

The Silicon Flatirons Roundtable Series on Entrepreneurship, Innovation and Public Policy  
Report No. 3\*

*The Entrepreneurial University:  
What the University of Colorado has to learn from MIT and Stanford.*

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As part of its strategic planning process, the University of Colorado at Boulder has begun exploring how to increase the propensity of faculty and students to engage in entrepreneurial activities. Nationwide, there are a few universities with a commitment to supporting entrepreneurship that can serve as examples. Notably, MIT and Stanford are two schools renowned for using the knowledge creation and invention that takes place on their campuses to create high quality companies. In contrast, many schools do not achieve such results, even with similar characteristics.<sup>1</sup> This disparity raises the two questions addressed by the roundtable: (1) what separates a university that engages in this process effectively—i.e., the “Entrepreneurial University”—from the university that does not?; and (2) how can the University of Colorado-Boulder become an Entrepreneurial University?

### **The Roundtable**

On Tuesday, October 2<sup>nd</sup>, 2007, the Silicon Flatirons Program held a roundtable discussion on the Entrepreneurial University, focusing on whether the University of Colorado should do more to encourage entrepreneurship in its faculty and students, and if so, what should be done. The roundtable was held at the University of Colorado Law School and was moderated by Silicon Flatirons’ founder and Professor of Law, Philip J. Weiser. The roundtable included many of the leading individuals in the Front Range entrepreneurial community, notably Jim Crowe, CEO of *Level 3*, as well as University leadership, with CU-Boulder Chancellor G.P. “Bud” Peterson and Provost Philip DiStefano in attendance. (A list of roundtable attendees is set forth in Appendix A.)

The roundtable highlighted a number of the institutional and academic barriers at CU, as compared to other highly successful entrepreneurial universities, and specifically highlighted the need for clarity, at all levels, concerning what place entrepreneurship should hold, both within the campus itself and in the University’s Flagship 2030 strategic plan.<sup>2</sup> To prepare for the discussion,

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\* The Silicon Flatirons Roundtable Series on Entrepreneurship, Innovation and Public Policy is sponsored by Brad Feld, Managing Director of the Foundry Group. This discussion on “The Entrepreneurial University” was its third such event, following earlier ones on (1) the impact of Sarbanes Oxley on emerging growth companies; and (2) the role of software patents. The reports from those discussions can be found at [http://www.silicon-flatirons.org/conferences/SOX\\_Summary\\_4%2023%2007.pdf](http://www.silicon-flatirons.org/conferences/SOX_Summary_4%2023%2007.pdf) and <http://www.silicon-flatirons.org/conferences/SoftwarePatents.pdf>.

<sup>1</sup> The great disparity between the successful Entrepreneurial Universities and their unsuccessful counterparts has been a topic of conversation elsewhere as well. In 2006, Inc. Magazine stated that only five schools “constitute the elite of the technology transfer world” (listing Berkeley, Caltech, Stanford, MIT, and Wisconsin) and are “remarkable” for the number of businesses that are created around their research, while contrasting them with Johns Hopkins, an institution with the “biggest research budget in the United States” but that “fosters very few new ventures.” See Carl Schramm, *Five Universities You Can Do Business With*, INC. MAGAZINE, Feb. 2006, at 23.

<sup>2</sup> At the time the roundtable was held, the Flagship 2030 strategic plan had yet to be finalized. See G.P. Peterson, *Flagship 2030: A Roadmap to CU’s Future*, Dec. 12, 2006, INSIDECU, <http://www.colorado.edu/insidecu/editions/2006/12-12/chancellor.html> (“[W]e have begun the work of identifying the key characteristics the University of Colorado at Boulder will need in order to continue to excel as the state of Colorado’s flagship university in the year 2030.”). Subsequently, the Regents of the University ratified the Flagship 2030 plan. See UNIVERSITY OF COLORADO, FLAGSHIP 2030: SERVING COLORADO

participants were asked to look at the examples of MIT and Stanford, specifically in the context of their support of entrepreneurship, and to make comparisons to CU-Boulder.<sup>3</sup>

***Premise: Is the Entrepreneurial University an appropriate goal?***

As an overarching theme, the group asked whether increasing entrepreneurial activity at CU-Boulder was an appropriate goal. Many in the group answered affirmatively and for a variety of reasons. Jim Crowe set the tone for the discussion by highlighting that engaging with real problems and real organizations outside of the university is what keeps CU-Boulder, and any institution, healthy at its most basic level. Michael Lightner, chair of the Computer and Electrical Engineering Department at CU, added that entrepreneurial activity is part of preparing undergraduates to go out and make a difference in the world and that the faculty should be prepared to act as role models in this process. He emphasized that faculty should not only publish their discoveries, but also push their discoveries out into the world through commercialization, whether through the creation of a startup company or through licensing the technology to other, already established, companies. At a minimum, Lightner concluded, CU-Boulder should not get in the way of such activities.

