



OPEN SESSION

FOR INFORMATION ONLY

(No formal action is requested at this time)

1. Review Goals for the Committee
Lowry Caudill, UNC Board of Trustees
2. Overview of the Chancellor's Innovation Summit
Dana McMahan, Professor of the Practice, UNC School of Media & Journalism
Judith Cone, Interim Vice Chancellor for Commercialization & Economic Development
3. [Goals for the new Office of the Vice Chancellor for Commercialization and Economic Development](#) (Attachment A)
Judith Cone, Interim Vice Chancellor for Commercialization & Economic Development
4. [Reese News Lab Educational Program and Startups](#)
John Clark, Lecturer and Director of the Reese News Lab, School of Media and Journalism

*Some of the business to be conducted is authorized by the N.C. Open Meetings Law to be conducted in closed session.

COMMITTEE MEMBERS

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Administrative Liaison:

Judith Cone, Interim Vice Chancellor for Commercialization and Economic Development

CAROLINA VALUE

Technology Commercialization Strategic Initiative

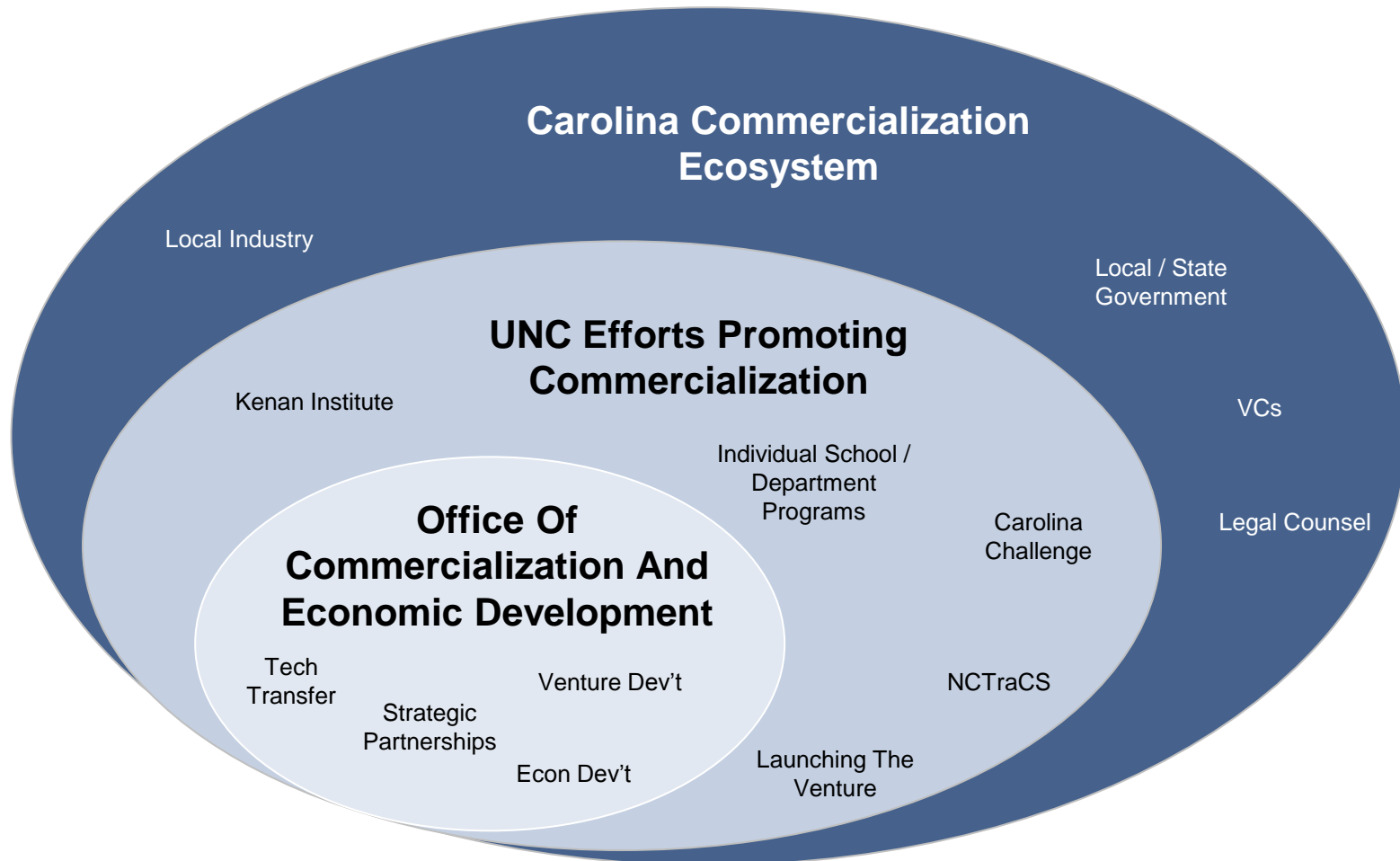
Presented to UNC-Chapel Hill Board of Trustees
Committee on Commercialization & Economic Development
September 29, 2015

Judith Cone

Carolina Value – Tech Transfer Section

Huron Consulting

Various Efforts On Campus Affecting Technology Commercialization



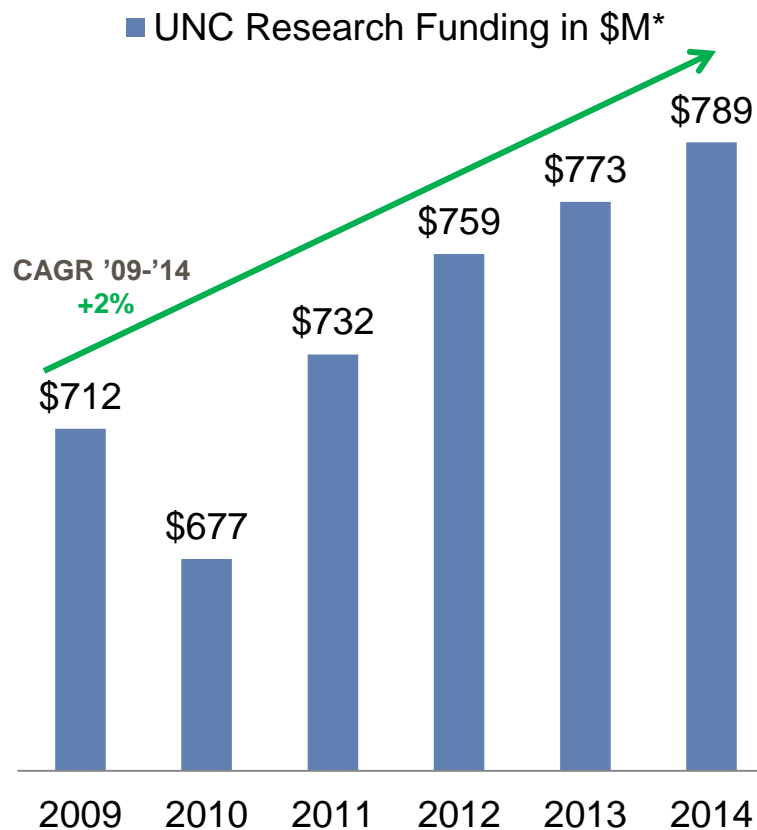
*Focus on the **Office of Commercialization and Economic Development (OCED)**, but also touch on broader campus and ecosystem efforts*

Where Are We Today?

