



OPEN SESSION

FOR INFORMATION ONLY

(No formal action is requested at this time)

1. Chair's Remarks
Julia Grumbles, UNC-CH Board of Trustees
2. [Review of the 2010 Innovation Roadmap Final Progress Report](#) (Attachment A)
Judith Cone, Vice Chancellor for Innovation, Entrepreneurship, and Economic Development
3. Innovation Roadmap 2.0
Judith Cone, Vice Chancellor for Innovation, Entrepreneurship, and Economic Development
4. [UNC-CH Impact on North Carolina, NCGrowth](#)
Mark Little, Director of NCGrowth

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December 2016

PUTTING IMPORTANT IDEAS TO USE FOR THE PUBLIC GOOD

2010 Strategic Roadmap to Accelerate Innovation at the University of North Carolina at Chapel Hill

■ *Final Implementation Report*



INNOVATE CAROLINA



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

THE CHANCELLOR'S INNOVATION CIRCLE

■ Charter Members

The Strategic Roadmap to Accelerate Innovation was developed by three groups that shared a passion for Carolina's future: the Chancellor's Innovation Circle, the Faculty Steering Committee, and the Chancellor's Student Innovation Team.

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Chuck Perou, Distinguished Professor of Molecular Oncology (left) talks with lab manager Jerry Usary. Perou received the 2013 Hyman L. Battle Distinguished Cancer Research Award in recognition of his accomplishments in cancer research.



Alice Ammerman (far left), Director of UNC's Center for Health Promotion and Disease Prevention, co-leads the campus theme "Food for All," which focuses on food access, food systems innovation, health promotion and disease prevention, and the documentation of food cultures and history.

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Common Understanding

📍 Prepare

📍 Collaborate

📍 Translate

📍 Align

📍 Catalyze

Executive Summary for the 2010 Innovation Roadmap Final Report

This report is a comprehensive review of the creation and implementation of the 2010 Strategic Roadmap to Accelerate Innovation at the University of North Carolina at Chapel Hill.

It starts with messages from Chancellor Carol Folt, Board of Trustee Chair Dwight Stone, past Board Chair and Chair of the Innovation Circle Lowry Caudill, and the Vice Chancellor for Innovation, Entrepreneurship and Economic Development Judith Cone. They talk about why this work became and continues to be a critical part of the strategic direction for the University as it seeks to have even greater impact.

ACCOMPLISHMENTS TO DATE

Organize and Mobilize for Impact: In 2010, UNC Chapel Hill declared that it wanted to systematically help solve some of the biggest issues facing North Carolina, the nation, and the world. It knew that it had to build a culture, infrastructure, and a robust ecosystem of innovation to have any hope of taking on grand challenges. Programs, or even a center, would be insufficient – it would require a centralized-decentralized approach so that each unit and program would include innovation as core to its work whenever possible. Leaders would be needed throughout the University, as well as in central administration.

This report is the story of how the Board of Trustees, administration, deans, chairs, faculty, staff, students, alumni, parents, and other donors came together to ensure that this University does all it can to help solve some of the biggest challenges facing the world today. In the process of writing the Roadmap, the University took a hard look at itself and designed a path toward being a place that thoroughly supports people who want to work with others to understand needs, and design and successfully implement solutions. It outlined key steps that would make innovation and entrepreneurship (I&E) into widely-shared working priorities at Carolina.

The vision and mission paint the picture of this work.

Vision – With a special focus on the world’s most pressing problems, innovators and innovations launched at Carolina consistently put important ideas to use for the public good.

Mission – To be a place where innovators thrive.

Defining innovation was an important part of the earliest discussions and focuses on three equally important parts.

An innovation is a **successfully implemented, unique** and **valuable** idea.

