor for Research and Economic Development, Odum Institute and others to study broad contributions of innovations from Carolina, includes \$75,000 (expendable) to commission study of “Entrepreneurial Impact of Carolina” to analyze economic impact of companies founded by Carolina alumni.

Total Investment Needed: \$19.975 million (\$10 million endowment, \$9.975 million expendable for a Five-Year Period)





Recommendation 4: Align people, incentives, resources, and processes to strengthen an intentional culture of innovation at Carolina.

GOAL 4.1 Encourage leaders across campus to support and promote innovation in their schools, departments, institutes, and offices.

In the future, administrators and campus leaders will seek ways to advance innovation in their strategic plans. When faculty and staff have promising ideas, leaders will be flexible and creative in finding ways to assist the innovative faculty or staff member when appropriate.

Action 4.1.1 Create a common understanding of the University's innovation goals and evaluate and reward campus leadership for advancing them.

- Since Chancellor Thorp set out the charter to accelerate innovation at Carolina, he will work closely with his senior leadership team so that they reflect the innovation vision in setting priorities and performing their duties. This may include having a standard agenda item on innovation in recurring senior leadership meetings, holding management retreats devoted to exploring ways they can strengthen the culture of innovation at Carolina, and developing rewards based on performance in this area.
- Expect this type of integration in strategy and rewards throughout the campus.

GOAL 4.2 Recruit, retain, and reward faculty, students, and staff who show promise, aptitude, and/or achievement in innovation.

In the future, faculty, students, and staff will be rewarded for pursuing promising ideas to their ultimate application. When the most talented, innovative prospective faculty, staff, and students make their choices on which institutions to join or choose, the supportive innovation culture will weigh favorably for Carolina.

Action 4.2.1 Recruit innovators and future innovators.

- When recruiting faculty, staff, and students, seek people who will contribute to the University's overall culture of innovation, particularly for key leadership positions.
- When hiring new faculty, have as one criteria of consideration the person's history of innovation where appropriate.
- Seek prospective students who show outstanding promise as innovators and/or entrepreneurs and offer them scholarships.
- Expand the Carolina Innovation Scholarship program to recruit and support students who show outstanding promise as entrepreneurs with scholarships that cover the full cost of tuition, fees, room, and board, renewable for four years.
- For senior staff, ensure that those hired be active supporters of and contributors to accelerating innovations at Carolina.

Action 4.2.2 Reward activities that contribute to the culture of innovation at Carolina.

Create a reward system for the innovation process that is fair, meaningful, and customized for faculty, students, and staff. Design rewards that are tangible and intangible, including scholarships, grants, fellowships, professorships, cash rewards, time, and recognition. Realize that often for faculty the greatest reward is permission to pursue an innovation, especially when it is outside the departmental priorities. Supporting such exceptions might yield breakthroughs that benefit society but only indirectly advance unit priorities.

Current Status

At Carolina there are few extrinsic incentives to drive innovation among faculty, and there are significant barriers to translating promising ideas into new policies, products, and approaches to address challenging local and global issues. For tenure-track faculty, careers are built on research and publishing and doing anything else could be detrimental to future academic advancement. Adjunct professors and professors of practice help bridge the gap between research and publishing and relevance to the outside world. Further, not all deans and departmental chairs have articulated positions concerning the value of innovation or coordinated policies to support it. Limited funds are available to support educational experiences in innovation, to encourage innovation, and to support the translation of ideas into societal benefit.

Digital Media Economics

Penny Abernathy, the Knight Chair in Journalism and Digital Media Economics, is working with several North Carolina community papers and helping other media companies find new ways to be profitable. Abernathy, a former executive at The Wall Street Journal and The New York Times, specializes in preserving quality journalism by helping the news business succeed economically in the digital media environment. As an executive, Abernathy launched new enterprises and helped increase revenue at some of the nation's most prominent news organizations and publishing companies, including The Wall Street Journal, The New York Times and the Harvard Business Review. At The Wall Street Journal, she oversaw the international division and reversed its declining revenue to profitability in less than a year.

Carolina Innovation Scholars

The Carolina Innovation Scholarship, launched in the fall of 2010, is a competitive scholarship program designed to attract innovative entrepreneurial young people to Carolina and provide them full scholarships. Innovation Scholars major in disciplines of their choosing and take advantage of the Minor in Entrepreneurship in the College of Arts and Sciences, research and study-abroad opportunities, and faculty mentoring.



