

# The Entrepreneurial Land Grant: Commercialization within the Education Milieu

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Change is an ever-increasing factor in our dynamic world; the implications for higher education in the United States and globally are substantial. As I summarized in my 2005 Merrill paper, such change and its implications for higher education are occurring at multiple scales—yet our success as we look to the future will depend, in part, on how well we adapt to such multi-scale changes and embrace and engage in such change in ways that advance our respective institutions. For example, speaking before an audience of university officials in Hawaii, columnist Thomas Friedman stated that the United States will be challenged by India and China

as potential superpowers in the 21st century and that the U. S. will “not win by default.”<sup>1</sup> He added, “Less and less universities should be training students for specific jobs—many of which could be outsourced in the future.” Rather, he suggested that students will need to be synthesizers, explainers, and adaptors, as well as leveragers, who can figure out how one person can do the job of twenty, and localizers who can discover local angles to global business.”<sup>2</sup> To accomplish this, we in higher education are called upon not just to understand this imperative, but to take action to bring it about in order to insure the success and competitiveness of our graduates.

Yet, as we all know, many people at our institutions fear change—and sometimes for good reason.

Entrepreneurial activity, for example, can conceivably be positive, negative, or neutral to any given institution, depending on how it is framed within the context of the institution’s mission, priorities, culture, geographic setting, and capability. And some people seem committed to pursuing yesterday’s opportunities today, when in many cases such pursuits are neither prudent nor workable. We must look to the future in positive ways, through what I refer to as constructive engagement, to take advantage of opportunities as they emerge and be prepared to act quickly and effectively while protecting what is best in our traditions. As hockey great Wayne Gretzky stated so aptly on the secret of his success, “Skate toward where the puck will be, not where it is.”<sup>3</sup>

We in higher education need to do just that.

I think those of us at land-grant universities would agree that an important part of our institution's mission involves applied research and outreach. Yet, as Louis Pasteur noted in 1871, "There does not exist a category of science to which one can give the name applied science. There are science and the application of science, bound together by the fruit of the tree which bears it."<sup>4</sup> This is such a prescient observation and one which underscores the numerous imperatives that face today's land grant institutions and the linkages between our fundamental educational mission, as well as the application of our knowledge discoveries toward the benefit of humankind. These imperatives include:

- a) decreasing state support for higher education (at K-State the state proportion of our total budget is now 25%);
- b) financial necessity to become more self-sustaining, and thus, at least in part, more entrepreneurial—without compromising our land grant and public mission;
- c) the need to help drive, protect, and sustain economic growth that contributes to the state's overall economic well-being and beyond;
- d) the necessity for more interdisciplinary collaborations across campus and among partner institutions (the key research questions that we face today are at the interface of disciplines);
- e) the need to identify and take advantage of niche opportunities (we at K-State, for example, believe

we have one of the leading bioscience food safety and security programs in the United States with over 160 faculty in 5 colleges committed to this effort);

- f) the need to satisfy increasing demands from students as consumers of higher education while protecting land-grant ideals related to accessibility, as we build new learning environments that engage students in new ways;
- g) the need to increase the number of American students in STEM fields at both the undergraduate and graduate levels as has recently been emphasized in reports such as the federal government's "American Competitiveness Initiative: Leading the World in Innovation";<sup>5</sup>
- h) the need to be perceived as 'relevant' by the populace, the institution's governing boards, and the local, state, and national political leadership (including an ability to demonstrate through 'objective measures' accountability measures of our success—one only needs to read some of the recent press on U.S. Secretary of Education Margaret Spellings' Commission on the Future of Higher Education to see what we are and will be facing in the near term; and
- i) the need to be more outreach and service oriented—more engaged with community. (I have recently created a new Center for Engagement and Community Development at K-State, to at least in part, help enhance our commitment in this area).

To be sure, today's populace needs to be reassured regarding the relevance and importance of higher education and its role in society. Our needs and those of students are not always readily understood. For example, as Adelphi University's president Robert A. Scott noted, "The apparent desire to reduce total aid spending for students in part stems from a desire by members of Congress and other political bodies to cut back on any public spending, and they view higher education more as a private gain rather than a public good."<sup>6</sup> The relevance, importance, and value of higher education is palpable, but we must do a better job of getting this word out to those who need to hear it most, stressing direct and tangible ways that higher education enriches communities, states, and regions, as well as individuals. Meanwhile, entrepreneurship is a must.

### **Being More Entrepreneurial**

I would argue that a number of these aforementioned imperatives relate, at least in part, to our need as a land grant to be more entrepreneurial. In many ways, entrepreneurship is another way to think about pursuing a path of enlightened self interest. The etymological root of entrepreneur means 'to undertake.' This suggests a journey, and implicit in that is the notion of a specific destination. To be most effective, this undertaking should not be generic and unfocused but centered upon an institution's specific areas of expertise (both existing and upcoming) and capitalize on emerging areas of opportunities. Such opportunities can lead us, at least in part, toward more

commercialization ventures and risk linked to stimulating private enterprise. But at the same time, it is my opinion that while land-grants of the future must be greater players in this arena, we must do this while protecting and enhancing what is best in our rich and successful educational traditions as state-based institutions. As Pasteur noted over 150 years ago, "In the fields of observation, chance favors only those minds which are prepared."<sup>7</sup> Said another way, "Chance favors those institutions that are ready and waiting for opportunities for positive change."

