Innovation: The successful implementation of unique and valuable ideas.

OFFICE OF THE VICE CHANCELLOR FOR INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT

STRATEGIC PLAN 2016-2020

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Note: I&E is used throughout this document as an abbreviation for innovation and entrepreneurship.

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Strategic Initiative Snapshot

Strategic Initiative 1: Innovation Ecosystems

Strengthen dynamic ecosystems of innovation and entrepreneurship to expand impact.

Strategic Initiative 2: Education

Prepare students with the I&E mindset and skillset so they will have the knowledge, networks, experience and confidence to seize opportunities and lead teams to deliver needed solutions.

Strategic Initiative 3: Translation

Enable the expedient translation of unique and valuable ideas into innovations that benefit the citizens of North Carolina and the world.

Strategic Initiative 4: Assessing, Reporting and Adapting

Be outcome driven and track, measure, evaluate, compare and report. Communicate with key constituents in Chapel Hill, the RTP region, North Carolina, industry, investors and the Innovate Carolina Global Network so they understand and support the work. Learn from the results and inform Implementation actions.

Strategic Initiative 5: Communications

Create a rich and continual narrative about I&E at UNC-Chapel Hill that enhances awareness and engagement across key internal and external audiences and stakeholders. Use a diverse set of media channels to tell success stories of I&E initiatives, convey the human and economic impact of these initiatives and give University leaders a more robust outlet to help make innovation fundamental at Carolina and other institutions.

Strategic Initiative 6: Our People and Organization

Perform as an outstanding team that has the capacity, commitment and trust to get results, while exemplifying the values stated in this document. Provide the type of operational support needed for the staff to reach the strategic goals explained in this document as well as the support they need for their careers.

At a Glance

Strategic Initiative 1: Innovation Ecosystems

Strengthen dynamic ecosystems of innovation and entrepreneurship to expand impact.

- **Objective 1.1** Set the strategic direction for I&E in support of the goals articulated in *Higher Expectations* and the *Blueprint for Next*.
 - **Action 1.1.1** Work with the Innovate Carolina Network and University senior leaders to create the strategic plan for I&E.
 - Action 1.1.2 Reconvene the Innovation Circle as a Chancellor priority and involve them in creating the strategic direction for I&E.
 - **Action 1.1.3** Engage alumni and strategic partners from the Innovate Carolina Global Network in the strategic planning process.
- Objective 1.2 Maximize the Innovate Carolina Network.
 - **Action 1.2.1** Maximize the federated model of operations for the network. Exercise control over responsibilities delegated to our office, like technology transfer, work closely with units that are aggressive in pursuing translation, and encourage those less engaged. Use incentives and rewards to encourage a highly engaged ecosystem membership.
 - Action 1.2.2 Advocate for closing gaps at the University that limit Carolina's ability to have maximum impact. The Innovation Roadmap identified the scarcity of engineering skills, too few multidisciplinary approaches to address grand challenges facing humanity, lack of maker spaces, lack of innovation spaces in general, and lack of a comprehensive approach to data. Further, there is a major gap in funding for IEED.
 - **Tactic 1.2.2.1** Champion existing engineering programs like environmental engineering and biomedical engineering; build out the applied physical sciences department and BeAM.
 - **Tactic 1.2.2.2** Champion the expansion of the computer science department and the development of a comprehensive strategy for data, including graduating all students data literate.
 - **Tactic 1.2.2.3** Champion and help lead the planning for the convergence science building and institute. Create a detailed plan for how IEED will become an integral part of that initiative.
 - **Tactic 1.2.2.4** Work closely with the University's master plan group and create a subplan for innovation and entrepreneurship spaces.
 - Action 1.2.3 Seek designation as an Innovation and Economic Prosperity University (IEP).
 - **Tactic 1.2.3.1** Educate the Innovate Carolina Network partners about APLU's CICEP and the IEP.
 - **Tactic 1.2.3.2** Align partner resources around the proposed strategy, develop shared definitions of key impact measures using internal-to-UNC language and implement the strategy.
 - **Tactic 1.2.3.3** Record and report metrics per Strategic Initiative 4.

Objective 1.3 Fully engage the Innovate Carolina Global Network.

Action 1.3.1 Develop and implement a customized plan to fully engage the Innovate Carolina Global Network in the work of I&E.

Tactic 1.3.1.1 Target participants in programs like the Carolina Angel Network and the Adams Apprentice for broader inclusion in accelerating I&E and its impact.

Tactic 1.3.1.2 Implement a leading software solution for managing this Network.

Objective 1.4 Align the University's resources and processes with the I&E vision and mission.

Action 1.4.1 Align central administration, people, resources and processes to accelerate innovation at Carolina. Work with the Board of Trustees, the Chancellor, the cabinet, deans and faculty to ensure that innovation, entrepreneurship and economic development initiatives are:

- Top priorities for the University.
- Adequately staffed.
- Encouraged by recognition and rewards.
- Appropriately funded from budgets, grants and donors.
- Supported by policies such as conflict of interest, copyright and software, facility use agreements, and promotion and tenure that acknowledge that translation can be an extension of scholarly work.
- Expedited by the legal team.
- Placed in appropriate facilities on and near campus for offices and programs.

Action 1.4.2 Harness needed resources by working closely with University Development on behalf of the Innovate Carolina Network.

Objective 1.5 Serve as a catalyst and leader in building strong I&E ecosystems.

Action 1.5.1 Strengthen the local I&E ecosystem by working with the Town of Chapel Hill, Orange County Commissioners, entrepreneurs, landlords, nonprofits, other business owners and investors.

Action 1.5.2 Strengthen the regional and state I&E ecosystems by working with other universities, governments, nonprofits, businesses and investors.

Strategic Initiative 2: Education

Prepare students with the I&E mindset and skillset so they will have the knowledge, networks, experience and confidence to seize opportunities and lead teams to deliver needed solutions.

Objective 2.1 Prepare students with the I&E mindset and skillset.

Action 2.1.1 Assist I&E faculty with the development of a pan-University integrated I&E curriculum that meets the guidelines of the New Learning Imperative.

Action 2.1.2 Teach the I&E mindset and skillset to significantly more undergraduate students by working with partners in the Innovate Carolina Network.

Action 2.1.3 Create a comprehensive strategy to teach the I&E mindset and skillset to more graduate students.

