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**The Entrepreneurial University: A Select
Annotated Bibliography**

Cynthia A. Kehoe and Thomas McGearry
Academy for Entrepreneurial Leadership

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Introduction: This bibliography is meant to illustrate differing definitions of entrepreneurship in universities, and/or by faculty. It is not intended to be comprehensive. Examples of the many definitions: entrepreneurship education; commercialization of new technologies, including technology licensing, faculty startups; strong industry partnerships; entrepreneurship as a form of outreach and economic development; administrative activities – leadership under adversity, change; strategies of public universities to cope with decreasing public funding; for-profit universities or programs that are primarily online/distant – new organizational models. Institutional entrepreneurship / intrapreneurship that encompasses all of the institution is a quite uncommon perspective. Annotations for selected works follow the bibliographic list.

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ANNOTATIONS OF SELECTED WORKS¹

Altbach, Philip G., Robert O. Berdahl and Patricia J. Gumpert, eds. (1999). American Higher Education in the Twenty-first Century: Social, Political, and Economic Challenges. Baltimore: Johns Hopkins University Press.

Contents: The contexts of American higher education, by Robert O. Berdahl, Philip G. Altbach, and Patricia J. Gumpert. Patterns in higher education development, by Philip G. Altbach. The ten generations of American higher education, by Roger Geiger. Autonomy and accountability: Who controls academe? by Robert O. Berdahl and T.R. McConnell. Academic freedom: Past, present, and future, by Robert M. O'Neil. Issues facing higher education in the twenty-first century, by Ami Zusman. The federal government and higher education, by Lawrence E. Gladieux and Jacqueline E. King. The states and higher education, by Aims C. McGuinness Jr. The legal environment: The implementation of legal change on campus, by Michael A. Olivas. The hidden hand: External constituencies and their impact, by Fred F. Harclerod. Harsh realities: The professoriate faces a new century, by Philip G. Altbach. Students, colleges, and society: Considering the interconnections, by Eric L. Dey and Sylvia Hurtado. The dilemma of presidential leadership, by Robert Birnbaum. Financing higher education: Who should pay?, by D. Bruce Johnstone. Technology and higher education: Opportunities and challenges for the new era, by Patricia J. Gumpert and Marc Chun. Graduate education and research: Interdependence and strain, by Patricia J. Gumpert. The canon and the curriculum: Multicultural revolution and traditionalist revolt, by John K. Wilson. Race in higher education: The continuing crisis, by Philip G. Altbach, Kofi Lomotey, and Shariba Rivers Kyle.

Bercovitz, Janet, and Maryann Feldman. (2008). "Academic Entrepreneurs: Organizational Change at the Individual Level." Organization Science 19, 69-89.

[This article would be relevant in terms of suggesting what is effective (or signs of success) toward engaging faculty in the enterprise of the Entrepreneurial University. Cf: "The decisions by individual faculty members to actively engage in technology transfer signal their acceptance of the university's initiative for academic entrepreneurship." (p.70)]

Examines localized social learning in organizational subunits to explore the process of organizational change. An individual's decision to participate in strategic initiatives is influenced by prior social learning, as well as by relevant peer (or cohort) behaviors in the institution. Article is based on a study of 1,780 faculty participants in new university technology transfer initiative; examined were their backgrounds,

¹ Most annotations were prepared by Thomas McGeary.

work environments, and later engagement with academic entrepreneurship. Found that an individual's adoption of the new initiative could be substantive or symbolic.

Results suggest that individual attributes are conditioned by local work environment; individuals are more likely to participate if they trained at institutions that had accepted the new initiative and had been active in technology transfer. Other features of the 'localized social environment' such as department chair's or colleagues' participation increased an individual's participation in technology transfer. In cases of 'cognitive dissonance,' individuals will conform to local norms. Also found that the more time that had elapsed since graduate training, the less likely the individual would actively embrace the new commercialization norm. (tnm)

Bird, Barbara J., David J. Hayward, and David N. Allen (1993). "Conflicts in the Commercialization of Knowledge: Perspectives from Science and Entrepreneurship." Entrepreneurship Theory and Practice, 17(4): 57-77.

Conflicts of interest and values between university research and the commercialization of its results are examined. Results reveal that science faculty recognize role conflicts between academe and the commercial world less than entrepreneurship faculty do. They highly identify with academic values and are more likely to create stronger boundaries between academe and commerce, such as taking leave of academic duties while pursuing commercial endeavors. Entrepreneurship faculty, on the other hand, have a clear professional identification with entrepreneurial values and are more likely to engage in entrepreneurial behavior, especially among those with less nonacademic job experience.