The full report gives the details of the strategies, goals, actions, lessons learned and next steps for the five key strategic areas described in the Roadmap:

- **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 internally and externally to explore issues, options, and creative approaches that may lead to innovations.
- **Translate** important new ideas more expediently and at an increased volume into innovations that improve society.
- **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 the public good. 5/36

In 2010 a special assistant for innovation and entrepreneurship was commissioned by then Chancellor Holden Thorp to lead the creation of the Roadmap and implementation of the centralized/decentralized model described in that document. The Innovation Circle, made up of alumni, parents, and donors, was instrumental in challenging the University with different viewpoints and offering support. Faculty and student working groups helped create the Roadmap. Thorp, along with University Entrepreneur-in-Residence Buck Goldstein, released their book *Engines of Innovation* not long after to encourage the reshaping of higher education institutions to better support innovation.

In 2013, the UNC Board of Trustees targeted one of its four committees to focus on innovation and entrepreneurship, which continues today. Chancellor Folt, who was hired in 2013, was a strong proponent for innovation and entrepreneurship at Dartmouth. She came to UNC-Chapel Hill determined to move it forward in this area. Today the University-wide strategy includes *making innovation fundamental*, and she continues to champion this work.

At the start some deans were already engaged in direct service and innovation. Areas such as medicine, public health, social work, and government, along with the Campus Y and Center for Public Service, have service missions to North Carolina that are integral to their very purpose. Today all the deans have strategies to support innovation and entrepreneurship. Donors helped establish innovation funds in such schools as media and journalism, public health, and pharmacy. Other deans supported specific programs like those in the business school and arts and sciences. Some deans created positions such as associate dean of entrepreneurship. University librarians started opening innovation spaces and developing programs. The Kenan Science Library, for example, hosts a maker space.

Across the campus, a growing number of academic units now have designated faculty serving as their Innovation and Entrepreneurship (I&E) liaisons, and many have external entrepreneurs-in-residence (EIRs) who help to watch for promising ideas and mentor potential faculty or student entrepreneurs. The Chancellor's Student and Graduate Student Innovation Teams were formed to channel student input, and to promote and assist student-led activities.

Networks and linkages of innovation leaders are growing both within the University and with external partners. In 2010, there were a few people involved in I&E. Today the Innovate Carolina Network has 200 people who meet regularly to learn from each other, work together, and help move the I&E strategy and programs forward.

Communication of I&E news has accelerated; a master web portal for information (innovate.unc.edu) is in service; and all efforts are branded under *Innovate Carolina*.

Embrace Multidisciplinary, Convergence, and Diversity of Thought: The Roadmap described the need for interdisciplinary, diverse communities to understand and help solve the world's most complex problems. It specified the need for applied physical sciences and biomedical engineering and other such hybrid disciplines.

- The Chancellor, Provost and Deans of Medicine and Arts and Sciences created the first new department in forty years in the sciences – applied physical sciences.
- UNC-Chapel Hill and NC State University Chancellors Folt and Woodson and Provosts Dean and Arden, committed to strengthening the joint department of biomedical engineering.
- The Roadmap also called for makerspaces, graduating students data literate, strengthening computer science, building app development services and promoting serious games as important tools of innovation.

Partnerships with Donors and Industry: Donors like Gillings, Marciso and Eshelman and many others made significant investments in translational work and continue to be involved on a strategic level as well. The

Roadmap called for an increased emphasis on industry partnerships.

- The GlaxoSmithKline project with UNC-Chapel Hill for the HIV/AIDS cure was a first-of-its-kind public-private partnership. This is just the beginning of such meaningful relationships. In order to better realize these complex deals, there is now a cross-university team dedicated to developing additional deep relationships with industry.
- The Chemistry Department partnered with Eastman Chemical Company for joint research.
- The School of Medicine is working with IBM Watson Health and with SAS, Siemens and other firms.
- Plans for the future call for commercialization spaces to house such activities. Most peer institutions have dedicated innovation spaces including wet labs for faculty startups and proximity for/to industry.
- The new Office of Industry Contracting consolidates and improves the support of industry-sponsored research at UNC-Chapel Hill. The Office of Sponsored Research is undergoing a complete redesign.