Situation Analysis

UNC Is Among The Top Funded Public Research Universities In The Country

UNC Research Funding FY09–FY14



*Does not include funding from the American Recovery and Reinvestment Act of 2009 Page 5/45

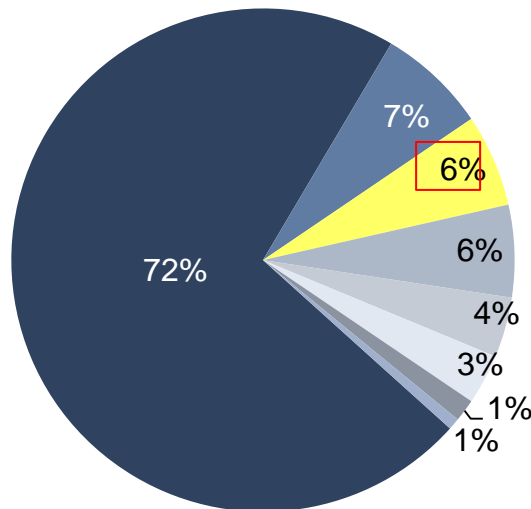
UNC Research Funding Wins

UNC has gained recognition among peers for the following funding types:

- **1st** in the South for federal funding
- **8th** nationally for federal funding
- **9th** in total R&D expenditures
- **9th** in federal obligations for fellowships, traineeships and training grants

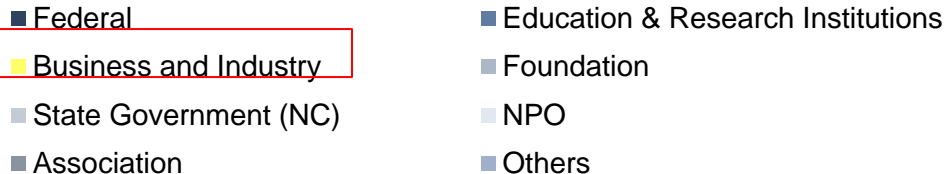
Industry Funding Represents 6% of Overall Research Funding

Funding Sources For FY 14



UNC Shows Particular Success With Federal Funding Sources

- As evidenced from the graph of funding sources, Business and Industry represents only 6%, presenting a gap in sources supporting **more applied technology** in the later stage development
- Within the Federal funding category, NIH represents ~3/4 of the funds – these grants are typically awarded for discovery of **basic science concepts** early in the development process



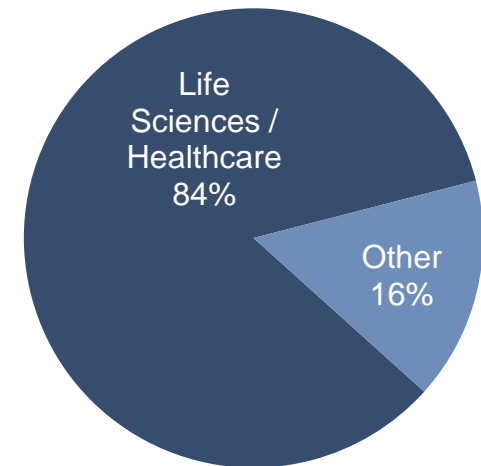
The Vast Majority Of UNC Licensees Are Life Sciences Companies, Typically With Long Development Cycles

UNC Licensing Strategy

- With 866 Licenses granted to date and 45 new licenses generated in FY14, UNC is actively commercializing technologies
- **Life sciences technologies remain the mainstay** of UNC's commercial portfolio
 - Licensees include research tools, pharma, biotech, device and diagnostics companies
- Life sciences companies have inherently **long development cycles** with limited near-term revenue potential and a high degree of risk on milestone payments

UNC Licensees Are Predominantly Life Sciences

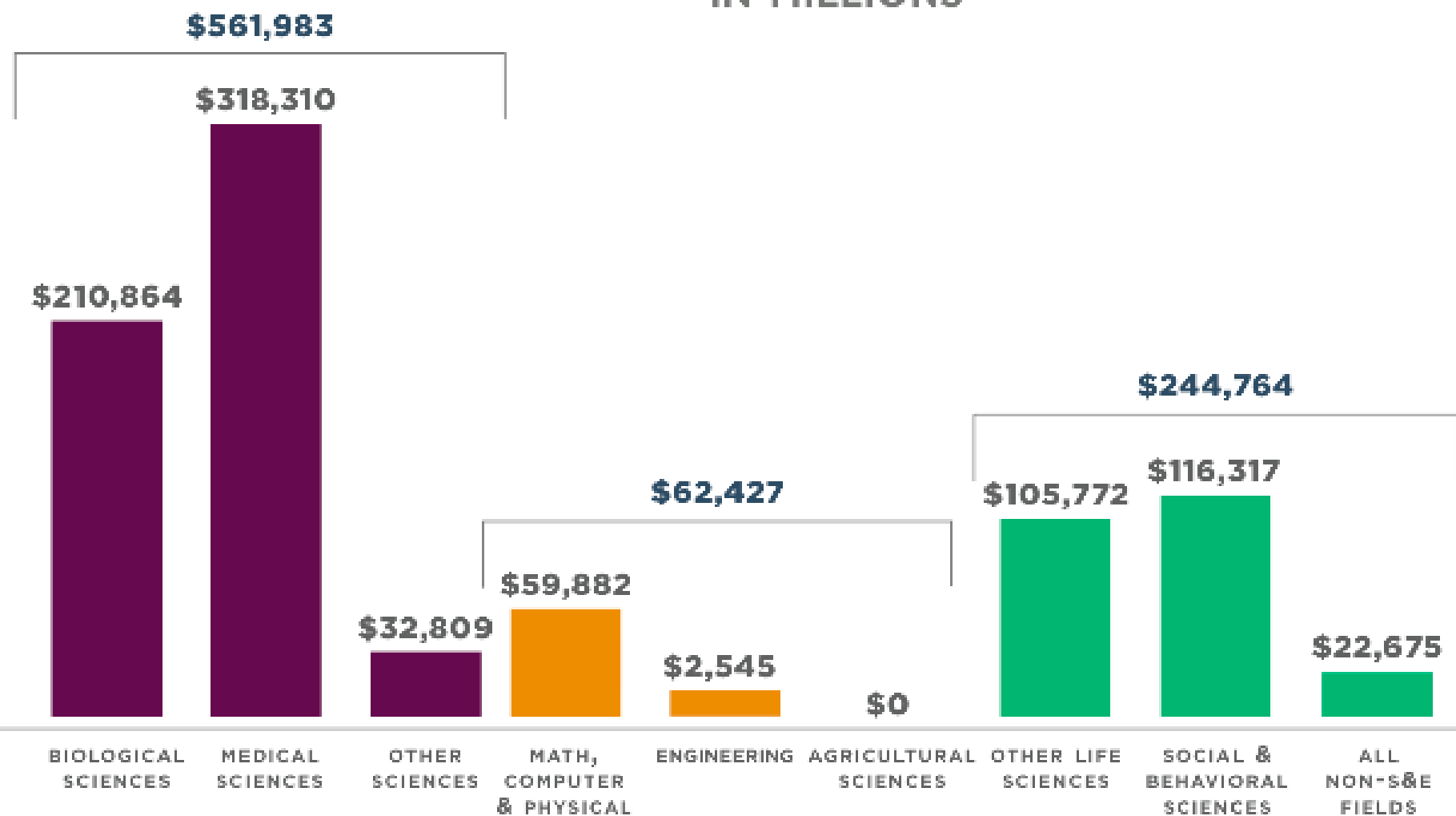
Count of unique licensees FY13-FY15



- Notable companies in “other” include Samsung Electronics, Co., Ltd., Evisions, Inc., and General Electric (GE)

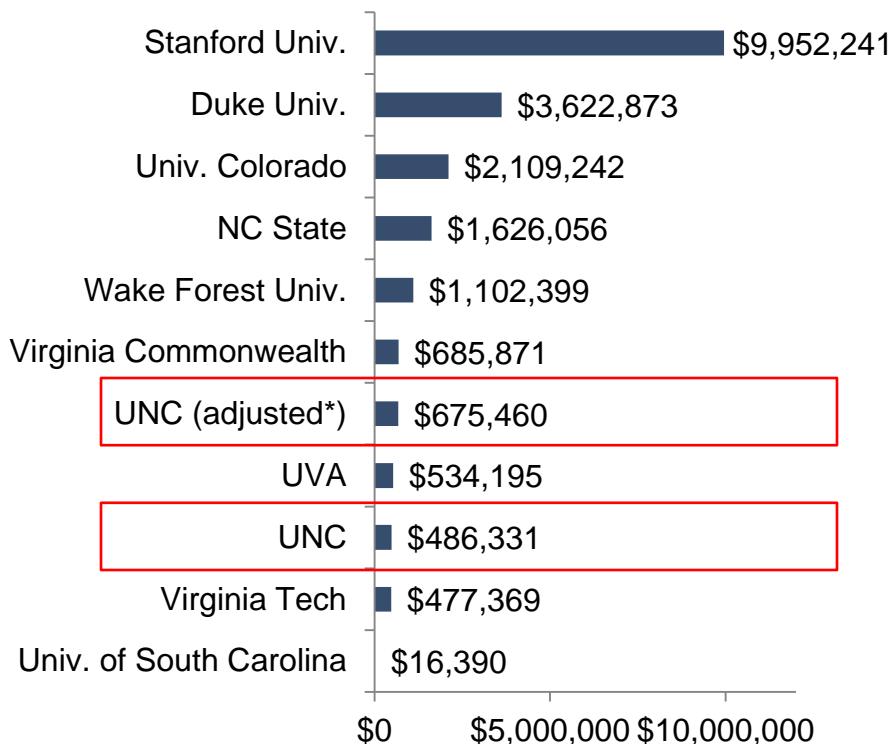
UNC IP POTENTIAL IS CENTERED IN BIO-MEDICAL WITH GROWTH IN APPLIED SCIENCE AND BIO-ENGINEERING