John Bennett, director of the ATLAS Institute at CU, said there needs to be a clear and compelling articulation of why CU should embrace this entrepreneurial vision and it should be a way of answering the question for faculty members, “what’s in it for us?” He suggested entrepreneurial activity could be a part of the larger goals of the campus as a *comprehensive* university, or that such activity could be seen as a return on investment.<sup>4</sup> He pointed out that entrepreneurial endeavors could also be seen as promoting faculty retention, as a part of how CU recruits graduate students, or as increasing the breadth of research and education on campus. Finally, Bennett noted that CU needs to think about its priorities because the nature of the articulation will inform the way the University facilitates entrepreneurial activity and what incentives it chooses.<sup>5</sup>

***What is the Time Horizon?***

The discussants realized that the transition into an entrepreneurial university would not occur overnight. Jim Crowe emphasized that relationships take time and there are long-standing prejudices in the academic community to overcome. Juan Rodriguez, co-founder of *StorageTek* and *Exabyte* and a serial entrepreneur, said success would require considerable patience, pointing out that MIT

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ENGAGED IN THE WORLD (2007), available at <http://www.colorado.edu/flagship2030/downloads/CUFlagship.pdf>.

<sup>3</sup> For an in-depth discussion of the entrepreneurial characteristics of MIT, and suggested reading for the roundtable itself, see Rory P. O’Shea, et al., *Delineating the Anatomy of an Entrepreneurial University: The Massachusetts Institute of Technology Experience*, 37 R&D MANAGEMENT 1, (2007). For a detailed description of the history of Stanford’s commercialization efforts, see TIMOTHY LENOIR, ET AL., INVENTING THE ENTREPRENEURIAL REGION: STANFORD AND THE CO-EVOLUTION OF SILICON VALLEY (2007), available at [www.stanford.edu/dept/HPS/TimLenoir/Startup/VolumeDrafts/Lenoir\\_IntroductionDraft.pdf](http://www.stanford.edu/dept/HPS/TimLenoir/Startup/VolumeDrafts/Lenoir_IntroductionDraft.pdf).

<sup>4</sup> In terms of the monetary returns on investment, the University of Colorado has seen the revenue generated from its Technology Transfer Office go from \$2.2 Million in FY 00-01 to over \$20 Million in FY 05-06 (these numbers do not include settlements from legal actions taken to protect existing intellectual property). See CU TECHNOLOGY TRANSFER PERFORMANCE METRICS WITH A RECENT HISTORICAL PERSPECTIVE (2007), available at [https://www.cu.edu/techtransfer/about/newsletters/2007/06\\_07\\_metrics.ppt](https://www.cu.edu/techtransfer/about/newsletters/2007/06_07_metrics.ppt).

<sup>5</sup> Bennett’s statement is borne out elsewhere in research on how the definition of entrepreneurship on a campus can affect its “appeal” to faculty and students. LARA HULSEY, ET AL., SEEDING ENTREPRENEURSHIP ACROSS CAMPUS: EARLY IMPLEMENTATION EXPERIENCES OF THE KAUFFMAN CAMPUSES INITIATIVE 44 (2006) (“According to administrators, faculty and students, adoption of a broad and inclusive definition of entrepreneurship was integral to reaching those who had not previously realized that the subject was relevant to them or their fields.”).

has been on its entrepreneurial path for many decades.<sup>6</sup> He urged CU to take a long-term perspective and avoid being near-sighted when looking at the goal of greater involvement with the business community. Barbara Lawton, director of the Engineering Management Program at CU, said that in the near term the effort will require hard work to plan and shape and it should be high on CU's agenda. In short, Lawton concluded that CU should establish a strategic direction, leaving the particular initiatives to develop their own momentum, with only a light touch of continuing guidance and support. Using a gardening analogy, Lawton made her point by suggesting that the entrepreneurial effort would only need to be periodically weeded and fertilized, and then should be allowed to grow of its accord.

### ***How to begin the process?***

Discussants emphasized that in facilitating entrepreneurial activity, CU-Boulder should not attempt to "reinvent the wheel." Jim Crowe said it would be fruitful to copy the successes of other universities "shamelessly," as CU did not want to make the mistakes that others have already made. David Allen, associate vice president of the Technology Transfer Office at CU, said MIT was the model to emulate and pointed out that a significant portion of the process for the transfer of technology from CU to private companies follows the model pioneered by MIT.<sup>7</sup> In short, the challenge for CU is to find its own strategy to encourage entrepreneurship.

To that end, a number of participants pointed to the significant interdisciplinary work done on the campus, such as the Interdisciplinary Telecommunications Program,<sup>8</sup> the well-respected Technology Transfer Office,<sup>9</sup> and the strong external entrepreneurial culture surrounding the University in Boulder/Denver. As an example of the attractive environment in the Boulder/Denver area, Jim Crowe explained that Level 3, before choosing to locate in Colorado, polled potential employees and found the area had "low negatives," meaning there were few reasons employees would not move to the area.<sup>10</sup> Speaking to the entrepreneurial culture, Jason Mendelson, Managing Director of *Foundry Group*, added that the venture capital and entrepreneurial communities in Colorado are surprisingly open to mentoring and supporting other startups, contrasting them very

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<sup>6</sup> In fact, some researchers point back to the founder of MIT, William Barton, as encouraging the culture of commercializing scientific discoveries as early as the 1840's, along with notable examples of commercialization occurring at MIT post-WWII in the 1940's, 50's, and 60's. See O'Shea, *supra* note 2, at 10.