- Build Carolina's academic expertise in the innovation and entrepreneurship fields of study by providing research and teaching grants and fellowships to professors who specialize in either field.
- Incentivize innovation through grants, fellowships, and professorships.
 - + Offer a limited number of Innovation Professorships that would allow a faculty member to be exempted from the normal structures of their academic position for up to three years to pursue a promising innovation project. Such professorships could include a) receiving internal support for smoothing institutional hurdles and finding possible sources of funding, b) having the professor work with appropriate communities external to the University, and c) involving undergraduate and graduate students with the project. These limited high-profile professorships would distinguish the University as a place where creative professors are given the chance to take an idea to fruition.
 - + Provide incentives and rewards for faculty who actively participate in interdisciplinary problem-oriented instructional clusters and themes that engage our undergraduates and graduate students in addressing local and global issues. (Relates to the *Key Themes Initiative* presented in Recommendation 2: Collaborate)
 - + Create an Innovation Prize to recognize and support student-led innovations that demonstrate measureable results including for startups, student groups and initiatives, student-led policy changes, and outreach.
 - + Create and/or repackage existing smaller fellowships, funds, and merit awards for students to advance entrepreneurship. These funds would provide students with more opportunities to expand their academic work, by supporting internships, research for senior theses, summer study abroad programs, and other endeavors that directly relate to innovation.
 - + Build on the Campus Y Social Innovation Fund and Fund for Social Entrepreneurs.
- Review policies on tenure and promotion and what counts as University service to include consideration of activities that promote innovation. Review the innovation goals with members of existing committees designed to regularly review tenure and promotion policies such as the Provost's Task Force on Promotion and Tenure.

GOAL 4.3 Align the University's internal methods and processes to foster innovation, especially in working across schools.

In the future, the University will regularly assess its internal methods and procedures and make needed changes to support the innovation culture. The University will be known for its entrepreneurial can-do attitude and willingness to quickly address roadblocks to innovation. There will be no incentive for faculty to go outside the system to pursue their translational opportunities. Those pursuits will be easier through the University because of its added value, service attitude, and efficiency.

Action 4.3.1 Align innovation goals with other strategic initiatives.

- Align this work with the Academic Plan, Global Roadmap, Provost's Task Force on Promotion and Tenure, and other relevant strategic initiatives.
- Leverage research institutes and centers since often they operate across boundaries, have different timetables, and regularly engage external partners.

GOAL 4.4 Provide the necessary funds to support nascent and promising innovations on campus.

In the future, advancing innovative activities will be an important part of the criteria for how resources are allocated. Grantors and donors will fund innovation activities because of their confidence in the University's ability to increase the number of innovators and innovations and the velocity in which promising ideas go through the innovation process at Carolina to deliver value to society.

Action 4.4.1 Establish the Carolina Innovation Fund.

Establish the campuswide Carolina Innovation Fund of \$25 million to support innovation at Carolina. Build on the Gillings Innovation Fund model that allocated \$50 million in private funds to endow an innovation fund for the Gillings School of Global Public Health.

Endowing innovation at the University will encourage experimentation across disciplines, engage the broader Carolina community, promote testing of many ideas that may yield encouraging prospects for further exploration, and take to fruition high potential ideas.

The Carolina Innovation Fund will be available on a competitive basis to faculty, students, and staff, and will be administered by the chancellor, provost, deans, and institute directors and may be divided into a series of targeted funds.

Targeted investments needed to align people, incentives, resources, and processes to strengthen an intentional culture of innovation at Carolina.

- **Recruit Innovators and Future Innovators**
\$5 million (endowment) to more than double the number of **Innovation Scholarships** available each year to incoming Carolina first-year students.
- **Reward activities that contribute to the culture of innovation at Carolina.**
\$6 million to endow two competitive **Innovation Professorships** to allow qualified faculty members up to three years to pursue promising innovation projects.
- **\$175,000 expendable for other rewards**
\$200,000 to endow an annual \$10,000 **Innovation Prize** to recognize significant achievement in innovation by a student or a student group.
\$25 million to endow the Carolina Innovation Fund to be used by the provost and deans and directors for competitive innovation grants.