- Action 2.1.4 Create a comprehensive strategy to teach the I&E mindset and skillset to more post-doctoral students.
- Objective 2.2 Prepare faculty and staff with the I&E mindset and skillset.
 - Action 2.2.1 Continue the Chancellor's Faculty Entrepreneurship Workshop and expand its reach. Provide follow-on support to attendees.
 - Action 2.2.2 Develop the Pathways-to-Impact Academy, a blended online learning platform initially designed for faculty and then expanded for student and alumni audiences.
 - Action 2.2.3 Partner with existing faculty enrichment programs, such as those offered by IAH and the Center for Faculty Excellence, and add I&E educational programs.
 - Action 2.2.4 Serve as a resource for program leads in the units as they work with their faculty to develop the I&E mindset and skillset.
- **Objective 2.3** Partner with industry to prepare the future workforce.
 - Action 2.3.3 Create experiential learning opportunities through fellowships, internships, externships and apprenticeships.

Strategic Initiative 3: Translation

Enable the expedient translation of unique and valuable ideas into innovations that benefit the citizens of North Carolina and the world.

- **Objective 3.1** Strengthen support for commercialization.
 - **Action 3.1.1** Add highly qualified commercialization managers as needed and provide additional training to existing staff.
 - Action 3.1.2 Continuously improve decision-making processes, operational efficiencies and service.
 - Action 3.1.3 Work closely with all units, especially Pharmacy and Medicine, to coordinate with their translational efforts.
 - **Action 3.1.4** Further enhance the KickStart program for faculty IP-based startups.
 - Action 3.1.5 Formulate and implement a strategy for industry engagement, working with Industry and Corporate Relations and the Office of the Vice Chancellor for Research.
 - Action 3.1.6 Develop the IP pipeline by finding technologies as early as possible in order to assess and develop them.
 - Action 3.1.7 Conduct robust evaluations of the patent landscape and market potential of IP portfolio technologies through our in-house research team.
 - **Action 3.1.8** Develop, resource and staff a robust proof-of-concept capacity that includes a development fund.
 - Action 3.1.9 Strengthen and expand investment vehicles like the Carolina Angel Network and the Carolina Research Venture Fund.
 - **Action 3.1.10** Develop a robust program to support student startups.

Objective 3.2 Elevate social innovation as a cross-campus priority.

Action 3.2.1 Build on the Social Innovation Task Force Report to develop an operational plan for social innovation and community engagement as a cross-campus initiative.

Tactic 3.2.1.1 Form advisory boards (external, faculty and student).

Tactic 3.2.1.2 Form a senior leadership executive committee, including a tie to each dean.

Tactic 3.2.1.3 Hire a full-time person to help lead the design and early-stage work of this initiative and engage current employees on this project.

Objective 3.3 Guide people through the process of translating ideas into impact via using research to stimulate action.

Action 3.3.1 Develop a strategy for coaching faculty in addition to helping them learn via the blended online Pathways-to-Impact Academy.

Action 3.3.2 Develop a Carolina methodology for guiding ideas into impact outside of creating profit and/or nonprofit entities.

Action 3.3.3 Develop non-dilutive funding sources.

Strategic Initiative 4: Assessing, Reporting and Adapting

Be outcome driven and track, measure, evaluate, compare and report. Communicate with key constituents in Chapel Hill, the RTP region, North Carolina, industry, investors and the Innovate Carolina Global Network so they understand and support the work. Learn from the results and inform Implementation actions.

Objective 4.1 Measure the impact of innovations and innovators launched at Carolina.

Action 4.1.1 Optimize the structure and process of the Innovate Carolina Startups Database to reduce the staff time and effort required to maintain and operate the system.

Action 4.1.2 Continue the development of the secondary database, Innovate Carolina Network Database, to track the innovation capacity of individuals, support daily management of Innovate Carolina Network programs and inform stakeholders.

Objective 4.2 Report the impact in North Carolina and beyond.

Action 4.2.1 Integrate new tools for analytics and visual presentation of data to enable interactivity, mapping and time series presentation.

Action 4.2.2 Integrate data and storytelling within the impact dashboard.

Action 4.2.3 Develop custom dashboard pages for administrators to enable direct access to specific metrics.

Objective 4.3 Adapt our approaches based on data.

Action 4.3.1 Use collected, cleaned data to evaluate the effectiveness, breadth, gaps and needs of programs and participants.

Action 4.3.2 Inform the strategy of decision makers in North Carolina, citizens, alumni, funding agencies and partners through the use of data.

Action 4.3.3 Continue the environmental scan of influences across North Carolina and of other universities to interpret data and conclusions in context.

Strategic Initiative 5: Communications

Create a rich and continual narrative about I&E at UNC-Chapel Hill that enhances awareness and engagement across key internal and external audiences and stakeholders. Use a diverse set of media channels to tell success stories of I&E initiatives, convey the human and economic impact of these initiatives and give University leaders a more robust outlet to help make innovation fundamental at Carolina and other institutions.

Objective 5.1 Celebrate successes and expand awareness.

Action 5.1.1 Enhance and manage the Innovate Carolina website as a central navigational hub where UNC innovators and entrepreneurs can find the resources they need; manage other specific program websites.

Action 5.1.2 Publish original and curated feature stories that highlight Carolina innovations and innovators and encourage others to engage in the Innovate Carolina Network.

Action 5.1.3 Use outbound communications to promote I&E resources and successes: enewsletters, targeted emails, social media, podcasts, video, advertising, printed collateral, event channels, etc.

Action 5.1.4 Make presentations at on-campus forums, meetings and events that educate faculty, students and staff about the Innovate Carolina Network and how to take advantage of I&E resources.

Action 5.1.5 Host live events, such as the annual UNC Innovation Showcase, that convene and connect innovators and entrepreneurs from across campus and the region.

Action 5.1.6 Strengthen Innovate Carolina's brand identity as the University-wide initiative for I&E through a campus brand awareness survey and the development of a unifying creative direction.

Action 5.1.7 Gain recognition of the University's I&E work through awards and rankings programs.

Objective 5.2 Tell the story of innovation at Carolina and its impact.

Action 5.2.1 Publish original and curated feature stories that highlight the economic and social value of I&E at UNC-Chapel Hill to North Carolina government leaders, industry, alumni and prospective donors.

Action 5.2.2 Collaborate with UNC Media Relations to gain external media coverage of UNC I&E stories.