<sup>7</sup> The Technology and Licensing Office (TLO) at MIT was established in 1945 and plays a very proactive role in technology transfer. Along with encouraging faculty to disclose intellectual property, the TLO evaluates the market conditions for the value of faculty inventions, protects the faculty's intellectual property, and meets with venture capitalists on a regular basis. See O'Shea, *supra* note 2, at 6.

<sup>8</sup> The Interdisciplinary Telecommunications Program at the University of Colorado is a unique graduate telecommunications program that offers a number of cross-disciplinary degrees and certificates for students in engineering, business, as well as law. See University of Colorado Telecommunications Program, <http://telecom.colorado.edu/> (last visited Jan. 1, 2008).

<sup>9</sup> While the Technology Transfer Office (TTO) at CU is structured similarly to the TLO at MIT, compare the mission statement of the TTO, which is to "aggressively pursue, protect, package, and license to business the intellectual property generated from the research enterprise and to serve faculty, staff, and students seeking to create such intellectual property." Technology Transfer Office, <https://www.cu.edu/techtransfer/> (emphasis added) (last visited Jan. 1, 2008), with the mission statement of the TLO at MIT, which is to "foster commercial investment in the development of inventions and discoveries flowing from the research . . . . [T]hrough licensing of the intellectual property resulting from our research." MIT Technology Licensing Office, <http://web.mit.edu/tlo/www/> (emphasis added) (last visited Jan. 1, 2008).

<sup>10</sup> Today, Boulder seems to have much more than just "low negatives." According to David Cohen, an angel investor and founder of Colorado Startups, LLC, six out of eight out-of-state companies decided to relocate to Boulder after attending a summer workshop he held for "budding tech entrepreneurs." See Carol Tice, *Small Towns, Big Money*, ENTREPRENEUR MAGAZINE, Jan. 2008, available at <http://www.entrepreneur.com/magazine/entrepreneur/2008/january/187580.html>.

favorably with Silicon Valley.<sup>11</sup> Reflecting this sentiment, a recent survey by the Federal Reserve Bank of Boston ranked Boulder as the top “secondary city” for entrepreneurship (defining “secondary city” as those cities outside of the 40 largest U.S. metropolitan areas) in terms of the number of private equity deals, specifically citing the strong network of technology and entrepreneurial companies in the area, the local University’s role in tech transfer, and the high quality of life in the area.<sup>12</sup>

### ***Cultural Differences Between CU and MIT and the Effect on Entrepreneurship***

Creating an entrepreneurial culture is often the difference between those universities that are successful in their technology transfer and company spin-off efforts and those that are not.<sup>13</sup> In highlighting this point, the roundtable participants focused particularly on the perceived differences between the culture at MIT and that of CU-Boulder and there were many ideas on how to address these differences.

#### ***The Culture at MIT:***

Jae Roh, an MIT graduate, said that at MIT the culture is a big deal. There, he related, people are still focused on the traditional university model of research, publishing, and the resultant acquisition of research funding, but they are motivated by and focus on real world problems.<sup>14</sup> Brad Feld, another MIT graduate, explained that MIT has a well-established policy of encouraging its faculty to take 20% of their time to engage in work outside of the University itself. Notably, the cultural norm at MIT is to take this time to engage in consulting, work at a startup, or serve on the board of directors at a company the professor started.<sup>15</sup> For a success story under this policy, consider the case of Rodney Brooks, Director of the Computer Science and Artificial Intelligence Lab at MIT. Brooks, while continuing to work at MIT, is the cofounder and chief technology officer

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<sup>11</sup> Echoing Mendelson’s perspective, Entrepreneurship Magazine quoted one local entrepreneur’s account that “several firms here with a policy that they’ll basically meet with anybody--at least briefly--and hear their pitch.” *Id.*

<sup>12</sup> See Carole Carlson & Prabal Chakrabarti, *Venture Capital in New England Secondary Cities*, NEW ENGLAND COMMUNITY DEVELOPMENTS, 2007, at 1, available at [www.bos.frb.org/commdev/necd/2007/issue1/venturecap.pdf](http://www.bos.frb.org/commdev/necd/2007/issue1/venturecap.pdf).

<sup>13</sup> See Phillip H. Phan & Donald S. Siegel, *The Effectiveness of University Technology Transfer: Lessons Learned, Managerial and Policy Implications, and the Road Forward* 44 (2006), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=900605](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=900605) (“[W]hile we do not underestimate the difficulty . . . with which norms, standards, and values among tenured faculty can be changed, such changes are necessary at institutions that wish to place a high priority on technology commercialization.”)

<sup>14</sup> Echoing Roh, research has indicated that the entrepreneurial culture at MIT could be *very* important to its success in spinning off quality companies. As the O’Shea article relates,

[A] driver of spinoff activity is the culture within the university—what we refer to as an Entrepreneurial Orientation. Where academics experience a culture that champions commercialization activity and when they experience direct exposure to role models of those that have successfully commercialized research, they are more likely to engage in such activity.

See O’Shea, *supra* note 2, at 12-13.