IN MILLIONS



Licensing Revenue Comparisons Suggest Room For Improvement In Capturing Value From UNC Research

2013 Licensing Revenue per \$100M Research Funding



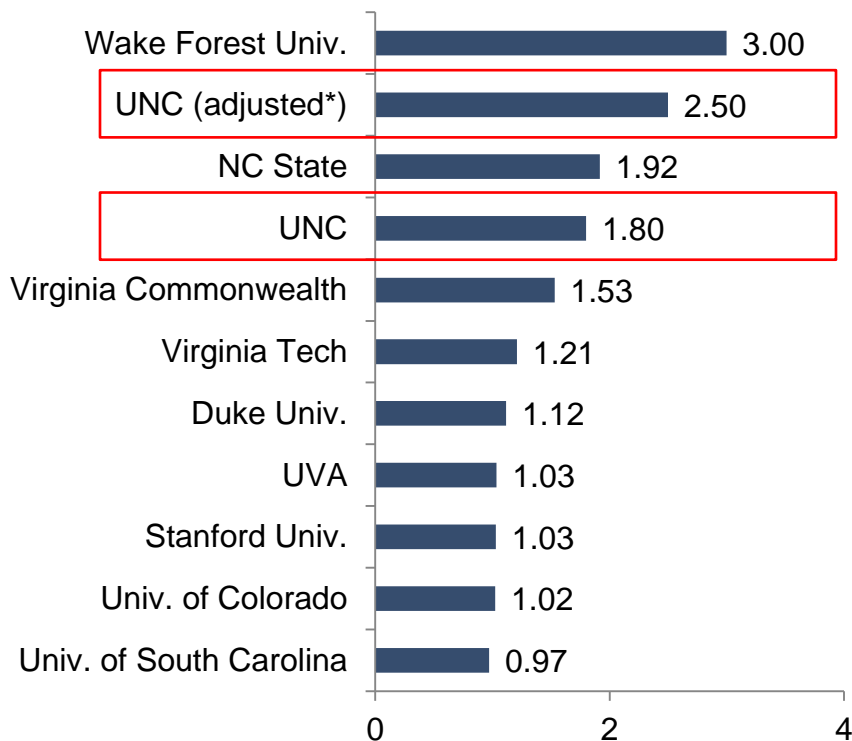
Licensing Revenue Benchmarking Commentary

- Using both regional and national benchmarks, UNC performance appears to be **lower than peers**
- While cross university comparisons are difficult, it is clear that **gaps remain in translating the available research funding into commercial value**
- A combination of factors underlie this gap, including lack of adequate resourcing, early stage technology portfolio, limited access to seed/VC funding, no engineering school on campus, etc.
 - Our goal today is to **identify areas we can make an impact on** in the near / mid-term.

* Adjusted to account for funding supporting research that is not traditionally patentable; see notes for more details
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Startup Formation At UNC Has Been Strong And May Have Room For Improvement

2013 Start-Ups Formed per \$100M Research Funding



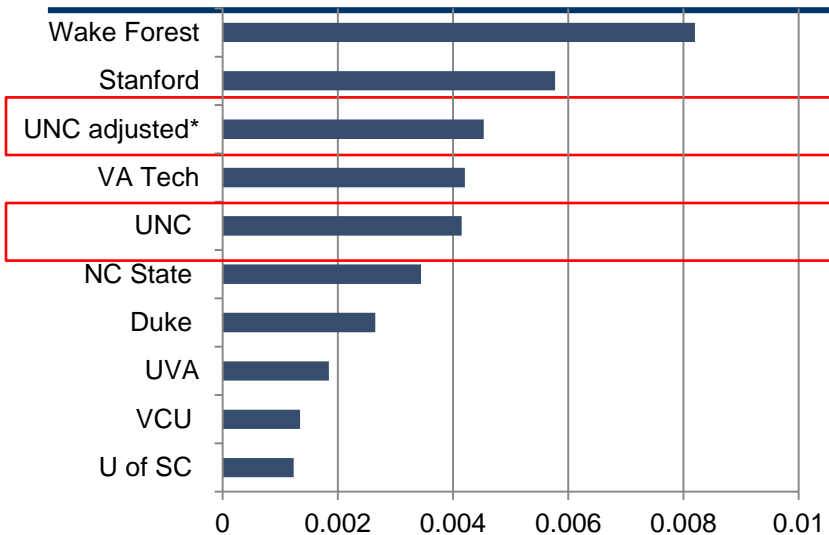
Start-Up Formation Benchmarking Commentary

- With a steady rise over the past 5+ years, UNC outperforms many of its peers in startup formation
- However, **key questions remain**, including:
 - What has been the ROI from startup activity?
 - Are some UNC technologies better suited for industry licensing? How should these decisions be made?
 - What is the appropriate allocation of effort between venture formation and strategic partnerships?

* Adjusted to account for funding supporting research that is not traditionally patentable; see notes for more details
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When Normalized By Full Time Faculty Volume, Startup Activity At UNC Still Shows Strong Performance

Startups Normalized by Faculty Size * 2013



Source: Association of University Technology Managers (AUTM). 2013. The AUTM Licensing Survey, Fiscal Year 2013. Norwalk, CT: AUTM, Inc
<http://oira.unc.edu/facts-and-figures/faculty-and-staff-data/>
<http://ucomm.stanford.edu/cds/2014>
<https://www.vt.edu/about/facts-figures-2013.pdf>
<http://admissions.wfu.edu/facts>
<https://www.ncsu.edu/about/stats-and-strengths/>
http://www.virginia.edu/Facts/Glance_Faculty.html
<https://sc.edu/admissions/learn/fastfacts.html>
<http://newsoffice.duke.edu/all-about-duke/quick-facts-about-duke>
<http://www.vcu.edu/about/facts-and-rankings.html>
<http://uncnews.unc.edu/carolina-quick-facts>

Key Insights And Questions Around Startup Per Faculty Capita Metric

- The graph to the left represents number of startups per full-time faculty capita
- While UNC startup volume appears high when evaluated in aggregate, when normalized by full-time faculty volume, UNC shows weaker performance
- Key questions around this metric might include:
 - How do we engage more faculty to commercialize?
 - How proactive are other schools in engaging faculty?
 - Who are other stakeholders on campus that might contribute to faculty participation

*Faculty size includes full-time faculty only ; University of Colorado excluded from metric as it compares the entire CU system

*Adjusted UNC limited to faculty only in Arts and Sciences, Business, Health Affairs, and VC Research

UNC Historical Budget Limited -- But Moving Towards End Goal Of Innovation with Additional Resources

While UNC research budget for *Ideation* is robust, historically limited Tech Transfer resources constrained *Translation* and *Innovation*:

Ideation

People create new knowledge, research.

- New Knowledge
- Ideas
- Discoveries
- New Processes & Methods

Translation

People turn knowledge into practical use, implement.