Embed Innovation in Research and Teaching: The teaching of innovation and entrepreneurship both for credit and in extra curricular workshops and coaching grew from a few courses in the business school and a new minor in entrepreneurship in Arts and Sciences to programs through the schools and institutes. Today, the following is happening:

- Applied Physical Sciences is hiring new faculty and will be part of the proposed new convergence science building.
- Carolina's BeAM (Be a Maker) movement now operates three state-of-the-art makerspaces where students and faculty can prototype and build physical objects. This is essential for developing ideas that could lead to advanced manufacturing, new products in arts and other fields.
- The Center for Entrepreneurial Studies in the Kenan-Flagler Business School already had courses in 2010 and had just started the Carolina Challenge, the campus-competition. Today those courses have expanded. Additionally, working with the IEED, they have taken on responsibility for Launch Chapel Hill and 1789. They now run the new Adams Apprenticeship program as well.
- In 2010 the undergraduate Entrepreneurship Minor had just started and had two tracks: social and commercial and was serving 100 students a year. Today, it serves 150 students in the Minor, 450 students in Econ 125 Introduction to Entrepreneurship, and has hubs in Silicon Valley, New York and Beijing. It continues to reach more students through nine tracks.

Support for Startups and Innovators: Pre-Roadmap, the University had no physical facilities dedicated to nurturing startup ventures. Now there are several with related support services and programs. Today, the newly-created Office of the Vice Chancellor for Innovation, Entrepreneurship and Economic Development (IEED) includes support for KickStart Venture Services, the Carolina Research Ventures Fund, Carolina Angel Network, Launch Chapel Hill, and 1789 Venture Labs among other programs. The University's tech transfer office had one of the most underfunded and understaffed offices among its peer institutions. In 2010 there were five commercialization managers. Today there are eight plus two interns, people in new positions in outreach, marketing, strategic partnerships, and research services. It reports to the VC IEED.

- **KickStart Venture Services:** worked with 72 companies since 2009 > 43 companies received funding > \$1.6M in KickStart grants > \$74M in SBIR/STTR funds > \$766M in investment dollars.
KickStart Venture Services, part of the UNC-Chapel Hill Office of Commercialization and Economic Development, supports IP-based startup formation, based on faculty research at UNC-Chapel Hill. Services include business development by providing coaching and mentoring, early-stage funding, connection with key service providers, management, investors and space. KickStart Labs is the wet lab startup incubator located on campus in the heart of research and innovation. KickStart Labs has

incubated 13 startup companies offering close proximity to the University founders, access to specialized equipment and acts as a location to operate as a fully-functional faculty startup business.

- **Carolina Research Venture Fund LLC** started in 2015 > \$10M fund > Hired Hatteras Venture Partners > 3 investments into startups to date that have raised more than \$115M.

Many of the UNC-Chapel Hill faculty startups based on intellectual property are working on breakthrough ideas and solutions that could greatly benefit the public. Since private investment capital is not broadly available at this earliest stage, these ideas struggle to get translated into practical use. That lack of capital keeps University research innovations from converting into commercial products. Such a gap in funding can be hard to overcome. The Carolina Research Venture Fund helps unlock these young companies’ potential and get their products into the hands of businesses and consumers by providing early capital and leveraging our relationships with the national venture capital community. This is an affiliated entity, run by an experienced board that is tasked with hiring and managing a top venture capital firm to manage the fund.

- **Launch Chapel Hill Accelerator:** 63 companies since 2013 > raised \$10M >100 jobs

Launch Chapel Hill is an international award-winning startup accelerator located in downtown Chapel Hill. Initiated by UNC-Chapel Hill, this public-private partnership brings together the town, county, University, and a private donor. Twice a year, it accepts applications to the accelerator program from entrepreneurs who are committed to building their early stage businesses into self-sustaining enterprises. Its goal is to provide the tools and knowledge needed to decrease risks, reduce go-to-market time, and accelerate the growth of startups.

- **Office of Commercialization and Economic Development** (tech transfer): Since it takes a long time to realize the investment in life science technologies, statistics from tech transfer are reported as annual average revenues over a five-year period.