Action 5.2.3 Deliver in-person presentations and speeches to key stakeholders in the UNC System, local communities, state government, businesses and industry organizations.

Action 5.2.4 Highlight the successes of UNC alumni innovators and entrepreneurs across channels.

Action 5.2.5 Use targeted digital, print and personal communications to explain the value of key I&E programs to donors and describe the financial support required for their success.

Objective 5.3 Position Carolina as a leader in making innovation fundamental in higher education.

Action 5.3.1 Serve as a resource to help departments make innovation fundamental.

Action 5.3.2 Speak and present at external conferences and association events to share Carolina's innovation methodology.

Action 5.3.3 Publish "how-to" content and editorials via UNC and external channels aimed at higher education.

Strategic Initiative 6: Our People and Organization

Perform as an outstanding team that has the capacity, commitment and trust to get results, while exemplifying the values stated in this document. Provide the type of operational support needed for the staff to reach the strategic goals explained in this document as well as the support they need for their careers.

Objective 6.1 Hire and develop the right people.

Action 6.1.1 For employees, set goals that are challenging and achievable. Monitor work and personal goals. Take advantage of the University's performance management system as an important way to engage with staff.

Action 6.1.2 Continue focusing on strengthening interpersonal effectiveness for all employees and increasing their performance as members of the team.

Action 6.1.3 Hire a business officer and a development officer.

Objective 6.2 Create an environment that fosters team performance to reach stretch goals.

Action 6.2.1 Institute a management method to keep all employees focused on achieving their goals.

Action 6.2.2 Provide coaching in team performance.

Action 6.2.3 Secure an appropriate budget and fundraise for special projects.

Tactic 6.2.3.1 Work with Provost Blouin to continue to increase the budget over the 5-year ramp up period FY16-FY20 to have the resources needed to reach the goals set for this office by the Board of Trustees, Chancellor and Provost.

Action 6.2.3.2 Work with University Development to raise funds for projects.

Action 6.2.4 Occupy appropriate space that enhances our work.

Innovation: Unique, valuable ideas successfully implemented.

PREAMBLE

Making innovation fundamental, as called for in the Blueprint for Next, requires that all units of the University work toward achieving this goal. The Office of the Vice Chancellor for Innovation, Entrepreneurship and Economic Development (IEED) plays an important role by leading the University in its goal to uncover and unleash the vast potential of its faculty, students, staff, alumni and friends as they learn the innovation and entrepreneurship (I&E) mindset and skillset and turn ideas into practical innovations. UNC-Chapel Hill is generating ground-breaking ideas through research to become a leading fundamental **and** translational research university. IEED uses a federated model to strengthen the innovation ecosystem that consists of an extensive network of University-facilitated programs. This network of students, faculty and staff are working together to tackle the most challenging problems in North Carolina and the world.

Chancellor Folt creates a new vice chancellor position: To meet the growing need for organizing dedicated growth and support of UNC's innovation ecosystem, Chancellor Carol Folt established the vice chancellor's office in 2015. This office, which also operates under the label *Innovate Carolina*, has two core functions:

1. Support and grow innovation and entrepreneurship at Carolina

This function is overseen by IEED's Office of Innovate Carolina, which works to:

- Provide overall strategic direction for I&E on campus.
- Lead the Innovate Carolina Network, which is the University-wide community of people and programs whose purpose is to teach the entrepreneurial mindset and skillset and help people translate important ideas into valuable methods, products and services.
- Assist in the translation of non-IP-based ideas into practical applications.
- Offer fundraising support.
- Serve as a central navigational hub of resources for the innovation ecosystem.
- Measure and communicate the impact of UNC I&E.

2. Move more University intellectual property to market faster

This function is overseen by IEED's Office of Technology Commercialization, which works to:

- Manage all aspects of University IP from disclosure to license to financial returns.
- Drive the IP pipeline via outreach to faculty.
- Strengthen industry relations.
- Provide startup support to faculty founders.

In 2015, the IEED division merged the following offices and programs: Special Assistant to the Chancellor for Innovation and Entrepreneurship; technology transfer; several Kenan Institute entrepreneurship initiatives; and the KickStart Venture Services group, which was formerly a part of NC TraCS. At the time, UNC-Chapel Hill's tech transfer office was one of the most underfunded, understaffed and underperforming such offices. Today, IEED uses a federated model, having some activities centralized and the rest accomplished via a coordinated network of unit partners.

When creating the IEED division, the Chancellor set specific goals: 1) integrate the I&E programs and strengthen the innovation ecosystem; and 2) become a top performing commercialization office relative to Carolina's peers that yields greater impact for North Carolina and the world.

Achieving the impact desired depends on: 1) the amount and nature of the research, 2) deans and chairs encouraging faculty to translate research, 3) alignment of reward systems for faculty, 4) the expectations and desires of faculty to be translational when possible, 5) development of an I&E mindset and skillset among deans, chairs, faculty, students and staff, 6) efficient processes for sponsored research, management of conflicts of interest, tech transfer and legal services, 7) leadership talent and funding for de-risking ideas and for faculty startups, 8) availability and funding of essential spaces and programs, especially for life science faculty startups, 9) strong relationships with industry and other external partners, and 10) funding for the ecosystem from the University and donors.

IEED Services. Recognizing that the majority of University-born ideas that become innovations will not follow the technology transfer route, a significant role for IEED is to offer a wide range of services that help faculty, staff and students make an impact via other means. The percent of ideas that become innovations via non-technology transfer routes to those that go through tech transfer is at least 80/20 and, most likely, 90/10. IEED facilitates the journey of all important ideas into practical application — regardless of whether the University owns the IP, whether the generator of the idea is faculty, staff, or students, or whether there is a venture connected to it. We support three methods of translation:

- 1. **Use research to stimulate action** that shapes society and the economy.
- 2. **Launch innovators into the world** who can apply entrepreneurial thinking and action throughout their lives.
- 3. Create social and commercial enterprises that bring new ideas into reality.

For more detail on these methods, see the "Translational Methods" section of the Appendix.

It is essential that an adequate budget be allocated to protect intellectual property, operate the IEED division and hire the appropriate number of people with the required type of translation experience, including commercialization expertise.