<sup>15</sup> This deeply ingrained expectation for faculty at MIT to spend 20% of their time on non-Institute work has been discussed elsewhere as well. See HENRY ETZKOWITZ, *MIT AND THE RISE OF ENTREPRENEURIAL SCIENCE* 38 (2002) (“[C]onsultation with industry became an entrenched practice at MIT. Although consulting was officially limited to one day per week it was never entirely clear if this requirement should be interpreted as one day out of five or could be expanded to three out of seven. The professor who worked part time for industry . . . became the model MIT academic.”).

of the company iRobot, which, among other things, manufactures the Roomba.<sup>16</sup> This success came only after more than 15 years of spending the extra 20% of his time working on the technology that grew out of work that Brooks and his graduate students had done. In short, MIT's policy and culture enabled Brooks to lead a dual existence and be rewarded for it.

Chris Bowman, a professor of Chemical and Biological Engineering at CU-Boulder, said another difference between CU and MIT is that tenure at MIT is not necessarily based on teaching skills, but by virtue of a person being at the top of their field. While not directly impacting entrepreneurial activity, he said it affects teaching loads. Bowman noted the teaching loads are lower at MIT and the administrative duties of professors are much lower as well, thus easing the burdens on professors and freeing them up to spend their extra time in a productive manner.

### ***The Culture at CU:***

G.P. "Bud" Peterson, CU Boulder's Chancellor, pointed out that CU also has a policy of allowing 20% of a professor's time to be spent away from the University. Michael Lightner noted, however, that this policy is, in reality, a one out of six days policy, implying that professors should work on entrepreneurial activity on their Saturdays. Moreover, Lightner related, there is not the same expectation at CU, as at MIT, to use this time to advance entrepreneurial initiatives.

Speaking to the culture at CU, Jim Linfield, a partner at the law firm of *Cooley, Godward, Kronish LLP*, highlighted the fact that entrepreneurship varies greatly from department to department at CU. Linfield noted, for example, that in CU's Department of Molecular, Cellular, and Developmental Biology, entrepreneurs have thrived under the leadership of faculty members like Larry Gold and Marvin Caruthers. By contrast, other departments evince hostile attitudes towards entrepreneurial activities; Garret Moddel, of Electrical and Computer Engineering, for example, noted that he faced disparaging remarks upon his return to the academic environment from a successful startup company.

The discussion also pointed to a cultural resistance to entrepreneurial activity at CU, not only reflected in the attitudes of the faculty, but also in a lack of support from the University's administration. Brad Feld said he continually hears of the large amount of entrepreneurial activity in Colorado and thinks Colorado is a great place for company creation, but his experience with CU suggests it is mediocre, at best, in spurring entrepreneurship, especially in comparison to MIT. In short, he felt that there is little entrepreneurial activity in and around CU as an institution.

### ***Student Culture: The Students' Place within the Entrepreneurial University***

While the faculty's role in an entrepreneurial university was a dominant theme throughout the roundtable, at one point the discussion turned to students' involvement. Brad Bernthal, Associate Clinical Professor at the University of Colorado Law School, asked about the students' place within an entrepreneurial university. He thought they might face less cultural resistance to engaging in entrepreneurial activity, sparking an informative discussion concerning the students at MIT.

Brad Feld said there was a clear demarcation at MIT between the undergraduates, the graduate students, and the PhD students. The undergraduates, he said, assume they will be entrepreneurs. It is an all-pervasive presumption that can be seen at every turn.<sup>17</sup> Graduate students,

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<sup>16</sup> The Roomba is a small automated vacuum cleaner, for a detailed description of the product, see the Roomba webpage on the iRobot website, <http://www.irobot.com/sp.cfm?pageid=122> (last visited Jan. 1, 2008).

<sup>17</sup> As O'Shea, et al. point out, students at MIT are frequently exposed to professors who leave the academic world to start a company or work on an invention and then return to teach, thus providing strong role models for students. See O'Shea, *supra* note 2 at 9 ("[S]pend four years in this place [and] your [sic] going to meet at least twenty people who have started [a company] so you come out thinking that everyone has done it and that I can do it. So simply an exposure to entrepreneurship raises your expectations.") (quoting the director of the Technology Licensing Office (TLO) at MIT)).

by contrast, possess only “conditional” entrepreneurial attitudes: masters students tend to follow the lead of their professor and, at the doctorate level, PhD students are expected to be on track to professor-hood. To be sure, once the student becomes a professor, then she could involve herself in entrepreneurial activity if she wants to, but the emphasis is on academics first and foremost. At all levels, though, if a student has an advisor or favorite professor who is entrepreneurial, then the likelihood of the student being involved in some sort of entrepreneurial activity is high. In short, Feld concluded, for an institution to be entrepreneurial, students must be linked to entrepreneurial professors.

While discussing the students’ role in an entrepreneurial university, one participant pointed out that there are different models of entrepreneurial activity. In particular, Jae Roh mentioned that one model of entrepreneurship is fundamental research propagated out through licensing, but said a model centered on undergraduates can also be very successful. This latter model, he pointed out, was thought to be responsible for a significant amount of activity in Silicon Valley and around Cambridge, Massachusetts. Roh said the undergraduate model does not involve cutting-edge research like the first model, but could involve, for example, a better indexing method for web pages, or a better way to write pages on the Internet.