	Annual Ave FY06-10	Annual Ave FY11-15	Cumulative
Disclosures	118.8	146.4	2566
Patent Applications	63.8	74.8	1304
Issues US Patents	24.2	34.6	658
Licenses	58.4	50.4	1130
Startups	3.2	9.8	106
Revenue	\$2.58 M	\$3.66 M	\$53.10 M

The Roadmap outlined in detail the types of actions needed to improve the translational outcomes of the University. The Office of Commercialization and Economic Development (formerly the Office of Technology Development) has been revamped to improve processes of managing University intellectual property into licenses.

These are but a few stories of the hundreds that are described in the full report. Collectively they reflect the comprehensive ecosystem and culture of innovation at Carolina. They also highlight needs for the future.

WHAT LIES AHEAD

As this report shows, while many significant measures are now well under way, efforts in other areas are at the planning or early-launch stages. Some key needs going forward:

- More and better physical facilities for I&E. A comprehensive space plan is in progress and will become part of the 10-year space plan.
- A number of University policies and procedures need updating to facilitate, rather than hinder, innovation. These include conflict of interest resolution, tenure and promotion guidelines to include I&E activities by faculty, and reducing barriers to collaboration across boundaries. These are being addressed gradually with an ultimate goal of building a nimble, responsive organization.
- Better measurement and evaluation of I&E impact, both to document Carolina's contributions to society and to inform future work. This is challenging, as positive impact takes many forms beyond easily measured economic gains.
- Further fundraising and appropriate budgeting for all I&E programs are required.
- A major opportunity for pan-university dialogue regarding the areas of social innovation and also economic development.

In general: The work begun under the 2010 Roadmap is itself a massive exercise in innovation. It amounts to a sweeping re-invention of the University across many fronts, to better serve a fast-changing society. New ideas have been pilot-tested and proven, which should now be scaled up and/or widely emulated.



Clockwise from top left:
UNC biochemist Aziz Sancar speaks with Chancellor Folt after winning the Nobel Prize in chemistry with two other scientists.
Nourish International volunteers worked with a community partner in Uganda on a health education project.
Makerspaces at UNC provide equipment to students to prototype and build advanced physical products

INTRODUCTION

■ *Chancellor Carol Folt*

Lasting Positive Impact

Dear Colleagues:

As a scientist, one of the reasons I was excited to come to Carolina and serve as Chancellor is because of the University’s international reputation as a research powerhouse and the University’s commitment to become a leading innovation and entrepreneurship center. Over the past three years, through focused work and institution-wide dedication, Carolina’s success in this area has literally blasted off to new heights.

This report tells compelling stories about how Carolina embraces the translational aspects of its work and makes innovation and entrepreneurship part of our core missions of research, teaching and service. The following pages document work already under way and discusses the logical next steps that must be taken to build upon recent successes. The stories speak of Carolina’s demonstrated commitment to helping people increase their capacity to convert knowledge into practical benefit for the public good that delivers lasting positive impact in our state and beyond.

Under the guidance and support of University-facilitated programs, I have witnessed how students, faculty and staff are working together like never before to create powerful results to tackle North Carolina’s and the world’s most challenging problems. This perfectly aligns with our pan-university commitment to ensuring our graduates are ready to face a certain-uncertain future as part of the Innovation Generation.

Carolina is already well on its way to being a global leader in innovation and entrepreneurship. Equally as important and essential, we have built a foundation to expand our work in the future, creating opportunities for new ventures, areas of exploration and ultimately successes in the years ahead.



Carol L. Folt, Chancellor



Our success wasn't created by happenstance, and achieving our goals takes many people collaborating across a diverse range of activities, coupled with support from an integrated network of resources.