- Traditional Pathways
- Teach, Publish, Present
- Change The Field, Inform, Service
- Persuade, Social Entrepreneurship License/Startups
- Blockbuster Growth Entrepreneurship

Innovation

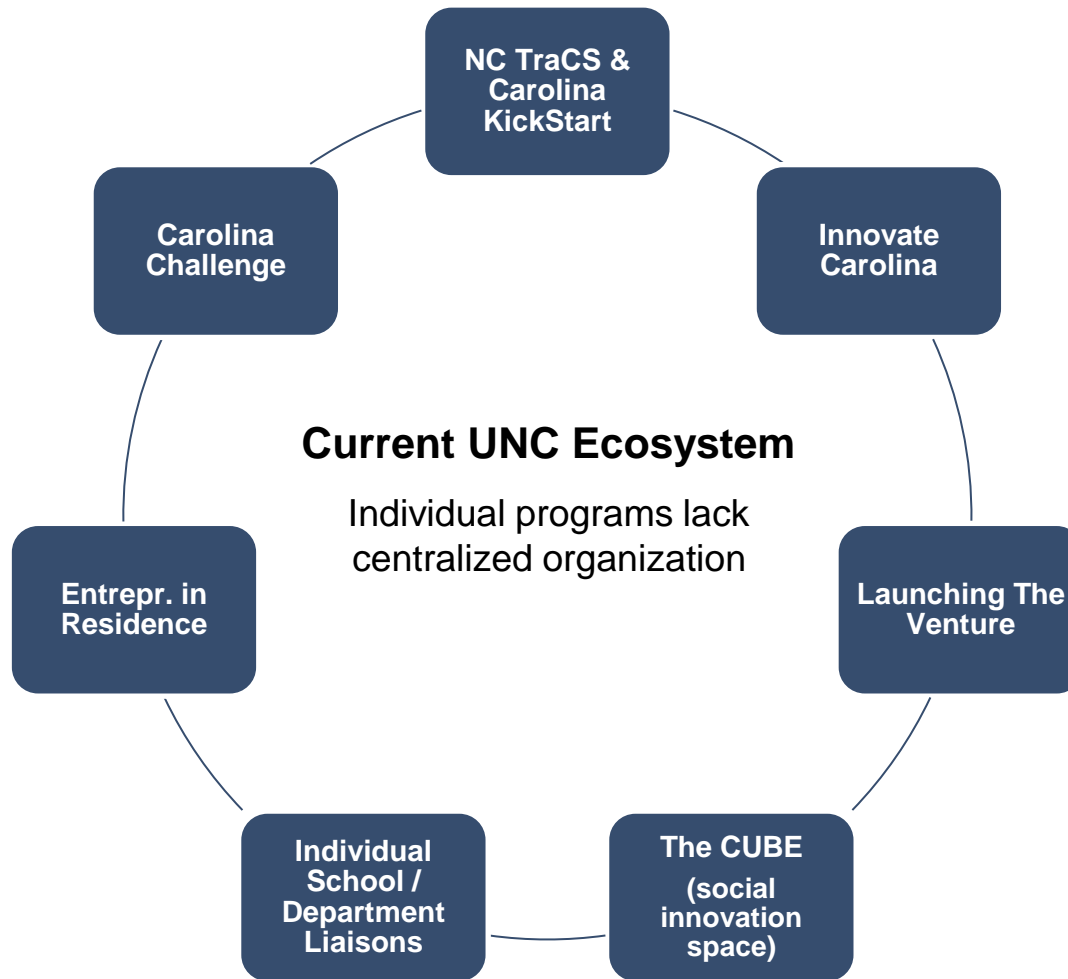
People contribute new, better solutions to society.

- Outcomes
- Positive, Profound IMPACT (Academic-Social-Economic)

- Current budget for Research: \$800M
- Tech Transfer was \$1.2M for personnel; \$600K patent budget
- New VC for Commercialization & Economic Development – TBD but will be adequately funded

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While Resources Are Available To Researchers, Historically Ecosystem Lacked Centralization

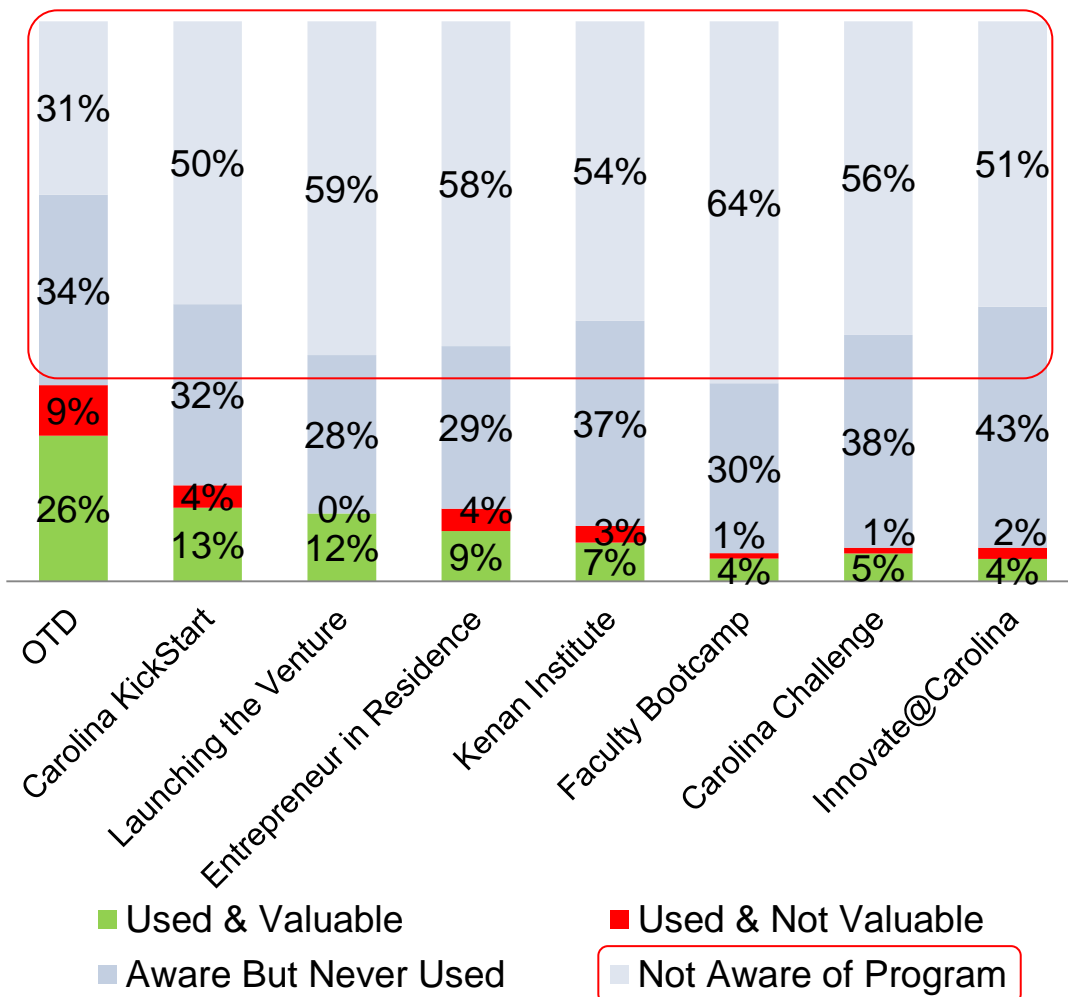


- When asked about barriers to entrepreneurship, 35% of faculty cited lack of support from the university
- Additionally, when asked about commercialization resources available through UNC such as Carolina KickStart, a majority of faculty lacked familiarity with the program
- Given the number of programs and resources, coordination and integration is needed to manage these programs and raise awareness. New Office of Commercialization is centralized a collaborative network.

Source: <http://research.unc.edu/offices/otd/>
<http://innovate.unc.edu/site/wp-content/uploads/2014/10/Commercialization-Task-Force-2013.pdf>

Faculty Survey Reveals Lack Of Awareness And Engagement With Existing Programs

Commercialization Programming: Researcher Survey Results



- 2013 Survey of 732 UNC faculty and 162 post-docs reveals low utilization rates of existing programs
- Outside of OTD, **over half of UNC researchers were unaware of commercialization programs**
- OTD was utilized by ~1/3 of respondents
- Increased communication regarding existing faculty resources could dramatically increase commercialization at UNC

In Summary, While UNC Has Core Strengths In Commercialization, Gaps Still Remain

UNC Key Strengths

- UNC excels in grant awards and is well funded for basic scientific inquiry
- Startup formation has been particularly successful in the UNC environment
- Several robust programs that support faculty commercialization exist already

UNC Key Gaps Identified 2014

- Lack of coordination across departments and schools is underscored by decentralized organization
- FTE resources are limited relative to other TTOs of similar funding
- Support -- both expertise and funding -- for applied research is available but may be inadequate relative to UNC's size
- Ties to industry are opportunistic and unfocused at the campus level

Where Are We Going?