Alignment with UNC System. Our work directly aligns with several of the strategic priorities set forth by the University of North Carolina System as stated in its strategic plan, *Higher Expectations*, Economic Impact and Community Engagement Section, p. 28. In particular, the priorities that relate to research productivity and the commercialization of technologies (Goal 8) and the strengthening of North Carolina communities (Goal 9) align strongly with the mission of IEED. For more detail, see the "Alignment with UNC System" section in the Appendix.

Alignment with UNC-Chapel Hill's Blueprint for Next Strategic Framework. This framework directly aligns with the System's plan. The two pillars – Of the Public, For the Public and Innovation Made Fundamental – support various System goals. Our office supports both pillars.

There is an expectation that the University will help improve the human condition and provide a happier, more prosperous life for all through the translation of ideas into practical applications. The great trust

bestowed upon us by the citizens of North Carolina, the federal government, and other partners requires us to be vigilant and act with a sense of urgency to address the most serious issues facing humanity today and tomorrow. This translation is not confined to bringing solely technical solutions. It takes into account the full experience of being human and our broader needs. This strategic plan guides us in moving promising ideas toward their ultimate purpose: making the greatest human and economic impact possible for the people of North Carolina and beyond.

VISION, MISSION AND VALUES

Vision

With a special focus on urgent challenges, innovators and innovations at Carolina, consistently put important ideas to use for the public good.

Mission

Ensure that Carolina is a place where innovators thrive.

Values

Seek to be transformational Bold Excellence Be a model for all others to follow

Responsibility Do what is right Service Put others first Relationships **Build trust**

Cross boundaries and be inclusive Diverse Leverage Maximize resources inside/outside

Find a better way Improvement

STRATEGIC INITIATIVES

STRATEGIC INITIATIVE 1: INNOVATION ECOSYSTEMS

Strengthen dynamic ecosystems of innovation and entrepreneurship to expand impact. Set direction and lead the pan-University innovation ecosystem – the Innovate Carolina Network – with attention to maximizing its relationship with the broader innovation ecosystem in the Town of Chapel Hill, Orange County, the Triangle Region and the State of North Carolina.

Environmental Scan – Innovation Ecosystems

Universities across the country recognize that to maximize ROI on intellectual property and talent preparedness, and to harness the knowledge of faculty and students into solutions for the world, it is essential to develop a vibrant, well-integrated and well-resourced ecosystem. The Innovate Carolina Network, which is UNC-Chapel Hill's University-wide innovation ecosystem, is growing in size and quality. The implementation of the Innovation Roadmap achieved exceptional results as talented people needed new services that were championed at the highest levels of leadership and strengthened by innovation activity. The Innovation Roadmap pointed out gaps to be closed. We need to work closely with the members of the Innovate Carolina Network on campus and the Innovate Carolina Global Network to close gaps and strengthen and sustain the ecosystem.

Maintaining productivity and growth of the University ecosystem is an ongoing process that has reached a critical point. The programs within the Innovate Carolina Network are succeeding due to the collaborative spirit of the Carolina community and dedication of the individuals leading them. More people are participating and trend lines are positive. Donors supported these activities and are ready to support more. Now the larger possibilities beckon. Like an emerging company that has validated its business model, this network is ready for the work and investments that will move it to scale. Aligning resources and process to support the mission of innovation made fundamental has never been more critical. As the University embarks on implementing the new strategic framework and ramps up the capital campaign, it is time to solidify the innovation infrastructure, continue to learn from others, better engage strategic partners and dedicate the required resources. The University is poised for even greater impact. It is time to close remaining gaps, scale and sustain the work.

The University plays important roles in strengthening I&E ecosystems locally, regionally and in the state. Launch Chapel Hill, an accelerator run by a public-private partnership between the University, the Town, the County and donors, was the seed for the Chapel Hill I&E ecosystem. These partners are in strategic dialogue to design the local ecosystem and set about making Orange County a great place for entrepreneurs. It is well documented that the Triangle Region is a top entrepreneurial hotspot, and our University has played an important role in making that a reality. Our University has led key program collaborations among the top four universities, including the university-affiliated angel networks that now connect growth companies to accredited investors. The University has several outreach programs throughout the state to build I&E ecosystems in rural counties. There is more to be done especially outside the urban core of the Triangle.

OBJECTIVE 1.1 SET THE STRATEGIC DIRECTION FOR I&E IN SUPPORT OF THE GOALS ARTICULATED IN *HIGHER EXPECTATIONS* AND THE *BLUEPRINT FOR NEXT*

- **Action 1.1.1** Work with the Innovate Carolina Network and University senior leaders to create the strategic plan for I&E.
- **Action 1.1.2** Reconvene the Innovation Circle as a Chancellor priority and involve them in creating the strategic direction for I&E.
- **Action 1.1.3** Engage alumni and strategic partners from the Innovate Carolina Global Network in the strategic planning process.

OBJECTIVE 1.2 MAXIMIZE THE INNOVATE CAROLINA NETWORK

- **Action 1.2.1** Maximize the federated model of operations for the network. Exercise control over responsibilities delegated to our office, like technology transfer, work closely with units that are aggressive in pursuing translation and encourage those less engaged. Use incentives and rewards to encourage a highly engaged ecosystem membership.
- **Action 1.2.2** Advocate for closing gaps at the University that limit Carolina's ability to have maximum impact. The Innovation Roadmap identified the scarcity of engineering skills, too few multidisciplinary approaches to address grand challenges facing humanity, lack of maker spaces, lack of innovation spaces in general, and lack of a comprehensive approach to data. Further, there is a major gap in funding for IEED.
 - **Tactic 1.2.2.1** Champion existing engineering programs like environmental engineering and biomedical engineering; build applied physical sciences and BeAM.
 - **Tactic 1.2.2.2** Champion the expansion of the computer science department and the development of a comprehensive strategy for data, including graduating all students data literate.
 - **Tactic 1.2.2.3** Champion and help lead the planning for the convergence science building and institute. Create a detailed plan for how IEED will become an integral part of that initiative.
 - **Tactic 1.2.2.4** Work closely with the University's master plan group and create a sub-plan for innovation and entrepreneurship spaces.
- Action 1.2.3 Seek designation as an Innovation and Economic Prosperity University (IEP). This program was established by the Association of Public & Land-Grant Universities (APLU) (includes AAUs) "to recognize and celebrate institutions for their commitment to regional economic development through their work in economic engagement. Economic engagement holistically refers to University efforts that promote innovation and entrepreneurship, excellence in in technology transfer, leadership in talent and workforce development, establishing strong government-university-

industry partnerships, and fostering community and "place" development through public service, engagement and outreach. $^{\prime\prime}$ ¹

Based on our application and anticipated award, implement the strategy to support the designation.