Blustain, Harvey, Philip Goldstein, and Gregory Lozier (1999), "Assessing the New Competitive Landscape." In Dancing with the Devil: Information Technology and the New Competition in Higher Education, ed. by Richard N. Katz and associates. Jossey-Bass. <http://net.educause.edu/ir/library/html/cem/cem98/cem9834.html>

This article presents a framework for beginning to respond to the new delivery technologies, changing demographics, corporate universities, and global economy, which are creating a new competitive landscape for higher education. Identifies several of the drivers of change as the student and the social environment; identifies sources of competitive advantage and market segments; and includes case study of an anonymous university that successfully implemented a distance learning program. (tnm)

Some applications of publication:

Ask: for what context, conditions, or circumstances can the entrepreneurial university find its sources of competitive advantage?

The Entrepreneurial University needs to define a broad strategy for competing in new markets. That way, it can establish and communicate the new ventures it will support.

Barriers: The article identifies some barriers to an institution's ability to be proactively innovative:

Fixed costs in faculty

Fixed costs in physical plant

Professional paradigms

Potentially large investments in technology

Non- or anti-business orientation

Bok, Derek C. (2003). Universities in the Marketplace: The Commercialization of Higher Education. Princeton, N.J.: Princeton University Press.

Contents: The roots of commercialization -- Avoiding bias -- Athletics -- Scientific research -- Education -- The benefits and costs of commercialization -- Reforming athletics -- Protecting the integrity of research -- Preserving educational values -- Living up to the rules -- Seizing the moment.

Boyce, Mary E. (2003). "Organizational Learning is Essential to Achieving and Sustaining Change in Higher Education." Innovative Higher Education 28, 119-136.

[Applications to issue of what to do to implement a sustainable change to an Entrepreneurial University]

This review of the literature on organization change focuses on the problem of sustaining successful change. An essential aspect of sustaining successful organizational change is establishing conditions for continued organizational learning. One set of researchers proposed that there was coupling within top leadership, between leadership and its organizational constituents, and between leadership and organization's external constituents. There are institutional domains, structural process, and attitudes; and change must be coupled in all three domains to be sustained. Two theoretical orientations are possible, based on institutional and organizational theory. Research suggests that innovation may be more successful at the fringe of a population of institutions (such as a small, private liberal arts college), than at large mainstream institutions. Indicators of successful change are changes in institutional actions and performance values, and shifts in values, assumptions, and approaches to inquiry.

A summary of learning theory suggests that *second-order change* (irreversible and transformational change that alters assumptions and values) and *double-loop learning* (learning that questions underlying assumptions) proceed concurrently to produce sustainable, transformative institutional change. Such change requires rigorous organizational inquiry, examining assumptions, challenging mental models, and

acting on what is learned. This change is not a project, but a continuous state. Two four-state models for individuals and organizations are presented.

Finally, practices for sustaining are identified: practicing inquiry and dialogue, utilizing action learning, and embedding change in the structure, systems, and cultures of the institution. (tnm)

Burbules, Nicholas C., and Thomas A. Callister, Jr, (2000). "Universities in Transition: The Promise and the Challenge of New Technologies." Teachers College Record (102), 271-293.

Reviews two interrelated sets of changes impacting higher education. Most important is the incorporation of new information and communication technology into teaching activities; second are the changes arising from the conditions of globalization of social, economic, political, and cultural institutions. Some ethical and policy issues arising from these changes are considered. The changes put constraints on the futures a university might pursue. The consequences of these changes on the teaching-learning environment are identified or predicted, in such areas as online learning and forming higher education-business alliances. Entrepreneurial models will be applied to teaching activities (with implications for intellectual property rights). These trends will require reorientation of the kinds of legitimacy the university seeks. Three constraints are noted: available funding, changing demographics of students, and increasing number of competitors. (tnm)

Cherwitz, Richard A. (Jul/Aug 2005). "Intellectual Entrepreneurship." Academe 91, p. 69 (electronic version)

and

Cherwitz, Richard A., and Charlotte A. Sullivan. (Nov/Dec 2002). "Intellectual Entrepreneurship: A Vision for Graduate Education." Change, pp. 23-27.

A research university should integrate "intellectual capital" as a lever for social good. Scholars are by definition "intellectual entrepreneurs," experts willing to collaborate to solve society's problems (social entrepreneurship). Cherwitz describes the Intellectual Entrepreneurship Program at the University of Texas-Austin, whose goal is to produce "citizen-scholars."