Strategy Development

OECD Mission, Opportunities, And Outcomes For The Future

Mission

- What is the mission of the OECD?
- How does our mission fit with Carolina as a whole?
- What are the key activities we will perform in the future?

Opportunities

- What are opportunities that align with our mission?
- What are key tactics we will use to achieve our goals and mission?

Outcomes

- What outcomes are we working towards?

Key Goals For Commercialization & Economic Development

New office of Commercialization & Economic Development established in February 2015 to accomplish key goals for UNC innovation ecosystem:

Invest

- Allocate university budget to develop new OCED

High Level Strategy

- Determine strategy based on aligned vision and mission of OCED

Build Team

- Hire resources, train, and implement workflows based on organization needs

Set Specific Targets

- Agree upon internal and external metrics to gauge success

Perform, Measure, Adjust

- Drive value and create feedback loop for continual improvement

Office Of Commercialization and Economic Development: Mission And Vision

Mission

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

Be the place where innovators thrive.

Commercialization Mission Statement

From Invention to Impact: Provide maximum benefit to the people of North Carolina and beyond by optimizing the University's systems for practical innovation, and by licensing university intellectual property promptly to those who will most effectively and appropriately propagate it into use for society.

Economic Development Mission Statement

Grow North Carolina's economy and competitiveness by engaging key faculty/staff experts and students to develop and implement a strategy to address economic development drivers in our State.

Carolina To-Do List: UNC Is Committed To Helping Solve The World's Urgent Challenges

Mission

Carolina's To-Do List



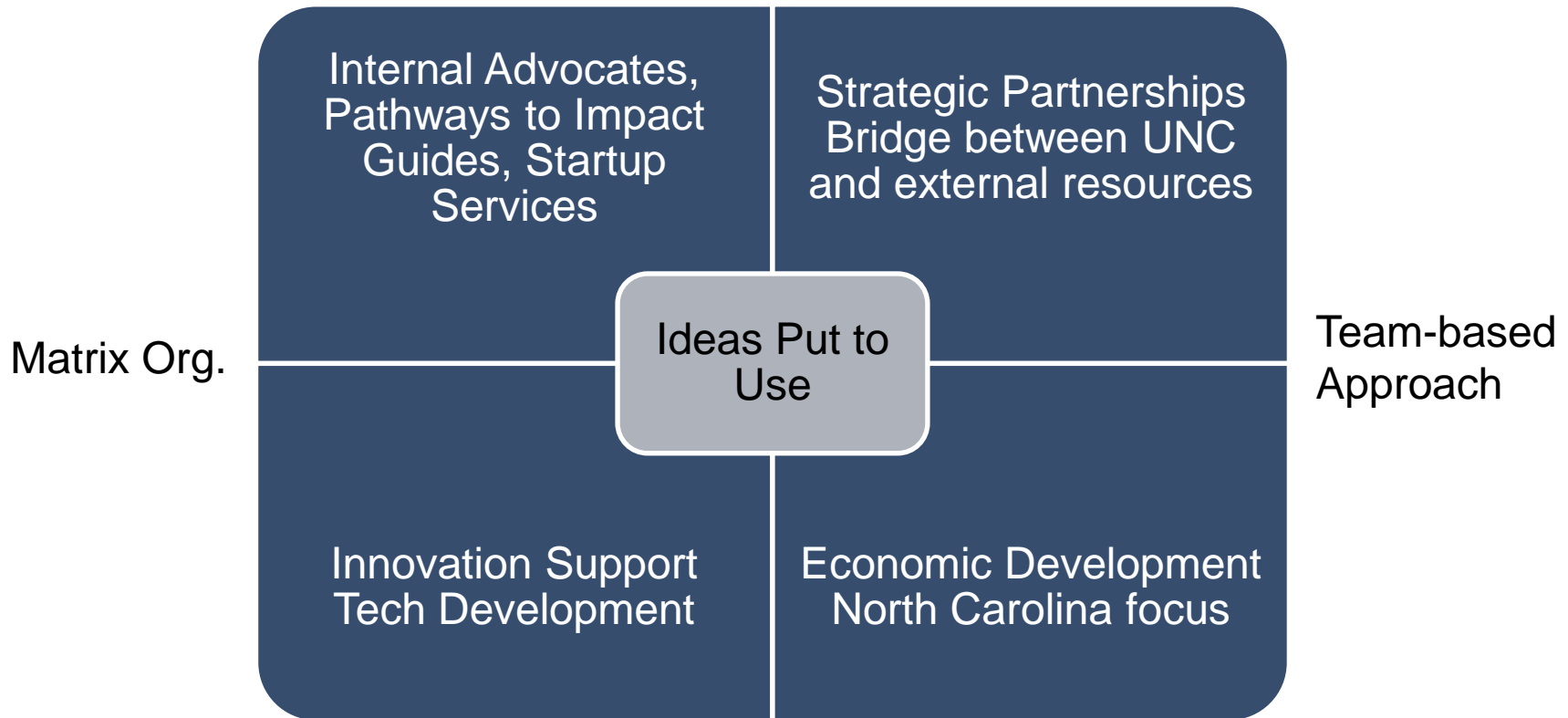
THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

- Cure diseases, and get those cures to all the people who need them.
- Find, invent, gain adoption of clean energy solutions.
- Feed seven billion people.
- Inspire and prepare students in our schools.
- Promote widespread prosperity.
- Describe the world, and replace conflict with understanding

OCED Has Many Paths Towards Achieving Our Mission

Opportunities

UNC HEALTH CARE

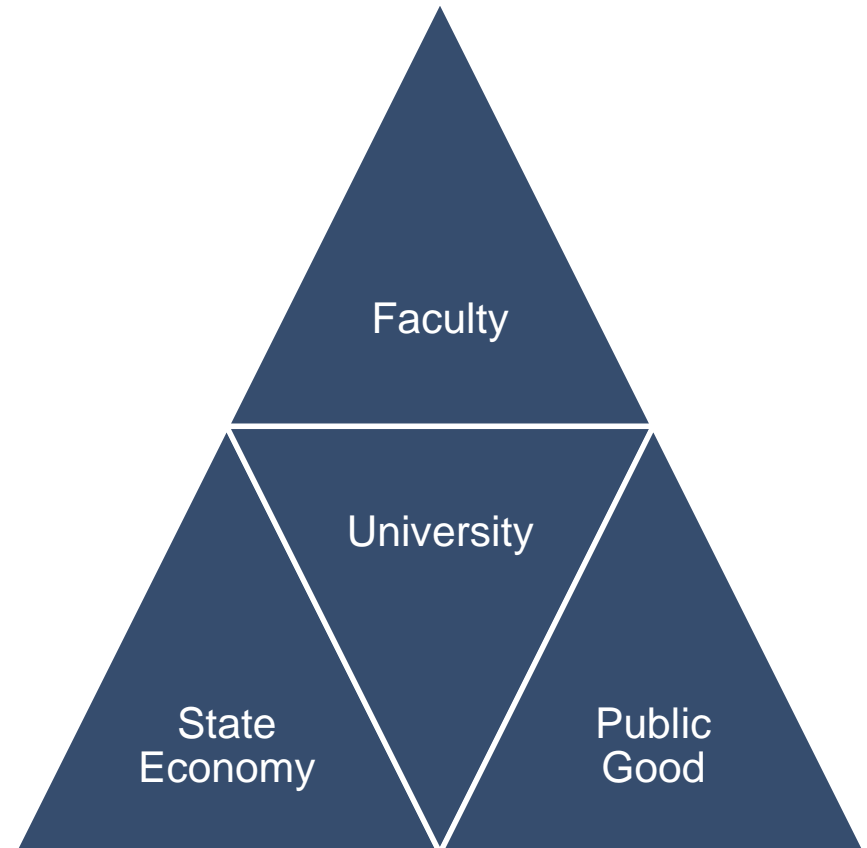


PARTNERS: Chancellor's I&E Office · Offices of Research / Development/Communication · Carolina KickStart · 4D · Kenan Institute · CES · Unit I&E & Econ Dev Liaisons · Blackstone