Tactic 1.2.3.1 Educate the Innovate Carolina Network partners about APLU's CICEP and the IEP.

Tactic 1.2.3.2 Align partner resources around the proposed strategy, develop shared definitions of key impact measures using internal-to-UNC language and implement the strategy.

Tactic 1.2.3.3 Record and report metrics per Strategic Initiative 4.

OBJECTIVE 1.3 FULLY ENGAGE THE INNOVATE CAROLINA GLOBAL NETWORK

Action 1.3.1 Develop and implement a customized plan to fully engage the Innovate Carolina Global Network in the work of I&E.

Tactic 1.3.1.1 Target participants in programs like the Carolina Angel Network and the Adams Apprentice for broader inclusion in accelerating I&E and its impact.

Tactic 1.3.1.2 Implement a leading software solution for managing this Network.

OBJECTIVE 1.4 ALIGN THE UNIVERSITY'S RESOURCES AND PROCESSES WITH THE I&E VISION AND MISSION

Action 1.4.1 Align central administration, people, resources and processes to accelerate innovation at Carolina. Work with the Board of Trustees, the Chancellor, the cabinet, deans and faculty to ensure that innovation, entrepreneurship and economic development initiatives are:

- Top priorities for the University.
- Adequately staffed.
- Encouraged by recognition and rewards.
- Appropriately funded from budgets, grants and donors.
- Supported by policies such as conflict of interest, copyright and software, facility use agreements, and promotion and tenure that acknowledge that translation can be an extension of scholarly work.
- Expedited by the legal team.
- Placed in appropriate facilities on and near campus for offices and programs.

Action 1.4.2 Harness needed resources by working closely with University Development on behalf of the Innovate Carolina Network.

¹ APLU Commission on Innovation, Competitiveness and Economic Prosperity (CICEP)

OBJECTIVE 1.5 SERVE AS A CATALYST AND LEADER IN BUILDING STRONG I&E ECOSYSTEMS

Action 1.5.1 Strengthen the local I&E ecosystem by working with the Town of Chapel Hill, Orange County Commissioners, entrepreneurs, landlords, nonprofits, other business owners and investors.

Action 1.5.2 Strengthen the regional and state I&E ecosystems by working with other universities, governments, nonprofits, businesses and investors.

STRATEGIC INITIATIVE 2: EDUCATION

Prepare students with the I&E mindset and skillset so they will have the knowledge, networks, experience and confidence to seize opportunities and lead teams to deliver needed solutions.

Environmental Scan – Education

Of the Public, For the Public and Innovation Made Fundamental are the two pillars of the Blueprint for Next strategic framework. Making innovation fundamental requires that faculty, staff and students at Carolina develop their innovation capacity. Since 2010, more people are engaged in learning the I&E mindset and skillset through central services offered by IEED and by units. Yet, too few students and faculty are being reached. The Kenan-Flagler Business School was one of the earliest champions of entrepreneurship, starting in 1987. In FY18, Dean Doug Shackelford elevated entrepreneurship research, teaching and outreach to a dean-level priority. The Shuford Program in Entrepreneurship received an \$18 million grant in May 2017, which enabled it to hire new staff and begin a major expansion in order to reach additional students. The program is also revamping its curriculum. There are only a few options for graduate students to learn the I&E mindset and skillset resulting from a lack of a clear strategy for reaching them. Learning this mindset and skillset is critical to preparing students with qualities that will help them thrive as part of tomorrow's workforce: initiative-taking, risk-taking, cross-functionality, applied technology, data analytics expertise and presentation skills. The same is true of our faculty. There are a few excellent programs that need to be taken to scale and others added.

OBJECTIVE 2.1 PREPARE STUDENTS WITH THE I&E MINDSET AND SKILLSET

- **Action 2.1.1** Assist I&E faculty with the development of a pan-University integrated I&E curriculum that meets the guidelines of the New Learning Imperative.
- **Action 2.1.2** Teach the I&E mindset and skillset to significantly more undergraduate students by working with partners in the Innovate Carolina Network.
- **Action 2.1.3** Create a comprehensive strategy to teach the I&E mindset and skillset to more graduate students.
- **Action 2.1.4** Create a comprehensive strategy to teach the I&E mindset and skillset to more post-doctoral students.

OBJECTIVE 2.2 PREPARE FACULTY AND STAFF WITH THE I&E MINDSET AND SKILLSET

Action 2.2.1 Continue the Chancellor's Faculty Entrepreneurship Workshop and expand its reach. Provide follow-on support to attendees.

Action 2.2.2 Develop the *Pathways-to-Impact* Academy, a blended online learning platform initially designed for faculty and then expanded for student and alumni audiences.

Action 2.2.3 Partner with existing faculty enrichment programs, such as those offered by IAH and the Center for Faculty Excellence, and add I&E educational programs.

Action 2.2.4 Serve as a resource for program leads in the units as they work with their faculty to develop the I&E mindset and skillset.

OBJECTIVE 2.3 PARTNER WITH INDUSTRY TO PREPARE THE FUTURE WORKFORCE

Action 2.3.1 Create experiential learning opportunities through fellowships, internships, externships and apprenticeships.

STRATEGIC INITIATIVE 3: TRANSLATION

Enable the expedient translation of unique and valuable ideas into innovations that benefit the citizens of North Carolina and the world.

Environmental Scan – Translation

The vision is that UNC-Chapel Hill's robust translational activity delivers significant practical applications to the citizens of North Carolina and beyond. As discussed in the preamble, the University created a new vice chancellor position in February 2015 as the framework for higher performance in translation. Translation happens via multiple paths. For example, often research itself stimulates action and makes an impact in the broader world, whether or not a commercial path is ultimately pursued. For example, the work of Aziz Sancar and his lab in the medical school in mapping the various DNA repair mechanisms for the entire human genome provides information that could spark action in other scientists and health care experts who are working to uncover new ways to deal with cancers, aging and other conditions. In other instances, social innovation represents the method of impact. This is the case with Patrick Mateer, a former student who, while at Carolina, founded Seal the Seasons as an organization focused on food sustainability. It works with local farmers to harvest and flash freeze produce at the peak of freshness and deliver it to consumers in grocery chains. And there are many instances in which IEED helps faculty take University-owned IP to the commercial market. This is the case with Ribometrix, a thriving startup company co-founded by chemistry professor Kevin Weeks that is working on small-molecule drugs to target and change the behavior of disease-causing RNA. Given the diverse routes that ideas follow on their way toward making an impact, the role of IEED is multifaceted. In some instances, its role is to serve as a guide to faculty and students to help maximize the impact of their research or social innovation initiatives. In many other instances, IEED's Office of Technology Commercialization helps accelerate the

translation of important ideas into meaningful products, services and processes, while maximizing benefit to society and the University.