University innovators who wish to bring discoveries or inventions to market need early-stage support. In this critical area we took deliberative action on multiple fronts. In February 2015, I created a new position reporting directly to me, Vice Chancellor for Innovation, Entrepreneurship and Economic Development. The mandate of this office includes aggressively seeking out marketable ideas and creating needed partnerships among inventors, investors, industry partners, mentors and the University community. Another major new initiative to fuel our social and economic value to North Carolina is the creation of the Carolina Research Venture Fund for investments into faculty-founded, IP-based startups.

In the formal teaching of entrepreneurship, we are building on the successes of the Kenan-Flagler Business School's Center for Entrepreneurial Studies, the Frank Hawkins Kenan Institute of Private Enterprise and the Entrepreneurship Minor in the College of Arts and Sciences. Additionally, the excellent work of other academic units including Computer Science, Media and Journalism, Public Health, Medicine, Pharmacy, Law and many others are contributing to student success.

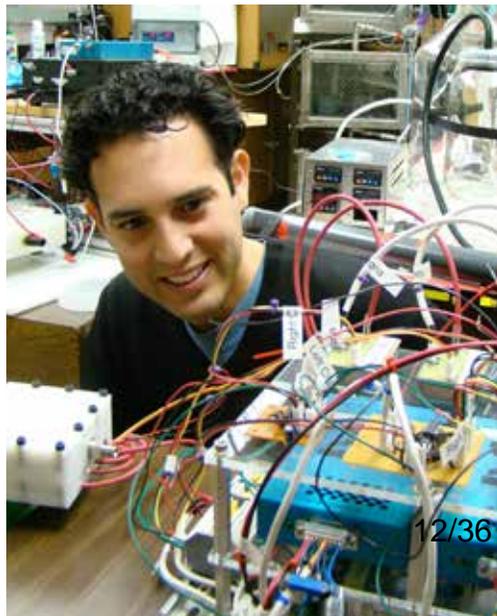
For students, we are dedicated to delivering uncompromising quality in education, in terms of both what and how they learn. We want Carolina graduates to have proficiency in their disciplines, amplified with an entrepreneurial mindset and skillset that includes design, leadership, planning and execution.

Supporting all of these efforts—and our innovators—is a dedicated team of faculty and staff whose work underpins the programs, spaces and initiatives critical to Carolina's innovation strategy. Their efforts are, in part, a reflection of the leadership of the UNC-Chapel Hill Board of Trustees and senior administrators.

In this critical area of support, I want to recognize and thank four leaders for their tireless support and personal commitment: Dwight Stone, Chair of the UNC-Chapel Hill Board of Trustees; Lowry Caudill, Trustee and former Board Chair, for his leadership as Chair of the Innovation Circle; Julia Grumbles, Trustee and Chair of the Board Committee on Commercialization and Economic Development; and Judith Cone, Vice Chancellor for Innovation, Entrepreneurship and Economic Development, who keeps our innovation agenda focused on

Left: Dr. William Vizuete, Associate Professor of Environmental Sciences & Engineering shows his invention to examine the effects of air pollutants on health.

Right: Reese News Lab student interns brainstorm a list of ideas emerging from a design thinking session.



supporting those who are transforming lives for the better. And, very importantly, our initiatives could not have moved forward without the people who recognize the value of innovation and entrepreneurship and provide the financial resources needed to advance these critical activities.

Our overarching goal is to make Carolina synonymous with excellence in innovation and entrepreneurship. This is our personal and institutional commitment to our students, faculty and staff, our state and to those who provide life-blood financial resources needed to advance our programs. Thanks to their continuing support, we are developing and inspiring the next generation of innovators and entrepreneurs who will create new jobs and fields of endeavor that capture imaginations, create new opportunities and help change our state, nation and world.

Carol L. Folt
Chancellor, the University of North Carolina at Chapel Hill

■ *Dwight Stone*

Strategic Support



Dwight Stone,
Chair, UNC-Chapel Hill Board of Trustees

Since its founding in 1789 as the nation's first public university, Carolina has continuously met the changing needs of the state, nation and the world. Our students, faculty and staff see a challenge, mobilize their knowledge and resources and do what it takes to get results.