OECD Serves Several Customer Groups That Lead To Different Commercialization Efforts

Customer Focus

- OCED serves several customer groups in its operations including faculty with potentially commercialize-able inventions
- Creating economic benefit in NC and developing public good is the foundation of OCED's activities



Goals And Desired Outcomes Of OCED

Goals

- Accelerate the translation of important ideas into practical use for the public good
- Build a highly functional team of experts that can guide the Carolina community through the complexities of moving ideas to impact
- Develop a comprehensive campus-wide methodology for moving ideas forward effectively in a timely manner that includes and leverages existing programs
- Develop translational capacity for UNC Chapel Hill – people, processes, and resources



Outcomes

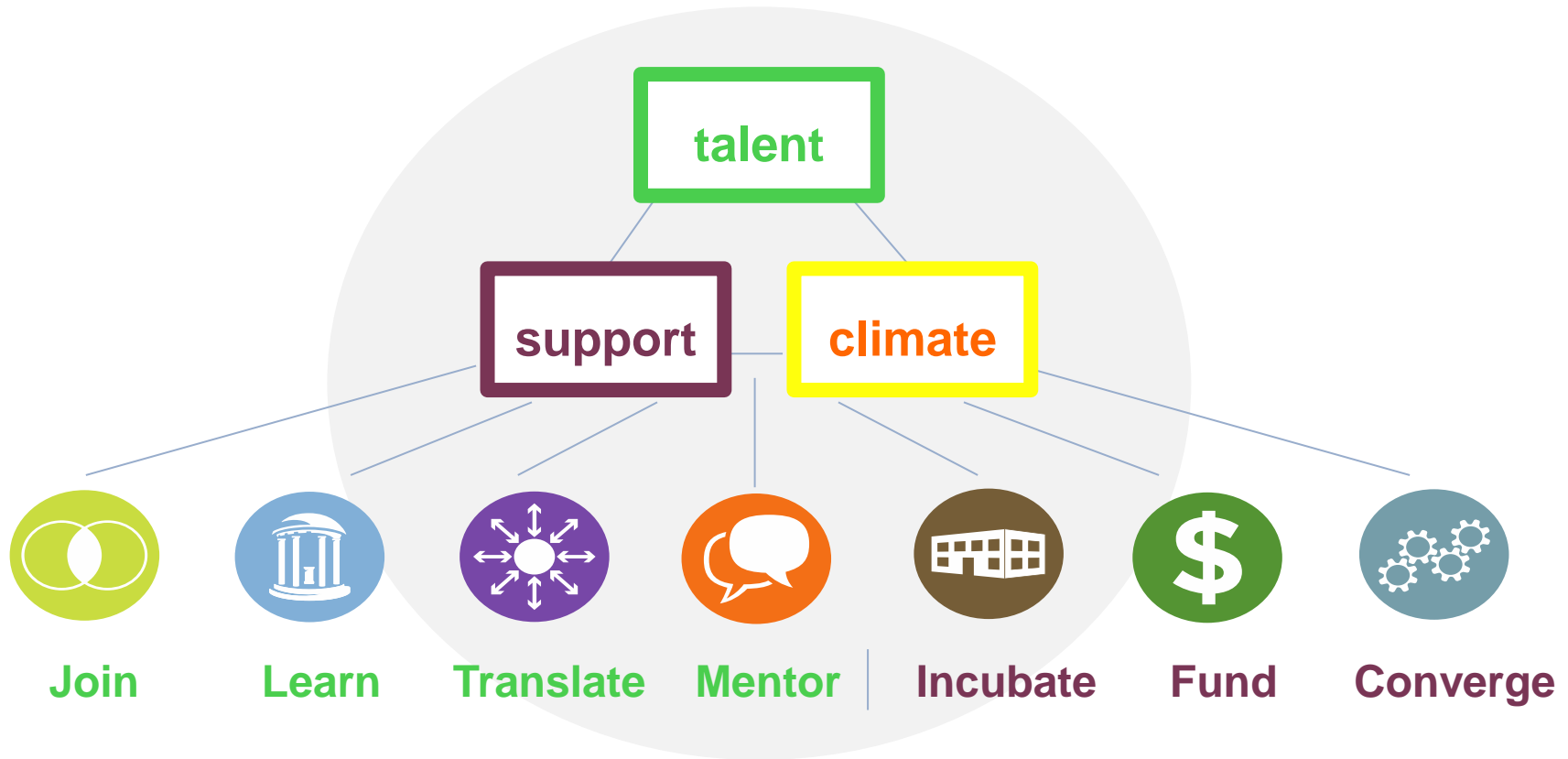
- The world is significantly improved because of Carolina's entrepreneurially minded faculty, students, and staff and their innovations
- Carolina attracts the most talented and applied faculty and students in the world because of our dedication to discovery, experimentation, and innovation
- Ideas and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

Enhanced Coordination Across UNC Ecosystem Will Create Climate And Support For Innovation