Total Investment Needed: \$36.375 million (\$36.2 million endowment, \$175,000 expendable for a Five-Year Period)



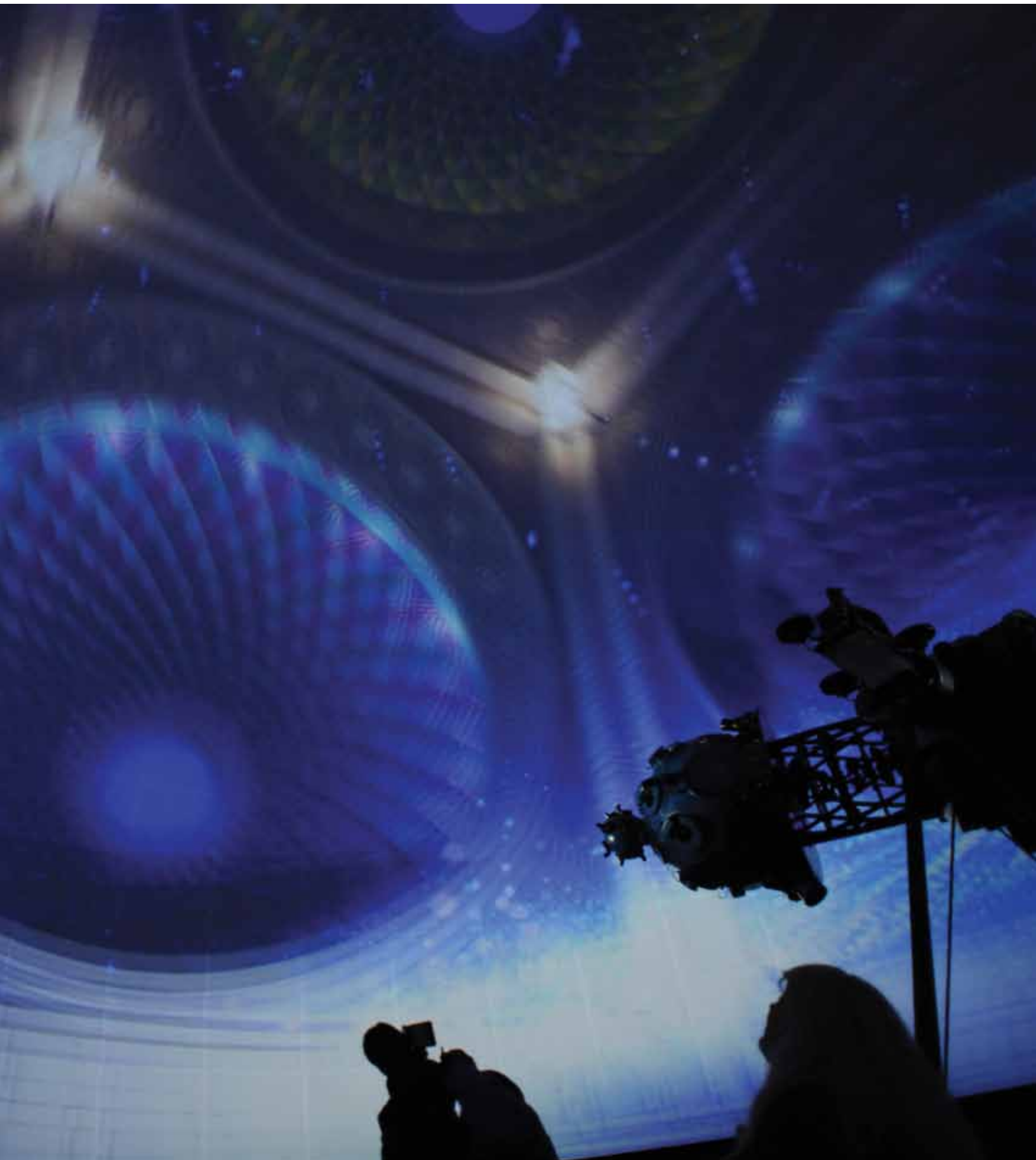
Odum Institute

Founded in 1924, the H. W. Odum Institute for Research in Social Science is the nation's oldest multidisciplinary social science university institute. The Odum Institute is not part of a school or department and serves students, faculty, and staff from public health, social work, business, government, and the arts and sciences.