And hundreds of institutions have committed to this effort to commercialize—with the result of hundreds of new start-up companies—and more than \$1 billion per year in revenues from licensing on a host of new drugs, agricultural products, high tech components, and other breakthrough technology.<sup>8</sup> Such opportunities leverage institutional strengths, spur innovation, reap financial benefits for the institutions, and provide incentives for faculty members. Texas A & M even recently initiated efforts to include patents as part of their consideration for faculty tenure profiles.<sup>9</sup> At the same time such activities must be structured without harm to the fundamental aspects of what we are as a student-centered, research extensive, comprehensive university. Clearly there are those examples which argue that if not thought through carefully, such activities can do potential harm to academe's traditional values with low rates of return for start-ups. But others would argue that such entrepreneurial activities create new and real

opportunities for students at both the undergraduate and graduate levels, can spur economic development at the community level, and complete our mission as a land grant highly research active university.

For those of us willing to pursue a strong entrepreneurial approach at our institutions, what seem to be some of the attitudes for success?<sup>10</sup> One is a demonstrated confidence in a vision and the passion to carry it through. In these times of dwindling resources and support, it is critical that we focus on challenges as opportunities and not as barriers. Secondly, inclusive leadership is essential. A willingness to engage diverse constituent groups is essential. Having a vision is not enough if it is not articulated in a way that resonates for and mobilizes key support groups. A third important attitude is where we use influence more than position power. A change agent must be willing and able to engage detractors as well as followers. And finally, a fourth attitude is skill in overcoming cultural obstacles. One needs to understand where in the institution people are married to the status quo and what it will take for them to see things differently.

We all know examples, as well, where leaders promoting institutional change through entrepreneurial initiatives have gone down the wrong path--the "Lone Ranger" behavior, underestimating the level of resistance to change, and underestimating cherished values of programs are clear examples of pursuing land mines.<sup>11</sup>

### **The Approach at Kansas State University**

At Kansas State University, our institution has had a long standing interest in commercialization through such entities as NISTAC (National Institute for Strategic Technology Acquisition and Commercialization), and the (AMI) Advanced Manufacturing Institute linking with our institutional strengths in such areas as animal health, biotechnology, and nanoscale material sciences. Such efforts have created start-up companies and positioned us to capitalize upon such broader statewide efforts as the Kansas Bioscience Authority.

As the institution's culture has started to change, we also have seen the need for greater coordination of research discovery and the development of response teams to support incubator businesses and related commercialization ventures. Thus, we have created the Commercialization Leadership Council (CLC), which Ron Trewyn spoke about earlier, that has facilitated a unique partnership between the City of Manhattan, the Manhattan Chamber of Commerce, NISTAC, KTEC, and the KSU Foundation, as well as the KSU Research Foundation. Beyond this coordinating council, we have focused a key component of our efforts on niche opportunities where we have particular institutional strengths. We realize we can't be all things to all people and are best served to focus in such areas as animal health, food safety and security, nanoscale technologies, and resource sustainability issues (e.g. implications related to limited water resources in parts of our state). Fortunately, and coincidentally, these niche areas for K-

State are of strategic importance to both the nation and the world and have the potential to be leveraged to good advantage for the benefit of the university and the global citizenry.

So what have been the implications for change at KSU? First, as we have worked toward a more entrepreneurial model, it has forced us to think new thoughts, communicate and interact with one another in new ways, and organize ourselves structurally to our best advantage. For one thing, our coordinated efforts have (at least theoretically) encouraged all key members of the university leadership to be pulling on the same oar. Secondly, such efforts have involved colleges in ways that have minimized turf battles as we have incentivized and maximized interdisciplinary interactions through a \$2 million per year targeted excellence program to elevate already strong programs to new levels of success. And lastly, these efforts have created new dialogue on how we can accomplish these entrepreneurial imperatives without losing academic integrity or compromising core institutional values as a result of what some have called 'commercial pressures to produce marketable products.'

### **Conclusions**

Overall, these are times of great change in higher education. We are all facing growing pressures at multiple scales regarding the quality of what we do, how we have balanced accessibility with enhancing student success, how we have driven efficiencies into our efforts, and how we have translated knowledge into economic development. Proactive

action and effective information sharing are needed as we make our way through these changes, and this mode of thought is exemplified by NASULGC's proposed accountability plan, spearheaded by former KU Provost Dave Shulenburg, for we are much better served in helping to define our own course of action than in responding to outside mandates.<sup>12</sup>

In summary, change occurs in response to specific motivators. At K-State and for many institutions like us, current economic imperatives dictate that higher education be more self-supporting. Such efforts reinforce our need to be more entrepreneurial while not sacrificing what is best in our traditions, as we support a broad range of programs and efforts that positively impact our students, the state of Kansas, and beyond. At the same time, effective entrepreneurial efforts should focus on specific niche areas that allow university strengths to be leveraged most effectively and efficiently. The added payback is that these efforts have the potential to strengthen and stimulate the related programmatic areas of the university in many positive ways. And finally, KSU thinking and planning to date has been both tightly focused, and in the case of donated technologies, opportunistic and more broadly conceived. This 3-way mix has laid the groundwork for creation of effective technology transfer operations that have the potential to financially benefit the university, strengthen our research capacity, and be of direct, experiential benefit to our students. Thus the fruit that we bear is a direct result of the fact that we as an institution are constantly changing and adapting to the myriad

economic and social conditions that we face in today's world. We are committed to maintaining our tradition of excellence in service to our students, our stakeholders, and the people of Kansas.

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