OBJECTIVE 3.1 STRENGTHEN SUPPORT FOR COMMERCIALIZATION

- **Action 3.1.1** Add highly qualified commercialization managers as needed and provide additional training to existing staff.
- Action 3.1.2 Continuously improve decision making processes, operational efficiencies and service.
- **Action 3.1.3** Work closely with all units, especially Pharmacy and Medicine, to coordinate with their translational efforts.
- **Action 3.1.4** Further enhance the KickStart program for faculty IP-based startups.
- **Action 3.1.5** Formulate and implement a strategy for industry engagement, working with Industry and Corporate Relations and the Office of the Vice Chancellor for Research.
- **Action 3.1.6** Develop the IP pipeline by finding technologies as early as possible in order to assess and develop them.
- **Action 3.1.7** Conduct robust evaluations of the patent landscape and market potential of IP portfolio technologies through our in-house research team.
- **Action 3.1.8** Develop, resource and staff a robust proof-of-concept capacity that includes a development fund.
- **Action 3.1.9** Strengthen and expand investment vehicles like the Carolina Angel Network and the Carolina Research Venture Fund.
- **Action 3.1.10** Develop a robust program to support student startups.

OBJECTIVE 3.2 ELEVATE SOCIAL INNOVATION AS A CROSS-CAMPUS PRIORITY

- **Action 3.2.1** Build on the Social Innovation Task Force Report to develop an operational plan for social innovation and community engagement as a cross-campus initiative.
 - **Tactic 3.2.1.1** Form advisory boards (external, faculty and student).
 - **Tactic 3.2.1.2** Form a senior leadership executive committee, including a tie to each dean.
 - **Tactic 3.2.1.3** Hire a full-time person to help lead the design and early-stage work of this initiative and engage current employees on this project.

OBJECTIVE 3.3 GUIDE PEOPLE THROUGH THE PROCESS OF TRANSLATING IDEAS INTO IMPACT VIA USING RESEARCH TO STIMULATE ACTION

Action 3.3.1 Develop a strategy for coaching faculty in addition to helping them learn via the blended online Pathways-to-Impact Academy.

Action 3.3.2 Develop a Carolina methodology for guiding ideas into impact outside of creating profit and/or nonprofit entities.

Action 3.3.3 Develop non-dilutive funding sources.

STRATEGIC INITIATIVE 4: ASSESSING, REPORTING AND ADAPTING

Be outcome driven and track, measure, evaluate, compare and report. Communicate with key constituents in Chapel Hill, the RTP region, North Carolina, industry, investors and the Innovate Carolina Global Network so they understand and support the work. Learn from the results and inform Implementation actions.

Environmental Scan – Assessing, Reporting and Adapting

A first step toward effective measurement of UNC-Chapel Hill's impact on the state was to track the economic output of University-affiliated startups. In 2013, the Special Assistant to the Chancellor worked with the research team at the Frank Hawkins Kenan Institute of Private Enterprise to create the Innovate Carolina Startups Database. This longitudinal database now tracks firms as far back as 1958. In 2016, the research team became part of IEED and has detailed information on more than 500 startups. The startups are coded in three categories. The first includes startups that spun out of UNC-Chapel Hill based on University intellectual property (IP/technology). The second includes those companies that benefited from the services provided by members of the Innovate Carolina Network (assisted). The final includes those that were started by people while at the University, or shortly after leaving, but received no University-assistance (independent). Since this is a dynamic database which changes daily, to avoid confusion the statistics on these firms are reported twice a year – in January and July. The 521 firms in the database founded between 1958 and January 2018 created 70,225 jobs and raised a total of \$13 billion during that period. Out of the 521 firms, 399 are still active. Of those still active, 336 are headquartered in North Carolina.

Two multinationals contributed significantly to these numbers and added additional economic benefit to the state by being headquartered here for many years. Quintiles Transnational was founded in 1982 by UNC-Chapel Hill Professor Dennis Gillings. In 2016, Quintiles underwent a \$17.6 billion merger with IMS Health, becoming QuintilesIMS. In 2017, the company adopted the new name of IQVIA. The second multinational, RTI International, was co-founded in 1958 by NC State, Duke and UNC-Chapel Hill.

Effective data gathering on entrepreneurship and startup activities has helped along numerous fronts – from the submission of data to ranking agencies to the information provided to leaders and decision

makers regarding the impact of their investment in I&E. Clearly the economic impact from UNC-Chapel Hill affiliated startups has been significant. By demonstrating this value, IEED has made it apparent that helping startups is an excellent return on the investment of time and money. Programs like KickStart Venture Services, StartUp-UNC (formerly Launching the Venture), the Executive MBA program, Launch Chapel Hill, the CUBE social venture initiative, Carolina Research Ventures Fund and the Carolina Angel Network have helped create more and stronger startups to fuel North Carolina's economy.

IEED also collects data on all aspects of I&E programs at Carolina. We are now able to quickly give reports to program leaders, report campus numbers to rankings groups, and understand the demographics of those being served on campus and those we have yet to reach. Other universities are interested in our approach and wish to license this system from us. We are in active conversations.

OBJECTIVE 4.1 MEASURE THE IMPACT OF INNOVATIONS AND INNOVATORS LAUNCHED AT CAROLINA

- **Action 4.1.1** Optimize the structure and process of the Innovate Carolina Startups Database to reduce the time and effort required for staff to maintain and operate the system.
- **Action 4.1.2** Continue the development of the secondary database, the Innovate Carolina Network Database, to track the innovation capacity of individuals, support daily management of Innovate Carolina Network programs and inform stakeholders.

OBJECTIVE 4.2 REPORT THE IMPACT IN NORTH CAROLINA AND BEYOND

- **Action 4.2.1** Integrate new tools for analytics and visual presentation of data to enable interactivity, mapping and time series presentation.
- Action 4.2.2 Integrate data and storytelling within the impact dashboard.
- **Action 4.2.3** Develop custom dashboard pages for administrators to enable direct access to specific metrics.