Outcomes

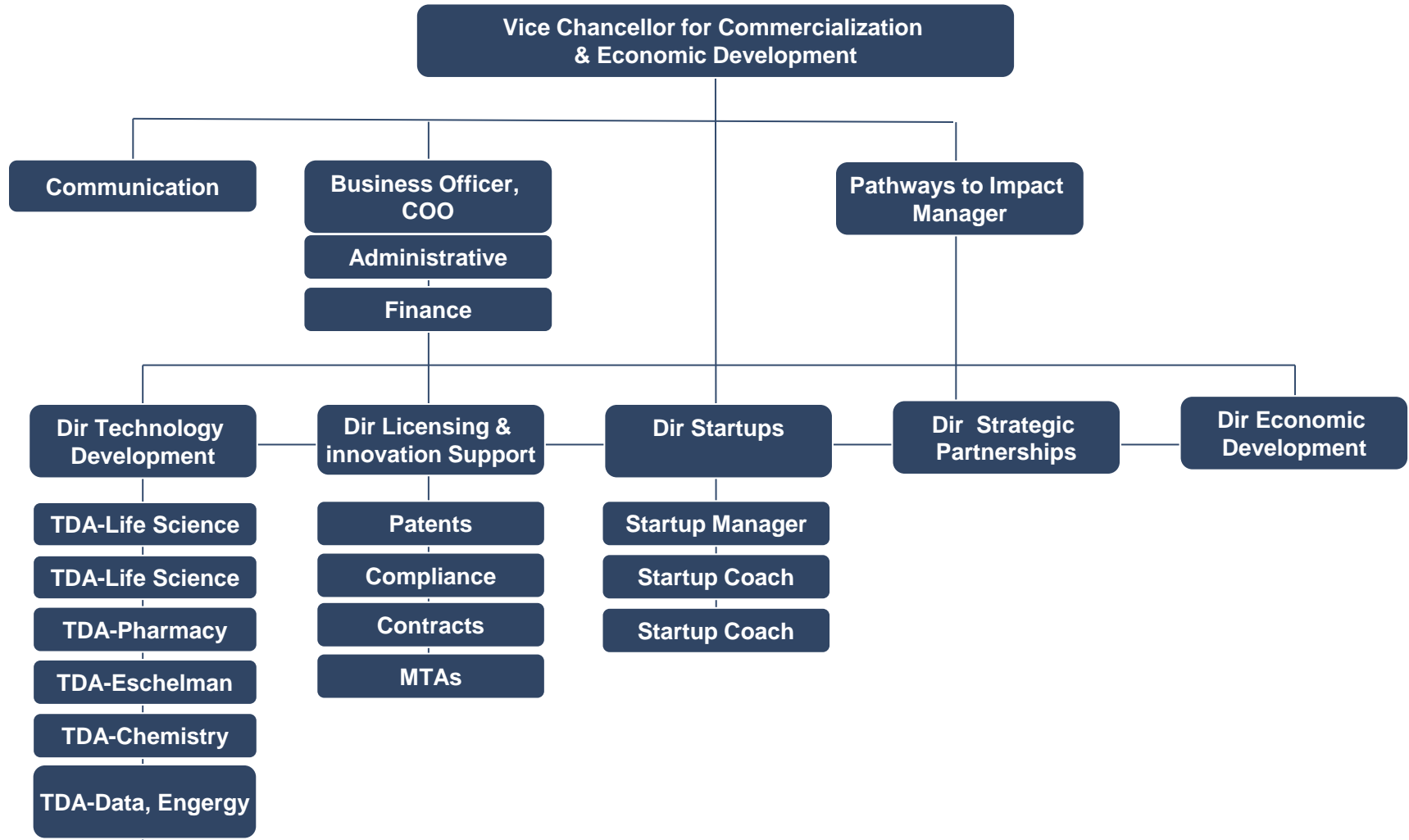


Ecosystem



Align & Communicate

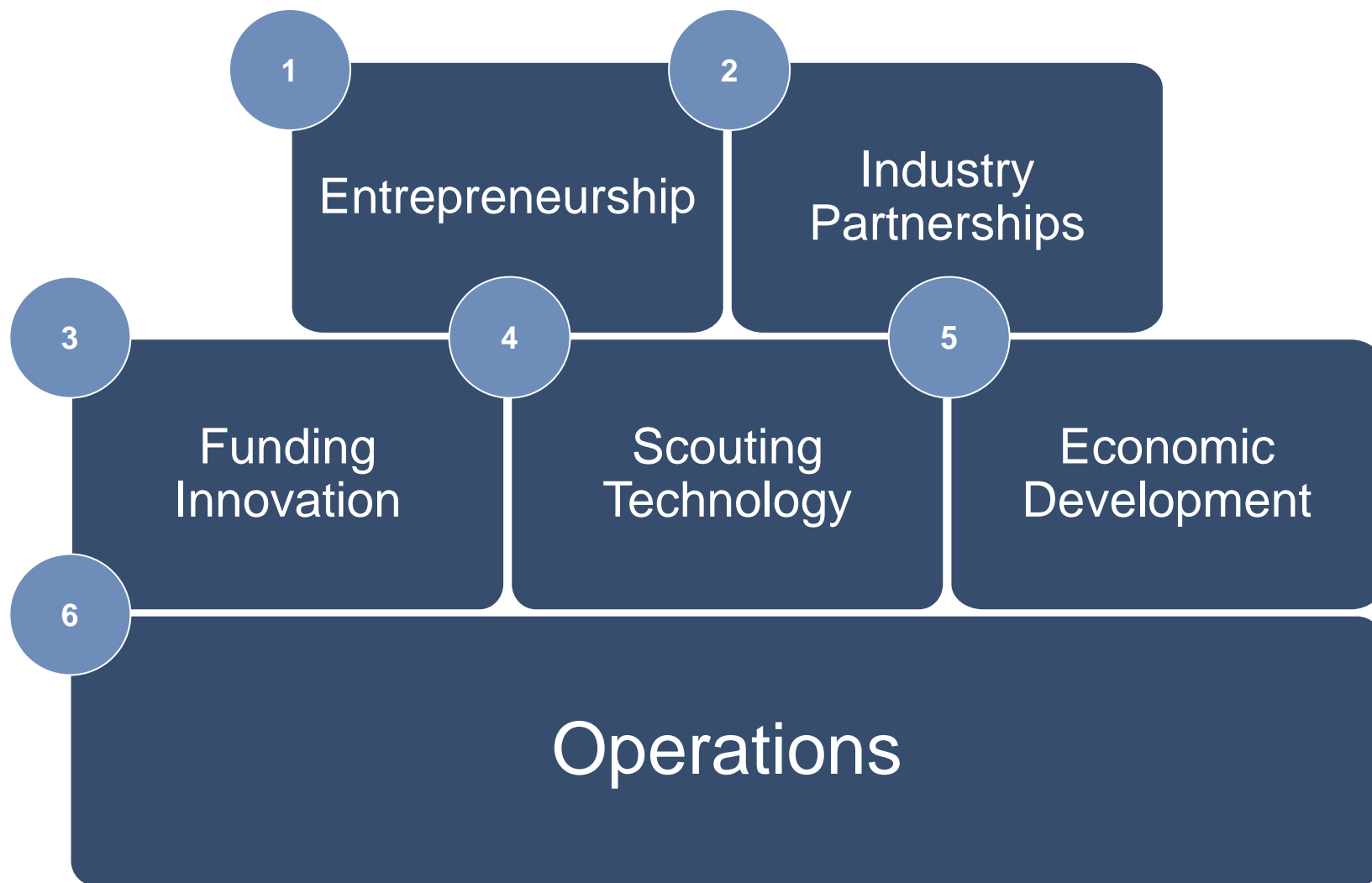
UNC Future State OCED Organization Chart



How Are We Going To Get There?

Tactical Planning

Six Core Areas Have Been Identified To Focus Efforts For Strategic Planning



Provide More Incentives, Opportunities, And Support For Faculty To Commercialize

Key Objective	Tactic(s) & Description
Develop enhanced translation incubator/accelerator and create an alumni-derived evergreen fund	<ul style="list-style-type: none"> Evaluate potential sources of funding from different Carolina syndicates such as alumni groups Identify fundraising viability across different source types (industry, government, etc.) Benchmark against top performing universities
Offer student/post-doc outreach educational experience	<ul style="list-style-type: none"> Develop education around grant writing and commercialization for students and post-docs Offer relevant degree programs such as a Masters in Business Entrepreneurship (MBE)
Create structured leave/sabbatical for faculty to pursue startups	<ul style="list-style-type: none"> Offer specific "sabbatical" grants or fellowships to enable extended leave for commercialization efforts
Encourage and facilitate quality disclosures of university innovations*	<ul style="list-style-type: none"> Expand budget for patenting and copyright registration
Incentivize successful pull-through of IP beyond disclosure and research phases	<ul style="list-style-type: none"> Create alignment within UNC re: entrepreneurship contribution as a factor for consideration in promotion decisions Establish credit voucher system through departments to fund commercialization efforts (patents, business case development, etc.)

Identify UNC Strengths To Form Area-Focused Industry Partnerships*

Industry Partnerships

Key Objective	Tactic(s) & Description
Identify market trends/needs	<ul style="list-style-type: none"> • Create industry advisory panels
Develop brand strategy to market UNC's core strengths	<ul style="list-style-type: none"> • Identify internal UNC strengths • Increase marketing budget via donors, OCED, and licensing revenue
Leverage alumni network more effectively	<ul style="list-style-type: none"> • Engage with VC and industry in a coordinated manner view alumni network • Identify funds for new initiatives via alumni
Engage consistently and in-person with industry	<ul style="list-style-type: none"> • Develop the Strategic Partnerships unit within OCED* • Create budget for conference participation and domestic / international travel for industry outreach activities
Shift culture to encourage industry engagement among faculty	<ul style="list-style-type: none"> • Train faculty on benefits of consulting with industry and commercializing research • Create tools for managing compliant interactions, including COI management and Sunshine Act Review

*Work with Offices of the VCs of Research and Development

Spur Cultural Shift Within UNC To Align Views On Commercialization

Key Objective	Tactic(s) & Description
Increase available funds for translation	<ul style="list-style-type: none"> • Create stage-gated funding based on achievement of milestones • Design programs with industry to enable matching funds for translational projects (potentially with first right of refusal for industry partner) • Leverage Strategic Partnerships team to drive industry to pool money focused on specific market challenges or enabling technologies • Operationalize the Carolina Research Venture Fund and provide Technology Development Grants and Carolina KickStart grants*
Address issues around unused or underused funds	<ul style="list-style-type: none"> • Form strategic partnerships with a CRO to better translate drug/device innovations • Develop a functional incubator space • Establish penalties for not using funds • Improve invoicing to coincide with completed work • Establish check-in policies with respected scientific advisors to increase faculty accountability • Create a bonus for on time completion of research

