

Abstract

It is widely accepted that innovation is a critical part of the national economic recovery strategy and Democrats and Republicans alike are relying on the nation's research universities to lead the in the creation of new inventions. Yet universities are challenged in their attempts at commercialization with America's university innovation ecosystem generally being neither as efficient or effective as the economy demands. However, there are notable exceptions. Those institutions that have achieved success have addressed a number of barriers, but three are worth noting. Chief among these is the "cultural chasm" that must be bridged. The second barrier for many universities is geographic location. Investors' dollars are clustered on the East and West Coasts. The last of the big three barriers is the status quo. The concept of identifying and addressing these barriers seems simple, yet the unfortunate truth is that leadership at most universities is not aligned. Strategies are unclear. Ownership of the innovation/commercialization agenda is vague. In this environment there is no way to achieve the results lawmakers, business, and increasingly students and the public demand. If universities are to lead America's economic recovery, leadership must be aligned and committed to transforming and expanding academic culture. Innovation and commercialization is key to the new mission.

Closing Trap Doors Over the Valley of Death: University Leadership Alignment and Entrepreneurial Commitment:

It is widely accepted that innovation is a critical part of the national economic recovery strategy and Democrats and Republicans alike are relying on the nation's research universities to drive the strategy home.

And while university presidents from Arizona State, North Carolina-Chapel Hill, Michigan, and Georgia Tech, on behalf of the National Advisory Council on Innovation and Entrepreneurship, agreed to step up to the plate and support university tech transfer and faculty/student entrepreneurship, the desired results have fallen short of the collective desire to succeed.

In 2011, then U.S. Secretary of Commerce Gary Locke revealed the problem with American universities' attempts at commercialization: it's not working.

"It's hard to escape the conclusion that America's innovation ecosystem isn't as efficient or as effective as it needs to be," he stated bluntly.

Locke went on to point out that universities fail to create the right incentives or allocate adequate resources to generate new ideas and develop them with focused research. Further, universities are failing to turn ideas into businesses that create jobs, the key to America's economic recovery.

Locke, now the U.S. ambassador to China, isn't the only one with a growing sense of urgency toward universities. Lawmakers across the country are also looking to state-

funded institutions of higher learning to be the fire-starters of the nation's economic recovery and job creation. Yet it appears someone forgot the matches.

There are notable exceptions. In 2011, five institutions secured roughly 40 percent (\$777.2 million) of total licensing income (Northwestern University, University of California System, Columbia University, New York University, Princeton University). That same year, the University of California System and Massachusetts Institute of Technology (MIT) launched a total of 83 startup companies. ¹

Right behind these perennial heavy hitters were the University of Illinois, University of Texas System and University of Utah, with a combined \$119.7 million in licensing and 60 startups. Others like Baylor and Idaho State failed to score in licensing and startups. Obviously, while some universities have the recipe for commercialization, others don't.

For university presidents and provosts traditionally far removed from the streets of commerce, the expectation that they occupy America's economic driver's seat is a daunting task; particularly as state funds and investment dollars dwindle. Yet it's increasingly clear universities have no choice but to accept the new role. From the lecture halls to labs to trustee boardrooms, it's no longer business as usual.

Academic purists may question, is this expectation realistic? Isn't our core mission focused on research, education and service?

The answer is yes, but pure, basic research is not enough. Neither is simply educating students. With corporate R&D resources dwindling and job creation stagnant, universities, with their wealth of physical and intellectual assets, have a unique opportunity to broaden their mission and become high volume contributors to the nation's business infrastructure. Where else but universities is there such a wealth of smart people capable of creating disruptive technologies? Who else has access to non-dilutive capital (grants)? It's not Wall Street! It's not even Main Street.

University faculty members also have the luxury of tapping into the minds and resources of academic colleagues from other disciplines on campus and even across institutions. How else did the field of biomedical engineering emerge? This environment enables a high degree of intellectual cross pollenization that corporate R&D departments dream of.

Finally, universities have the power to influence national policy and are routinely called upon to weigh in on national issues such as the President's innovation agenda. All of these things—brainpower, access to capital, the ability to collaborate, and influence—give universities an advantage when it comes to ideation and commercialization.

Why then is it so difficult for universities to enter the commercialization fray?

There are a number of barriers, but three are worth noting. Chief among these is the “cultural chasm” that must be bridged. On one side is academia used to non-milestone driven scientific inquiry and the primary expectation of publishing papers and tenure as the carrot. On the other side are entrepreneurs, companies, and funders, like venture capitalists (VCs) hungry for investment opportunities, motivated by market demands, judged by investor milestones and, of course, eager for financial rewards.

Both sides recognize the need to achieve economic synergy. Both feel they have made significant investments in working together with mixed results. One trend is for universities to hire proven entrepreneurs. Too often, there is no meeting of the minds and recommendations are met with a “thanks, but no thanks” response. Yet it can and does work. Case in point, rising star University of Illinois has hired entrepreneurs to coach faculty and students through the difficult early startup phase. If the Fighting Illini’s success in licensing income and startups is any measure, universities would be well served to follow the advice of seasoned entrepreneurs.

The second barrier for many universities is geographic location. Investors’ dollars are clustered on the East and West Coasts. Stanford and MIT, located near Silicon Valley and Boston respectively, use proximity to venture capital to great advantage. Likewise, Columbia and New York University have a wealth of investors and corporate partners in their backyard. Universities in the flyover zones of the Midwest and Plains states find it much harder to secure corporate partners and funding.