OBJECTIVE 4.3 ADAPT OUR APPROACHES BASED ON DATA

- **Action 4.3.1** Use collected, cleaned data to evaluate the effectiveness, breadth, gaps and needs of programs and participants.
- **Action 4.3.2** Inform the strategy of decision makers in North Carolina, citizens, alumni, funding agencies and partners through the use of data.
- **Action 4.3.3** Continue the environmental scan of influences across North Carolina and of other universities to interpret data and conclusions in context.

STRATEGIC INITIATIVE 5: COMMUNICATIONS

Create a rich and continual narrative about I&E at UNC-Chapel Hill that enhances awareness and engagement across key internal and external audiences and stakeholders. Use a diverse set of media channels to tell success stories of I&E initiatives, convey the human and economic impact of these initiatives and give University leaders a more robust outlet to help make innovation fundamental at Carolina and other institutions.

Environmental Scan – Communications

UNC faces challenges in communicating its economic engagement and innovation work to key stakeholder groups on and off campus. Our work around engagement, impact measurement and strategic partnerships has been framed through the lens of addressing this need. Since 2010, the Innovation Roadmap effort has included executing a communications strategy through initiatives that demonstrate the University's commitment to innovating for the public good. This strategy reinforces Carolina's reputation for fostering creativity and discovery, encourages involvement from diverse stakeholders and illustrates the University's impact on the community, state, nation and world. IEED harnessed and helped expand the Innovate Carolina Network in order to champion and communicate innovation at UNC. The collective work of the University was branded as Innovate Carolina to represent the campus-wide efforts of people and programs dedicated to making Carolina a place where innovators thrive. IEED's Office of Innovate Carolina serves as a catalyst and communications hub for a wide range of on- and off-campus activities under the Innovate Carolina brand. The vision behind Carolina's innovation work is communicated regularly to key audiences by multiple means, including online platforms (e.g. web, e-newsletters, social media, a new podcast series) and presentations to groups locally, statewide and nationally. Innovate.unc.edu is a central hub for the University's innovation news, as well as a one-stop portal for information about relevant programs and events.

OBJECTIVE 5.1 CELEBRATE SUCCESSES AND EXPAND AWARENESS

- **Action 5.1.1** Enhance and manage the Innovate Carolina website as a central navigational hub where UNC innovators and entrepreneurs can find the resources they need; managing other specific program websites.
- **Action 5.1.2** Publish original and curated feature stories that highlight Carolina innovations and innovators and encourage others to engage in the Innovate Carolina Network.
- **Action 5.1.3** Use outbound communications to promote I&E resources and successes: e-newsletters, targeted emails, social media, podcasts, video, advertising, printed collateral, event channels, etc.
- **Action 5.1.4** Make presentations at on-campus forums, meetings and events that educate faculty, students and staff about the Innovate Carolina Network and how to take advantage of I&E resources.
- **Action 5.1.5** Host live events, such as the annual UNC Innovation Showcase, that convene and connect innovators and entrepreneurs from across campus and the region.

Action 5.1.6 Strengthen Innovate Carolina's brand identity as the University-wide initiative for I&E through a campus brand awareness survey and the development of a unifying creation direction.

Action 5.1.7 Gain recognition of the University's I&E work through awards and rankings programs.

OBJECTIVE 5.2 TELL THE STORY OF INNOVATION AT CAROLINA AND ITS IMPACT

Action 5.2.1 Publish original and curated feature stories that highlight the economic and social value of I&E at UNC-Chapel Hill to North Carolina government leaders, industry, alumni and prospective donors.

Action 5.2.2 Collaborate with UNC Media Relations to gain external media coverage of UNC I&E stories.

Action 5.2.3 Deliver in-person presentations and speeches to key stakeholders in the UNC System, local communities, state government, businesses and industry organizations.

Action 5.2.4 Highlight the successes of UNC alumni innovators and entrepreneurs across channels.

Action 5.2.5 Use targeted digital, print and personal communications to explain the value of key I&E programs to donors and describe the financial support required for their success.

OBJECTIVE 5.3 POSITION CAROLINA AS A LEADER IN MAKING INNOVATION FUNDAMENTAL IN HIGHER EDUCATION

Action 5.3.1 Serve as a resource to help departments make innovation fundamental.

Action 5.3.2 Speak and present at external conferences and association events to share Carolina's innovation methodology.

Action 5.3.3 Publish "how-to" content and editorials via UNC and external channels aimed at higher education.

STRATEGIC INITIATIVE 6: OUR PEOPLE AND ORGANIZATION

Perform as an outstanding team that has the capacity, commitment and trust to get results, while exemplifying the values stated in this document. Provide the type of operational support needed for the staff to reach the strategic goals explained in this document as well as the support they need for their careers.

Environmental Scan – People and Organization

IEED was created in February 2015 and started officially July 1, 2015 (FY16), several offices and programs were merged into the new IEED division. It has taken two years to merge the people and work into one office and have a more synergistic approach to accomplishing the goals. It is important to make sure

every employee understands how his or her work contributes to the larger unit goals, University and System objectives, and help them develop personal goals. It is also essential to staff IEED appropriately so that the team has the skillsets needed to reach our goals.

We have been working toward having:

- Talented, valued-based, experienced people who will work as a team.
- Commercialization managers who have the capacity and commitment to achieve the vision.
- Startup experts.
- People with connections to industry to help the team better use strategic partnerships toward the goals.
- People who can develop the pipeline and lead proof-of-concept programs.
- People to handle innovation support.
- People to market our IP.
- People to handle HR, finance, IT and operations.

OBJECTIVE 6.1 HIRE AND DEVELOP THE RIGHT PEOPLE

Action 6.1.1 For employees, set goals that are challenging and achievable. Monitor work and personal goals. Take advantage of the University's performance management system as an important way to engage with staff.

Action 6.1.2 Continue focusing on strengthening interpersonal effectiveness for all employees and increasing their performance as members of the team.

Action 6.1.3 Hire a business officer and a development officer.