Roh related that the key to a successful undergraduate-focused model is the creation of a “critical mass” of students. Roh described, for example, an informal gathering at a pub near MIT, where on Monday nights people would meet for pizza and beer. He said it was known that this was where one could go to meet people who were thinking about starting new companies: serial entrepreneurs would show up, venture capitalists would show up, and it was very informal. Other roundtable participants compared such a gathering to the New Technology Meetup at the University of Colorado Law School,<sup>18</sup> but Roh said the MIT gatherings were even more informal.

Robert Reich, founder and vice-president of *Me.dium* and the organizer of the New Technology Meetup, explained how the Meetup exemplified the “disconnects” at CU in terms of entrepreneurial activity. Over its existence, Reich reported, over 70 companies had participated in the Tech Meetup and roughly 60% of these had come from out-of-state to start a company in Colorado. Astonishingly, he reported, out of the 13 Meetups that have been held on campus, no CU professors or students have ever presented at it.

### ***Barriers to Entrepreneurial Activity at CU***

Punctuating the entire roundtable was discussion of the barriers to entrepreneurship at CU-Boulder. It was said, most prominently by Michael Lightner, that if the University did not choose to encourage entrepreneurship, then it should at the very least not get in the way of the process. The group identified a need to understand the barriers to faculty participation in entrepreneurial activity and how those barriers could be lowered.

On the point of challenges in starting a company while serving as a professor, Lightner noted that University policies related to leaves of absence can pose a considerable obstacle to success, as they are not granted as of right to entrepreneurs. Along these lines, Garret Moddel described his personal experience in seeking leaves of absence to start a new company. He said a leave is normally granted for up to two years and getting three years can be extremely difficult. While one to two years is not insignificant, Lightner pointed out starting a company usually takes more time than that. On

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<sup>18</sup> The New Technology Meetup is more structured than the informal gathering described by Roh, but still contains many of the same elements, and is designed for “geeks, investors, entrepreneurs, hackers, etc.” It is held the first Tuesday of each month at the University of Colorado Law School, and both food and drink are provided, but it is structured so that five companies are each given five minutes to demonstrate their new technology, followed by a 5 minute Q&A period. See The Boulder Denver New Technology Meetup Group, <http://newtech.meetup.com/27/about/> (last visited Jan. 1, 2008).

top of the leaves issue, some raised the question of whether there were sufficient incentives for entrepreneurial engagement by CU faculty.

Both Lightner and Moddel felt performance reviews and the salary structure at CU fail to provide an incentive structure that encourages entrepreneurial activity. They said while a professor is away creating a company, the professor continues to be evaluated only at the average of their respective departments. Because, for example, professor salaries suffer as a relative matter once they leave and patents are not viewed as legitimate academic contributions, Moddel viewed the reward structure at CU as skewed against encouraging faculty participation in entrepreneurial activity.

Faculty time, or lack thereof, was said to be another barrier to entrepreneurship at CU.<sup>19</sup> Chris Bowman, a professor at CU, thought constraints on a professor's time might be the single largest barrier. He said no successful faculty member had one day in five to address projects outside of the University. Garret Moddel said this problem has become progressively worse in the past five years, as the lack of support from the State of Colorado has increased administrative burdens.<sup>20</sup> At one point, he referred to state support as the "elephant in the room."<sup>21</sup> Moddel said the lack of support creates large administrative burdens for professors and leaves CU with poor infrastructure in terms of collaborative laboratories. At CU, he said, faculty members have the burden of spending significant amounts of their time creating resources that are simply given to professors at places like MIT. Moddel questioned this dynamic, suggesting that there is a large return to the state from investment in entrepreneurial activity and that this quid pro quo might prove to be an important rationale in justifying a further infusion of public resources into CU-Boulder.<sup>22</sup>

Related to the issue of poor state funding, the roundtable participants discussed the importance of the University to the State of Colorado, as reflected in the Flagship 2030 Strategic Plan.<sup>23</sup> Paul Jerde, director of the Deming Center for Entrepreneurship, said the Flagship Plan will be guiding CU for the next 25 years, but is silent on the importance of entrepreneurship to CU's spirit and in CU's culture. Garret Moddel pointed to the Flagship's mandate for CU to be a leading research institution,<sup>24</sup> and said the document should address how to give faculty some of the resources they need to conduct both leading research and to commercialize it.

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<sup>19</sup> Research into entrepreneurial initiatives at other universities has found a key factor preventing faculty involvement was that they were "too busy to devote time to entrepreneurship activities." See Hulsey, *supra* note 3, at 35.

<sup>20</sup> The problem of administrative burdens on university faculty is rampant. A recent report, concerning administrative burdens in the context of federally funded university research, found that faculty devote fully 42% of their time committed to federally funded research in dealing with administrative burdens. See ROBERT S. DECKER, ET AL., A PROFILE OF FEDERAL-GRANT ADMINISTRATIVE BURDEN AMONG FEDERAL DEMONSTRATION PARTNERSHIP FACULTY 5 (2007), available at <http://www.thefdp.org/Faculty%20burden%20survey%20report.pdf>.

