

FACILITATING THE COMMERCIALIZATION  
OF UNIVERSITY INNOVATION:  
THE CAROLINA EXPRESS LICENSE AGREEMENT

April 2010

Ewing Marion

KAUFFMAN  
Foundation

FACILITATING THE COMMERCIALIZATION  
OF UNIVERSITY INNOVATION:  
THE CAROLINA EXPRESS LICENSE AGREEMENT

April 2010

Ewing Marion  
**KAUFFMAN**  
Foundation

Facilitating the Commercialization of University Innovation:  
The Carolina Express License Agreement

April 2010

Prepared By:

Joseph M. DeSimone

Chancellor's Eminent Professor of Chemistry  
University of North Carolina at Chapel Hill

William R. Kenan, Jr. Distinguished Professor of Chemical Engineering  
North Carolina State University

Lesa Mitchell

Vice President, Advancing Innovation  
Ewing Marion Kauffman Foundation

## INTRODUCTION

As the United States recovers from the most severe recession since the 1930s, efforts to boost economic growth assume paramount importance. This means not only finding ways to spur rapid job creation but also advancing the country's capacity for innovation. One way to do this is to encourage academic research enterprises to facilitate the transfer and spillover of scientific and technological research into commercial application. In particular, the research laboratories of our nation's universities are unparalleled sources of dynamic new spin-off and startup companies. These fledgling enterprises in turn have the potential to become high-growth firms. Recent Kauffman Foundation research demonstrates that top-performing new companies are a fertile source of new jobs.

In the following paper, we examine an innovative new set of practices associated with the commercialization of university research developed and implemented at the University of North Carolina at Chapel Hill. New standard licensing agreements support and expedite firm formation as an outcome of university-based intellectual property. A committee chaired by one of this paper's authors developed the licensing agreement. The committee included entrepreneurial UNC faculty members with experience in firm birthing, colleagues from the Office of Technology Development (OTD), venture capitalists from the firm Intersouth Partners, and attorneys from a number of firms that have represented UNC startups.<sup>1</sup> The outcome of these discussions produced the Carolina Express License Agreement.<sup>2</sup>

---

<sup>1</sup> James Gallagher, "UNC Crafts Tech-Transfer 'Holy Grail,'" *Triangle Business Journal* (December 10, 2009) Attorneys from three local firms provided legal expertise: Wyrick Robbins Yates & Ponton; Hutchison Law Group; Smith Anderson.

<sup>2</sup> All Carolina Express License Agreement documents are posted on the Kauffman Foundation Web site: <http://www.kauffman.org/expresslicensedocs>; see also UNC Web site: <http://research.unc.edu/otd/documents/CAROLINAEXPRESSLICENSEAGREEMENT.pdf>; <http://research.unc.edu/otd/documents/CarolinaExpressLicenseUserGuide.pdf>.

## **THE IMPERATIVE TO RETHINK LICENSING PROCEDURES FOR UNIVERSITY TECHNOLOGIES**

In 2009 federal agencies provided \$147.1 billion for research and development, 60 percent of which was funneled directly to United States universities.<sup>3</sup> Despite this degree of support, however, levels of successful commercialization of new knowledge remain inconsistent. While funding from the National Institutes of Health has increased to some \$30 billion annually, representing a more than doubling of funding over the past fifteen years, the output of new FDA-approved drugs has actually been in decline.

Firms formed from the research enterprises of our universities have brought important new drugs and devices to the market. Some have provided society access to new markets created as an outcome of new corporations such as Netscape and Google. Others have served as the catalyst of the semiconductor industry with firms like Cadence and Synoposes, and the clean-tech industry with firms like A123 Systems. Many of these enterprises are categorized as high-growth firms and have become integral to economic development through their creation of the highest number of net new jobs each year.

To maximize the potential for economic growth, thus, academic institutions must seek new opportunities to reduce lag time in harvesting new knowledge. More optimal practices and procedures at universities would not only facilitate the licensing of new technologies to startups but also have the potential to lead to the commercialization of new applications that both improve the human condition and facilitate job creation.

---

<sup>3</sup> National Science Foundation, *Science and Engineering Indicators 2010*, Chapter 4: Research and Development: National Trends and Linkages, 4-22: "The budget appropriations for federal spending on R&D in FY 2009 (signed into law on March 2009) totaled \$147.1 billion (table 4-7)" <http://www.nsf.gov/statistics/seind10/pdf/c04.pdf>; Chapter 5: Academic Research and Development, 5.4: "The federal government provided 60% (\$31.2 billion) of funding for academic R&D expenditures in 2008" <http://www.nsf.gov/statistics/seind10/pdf/c05.pdf>.