OBJECTIVE 6.2 CREATE AN ENVIRONMENT THAT FOSTERS TEAM PERFORMANCE TO REACH STRETCH GOALS

- Action 6.2.1 Institute a management method to keep all employees focused on achieving their goals.
- **Action 6.2.2** Provide coaching in team performance.
- Action 6.2.3 Secure an appropriate budget and fundraise for special projects.
 - **Tactic 6.2.3.1** Work with Provost Blouin to continue increasing the budget over the 5-year rampup period (FY16-FY20) to have the resources needed to reach the goals set for this office by the Board of Trustees, Chancellor and Provost.
 - **Tactic 6.2.3.2** Work with University Development to raise funds for projects.
- **Action 6.2.4** Occupy appropriate space that enhances our work.

MEASURE PROGRESS AND IMPACT

OUTCOMES

By 2020, UNC-Chapel Hill will demonstrate its expanded social and economic value through direct engagement with the state and the world in the following ways:

- Graduate Innovative Students (or I-Shaped Students) who have:
 - 1. Gained deep disciplinary knowledge in their area(s) of study as well as a broad liberal arts education, including data literacy (vertical line in the I);
 - 2. Expanded emotional intelligence, which includes global citizenry and cultural competence (top line in the I)
 - 3. An I&E mindset and skillset (bottom line in the I). These students will be educated in research-based practices in helping solve pressing problems for social and economic gain.
- Faculty who wish to translate their research into practical benefit for the public good will be carefully guided toward the optimal outcome for society and revenue to the University. This includes having knowledgeable guides, needed resources, translational facilities, and the supportive policies and rewards systems to support this activity.

About Objectives: Since 84 percent of licenses for UNC IP are focused on human life science, the following objectives are based on annual averages over a 10-year period. As a point of reference, the average time for getting a drug to market is 12 years and the costs are approximately \$2 billion dollars. Please see the attached historical chart of performance indicators at the end of this document.

OBJECTIVES

Performance goals for the next 10 years compared to the previous 10 years:

For the 10-year period 2016-2025 (calendar), annual averages will exceed those of the previous 10-year period 2006-2015 (calendar) in the following amounts:

- Quality disclosures will double.
- Quality licenses will double.
- Revenues from licensed IP will more than triple.
- Copyright licenses will increase by 50 percent.
- Carolina will attract and retain the most talented and applied faculty, staff and students in the world because of our success in discovery, experimentation and innovation including the creation of new successful businesses.
- Faculty awareness will increase from 34 percent of respondents in a survey saying they are aware to 70 percent awareness.

APPENDIX

Alignment with UNC System

The work of IEED aligns directly with several of the strategic priorities set forth by the **University of North Carolina System** as stated in its strategic plan, *Higher Expectations*, Economic Impact and Community Engagement Section, p. 28.

While our research efforts are impressive, some of our institutions lag behind peer institutions when it comes to sponsored research. The University could also be more proactive in translating its research into practical applications. On both research and development (R&D) commercialization and high-tech business activity, North Carolina ranks below the national average, with private sector investment in and commercialization of R&D lagging behind other states. North Carolina's ability to capitalize on university research is key to the continued economic success of the state. Fundamental research is of critical importance to the future of the state, but so are the new innovations that emerge from that research... Our universities are extremely important to their surrounding communities, but too often the benefits of the UNC system are simply not visible to North Carolinians outside of our cities and many college towns. Our institutions could do more to focus their public service efforts on communities and regions in need, including those that may be far from the college gate.

Goal 8: Research Productivity Goal: Strive for continuous improvement in research and scholarship, collaboration with UNC institutions and outside entities, and **effective commercialization of technologies**.

Metric: By 2021-22, increase combined revenue from research and development sponsored program awards and licensing income by \$275 million.

Goal 9: Community Engagement Goal: Increase investment of time and resources in strengthening North Carolina communities.

Metric: By Fall 2018, in consultation with UNC General Administration, the University's constituent institutions will each *create an implementation plan* (including focus area, proposed activities, metrics, and targets) to assist a North Carolina community or region in need... (including, but not limited to Tier 1 or Tier 2 counties or any local education authority that qualifies for a UNC lab school).

Discussion: Throughout the fall of 2016, stakeholders cautioned us that some of the most important research that UNC institutions conduct may not have commercial applications. Regardless of whether a particular research program is intended for commercial applications, fundamental research has a positive impact on the quality of life in North Carolina and across the world. This goal and metric allow for different institutions to contribute in different ways. Some

institutions will focus more of their energy on translating research into commercial applications, while others will focus on expanding their externally-funded research. Both are critical to the future of the state.

Translational Methods

- 1. Use research to stimulate action. Groundbreaking research and the new knowledge it provides can be applied in many ways to shape society and the economy for the better. The focus here is on influencing institutions and individuals toward improved rules, practices and behaviors, rather than on creating a new entity. Public health is a classic example. Today, we in North Carolina enjoy much longer average life spans and face fewer risks of debilitating diseases than our forebears did in the early or even mid-1900s, thanks in large part to decades of public health programs and education campaigns based on new knowledge. And UNC-Chapel Hill continues to be at the heart of such efforts, both locally and globally. Faculty throughout the University communicate research knowledge in ways that influence public and corporate policies, inform people's thinking on key issues and advance the state of practice in their fields. Through artistic and social endeavors, other faculty, students and staff provoke new insights into human endeavors.
- 2. Launch innovators into the world. Graduates armed with technical knowledge, grounded in the liberal arts, and inspired to action by example are powerful ongoing contributors to impact. Carolina is preparing students to apply entrepreneurial thinking and action throughout their lives. Some will actually start new ventures, while others will bring their ideas and skills to existing firms—where they are needed to keep the state's major industries cutting-edge—and still others will inject fresh thinking into fields such as education and government. Many parties across the University have been working to identify and cultivate new skills that students will need in order to add value in a fast-changing world. For example, the Faculty Working Group on Data Studies recommended that all students graduate data literate, and steps are being taken to that end.
- 3. Create social and commercial enterprises. New enterprises are valuable for several reasons. Frequently they are the best means of bringing new ideas into reality. When they succeed, they become platforms for further innovation and impact, and those that grow substantially are key factors in job creation and economic prosperity. Our goal is not only to encourage more startups of all kinds, but also to increase their chances for success and growth. This involves a host of measures across and beyond the University, because faculty members commercializing research, entrepreneurs launching non-IP-based companies, and social entrepreneurs each have distinct sets of needs. The new enterprises that generate the most impact in years ahead may come from anywhere in the University community.