The program, a philosophy of graduate education, rests on four values: vision and discovery, ownership and accountability, integrative thinking and action, and collaboration and teamwork. Through cross-disciplinary courses, groups, and services, the program provides structured experiences incorporating entrepreneurial thinking into learning in the arts and sciences to solve social problems in the community. At a university embracing Intellectual Entrepreneurship, research and learning would be defined by questions, by interdisciplinary learning of value to

students and society, service “with” society, and by problem solving. Graduates find innovative jobs using their degrees to make differences in their communities. (tnm)

Clark, Burton R. (2003). Creating Entrepreneurial Universities: Organizational Pathways of Transformation. Oxford, Pergamon. 180pp.

Contents: Pathways of Transformation. Entrepreneurial Pathways of University Transformation. Case Studies of European Innovative Universities. The Warwick Way: Transformation in an English Research University. The Twente Response: Construction of a Dutch Entrepreneurial University. The Strathclyde Phenomenon: Organizational Assertion of Useful Learning in Scotland. The Chalmers Thrust: Entrepreneurial Autonomy in the Swedish University System. The Joensuu Reform: Piloting Decentralized Control in Finnish Universities. University Transformation. The Problem of University Transformation.

Clark, Burton R. (2004). “Delineating the Character of the Entrepreneurial University.” Higher Education Policy 17, 355-70.

This essay follows on Clark’s 1998 book, Creating the Entrepreneurial University, which used European cases to conceptualize five “pathways of transformation.” Drawing on the final chapter of his 2004 book, Sustaining Change in Universities, which looked at exemplars of entrepreneurial action, this essay presents key features of change-promoting organization in universities, and highlights the centrality of university-led action, offering an argument for the growing advantages of entrepreneurial universities in the 21st century.

For a university to become entrepreneurial, it must acquire the kind of organization that allows it to be in a state of continuous change and adaptiveness, and allows its members to be more effective. This new kind of university has two key features: transforming elements and sustaining dynamics. The elements of transformation are a diversified funding base (though entrepreneurialism in universities is not synonymous with commercialization); administrative strength; an extended periphery of departments; entrepreneurialism in ‘heartland’ departments; and institution-wide entrepreneurial culture (vigorous assertion of distinct identities). Second is a sustaining dynamics and a steady state of change. Of models of universities, “the institution-led pathway of change” (the Kerr-Carnegie mode of reform) is preferable, which gives dominance to the values of institutional diversity and initiative. (tnm)

Couturier, Lara K. (2006). Checks and Balances at Work: The Restructuring of Virginia’s Public Higher Education System. San Jose, Ca. The National Center for Public Policy and Higher Education. 97 pp.

In 2002, a routine conflict over who should set the tuition in the Commonwealth of Virginia set off a statewide discussion of institutional management and accountability (state and institutional roles) in the context of public policy over higher education; that discussion produced in 2005 a renegotiation of the relationship between the Commonwealth of Virginia and its public higher education system.

The result was two initiatives. The three major institutions (University of Virginia, the College of William and Mary, and Virginia Polytechnic Institute and State University) proposed to become "charter" universities that could set their own tuition and become more autonomous as political subdivisions of the state. At the same time, the Governor was leading an effort to reform the state's higher education.

As a result, all the stakeholders got involved and renegotiated their wants and needs. The result was that the higher education institutions remained state agencies (at different levels of autonomy) but agreed to meet a series of eleven specific performance goals that address state needs. A State Council of Higher Education for Virginia will assess achievement of these goals and be able to offer financial incentives. Autonomy came at the price of accountability for specific performance goals. Some implications of the Virginia example for national public higher education are explored. (tnm)

d'Ambrosio, Madeleine and Ronald G. Ehrenberg (2007). Transformational Change in Higher Education: Positioning Colleges and Universities for Future Success. Northampton, MA: Edward Elgar.

Contents: Balancing the challenges of today with the promise of tomorrow: A presidential perspective, F. King Alexander. Strengthening the academic presidency: Recommendations for presidents and governing boards, Robert M. O'Neil. Aligning institutional vision with policymakers' and the public's interests, Patrick M. Callan. Financing institutional operations: The entrepreneurial leader, James C. Hearn. Changing student access through strategic pricing initiatives, Donald E. Heller. Perspectives on transformational change from the TIAA-CREF experience, Herbert M. Allison Jr.

Dowd, Karen O. and David M. Kaplan (2005). "The Career Life of Academics: Boundaried or Boundaryless?" Human Relations, 58(6):699-721.

In theory, tenure should ensure academic freedom and autonomy. In reality, some tenure-track academics experience rigid career paths and inertia once tenure is received. Here a typology of four academic career types is developed, differentiating between individuals who perceive themselves as leading boundaried and boundaryless careers. Interview data from business faculty was used to develop the typology.

Etzkowitz, Henry (2003). "Research Groups as 'Quasi-firms': The Invention of the Entrepreneurial University." Research Policy, 32, 109-121.