Universities are a leading producer of the new ideas, products, and processes that catalyze both economic development and societal advancement. While most of this new knowledge is disseminated informally—through the hiring of trained graduate students, etc.—intellectual property transactions for purposes of commercialization often take place between universities and already established companies. Only a very small segment of new ideas with commercial application or the potential for societal impact engender the formation of new companies, but the numbers are increasing. In some instances the establishment of a new firm is the only appropriate mechanism to move the innovation to market. And given the entrenched interests inherent at many already established companies, the formation of a new company is often considered the only way to launch a competitive enterprise. Efforts to license the technologies produced by the firms and corporations mentioned in the previous paragraph to existing companies, for example, would have been wholly untenable.

Examples of counterproductive startup arrangements involving university licenses abound. These include demanding excessive equity for intellectual property, in some cases exceeding 15 percent; requiring royalties to exceed total cash flows; expecting external financing; and, imposing unpredictable or unreasonable financing terms. Destructive deal structures also include demanding that cash-strapped startups make cash payments upfront or early on; triggering buy-back provisions that pull technologies back when given milestones are missed; and, issuing non-exclusive licenses to startups, which are deal-killers in fields like medical technology in which the costs of development are significant.

### **STREAMLINING THE PROCESS OF LICENSING TECHNOLOGIES**

The University of North Carolina committee sought to streamline the commercialization process for technologies that are a product of academic research through the adoption of a standard license agreement for new firm formation. The license represents one set of terms that can be used for widely

divergent deals with minimal negotiation. The leadership of the committee established a set of guiding principles for the committee's work that set the stage for the final result. These guiding principles were:

- Foster a collaborative spirit between the Office of Technology Development and the faculty involved in the process
- Be a resource to help faculty license or transfer their technology to the outside world
- Encourage entrepreneurial efforts by the faculty which will result in serial entrepreneurs and many newcomers
- Encourage deal flow
- Establish a fair deal for all parties involved
- Be a tool to recruit faculty to UNC who are interested in entrepreneurial activities

Too often the launching of a company by a faculty member starts out with pitting the faculty member and the university against one another in a negotiation that more often than not devolves into a competitive negotiation rather than a collaborative negotiation. Such degenerative situations are not conducive to a culture of entrepreneurship and innovation. The following is a summary overview of the terms of the resultant Carolina Express License Agreement:

Key provisions in the agreement include a 1.0 percent royalty on products requiring FDA approval based upon human clinical trials and 2.0 percent royalty on all other products, and cash payout equal to 0.75 percent of the company's fair market value will be paid to UNC upon a merger, stock sale, asset sale, or IPO. The license includes provisions that encourage broad commercialization of the licensed technology, including making products available for humanitarian purposes in developing countries.<sup>4</sup>

The new license agreement reduces barriers to firm formation and growth, addressing such issues as the practice of universities taking equity positions in new firms and royalty structures that can either bring about the dissolution of a firm or in some cases inhibit interest from future funders or buy-out partners.

---

<sup>4</sup> Ibid.

Use of the Carolina Express License Agreement is possible under the following circumstances:

- (1) A UNC faculty, student, or staff is a founder of the company;
- (2) All intellectual property rights are owned solely by UNC;
- (3) A detailed business plan is reviewed and approved by UNC;
- (4) The agreement is executed without modification.

Startup companies are not required to use the standard license agreement. According to the “Carolina Express User’s Guide,” the Office of Technology Development is available to undertake traditional negotiations with potential companies when appropriate.<sup>5</sup>

While the Carolina Express License Agreement may not seem like a significant change on the face of it, faculty, students, and entrepreneurs know the extensive hurdles faced in starting and growing a new company. As a country that is known for new firm formation, it is time we learn from our experiences and devise methods that reduce barriers to firm formation and growth. In many cases firms are formed based upon deal structures that greatly inhibit the actual growth of the firm. Arduous equity or royalty structures in a license can either kill a firm at a point in the future or the deal structures inhibit the needs of future funders or buy-out partners. It has also become apparent that the unpredictability of deal structures and the cycle time to finalize a deal structure have a paralyzing effect on new firm formation.

The groundbreaking dimension to the UNC standardized agreement becomes especially apparent when one considers traditional approaches to licensing. A “best practices” white paper on licensing approaches for university technologies published by the Association of American Universities (AAU) in 2007 commences with the following caveat: “Licensing approaches, even for comparable

---

<sup>5</sup> UNC-Chapel Hill Office of Technology Development, “Carolina Express User Guide,” 2 <http://research.unc.edu/otd/documents/CarolinaExpressLicenseUserGuide.pdf>.



technologies, can vary considerably from case to case and from institution to institution based on circumstances particular to each specific invention, business opportunity, licensee, and university.” The authors of the report, a committee comprised of research officers and licensing directors from a dozen of our nation’s leading research universities, both public and private, proceed to issue the following cautionary formulation regarding licensing:

Recognizing that each license is subject to unique influences that render “cookie-cutter” solutions insufficient, it is our aim in releasing this paper to encourage our colleagues in the academic technology transfer profession to analyze each licensing opportunity individually in a manner that reflects the business needs and values of their institution....<sup>6</sup>

## **ADVANCING UNIVERSITY INNOVATION TO ADVANCE NATIONAL PROSPERITY**

In order to facilitate economic growth, the federal government is looking to university innovations more than ever. The president of the United States has announced a National Innovation Strategy, which among other specifications calls for a doubling of the budgets of such agencies as the National Science Foundation with the objective of more fully supporting basic research at our nation’s universities. The September 2009 white paper announcing the “Strategy for American Innovation” calls for the restoration of American leadership in fundamental research through an implementation of the most significant increase ever in basic R&D. Through investment in the “building blocks of American innovation,” the strategy seeks to “promote competitive markets that spur productive entrepreneurship” in order to “catalyze breakthroughs for national priorities,” including clean energy, advanced vehicle technologies, healthcare

---

<sup>6</sup> Association of American Universities, “In the Public Interest: Nine Points to Consider in Licensing University Technology” (March 6, 2007). The institutions represented by the committee include Caltech, Cornell, Harvard, MIT, Stanford, University of California, University of Illinois, University of Washington, and Yale University.

technologies, and science and technologies to address the “grand challenges” of the twenty-first century.<sup>7</sup>

If academic institutions hope to retain continued support from taxpayers for increased levels of funding, then it is imperative that they expedite the movement of ideas from the laboratory to the marketplace, and in doing so, the birth of new firms.

### **CONCLUSION: KEEP IMPROVING UNIVERSITY COMMERCIALIZATION MODELS**

Our success in facilitating the transmission of new ideas, products, and processes that are outcomes of academic research into the marketplace will play a major role in determining to what extent the United States remains the most competitive and vibrant economy in the world. As leading producers of new scientific knowledge and technological innovation, universities must facilitate processes with the potential to catalyze economic development and societal advancement.

While the commercialization of inventions derived from federally funded research contributes to the formation of firms with the potential to promote national economic competitiveness, the process also represents an important dimension to overall institutional advancement for our nation’s research universities. Consistent with the position of the University of North Carolina as a hub of innovation, entrepreneurship, and new firm formation, the Carolina Express License Agreement draws on an extensive track record of entrepreneurial success to improve on an otherwise unwieldy and cumbersome process.

---

<sup>7</sup> Executive Office of the President; National Economic Council; Office of Science and Technology Policy, “A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs” (September 2009), i–iii.

## **TO LEARN MORE**

The Carolina Express License Agreement documents are posted on the Kauffman Foundation Web site at this address:

<http://www.kauffman.org/expresslicensedocs> and on the UNC Web site:

<http://research.unc.edu/otd/documents/CAROLINAEXPRESSLICENSEAGREEMENT.pdf>;

<http://research.unc.edu/otd/documents/CarolinaExpressLicenseUserGuide.pdf>

## REFERENCES

- Association of American Universities. "In the Public Interest: Nine Points to Consider in Licensing University Technology" (March 6, 2007).
- Association of University Technology Managers (AUTM). *Recollections: Celebrating the History of AUTM and the Legacy of Bayh-Dole*. Northbrook, IL: Association of University Technology Managers, 2004.
- Executive Office of the President; National Economic Council; Office of Science and Technology Policy. "A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs" (September 2009).
- Gallagher, James. "UNC Crafts Tech-Transfer 'Holy Grail'." *Triangle Business Journal* (December 10, 2009).
- Gulbranson, Christine A., and David B. Audretsch. "Proof of Concept Centers: Accelerating the Commercialization of University Innovation." Kansas City: Ewing Marion Kauffman Foundation, January 2008.
- Kauffman Foundation. "Kauffman Foundation Experts' Solution for University Technology Licensing Reform Named to List of 'Ten Breakthrough Ideas for 2010' by *Harvard Business Review*" (December 17, 2009).
- Litan, Robert E., and Lesa Mitchell. "A Faster Path from Lab to Market." *Harvard Business Review* (January/February 2010).
- Litan, Robert E., Lesa Mitchell, and E. J. Reedy. "The University as Innovator: Bumps in the Road." *Issues in Science and Technology* 23, no. 4 (Summer 2007), 57–66.
- Mansfield, Edwin. "Academic Research and Industrial Innovation." *Research Policy* 20 (1991): 1–12.

National Science Foundation, *Science and Engineering Indicators 2010*.

University of North Carolina, Chapel Hill. "Carolina Express License: One Size Fits Most—UNC Unveils an Innovative Technology Licensing Model"

<http://research.unc.edu/otd/CarolinaExpressLic.php>.

University of North Carolina, Chapel Hill, Office of Technology Development.

"Carolina Express User Guide," 2

<http://research.unc.edu/otd/documents/CarolinaExpressLicenseUserGuide.pdf>.