Gillings Innovation Fund

The Gillings School of Global Public Health established a \$50 million fund with a gift from Dennis and Joan Gillings to anticipate emerging public health challenges, accelerate solutions, and improve people's lives across North Carolina and around the world. Competitively-funded Gillings Innovation Labs (GILs) apply interdisciplinary, innovative solutions to significant public health challenges. More than a dozen GILs are tackling issues such as new vaccine platforms for the developing world, portable and inexpensive tests of contamination in drinking water, and models for improving mental health treatment systems. The fund supports leaders, including visiting professors and an executive in residence. The school now offers partners from industry and the non-profit world the opportunity to invest in Commissioned Innovation Laboratories (CILs). Through CILs, school faculty and others will solve public health problems of mutual interest to funders and school faculty. The Water Institute at UNC will launch during a major water conference to be held at Carolina on October 25, 2010.







Recommendation 5: Catalyze innovation at Carolina by facilitating the work of faculty, staff, and students as they put important ideas to use for a better world.

GOAL 5.1 Leverage the talents of leaders across campus to prepare, collaborate, translate, and align resources and processes to strengthen an intentional culture of innovation at Carolina.

In the future, faculty, staff, and students will lead a wide variety of integrated initiatives focused on translating promising ideas into innovative practices. Program leaders will meet regularly to leverage resources, assess the overall culture of innovation, and take the next steps to fulfill Carolina's innovation mission. This cooperative network approach will encourage widespread experimentation, autonomy, and integration.

Action 5.1.1 Create management groups of program leaders and their supporters from across campus to provide integrated leadership and support for the innovation goals.

Create the following connector groups:

- Innovation Leaders (working title), made up of faculty, staff, and student program leaders, to meet regularly and promote collaboration, reduce redundancies, inform each other, share resources, contribute their knowledge, and benefit from each other's experiences.
- Innovation Champions (working title), made up of leaders who support the work of Innovation Leaders such as deans, to meet at least three times a year and be co-chaired by the chancellor and provost to ensure that the innovation goals remain priorities and that resources are allocated to support the work.
- The Chancellor's Student Innovation Team will continue to play an important role in advancing innovation and be included as a vital member of the Innovation Leaders group.

GOAL 5.2 Create the Chancellor's Catalyze Group to facilitate the implementation of this Roadmap.

In the future, the goals described in this Roadmap will receive the targeted attention needed over time to realize the vision. The Chancellor's Catalyze Group will continuously encourage the integration, collaboration, and alignment of resources and processes. The campus will have a virtual entry point for anyone interested in learning more about innovation activities and how their plans might fit in. Further, it will have central data services, evaluation and reporting assistance, and access to resources. The collective story of innovation at Carolina and its profound impact on society will be widely disseminated.

Action 5.2.1 Leverage history by building on the University's strong track record of innovation.

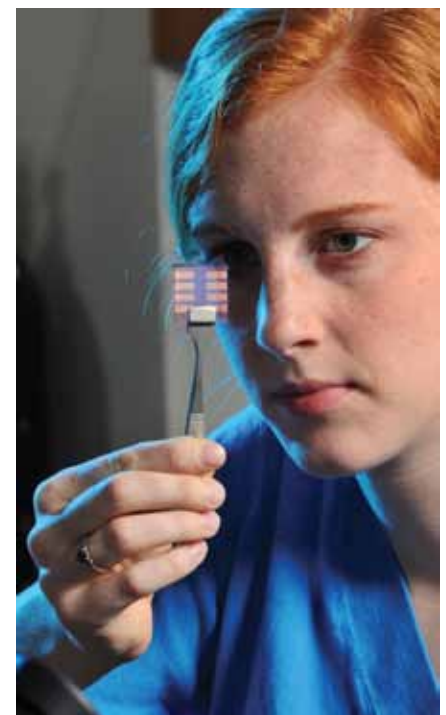
Build on the successes and example of the Carolina Entrepreneurial Initiative (CEI). For five years, the CEI exemplified a successful cross-campus entrepreneurship initiative. Learn from those involved. Also work with senior leaders, with external partners such as the Innovation Circle, with the Innovation Leaders and Innovation Champions, student teams, and others to advance the innovation goals.

Action 5.2.2 Coordinate and support campuswide efforts to fully realize the vision and goals laid out in this Roadmap.