Note: the concept of entrepreneurial university used in this article is similar to that in Etzkowitz, Webster, Gebhardt, et al. (2000) above.

Academia has become entrepreneurial in its inner dynamic and external connections developed for research contracts and technology transfer. The entrepreneurial university is the working out of the logic of academic development from teaching to research. The research university is based on research groups that have firm-like qualities (especially in conditions for competition for funding). The research university has homologous qualities with start-ups even prior to actual entrepreneurial activities. The entrepreneurial university is a second academic revolution. (tnm)

Etzkowitz, Henry, Andrew Webster, Christine Gebhardt, et al. (2000). "The Future of the University and the University of the Future: Evolution of Ivory Tower to Entrepreneurial Paradigm." Research Policy 29, 313-330.

nota bene: for this paper, the entrepreneurial university is a third mission of economic development, not entrepreneurship applied to usual teaching and research missions. Cf. Etzkowitz (2003) below.

Identifying, creating, and commercializing intellectual property are now institutional objectives in academic systems. Using the triple helix model, outlines an emergent entrepreneurial paradigm in which the university plays an enhanced role in technological innovation. In this new model, a third mission of economic development joins research and development.

This shift arises from the internal development of the university and external influences associated with emergence of "knowledge-based" innovation. Entrepreneurship is undertaken for regional development and for university's financial advantage. This transition is encouraged by government as an economic development strategy that reflects changes in the relationship between knowledge producers and users. The entrepreneurial university is achieved through the alignment of economic development and teaching and research. The entrepreneurial university is a global phenomenon. There are four mechanisms and structures involved: (1) internal transformation, (2) trans-institutional impact, (3) interface processes, and (4) recursive effects (pp. 316-17)

Barriers: The entrepreneurial paradigm is seen as a threat to the traditional integrity of the university; it should be encapsulated in special institutions because the university may lose its role as independent critic. Some corporations see new firms arising from universities as competitors (p. 314). (tnm)

Fisher, James L., and James V. Koch (2004). The Entrepreneurial College President. Westport, CT: Praeger. 179 pp.

This is a statistical study from 2002 of the behavior, attitudes, and values of college presidents who are identified as entrepreneurial as opposed to merely representative. Differences between male and female, and minority and Caucasian presidents are examined. Special attention is given to the attitudes and behavior of these presidents and how they determine presidential success. Eleven hypotheses were generated describing the entrepreneurial president. Analysis confirmed that (a) a distinctive class of entrepreneurial presidents exists, and (b) that “effective presidents are entrepreneurial in outlook and behavior” (p103).

Barriers: Of application to the Entrepreneurial University is the identification of sources of “antipathy” (or barriers) to entrepreneurship in the academy. To some faculty, it represents nonacademic, profit-driven business uninterested in traditional academic verities, which threatens the cultivation of intellect. (See Paul Axelrod, Values in Conflict: The University, the Marketplace, and the Trials of a Liberal Education (Montreal: McGill-Queen’s University Press, 2003).

For Derek Bok, all too often everything on a campus is for sale; there are possible conflicts of interest by commercial connections of universities that may threaten academic freedom. There may be short-term gains, but long-term effects. (See Derek Bok, Universities in the Marketplace: The Commercialization of Higher Education (Princeton: Princeton University Press, 2003) (tnm)

Gilliland, Martha W. (2004). “Leading a Public University: Lessons Learned in Choosing the Possibility of Quantum Results rather than Incremental Improvement.” Public Administration Review, 64, 372-377.

Presents leadership principles that are proving vital to creating and sustaining a “quantum organization producing quantum results.” In such an organization, people relate in a self-organizing, boundary-crossing way. The quantum organization (as opposed to a classic Newtonian/Cartesian one) is unpredictable, holistic, relational, and emergent. The essay is a case study of how, as president, the author implemented quantum results at University of Missouri-Kansas City. (tnm)

Application: Assuming the transformation to an Entrepreneurial University would be a “quantum” rather than incremental improvement, the ten leadership principles (quoted verbatim below) offered by the author could be relevant or adaptable:

- 1. Make certain your constituents - those you are serving - are expressed in the vision statement for the organization.*
- 2. Make certain a critical mass of employees “owns” the vision statement.*
- 3. As the leader, take a stand for the vision over and over and over (and over) again.*
- 4. Make certain that values matter.*
- 5. Use values to engage and create possibilities, not to judge.*

6. *Develop a leadership team that is committed to the vision and manages to the vision.*
7. *Create opportunities and a culture for others to fulfill the vision.*
8. *Produce some early results that demonstrate the organization's potential for quantum results.*
9. *Align management practices with the vision and management behaviors with the values.*
10. *Lead from a place of self-knowledge— "Know thyself."*

Four strands of change must unfold early and simultaneously.