<sup>21</sup> Moddel's concern looks to be well founded. A recent report on higher education in Colorado found that it is ranked 48th in terms of state and local government support per student. See THE ADAMS GROUP, INC., THE IMPACT OF HIGHER EDUCATION ON THE STATE OF COLORADO 4 (2007), available at [http://highered.colorado.gov/Publications/Studies/2007/200712\\_ImpactofHE.pdf](http://highered.colorado.gov/Publications/Studies/2007/200712_ImpactofHE.pdf).

<sup>22</sup> The returns to the local economy from investment in entrepreneurial activity are well documented. A comprehensive 2003 study of the U.S. economy, using census data covering 394 local economic areas and six industrial sectors covering the entire non-farm private sector, found that higher levels of local entrepreneurial activity, in the form of new firm creation, is strongly associated with faster growth of the local economy. See Zoltan J. Acs & Catherine Armington, *Endogenous Growth and Entrepreneurial Activity in Cities* 27-28 (Bureau of the Census, Center for Economic Studies Discussion Paper, 2003), available at [http://www.ces.census.gov/index.php/ces/cespapers?down\\_key=101665](http://www.ces.census.gov/index.php/ces/cespapers?down_key=101665).

<sup>23</sup> See generally FLAGSHIP 2030, *supra* note 2.

<sup>24</sup> *Id.* at 4 ("Our strategic planning process has led us to a new shared vision for transforming CU-Boulder into one of the nation's leading public research universities.").

Other barriers to entrepreneurial activity at CU, while not discussed extensively, are the issues surrounding shared facilities, such as labs or other equipment. Michael Lightner mentioned how, currently, it is difficult to bring startup companies into the University to use campus facilities. He said the reverse process was difficult as well. There are facilities at outside companies that CU needs to use, but as it stands, he said, this process occurs informally and is done “under the table.”

In the same vein, faculty participants said there were issues with cross-departmental and interdisciplinary research on campus. They said accomplishing this type of research is difficult in the current CU-Boulder system. If interdisciplinary research is considered a good thing at CU and should be encouraged, they asked, how is it rewarded? When a professor wants to engage in interdisciplinary research, where does the research credit go? These faculty members said there are no clear guidelines for where to register graduate students assigned to such multi-department research. They said that when the student is registered in one of the two departments, the other department receives no credit for it. In short, faculty members expressed concerns that the current system provides no incentives to engage in interdisciplinary work.

A final barrier to entrepreneurial activity at CU is the “silos” within the CU-Boulder campus. Michael Lightner said while the entire faculty is part of CU, there are professors who never step outside of their colleges. He characterized CU as a set of communities: a community of social scientists, a community of engineers, and a community of entrepreneurs. Lightner felt the University could not pretend it is a single community, but it should seek to overcome the silo-based mentality that could undermine successful entrepreneurial initiatives.

### ***Possible Solutions***

The final part of the roundtable focused on the necessary steps to break down the barriers that get in the way of CU becoming more of an entrepreneurial university, with participants suggesting broad structural changes, as well as particular solutions. One such suggestion was to make a patent application count towards the publication portion of a faculty member’s annual performance review.<sup>25</sup> Indeed, as one discussant noted, the patent process is quite rigorous and in many cases a patent may be more thoroughly reviewed than an academic paper.

Another thrust of the discussion was that the departmental variation in entrepreneurial activity could point to valuable solutions. More than one discussant said the University should pay particular attention to departments with high levels of entrepreneurship and especially how such activity began. Dave Allen, from the Technology Transfer Office, pointed to Chemical Engineering and Cardiology as examples of successful entrepreneurial programs at CU. In acknowledging that some departments are more entrepreneurial than others, many participants asked how the situation could be improved.

One option mentioned was for the less active departments to utilize change agents within the department itself, making this part of the selection criteria for faculty hiring in the future. In this context, participants once again pointed out that change takes time and the methods utilized may, by necessity, be slow. As an opposing view, discussants asked about investing in the clusters of entrepreneurial activity that already exist. The general thought was that it would be useful to look at what has worked and not worked in these areas, while at the same time looking to make the existing processes more effective. Brad Feld also suggested identifying a few additional areas in the community that are ripe for innovation, based on what is happening in the business environment. In terms of any additional entrepreneurial initiatives though, he said they should be clear, broadly

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<sup>25</sup> Such suggestions are not new, and have been said by some to touch the “very core of what it means to be an academic researcher.” See Phan & Siegel, *supra* note 11, at 44. While not mentioned in the roundtable, another suggestion that may be considered less “controversial” includes shifting royalty distributions to allocate a greater percentage of revenue derived from the research and resultant licensing or company creation to the faculty members doing the research. *Id.*



defined, and use the existing, successful examples as “reflectors.” Also, he said, any new initiative should recognize the limitations of the existing successes, especially their structural shortcomings.