Today, the challenges confronting universities and academic institutions across the country and world are huge. We must face those head on and meet them with courageous, transformational solutions. As chair of the University of North Carolina at Chapel Hill's Board of Trustees, I feel honored to be able to work with the administration to advance the University to meet new demands while remaining true to its core values.

Many board members were part of the creation in 2010 of the Strategic Roadmap to Accelerate Innovation at the University of North Carolina at Chapel Hill (the Innovation Roadmap). Alston Gardner, Steve Lerner, Barbara Hyde and Sallie Shuping Russell spent nearly a year working with faculty, students, donors, parents and friends of the University to better understand the need and opportunity for Carolina to become a leader in innovation and to create the Innovation Roadmap. Later Innovation Circle members Lowry Caudill, Phil Clay and Julia Sprunt Grumbles would join the UNC-Chapel Hill Board of Trustees. Each successive board since that time has placed innovation as one of the top priorities. A UNC-Chapel Hill Board of Trustee subcommittee on innovation has worked with administration to continue to advance the University's capacity to deliver the much-needed results to communities of need, and to contribute to the economy broadly.

The UNC-Chapel Hill Board of Trustees is committed to providing the leadership and support for making UNC-Chapel Hill a place where people come to explore and create, and where Carolina-born innovations and innovators change the world.

Dwight Stone
Chair, UNC-Chapel Hill Board of Trustees

■ *Lowry Caudill*

An Engine of Innovation

In 2010, a dedicated team of UNC-Chapel Hill family—faculty, students, staff, administrators, alumni and friends—was charged by then Chancellor Holden Thorp with creating a strategic framework that would best position Carolina to produce more innovations faster and, in doing so, change our community, nation and world for the better. The result was the 2010 Innovation Roadmap.

This is the final progress report for the 2010 Roadmap, and I am inspired by what we have accomplished together. The enthusiasm for and commitment to reaching our goals are shared across the Carolina community. This report reveals the work of many, in a variety of fields and for a variety of purposes. It is impossible to ignore the culture of innovation and entrepreneurship that is becoming embedded through all aspects of our university.

I wear many hats at Carolina—a member of the UNC-Chapel Hill Board of Trustees, an alumnus, an adjunct professor, an innovator, an entrepreneur, a donor and a parent—which allows me to see the effect of this work from many different vantage points. By all accounts, the Roadmap—the vision we laid out in 2010 for what we aspired to achieve at Carolina—has been a success. Now we must build on the incredible momentum that has been created. We must support this work in all of its forms by securing the necessary human and financial resources and by crafting new strategies to propel us forward. We must keep telling our story. And we need your help, now more than ever, to become the best public university in the world for innovation and entrepreneurship.

W. Lowry Caudill, PhD, Chair, Chancellor's Innovation Circle
UNC-Chapel Hill Board of Trustees, Past Chair



Lowry Caudill, PhD, Chair,
Chancellor's Innovation Circle
UNC-Chapel Hill Board of Trustees, Past Chair

■ *Judith Cone*

A Community of Innovators



Judith Cone,
Vice Chancellor for Innovation,
Entrepreneurship & Economic
Development

When I left the Kauffman Foundation as vice president and came to Chapel Hill to be Special Assistant to the Chancellor for Innovation and Entrepreneurship in late 2009, I put behind me the privilege of being part of granting for charitable purposes nearly \$100 million a year. The Foundation sought to advance societal benefit by encouraging entrepreneurship and investing in education.

Stepping out of that position into an unstructured one with no budget, no employees and a tiny office on the ground floor of South Building was exhilarating. I had one job: Help one of the most prestigious universities in the world begin an audacious effort to uncover and unleash the vast potential of its faculty, students, staff, alumni and friends to transform the world through the University's innovators and innovations.

It was clear that if we were to be successful, the strategic direction had to be developed by the faculty, staff and students with input from alumni, parents and friends of the University. The process of creating the Innovation Roadmap involved bringing together representatives from these groups, learning from others and then coalescing around key goals.