1. *a vision for the constituency*
2. *values that engage institution's possibility*
3. *early results that demonstrate performance not previously seen*
4. *alignment of management practices and policies with the vision and values*

Glassman, Alan M., and others (2003). "Academic Entrepreneurship: Views on Balancing the Acropolis and the Agora." Journal of Management Inquiry, 12(4):353-374.

A series of case studies with academicians is presented to support the notion of academic entrepreneurship and suggest ways that individual faculty members, program managers, department chairs, deans, and provosts can support academic entrepreneurship by creating opportunities, nurturing people who act on those opportunities, capturing resources, and supporting a culture that promotes academic entrepreneurial activities.

Ikenberry, Stanley O. (1997). "The Entrepreneurial Campus: A Time for Innovation (and Caution)." Educational Record, v. 78, n. 1, 7-8. (introduction to special issue of Educational Record)

The commercial dimension of higher education conflicts with our usual vision of the academy's mission. However, the university now exists in a context of commercialization, the free market, and competition (based on quality and price). The growing commercialization of higher education must not be judged, but understood. Ikenberry poses the question: when does a university's exploitation of intellectual property rights make it more committed to its own well-being than to the values of academic life and the society it serves? The commercialization arising from the technological revolution means commercial vendors such as Microsoft, IBM, and Disney may become new academic competitors. Finally, asserts that colleges and universities must adapt to the new economic era, even though this new world carries significant risks to traditional mission and character of colleges and universities as seen by society: the challenge is to preserve academic freedom and the university's role as a social critic. This is a time for optimism and innovation, but contemplation and caution as well. (tnm)

Isaksen, Scott G., and Kenneth J. Lauer (2002). "The Climate for Creativity and Change in Teams." Creativity and Innovation Management 11, 74-86.

Argues there are clear and meaningfully distinct climates for creative team performance. This conclusion is based on a study examining the ability of the Situational Outlook Questionnaire to identify climates that either encourage or discourage creativity and foster the ability to initiate change in a team setting. Nine dimensions of the climate of creativity are identified: challenge and involvement, freedom, trust and openness, idea time, playfulness and humor, conflict, idea support, debate, and risk-taking. (tnm)

Application: the article cites a large literature about creativity and climate that could be adapted to conditions for an Entrepreneurial University.

Kezar, Adrianna, and Peter D. Eckel. (2002). "The Effect of Institutional Culture on Change Strategies in Higher Education." The Journal of Higher Education 73, 435-460.

Moving beyond generalized or universal principles of change, the authors adopt a two-tiered cultural framework to examine the effect of institutional culture on change strategies. The dual level of analysis uses Bergquist's four academic cultures (collegial, managerial, developmental, and negotiating) and Tierney's individual institutional culture framework (environment, mission, socialization, information, strategy, and leadership). Results are based on study of six institutions.

Five core change strategies are identified: (1) senior administrative support, (2) collaborative leadership, (3) robust design (vision), (4) staff development, and (5) visible actions. (These strategies are listed in detail in tables, listed according to academic culture). Results suggest a relationship between institutional culture and change.

Also confirmed are several assumptions from cultural theory: the significance of culturally appropriate strategies, the importance of examining multiple layers of culture (enterprise, institutional, group); successful change strategies are aligned with the culture; and the possibility of predicting those strategies that will be most important. Implications for campus change agents are offered. (tnm)

Application: concepts could be applied toward identifying the institutional/cultural features of an Entrepreneurial University, or how to use institutional theory to transform to an Entrepreneurial University.

Laukkanen, Mauri (2003). "Exploring Academic Entrepreneurship: Drivers and Tensions of University-based Business." Journal of Small Business and Enterprise Development, 10(4):372-382.

The transformation of universities from being places of research and learning to including entrepreneurial activity that drives regional economic growth is investigated with respect to its demands on faculty. Cognitive cause maps are used in two key domains: university-corporate cooperation in applied research and direct faculty entrepreneurship. Results confirm findings in the literature regarding demands on faculty; however, the cause maps provide a structured, systematic view.

Levine, Arthur (2001). "The Remaking of the American University." Innovative Higher Education 25, 253-267.

[possibly of use for its typology of the pre-Entrepreneurial University and forces that could be affecting or producing the Entrepreneurial University).