- Help raise funds to support innovation at Carolina.
- Manage the single-source gateway to innovation to ensure faculty, students, and staff are aware of available resources and opportunities for innovation. [See Recommendation 1: Prepare]

Current Status

The University lacks a management structure to facilitate the implementation of this Roadmap. This role was formerly part of the Carolina Entrepreneurial Initiative.





- Track and report results by creating metrics, by automating data collection, standard reports, and capturing best practices and benchmarks.
- Help Innovation Leaders establish rigorous evaluation methods to document and gauge impact.
- Establish a coordinated monitoring system to capture best practices and benchmarks.
- Communicate the stories of innovation at Carolina inside and outside the University to ensure that Carolina is recognized as a leader in converting its ideas to practical benefit.
- Facilitate the reduction of roadblocks to innovation across campus.
- Identify and engage innovation ambassadors from faculty, students, staff, and those external to the campus in the ongoing effort to strengthen the culture of innovation at Carolina.

Targeted investments needed to catalyze innovation at Carolina by facilitating the work of faculty, staff, and students as they put important ideas to use for a better world.

- **Leverage the talents of leaders across campus.**
\$50,000 (expendable) total at \$10,000 per year to create and convene three management groups for program: Innovation Leaders, Innovation Champions, and the Chancellor's Student Innovation Team.
- **Create infrastructure to coordinate and support campuswide efforts to fully realize the vision and goals laid out in this Roadmap.**
\$500,000 (expendable) at \$100,000 per year for five years for evaluator to create metrics, provide automated data collection and reporting on campus innovation, and conduct annual evaluations.
\$2.75 million (expendable) at \$750,000 per year for five years of operations for the catalyze office to help establish rigorous evaluation methods to document and gauge impact of programs, communicate stories of innovation, facilitate reduction of roadblocks to innovation, and to engage innovation groups both within and outside the University.

Total Investment Needed: \$3.3 million (expendable for a Five-Year Period)



Photo by Chris Carmichael



Section III

Appendices

Financial Summary

Innovation Circle Members

Faculty Working Group Steering Committee

Chancellor's Student Innovation Team Members

Innovation Charter



Financial Summary

	ENDOWMENT	5-YR EXPENDABLE	SUB-TOTAL	SUB-TOTAL
Recommendation 1: Prepare				
Goal 1.1: Ensure Understanding				
1.1.1 Communication Strategy		\$1,000,000	\$1,000,000	
1.1.2 Gateway to Innovation Resources		\$400,000	\$400,000	
Goal 1.2: Build Capacity			\$0	
1.2.1 Minor and Other CEI programs	\$25,000,000		\$25,000,000	
1.2.2 Carolina Global Innovation Network		see 1.2.1	\$0	
1.2.3 Student Innovation Hub		\$10,000,000	\$10,000,000	
1.2.4 Innovation/Entrepreneurship Research		\$5,750,000	\$5,750,000	
	ENDOWMENT	EXPENDABLE	Prepare SUB-TOTAL	
Prepare Subtotal	\$25,000,000	\$17,150,000		\$42,150,000

	ENDOWMENT	5-YR EXPENDABLE	SUB-TOTAL	SUB-TOTAL
Recommendation 2: Collaborate				
Goal 2.1: Interdisciplinary Collaboration				
2.1.1 Applied Sciences Faculty	\$15,000,000		\$15,000,000	
2.1.2 Humanistic and Cultural Barriers			\$0	
2.1.3 Remove Barriers			\$0	
2.1.4 Track Collaboration			\$0	
Goal 2.2: Key Themes			\$0	
2.2.1 Key Themes Project		\$6,000,000	\$6,000,000	
Goal 2.3: Industry Relations			\$0	
2.3.1 Study Industry Relations Issues			\$0	
Goal 2.4: Regional Collaborations			\$0	
2.4.1 RTP Million Dollar Challenge			\$0	
2.4.2 Attract the Capital			\$0	
2.4.3 Map the RTP Entrepreneurial Ecosystem		\$200,000	\$200,000	
2.4.4 Leverage Existing Labs, Spaces			\$0	
2.4.5 Triangle Collaboration Fund	\$1,000,000		\$1,000,000	
Goal 2.5: Strengthen Global Collaborations				
2.5.1 Global Collaboration Fund	\$1,000,000		\$1,000,000	
	ENDOWMENT	EXPENDABLE	Collaborate SUB-TOTAL	
Collaborate Subtotal	\$17,000,000	\$6,200,000		\$23,200,000