The Chancellor's Innovation Circle made up of external constituents chaired by Lowry Caudill, the Faculty Steering Committee chaired by John Akin and the Chancellor's Student Innovation Team led by Shruti Shah collaborated in a comprehensive effort to create the Innovation Roadmap. This established an agenda that is distinguishing Carolina as being among the best places for big thinking and bold action.

Many have joined the effort to move the work forward since the publication of the Innovation Roadmap in 2010. The support for this work comes from all levels of University leadership—from the board and senior leaders, deans, administrators and our other campus colleagues who have a passion for innovation and entrepreneurship in all its forms, from the donors who make this possible, and from the volunteers who give so much of their time and talent. Their commitment is transforming the concept of what is possible, and peers and neighbors around the world are taking notice.

Under the name Innovate Carolina we unified the University's innovation and entrepreneurship ecosystem. The Office of the Vice Chancellor for Innovation, Entrepreneurship and Economic Development provides strategic leadership, oversees technology transfer, startup services, communication support, data collection, measurement and reporting. It advocates for strengthening the building blocks of innovation, helps fundraise for members of the Innovate Carolina Network and otherwise catalyzes the ecosystem.

Judith Cone,
Vice Chancellor for Innovation, Entrepreneurship & Economic Development

Recommendations and Goals 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.*

■ *Goal 1.2 Learn the skills of innovation and entrepreneurship.*

■ Recommendation 2

Collaborate with diverse groups internally and externally to explore issues, options, and creative approaches that may lead to innovations.

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

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

■ *Goal 2.3: Improve industry collaborations and increase industry funding.*

■ *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.*

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

■ 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.*

■ *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.*

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

■ Recommendation 4

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

■ *Goal 4.1: Encourage leaders from across the University to support and promote innovation in their schools, departments, institutes, and offices.*

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

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

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

■ Recommendation 5

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

■ *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.*

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

Presentation to UNC Board of Trustees

2017 January 25



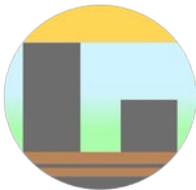
Mark Little, PhD

Executive Director, Kenan Institute of Private Enterprise

Director, NCGrowth



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PRIVATE ENTERPRISE



NC rowth

Mission: To help businesses create good jobs and to help communities create sustainable and equitable opportunities for their people.

Vision: To be nationally recognized for identifying solutions to severe economic distress through collaboration between businesses, communities, and researchers; to be sought out nationally and internationally as a leader, partner, and convener on issues of economic development; to be recognized as the thought leader for effective and innovative economic development in rural and/or economically distressed areas of North Carolina.



NC rowth

- 30 projects/year with county/municipal/tribal government & businesses
- 130+ jobs created/retained (FY2015)
- Projected 130+ jobs created/retained (FY2016)
- Over \$3M in grant funding (since 2012)
- Active partnerships across UNC: Public Policy, DCRP, SoG, IAAR, CSAS, IE, etc.
- Other active partnerships: NCCU, ECU, NCSU, UNCP, ECSU, Duke, Community Colleges, NC Dept of Commerce, SBA, SBTDC, SBC, COGs, etc.
- Collaborative projects: HBTS, NC Working Group, Hurricane Matthew recovery



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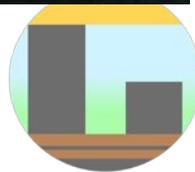








Time	Last 5 min	Last 30 min	Last hour	Shift	Best shift
150:00	4	29	79974	239	84
	35948	1172	1010	240	105.5
	1193	35	1172	241	128
			28944	242	204.5







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28/36

METHODS

- 15 case study communities
 - > 1MW generating capacity
 - Utilize manure
 - Some degree of
- 15 Interviews in the field



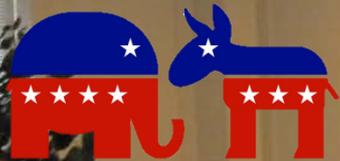


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Discussion

NC rowth

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