The major models of the university are the teaching university, the research university, and the "multi-university." Five forces are reshaping higher education today: (1) rise of an information economy, (2) changing demographics, (3) new technologies, (4) privatization of higher education, and (5) convergence of knowledge producing organizations. These forces are likely to produce a revolution in higher education: (1) expanded and diverse educational providers, (2) rise of "brick, click, and brick-and-click" colleges, (3) reduced number of physical campuses, (4) rise of international institutions, (5) increasing independence of faculty from campuses, (6) growing customization of higher education, and (7) shift from teaching to learning. (tnm)

Litan, Robert E., Lesa Mitchell, and E.J. Reedy. (2007). Commercializing University Innovations: Alternative Approaches. Working paper, National Bureau of Economic Research. (35p. electronic version)
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=976005

and

Litan, Robert E., Lesa Mitchell, and E.J. Reedy (2008). "Commercializing University Innovations: Alternative Approaches." In: Innovation Policy and the Economy. NBER Conference held April 12, 2007. Vol. 8, p.31-58. University of Chicago Press.
<http://www.nber.org/books/jaff08-1/>

Note: This working paper is an expanded version (adding tables, charts, and bibliography) of Litan, Robert E., Lesa Mitchell, and E.J. Reedy. (2007). "The University as Innovator: Bumps in the Road." Issues in Science and Technology 23, 57-66. Since the structure and content of the two versions is very similar, this abstract serves both items equally well.

Universities and their researchers have been a catalyst for U.S. economic growth, but a continuing challenge has been to ensure that university structures help, not hinder, innovation and its commercialization. As a result of the Bayh-Dole Act of 1980, many universities channel their innovation dissemination activities through a central technology transfer office (TTO). Authors argue that in too many cases, university

leaders have backed policies that make TTO's bottlenecks, rather than facilitators of innovation dissemination. In these cases, TTOs have been required to concentrate too heavily in maximizing revenues from licensing university intellectual property (IP), instead of maximizing the volume of innovations brought to the marketplace and being a facilitator of commercialization. The causes are centralization of TT in the TTOs and rewarding TTOs on revenue generated. The result is that the TTO is a bottleneck, focusing on innovations with the biggest, fastest payback; the TT becomes a linear process. Time taken for TT is excessive.

In fact, universities diffuse their innovations in a variety of ways; hence, measuring just licensing or patenting revenue is a poor indicator of knowledge diffusion and under-represents the extent of university entrepreneurship; nor is a single TTO the best way to deal with such diverse activities. Universities must emphasize maximizing the volume of innovations brought to the marketplace and increasing the speed of commercialization (i.e., increase volume and speed); ways to do so are offered.

Technology can best be diffused by exploiting the decentralized nature of innovation and the university's faculty. A system encouraging innovation that reduces transactions costs is best built bottom-up. Authors propose a value-chain model, whereby universities disaggregate their functions, and divide and assign TT functions to specialists and leverage outside partners. This puts the emphasis on a volume model, which has four variations: free agency, regional alliances, Internet-based approaches, and faculty loyalty. (tnm)

Application: an Entrepreneurial University should measure its effectiveness and productivity not in terms of increased revenue stream from commercialization of IP, but in the volume and speed of getting innovations diffused.

Barriers to being an Entrepreneurial University would be maintaining a TT process that centers on linear, monopolistic, revenue-focused TTOs.

Louis, Karen S., David Blumenthal, Michael E. Gluck, and Michael A. Stoto (1989). "Entrepreneurs in Academe: An exploration of Behaviors among Life Scientists." Administrative Science Quarterly, 34:110-131.

Norms governing relationships between life science university faculty members and the commercial sector are investigated. A survey of life science faculty is used to create five categories of academic entrepreneurship activities: large-scale, externally-funded research; supplemental income earning; generating industry support for university research; obtaining patents or generating trade secrets; and holding equity in private companies based on licensed research products. Results show that individual characteristics and attitudes of researchers are the most important predictors of large-scale research and supplemental income, while local group norms better predict involvement in commercialization. University policies were found to have little effect on entrepreneurship activities of faculty and few academic groups develop norms that encourage multiple forms of entrepreneurship.

Louis, Karen S., and others (2001). "Entrepreneurship, Secrecy, and Productivity: A Comparison of Clinical and Non-clinical Life Sciences Faculty." Journal of Technology Transfer, 26:233-245.

Entrepreneurial involvement with industry by corporate-supported clinical and non-clinical faculty researchers in the life sciences is investigated. First, the study examines differences in entrepreneurial behavior between clinical and non-clinical researchers and second, it attempts to discover links between entrepreneurship and secrecy or productivity. Results show that non-clinical researchers are more entrepreneurial, that is, they are more personally involved in the commercialization of their research, whereas clinical researchers are more dependent on industry funding. Also, non-clinical faculty are more likely to be secretive about their research than clinical faculty. This is attributed to the restricted access to research, data, results, or products that non-clinical faculty experience compared to clinical faculty.

Markman, Gideon D., Peter T. Gianiodis, Phillip H. Phan, and David B. Balkin (2004). "Entrepreneurship from the Ivory Tower: Do Incentive Systems Matter?" Journal of Technology Transfer, 29:353-364.