There are exceptions to the geography rule. Northwestern has leveraged its Chicago locale into commercialization success. Likewise, the University of Nebraska has bucked the trend of less than optimum location and is finding great success in the commercialization/innovation arena. In 2010, Nebraska had \$3.7 million in licensing revenue, growing it to \$16.7 million in 2011. That same year, Nebraska had five startup companies. Obviously, Cornhusker leaders found a way to overcome the geography barrier.

The last of the big three barriers is the status quo. University life is far easier when change, particularly dramatic cultural change, is avoided. A single person or department with influence and a high comfort level with the status quo has the power to subvert commercialization progress. Getting everyone on the same bus and heading to the same destination often requires more intestinal fortitude than a university can manage.

Despite the barriers, high innovation capacity and a new cross campus culture of entrepreneurship and innovation are within universities' grasp. Achieving the cultural transformation needed to bridge the Valley of Death—the no man's land between basic research and applied research—may get down to one thing: asking a different question. Instead of asking, "How do we get to the other side?" universities should ask, "What are the trap doors over the Valley of Death that are keeping us from the other side?" When the trap doors impeding the shift to a culture of innovation/commercialization are identified, universities can deploy strategy and resources to overcome them.

Common trap doors impeding a culture of innovation are lack of varied skills and team strength, lack of faculty buy-in, market size, market timing, technical feasibility, and financial incentives. Trap doors unique to an institution include geography/location, access to corporate partners and speed of information.

The University of Utah has done an exceptional job slamming a number of trap doors shut. Geography has proved a non-issue. Utah's Technology Commercialization Office (TCO) is recognized among the best in the country. In 2011, Utah had 19 startup companies and more than \$37 million in licensing income. Faculty and student entrepreneurs enjoy tremendous support across campus. In August 2012, Utah's TCO announced a venture philanthropy campaign to raise \$2 million to provide seed capital to fledgling startups. Information about licensable technology is available on its website.

The concept of identifying and addressing these trapdoors seems simple, yet the unfortunate truth is that leadership at most universities is not aligned. Strategies are unclear. Ownership of the innovation/commercialization agenda is vague. In this environment there is no way to achieve the results lawmakers, business, and increasingly students and the public demand.

Thus, the first trapdoor to slam shut is lack of leadership commitment. Senior university leaders, including the president, provosts, deans, and trustees, must unite and align in support of a single commercialization strategy that promotes faculty and student entrepreneurship, encourages and facilitates active partnerships with business, and addresses the need for startup capital through research awards, grants and private investment. Strategy must be communicated and commitment demonstrated at every step of implementation. This visibility must be demonstrated internally to faculty, students, trustees and donors, and externally to business, potential investors and policy makers. Only then will the world know a university is serious.

Trapdoor two has to do with, dare we say it, money. Universities with high innovation capacity must be advocates of wealth creation, understanding that knowledge dissemination—the central charter of universities—also supports wealth creation. As hard as it is for some to swallow, it's O.K. if a professor or student gets rich from game-changing research. Likewise, it's O.K. for universities to reap the rewards of licensing fees. It's doubtful that the University of California System is complaining about the nine-figure licensing fees it collected in 2011. Those dollars go a long way toward making up for lost state funding.

Going against the grain of academic tradition takes a high level of fearlessness and is yet another trapdoor. High innovation capacity requires fast decision-making and a thick skin when people criticize and complain. Business does not have time to wait and neither do universities with successful innovation and commercialization strategies.

The goodwill of a university's diverse constituents should be considered and respected. To subvert controversy and continue forward momentum, universities may consider empowering a single person—a quarterback if you will—to oversee the implementation of the innovation/commercialization strategy, make decisions, and lead and respond to stakeholder dialogue. While it may seem undemocratic, singular responsibility in this instance enables a university to make decisions efficiently, to communicate a unified strategy, secure allegiance, and circumvent the expected and unexpected barriers that naturally arise in the face of transformational change.

Singular responsibility also eliminates the fragmentation and turf wars common to university innovation and commercialization efforts. Bringing multiple offices for licensing, entrepreneurship, and business development together under one person/one department has the residual benefits of making access to university assets easier for faculty and student entrepreneurs, facilitates company partnerships and can also encourage philanthropic support.

The final trapdoor to close is victimhood. Universities lament about poor location, size, no access to capital, few corporate partners—the list of excuses is endless. But take it from Carnegie Mellon in Pittsburgh PA: get over it! In 2011 Carnegie Mellon had 30 patents issued and 10 start-ups. University leadership attributes this success to strong administrative support, cultivating an atmosphere of innovation and adequate resources. Trapdoor closed!

Conclusion

In the end, former U.S. Commerce Secretary Locke's problem with universities' commercialization efforts is solvable. Universities know they can't pay lip service to innovation and commercialization. They must initiate and live by critical cultural changes across the organization. They must encourage faculty to go beyond the lab with their ideas and support student entrepreneurship. A successful cross campus, well-funded and supported innovation/commercialization program is fast becoming table stakes for attracting the best faculty, the best students, and engaged business and funding partners.

There are no two ways around it; protecting the franchise of the status quo assures failure. Without an architect to create and commit to the vision (university president) and a general contractor (a provost or other high level leader) to implement and enforce, time and capital will be wasted, talented faculty will become harder to attract and retain, and connecting with business and financial partners will be close to impossible.

If universities are to lead America's economic recovery, leadership must be aligned and committed to transforming and expanding academic culture. Innovation and commercialization is the new mission.

¹ Association of University of Technology Managers

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