The group brought up another possible solution as well, which was to look to the individuals on campus already participating in entrepreneurial activities. David Getches, Dean of the Law School, noted that there are a number of faculty members who have started phenomenally successful ventures coming out of CU. He felt any entrepreneurial initiative should look at the difference in the professors that come back to the academic world and those who do not. Getches said the reading for the roundtable suggested MIT was neutral, from an institutional perspective, towards moving from academia to business and then back again (that such movement was “neither precluded nor favored”).<sup>26</sup> He characterized the dynamic at MIT as the senior role models moving out into the business environment and then coming back to academia. Dean Getches then posed two questions. Initially, what are the experiences of the senior role models at CU? Secondly, is the University losing its role models, and if so, why?

The discussants answered in two parts. First, related Garret Moddel, the local environment (his department) was not particularly supportive when he returned to academia. He said it felt like he was a “renegade.” Kurt Smith, an entrepreneur, pointed out young professors involved in entrepreneurship often are considered “black sheep” and, unless senior faculty encouraged entrepreneurial behaviors or other incentives were put in place, young professors interested in entrepreneurial activity would not want to stay at CU. The second half of the answer, echoed by many, pointed out a need for senior faculty, notably deans and department chairs, to confront directly negative attitudes towards entrepreneurial activity. This led to a discussion of two alternative strategies for changing the institutional culture—a “bottom up” or a “top down” approach.

### ***Strategies for Change: Bottom up, Top Down, and Niche Areas***

When discussing the culture and attitudes towards entrepreneurial activity at the University of Colorado, participants said many professors endured disparaging comments and attitudes from their colleagues. Participants asked how this could be changed and one faculty member pointed out any overt statement from the University itself did not seem to be filtering down. Garret Moddel felt such statements had not hit the dean’s office or the executive committee in many departments. This led to a discussion of how an institutional culture is changed from the top down.

The top down approach was characterized as driving a cultural change from the leadership/administration of an institution down to the individual members.<sup>27</sup> It was said that any top down message must be reinforced with real behavior, and Brad Feld said if deans and senior professors start to engage in a certain behavior, then that activity will start to happen more broadly. He felt a top down message must be linked to behavior; otherwise when a junior faculty member simply tries to drive up such a message, they have no success. Feld said if a junior professor is denied tenure or gets disparaging remarks based on her entrepreneurial activities, then the effort would fail. Conversely, if the vision is built and the structural change occurs on the academic and administrative side, then real cultural change can be accomplished. Participants agreed that changing

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<sup>26</sup> Dean Getches was referring to a particular passage in the suggested reading that discussed the faculty culture at MIT and how there is a “group of very visible role models” at the Institute. See O’Shea, *supra* note 2, at 9 (“Although it is neither favored nor precluded, taking time off from an academic career to work in a company, owning a piece of a company, or developing your own inventions is not atypical of an MIT professor’s career . . .”).

<sup>27</sup> Support from senior administrators in terms of value statements, resources, or new administrative structures has been identified as one of the key strategies in affecting institutional change. See PETER D. ECKEL & ADRIANNA KEZAR, *TAKING THE REINS: INSTITUTIONAL TRANSFORMATION IN HIGHER EDUCATION* 75 (2003); ELAINE EL-KHAWAS & ARIANNE A. WALKER, *EXTERNAL FORCES AND INSTITUTIONAL RESPONSE TO CHANGE* 10 (2001) (calling leadership within the institution as the “first key internal influence”), *available at* [www.kfhet.org/papers/HERITransformation\\_context.pdf](http://www.kfhet.org/papers/HERITransformation_context.pdf).

shared values at an institution is very difficult, but many participants indicated their belief that change could happen if it started from the top and was repeated every day.

As a counterpoint, reflecting the bottom up approach, Bud Peterson asked the group to imagine an attempt to change MIT's culture away from its entrepreneurial nature. He felt that no matter what the message was from the top, the culture at the University would not change. Peterson said cultural change comes from the mindset within the individual, and that not only is it a long process, but such a change is enormously difficult to develop. Taking the opposing perspective, Robert Reich said the topic felt so large that such a change has to be, at the minimum, supported and reinforced from the top. Jim Crowe agreed, saying he understood the difficulty in changing a culture, but also saying that such a change needs to *start* at the top and then be repeated often. Offering a twist on the skepticism of the top down model, Phil DiStefano, Provost of CU, suggested the University should not attempt to change certain entrenched attitudes in non-entrepreneurial departments, but should instead focus on its successes in certain niche areas.<sup>28</sup>

Following up on the Provost's suggestion, a number of participants discussed what it would mean for the University to focus on niche areas. Michael Lightner said focusing on niche areas would allow CU to break the problem up into a more manageable process where results could be more readily seen. This niche approach, for example, could focus initially on the intellectual property generating departments (for example Computer Science or Chemical and Electrical Engineering), as this was where a majority of the technology transfer and commercialization occurs. Many participants felt the results would not be the same as those at MIT, with some saying CU cannot, and does not want to, be another MIT, but that this was due to CU being a different type of institution.

#### ***What are the next steps for CU?***

As the roundtable came to an end, moderator Phil Weiser asked key speakers for their final thoughts. Jim Crowe, CEO of *Level 3*, said CU-Boulder and the Denver/Boulder area are in an environment in which they are defining themselves as more entrepreneurial oriented and business friendly. Rhetorically, he asked how all the stakeholders could make the environment more friendly and emphasized that clarity was key in any relationship concerning business. Finally, the Chancellor was asked for his thoughts.