The effect incentive systems have on entrepreneurial activities at U.S. universities is investigated. Entrepreneurial activities are measured in the form of new venture licenses, university business incubators, and startup ventures based on university technology. Incentive systems studied include monetary payments to inventors, their departments, and university technology transfer office personnel. In contrast to predictions, incentives to research inventors and their departments were found to be negatively related to entrepreneurial activity. In support of predictions, payments to technology transfer office personnel were found to be positively related to entrepreneurial activity.

NCGE (National Council for Graduate Entrepreneurship [U.K.]) (2007?). Enterprise and Entrepreneurship in Higher Education. Birmingham, UK. National Council for Graduate Entrepreneurship. 9 pp. http://www.ncge.com/uploads/NCGE_Report_2007.pdf

This summary reports the outlook for enterprise and entrepreneurship education in the UK, and asks how effectively UK is "embedding a culture of enterprise and entrepreneurship within [its] institutional policies, infrastructures and teaching and learning practices." Also considers funding and how well enterprise and entrepreneurship education are engaging the student population. Summarizes results of a survey of 127 universities in the UK, which examined sustainability, scale, reach, relevance, consistency, commitment, and equality of exposure. Key findings are summarized under two broad headings: (1) national (student engagement, in-

curricula provision, extra-curricular provision, funding, and entrepreneurial university characteristics), and (2) regional. The report concludes that UK universities are rising to the challenge of embedding an enterprise and entrepreneurship culture. Provides some strategies to improve and expand the culture. (tnm)

Application: Some of the action points or strategies in NCGE (2007, p. 3) can be paraphrased or modified into criteria for recognizing/assessing an Entrepreneurial University (EU):

- *Have we developed an over-arching vision and strategic framework with agreed outcomes for an EU?*
- *Have government and its agents legitimized the EU's value by embedding its outcomes in policy frameworks and benchmarking criteria?*
- *Has a model reflecting a wider world view of entrepreneurship been developed that will create an entrepreneurial culture within the university?*
- *Have existing funding structures been exploited and expanded?*
- *Has the development of innovative approaches across all faculties, disciplines, and subjects been supported?*
- *Has strong leadership been built to champion long-term change to the EU?*
- *Have opportunities for interaction with entrepreneurial people and organizations been facilitated?*
- *Has international recognition of enterprise and entrepreneurship as a priority leadership issue been secured?*

Some of the findings in NCGE (2007, pp. 5,6) can be paraphrased or modified into entrepreneurial characteristics/features of an Entrepreneurial University (EU):

- *senior administrator responsible for entrepreneurship*
- *explicit entrepreneurial policy*
- *entrepreneurship in mission statement*
- *faculty-level entrepreneurial policies*
- *professors of practice*
- *incubators*
- *start-up funds*
- *staff training*

Staff needs are identified in NCGE (2007, p. 5): support for technology transfer, support for commercialization, funds for staff CPD, support for staff training, and curricula development funds.

Newman, Frank, Lara Couturier and Jamie Scurry (2004). The Future of Higher Education: Rhetoric, Reality, and the Risks of the Market. San Francisco: Jossey-Bass.

Contents: Higher education in the grip of transforming change. The new competition. The coming of the market. The growing gap between public needs and the reality of higher education. The public, political leaders, and the academy view higher education. Creating a thoughtful market. Autonomy, accountability, and the new compact. Who is responsible for student learning? Expanding access and

succeeding. Competitive grants for teaching and institutional service. College and university strategies for the new era. A decade of opportunity.

Perlman, Baron, James Gueths, and Donald A. Weber (1988). The Academic Intrapreneur: Strategy, Innovation, and Management in Higher Education. New York, Praeger. 208 pp.

To maintain their strengths and build for vital futures (being alive, flexible, and strong), universities must cultivate intrapreneurial teams -- teams of employees who originate, analyze, and implement ideas -- solidifying what works, discarding what is nonproductive, and implementing new ones.

Part 1 argues that lessons of intrapreneurship and innovation are relevant to academe (Peter Drucker is cited often). Intrapreneurs work for themselves within an organization; they are concerned with opportunity. Part 2 focuses on the dimension of the intrapreneur's world: leadership empowerment, organizational-level processes, and the culture that supports intrapreneurship. The system variables related to intrapreneurship are rewards, technology, values, bureaucracy, structure, and strategic types.

Part 3 presents a case study of intrapreneurship at a university, in which the traditional academic calendar and course assignment were modified. Part 4 uses the concepts and language already developed to understand the intrapreneurial experiences presented in the case study, including the role of technology and the effect of intrapreneurship on creating a new institutional "expert" culture to meet the faculty's needs.