	ENDOWMENT	5-YR EXPENDABLE	SUB-TOTAL	SUB-TOTAL
Recommendation 3: Translate				
Goal 3.1: Social Entrepreneurship			\$0	
3.1.1 Social Entrepreneurship		\$1,250,000	\$1,250,000	
Goal 3.2: Commercialization			\$0	
3.2.1 Commercialization			\$0	
<i>Planning</i>		\$25,000	\$25,000	
<i>ELRs- Faculty, Resident, Executive</i>	\$10,000,000	\$5,000,000	\$15,000,000	
<i>KickStart Expansion</i>		\$3,300,000	\$3,300,000	
Goal 3.3: Measurement			\$0	
3.3.1 Measure Ongoing Impact			\$400,000	
	ENDOWMENT	EXPENDABLE	Translate	SUB-TOTAL
Translate Subtotal	\$10,000,000	\$9,975,000		\$19,975,000

	ENDOWMENT	5-YR EXPENDABLE	SUB-TOTAL	SUB-TOTAL
Recommendation 4: Align				
Goal 4.1: Leadership Support			\$0	
4.1.1 Leadership Alignment			\$0	
Goal 4.2: Recruit, Retain			\$0	
4.2.1 Innovation Scholars	\$5,000,000		\$5,000,000	
4.2.2 Reward Innovation Activities			\$0	
<i>Innovation Professorship</i>	\$6,000,000	\$175,000	\$6,175,000	
<i>Student Innovation Prize</i>	\$200,000		\$200,000	
Goal 4.3: Align			\$0	
4.3.1 Align Innovation Goals w/ Other Strategies			\$0	
Goal 4.4: Fund the Roadmap			\$0	
4.4.1 Establish Carolina Innovation Fund	\$25,000,000		\$25,000,000	
	ENDOWMENT	EXPENDABLE	Align	SUB-TOTAL
Align Subtotal	\$36,200,000	\$175,000		\$36,375,000

	ENDOWMENT	EXPENDABLE	SUB-TOTAL	SUB-TOTAL
Recommendation 5: Catalyze				
Goal 5.1: Leverage Campus Leaders			\$0	
5.1.1 Innovation Management Groups		\$50,000	\$50,000	
Goal 5.2: Catalyze Group			\$0	
5.2.1 Leverage History			\$0	
5.2.2 Coordinate and Support Campuswide Roadmap			\$0	
<i>Track and Measure Results</i>		\$500,000	\$500,000	
<i>Operations</i>		\$2,750,000	\$2,750,000	
	ENDOWMENT	EXPENDABLE	Catalyze	SUB-TOTAL
Catalyze Subtotal	\$0	\$3,300,000		\$3,300,000

Grand Total	ENDOWMENT	5-YR EXPENDABLE	TOTAL
	\$88,200,000	\$36,800,000	\$125,000,000

Innovation Circle Members

LOWRY CAUDILL

Chair, Innovation Circle
Co-founder, Magellan Laboratories, Inc. *(Retired)*
Durham, North Carolina

RYE BARCOTT

Founder, Carolina For Kibera
Charlotte, North Carolina

HARRIS BARTON

Managing Director, Capital Dynamics
Palo Alto, California

VAUGHN BRYSON

President, CEO, Eli Lilly & Co. *(Retired)*
President, Clinical Products, Ltd.
Vero Beach, Florida

BEN CAMERON

Program Director for the Arts
Doris Duke Charitable Foundation
New York, New York

TOM CHEWNING

Executive Vice President and CFO, Dominion *(Retired)*
Richmond, Virginia

ALFRED CHILDERS

Co-founder of Magellan Laboratories, Inc. *(Retired)*
Cary, North Carolina

PHILLIP L. CLAY

Chancellor, Massachusetts Institute of Technology
Cambridge, Massachusetts

STACIE COCKRELL

Author, Speaker
Austin, Texas

JOHN DENNISTON

Partner, Kleiner, Perkins, Caufield & Byers
Menlo Park, California

ALSTON GARDNER

Managing Director, Fulcrum Ventures LLC
New York, New York

DENNIS GILLINGS

Chairman, CEO, Quintiles Transnational Corporation
Durham, North Carolina

JULIA SPRUNT GRUMBLES

Vice President, Turner Broadcasting *(Retired)*
Chapel Hill, North Carolina

REG HARDY

Co-founder and President, Concordia Pharmaceuticals
Fort Lauderdale, Florida

DON HOLZWORTH

Chair, Futures Group, International
Durham, North Carolina

BARBARA ROSSER HYDE

Hyde Family Foundations
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Innovation Charter