Spur Cultural Shift Within UNC To Align Views On Commercialization

Key Objective	Tactic(s) & Description
Engage every UNC faculty member to raise awareness of benefits of commercialization	<ul style="list-style-type: none"> • Attend faculty meetings • Embed interns in schools / departments • Create Fellows Program similar in scope to the School of Pharmacy's program • Create a mandatory faculty training on the benefits of commercialization • Hire a commercialization ambassador
Shift culture to support commercialization	<ul style="list-style-type: none"> • Add commercialization to the job descriptions of Associate Deans • Direct faculty to create video pitches about their research (see School of Pharmacy – Fred Talks) • Educate dept on benefits of commercialization
Educate scouts on market needs	<ul style="list-style-type: none"> • Translate industry focus areas to UNC dept/areas • Ensure staff technology scouts are educated on market needs to properly identify potentially disruptive technologies

Stimulate Local And Regional Development Through UNC Startups And University Coalition

Key Objective	Tactic(s) & Description
Stimulate local and regional economic development*	<ul style="list-style-type: none">• License to startups based on UNC innovations* and track economic impact (jobs, invested capital, buildings, etc.)• Continue to work with the 4-university coalition on the Blackstone Entrepreneurs Program (Central, Duke, State, UNC)*

Economic development was not a core focus of initial strategic planning efforts but will be addressed in subsequent planning efforts in more depth

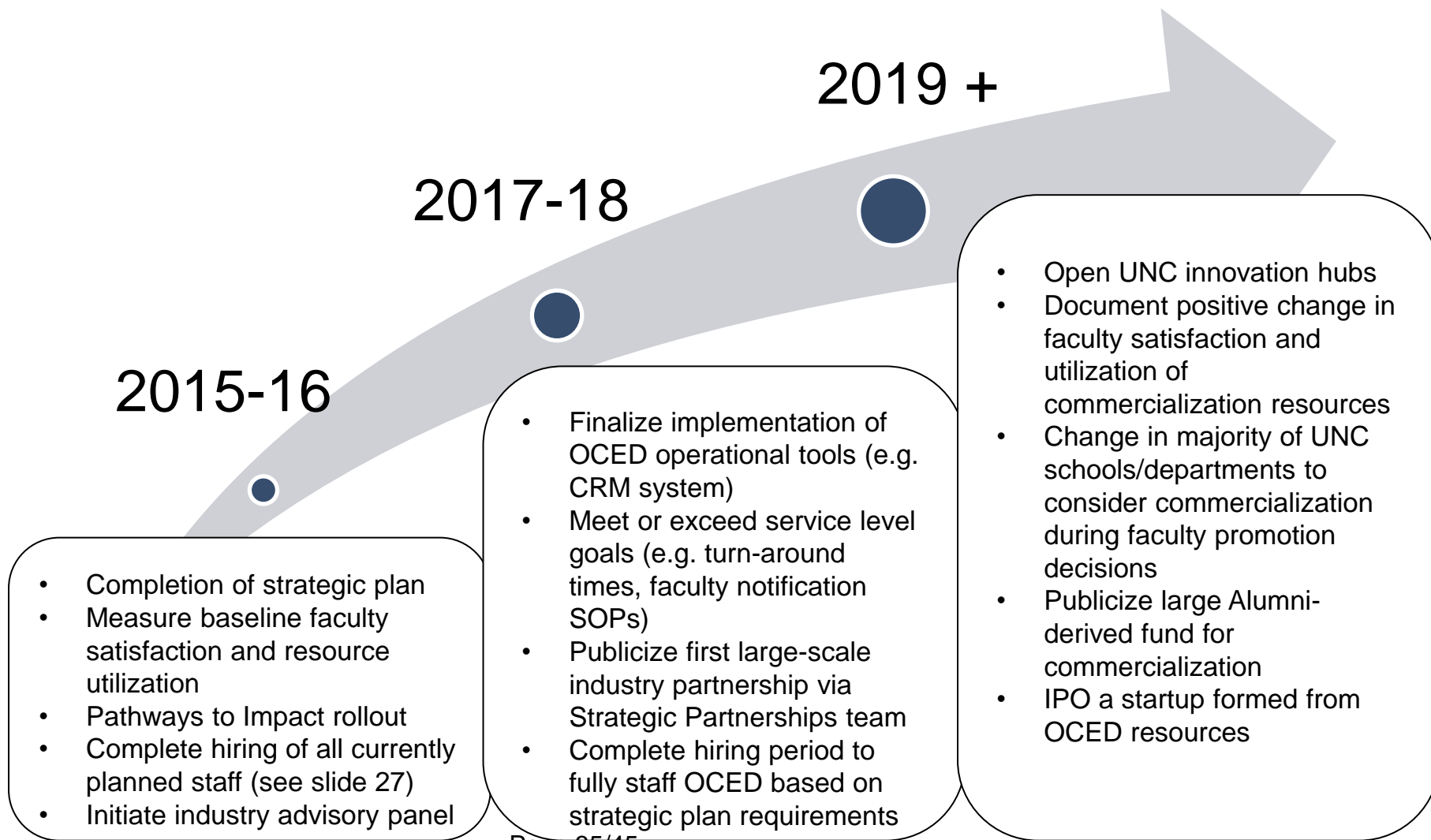
Develop Well-Resourced And Matrixed Office To Fulfill UNC Commercialization Potential

Key Objective	Tactic(s) & Description
Increase headcount	<ul style="list-style-type: none"> Evaluate other universities' post-blockbuster spend, specifically as it relates to FTEs and organization
Optimize working process and implement matrixed organization	<ul style="list-style-type: none"> Design workflow to optimize roles and responsibilities Create an Innovation Support group to reassign much paperwork from the technology licensing officers* Implement Pathways to Impact program to provide clarity for students, faculty, and staff on status of projects and reduce redundancies and/or miscommunication*
Provide evaluation and marketing support	<ul style="list-style-type: none"> Create entrepreneur panel to vet prospective ideas Conduct quarterly alumni review to provide additional evaluation support Support commercialization through active marketing and licensing of UNC technologies to industry*
Explore additional resources available for outside counsel	<ul style="list-style-type: none"> Provide additional legal resources including collaboration with UNC law clinics Benchmark against Duke's law clinic program
Leverage existing resources for student IP support	<ul style="list-style-type: none"> Replicate faculty commercialization services for all students interested in entrepreneurship

How Will We Know If We Succeed?

Evaluation Process

Select UNC Commercialization Milestones



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Internal UNC Commercialization Metrics

Metrics to gauge internal successes to be used and analyzed within the UNC

Current

- Licensing revenue
- Number of license deals
- Sponsored research funding
- (– specifically SBIR?) – We don't track now but we should
- Number of startups (dangerous metric because can start bad start ups or file bad patents)
- Deals with industry
- Number of licensed patents
- Faculty/student utilization of resources
- Faculty service level thresholds (turnaround time, response time, processing time, etc.)
- Faculty satisfaction
- Marketing activity*
- National filings and international
- Total number of national and international patents in the portfolio*



Future

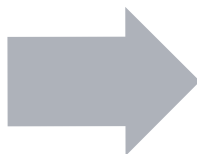
- Products that make it to market
- Specifically SBIR funding
- Jobs created/retained – the economic impact
- Dollars raised by start ups
- Alumni development value
- New leads with industry
- Repeat engagements with industry
- # of molecules, 1st in man
- Change in faculty survey vs. baseline
- List of innovation seminars and attendance & presentations to departments*
- Contact hours of Innovation Guides in Pathways to Impact*

External UNC Commercialization Metrics

Metrics to communicate UNC success to Board of Trustees and other external stakeholders

Current

- Faculty/student utilization of resources
- Strategic plan
- Industry advisory panel created
- Implementation of new or revised programs
- Better coordination – tie back to faculty satisfaction



Future

- Products on market
- Viable startups (length of start up?)
- Jobs created/retained – the econ impact
- Dollars raised
- Trend Industry engagement
- Alumni engagements
- Large strategic industry or government deal (DOD, DARPA)
- Diversity of funding
- Research support to university provided by contract from UNC startups (dollars)*

reese**news**LAB

John Clark

*Executive Director, Reese News Lab
UNC School of Media & Journalism*

John Clark



- Pre-startup
- Challenge-based
- Design framework
- Do not launch



Campaign Hound



Kinethics

an interactive compliance platform

Thoughts

- Not all ideas are good
- Resources
- Problem-solving mindset

Thoughts

- Most jobs don't exist
- Outside challenges
- Small wins are as important as big wins

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