Chancellor Peterson ended the roundtable by identifying what he felt were CU's next steps. Initially, he said determining the role entrepreneurship can and should play within the University is important; the expectations surrounding entrepreneurial activity should be articulated. Next, he said the institutional barriers, the policies and practices, should be examined, while at the same time asking if these barriers are real or perceived and whether they are necessary or if they have merely evolved over time. Then the areas of opportunity should be identified; CU should identify what has worked on the "islands" of entrepreneurship currently within the University and look at how to expand them. The Chancellor again emphasized that changing the culture of an institution is enormously difficult and said focusing on the culture of specific organizations and substructures may be easier. Finally, he said the role of entrepreneurship in CU's Flagship 2030 plan should be examined and that he would look into the role that entrepreneurship could play in the interdisciplinary aspect of the strategic plan as well as the experiential learning component.

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<sup>28</sup> The niche area approach may represent a variation on what has been termed elsewhere as a collaborative leadership strategy. See Peter D. Eckel & Adrianna Kezar, *The Effect of Institutional Culture on Change Strategies in Higher Education: Universal Principals or Culturally Responsive Concepts?*, 73 J. HIGHER ED. 440-41 (2002) (defining collaborative leadership as a process where both the leadership and other faculty in the campus are involved throughout the "change initiative"), available at [www.pkal.org/documents/EffectOfInstitutionalCulture.cfm](http://www.pkal.org/documents/EffectOfInstitutionalCulture.cfm).

## **Conclusion**

More than 35 people, including leading members of the Boulder/Denver entrepreneurial community and University leadership, came together to discuss how CU could become a more entrepreneurial university. Time and again, the participants pointed to clarity as a necessary ingredient in the process of changing CU's culture into one more supportive of entrepreneurial activity, regardless of the details involved. Overall, the participants recognized enormous opportunity in this area and encouraged the University of Colorado at Boulder to make it a priority in the years ahead.

Attachment A: Entrepreneurial University Roundtable Attendees  
(alphabetical by last name)

David Allen	<i>University of Colorado Technology Transfer Office—Associate Vice President</i>
John Bennett	<i>University of Colorado ATLAS Institute—Director</i>
Brad Bernthal	<i>University of Colorado Law School—Associate Clinical Professor</i>
Tim Bour	<i>Boulder Innovation Center—Executive Director</i>
Chris Bowman	<i>University of Colorado Chemical and Biological Engineering—Professor</i>
Jim Crowe	<i>Level 3—CEO</i>
George Derisio	<i>Serial Software Entrepreneur</i>
Philip DiStefano	<i>University of Colorado—Provost</i>
Brad Feld	<i>Foundry Group—Managing Director</i>
Brian Geoghegan	<i>University of Colorado Law School—Student</i>
David Getches	<i>University of Colorado Law School—Dean</i>
Chris Hazlitt	<i>Faegre and Benson, LLP—Partner</i>
Paul Jerde	<i>University of Colorado Deming Center for Entrepreneurship--Director</i>
Krista Kafer	<i>Independence Institute—Senior Fellow</i>
Chris Lane	<i>University of Colorado Law School Entrepreneurial Law Clinic—Student Manager</i>
Stephen Lawrence	<i>University of Colorado Deming Center for Entrepreneurship—Faculty Director</i>
Barbara Lawton	<i>University of Colorado Engineering Management Program—Faculty Director</i>
Mike Lightner	<i>University of Colorado Electrical and Computer Engineering—Chair</i>
Jim Linfield	<i>Cooley Godward Kronish, LLP—Partner</i>
Tom Lookabaugh	<i>University of Colorado—Adjunct Assistant Professor</i>
Jason Mendelson	<i>Foundry Group—Managing Director</i>
John Metzger	<i>Metzger Associates—CEO</i>
Garret Moddel	<i>University of Colorado Electrical and Computer Engineering-Professor</i>
Frank Moyes	<i>University of Colorado—Entrepreneurship Scholar in Residence</i>
Julie Penner	<i>University of Colorado Law School, Leeds School of Business—Student</i>
G.P. "Bud" Peterson	<i>University of Colorado-Chancellor</i>
Robert Reich	<i>Me.dium—Founder and VP</i>
Juan Rodriguez	<i>StorageTek &amp; Exabyte—Co-Founder and Serial Entrepreneur</i>
Jae Roh	<i>MIT--Alumnus</i>
Lucy Sanders	<i>National Center for Women &amp; Information Technology—Co-Founder and CEO</i>
Kaleb Sieh	<i>University of Colorado Law School—Student</i>
Tom Smerdon	<i>University of Colorado Technology Transfer Office—Director of New Business Development</i>
Kurt Smith	<i>Entrepreneur</i>
Jill VanMatre	<i>University of Colorado—Research Fellow with Silicon Flatirons and Assistant Director of ATLAS</i>
Philip Weiser	<i>University of Colorado Law School—Professor &amp; Executive Director of the Silicon Flatirons Program</i>