At his selection in 2008 as chancellor of the University of North Carolina at Chapel Hill, Holden Thorp called on all Carolina students, faculty, staff and alumni to take on an audacious mission:

We have so much work ahead of us. Our to-do list is nothing less than the greatest problems of our time: cure diseases, and get those cures to all the people who need them. Find and invent clean energy. Inspire students in our public schools. Feed seven billion people. Describe the world, and replace conflict with understanding.

In an increasingly inter-connected world faced with a daunting array of divergent and complex problems, the Academy is being called upon not only to educate our future leaders but also to provide answers and solutions. To do so, Carolina must find new ways to create value in its teaching, research and service through innovation and entrepreneurship. Our students must be encouraged to be innovators, problem solvers and creators of new knowledge. Our faculty and researchers must be recognized and rewarded for teamwork across traditional academic silos and for their commitment to turning ideas into enterprise. As one of the world's great public universities, Carolina must lead by creating a campuswide culture of innovation and entrepreneurship focused on real solutions for the great problems of our time.

Building a Vision and Framework for Systematic Innovation and Entrepreneurship

With its celebrated history of leadership and discovery and under the direction of Chancellor Thorp, himself an academic entrepreneur, the University is well positioned to take on this challenge. Launched in 2004, the *Carolina Entrepreneurial Initiative* has encouraged and supported programs across campus to teach and support enterprise creation and innovation. The new entrepreneurship minor and graduate certificate programs have tracks in commercial, social, artistic and scientific entrepreneurship. In the arts, new "creative campus" programs have coalesced performances, special seminars, and faculty music and art commissions around major societal questions such as the death penalty, race and gender. As a result, students and faculty have not only moved toward better understanding but also toward solutions. This summer, the Chancellor launched his Entrepreneurial Boot Camp, a four-day workshop that immersed sixteen dynamic faculty in the entrepreneurial experience. In 2010, the University will begin to award annual Carolina Innovation Scholarships to four entering freshmen to better prepare them to invent solutions and create value, no matter the field they choose.

But for Carolina to institutionalize its commitment to tackling the world's greatest challenges through innovation and entrepreneurship, it must develop a comprehensive roadmap. To do that, Chancellor Thorp is forming an advisory council of respected alumni and friends — the Chancellor's Innovation Circle — to be chaired by Distinguished Alumnus, Lowry Caudill (1979) and led by Judith Cone, the Chancellor's recently appointed special assistant for innovation and entrepreneurship. Judith comes to the University from the Ewing Marion Kauffman Foundation where she served most recently as Vice President for Emerging Strategies and the lead executive behind its very successful Kauffman Campuses Initiative, which helped start the Carolina Entrepreneurial Initiative. Judith and the Innovation Circle will address several key questions:

- What does it mean to be a university committed to innovation and entrepreneurship?
- What are Carolina's strengths to be maximized and the obstacles to overcome?
- How should Carolina proceed to incorporate innovation and entrepreneurship into its teaching, research and service missions?



The **C. Felix Harvey Award** is given to the UNC faculty member or members whose proposed outreach project best reflects applied innovation of scholarly expertise in the humanities and social sciences. It seeks to support faculty who want to move their research findings from the campus to directly serve communities, especially in North Carolina. The first Harvey Award winner, American Studies Professor Bobby Allen, takes an innovative mapping technology and education program to libraries, schools

and other organizations around the state to graphically illustrate the history of growth and changes in their communities. This year's winner, **Professor Joelle Powers** in the School of Social Work, is using her proven intervention program to increase the capacity of teachers to recognize and meet the needs of students with mental health problems in Durham Public Schools. The award is named for C. Felix Harvey '43, chairman of Harvey Enterprises & Affiliates and founder of the Little Bank Inc., both in Kinston, N.C.

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