Part 5 looks to the future and describes a Transpreneurial Organization in terms of its structure, strategy, systems, and vision. The Transpreneurial Organization values people and their empowerment and searches for internal strength and future vitality; the future place of intrapreneurship in the academy is explored. An epilogue summarizes the success and failures of the intrapreneurial product of the case study. (tnm)

Pusser, Brian (2005). Arenas of Entrepreneurship: Where Nonprofit and For-Profit Institutions Compete. San Francisco: Jossey-Bass.

Contents: Entrepreneurship in higher education, by David W. Breneman. The business culture of the community college: Students as consumers; students as commodities, by John S. Levin. Entrepreneurial activity in nonprofit institutions: A portrait of continuing education, by Brian Pusser, Bruce M. Gansneder, Ned Gallaway & Nakia S. Pope. Entrepreneurial organization at the academic core: The case of summer sessions, by Dudley J. Doane & Brian Pusser. The role of noncredit courses in serving nontraditional learners, by John Milam. A profile of regionally accredited for-profit institutions of higher education, by Kevin Kinser. The unspoken

is being undone: The market's impact on higher education's public purposes, by Lara K. Couturier.

Slaughter, Sheila A. and Larry L. Leslie (1999). Academic Capitalism: Politics, Policies, and the Entrepreneurial University. Baltimore, MD: The Johns Hopkins University Press.

Chapters: 1. Academic Capitalism. 2. Academic Science and Technology in the Global Marketplace. 3. Organizational Turbulence and Resource Dependence. 4. Advantages and Disadvantages of Academic Capitalism. 5. Technology Transfer Strategies as a Response to Resource Dependence. 6. Entrepreneurial Knowledge. 7. Reprise: Academic Capitalism. Appendix: Changes in Financing Higher Education in OECD Countries and the Four Nations.

Soares, Virgilio A. Meira and Alberto M.S.C. Amaral, eds. (1999). Special Issue: The Entrepreneurial University: How to Survive and Prosper in an Era of Global Competition. Higher Education in Europe XXIV(1), 1-141.

Contents: The Entrepreneurial University: a Fine Answer to a Difficult Problem? Virgílio A. Meira Soares and Alberto M.S.C. Amaral. Towards More Adaptive Universities: Trends of Institutional Reform in Europe. Barbara Sporn. The Entrepreneurial University as a Learning University. Bente Kristensen. The University-Industry Relations of an Entrepreneurial University: the Case of the University of Twente. Frits Schutte. The Responses of Higher Education Institutions to Global Challenge: Innovative Universities and Human Resources Development. Francesc Solé Parellada and Josep Coll Bertrán. How a Regional University can both survive and Develop in a Rapidly Changing Operational and Economic Environment: the Case of the University of Oulu. Lauri H.J. Lajunen, Mailis Aaltonen, and Sinikka Koivunen. Vital Resources for Global Competition: Quality, Adaptability, and a Regional Role. Rezső Mészáros. The American University in Bulgaria as an Entrepreneurial University. J. Barry Chambers. Innovative Partnerships in the Knowledge Industry. Richard Mawditt and Ernst Wilmink. Patterns of Academic Inflow into the Higher Education System of the United Kingdom. Sami Mahroum. Guidelines for the Reform of Education. Andrei Marga.

TheCenter (March 2001). Quality Engines: The Strategic Principles for Competitive Universities in the Twenty-First Century. The Lombardi Program on Measuring University Performance, University of Florida (14 page electronic version).

and

TheCenter. (July 2001). Quality Engines: The Competitive Context for Research Universities. The Lombardi Program on Measuring University Performance, University of Florida. 34 pp.

The U.S. research university is the most effective engine for advancing knowledge. The University can be modeled as an academic core and administrative shell (see TheCenter (July 2001), above); also argues that instead of rankings, it is better to classify, say, the top 25 research universities according to measurable indicators of quality and improvement (see TheCenter (July 2001), above). With attention to these indicators, a university can create the incentives that will guarantee its improvement. Offers nine principles for “universities that choose to improve relative to their peers” (p. 10, March01).

Presents a model of U.S. research universities as having an academic core (the “guilds” or disciplines) and an administrative shell. The goal of the research university is to create internal quality (of faculty and students), or to be “quality engines.” The shell maximizes revenue to purchase quality. There is a close relation between money and quality. “The university organizes its systems into a revenue generating organization on behalf of faculty research and student quality” (p.16, Jul01). TheCenter classifies institutions into groups, to develop “comparable indicators.” The indicators used in grouping are: total research expenditures, federal research expenditures, endowment assets, annual giving, faculty members in the National Academies, faculty awards, doctoral degrees, postdoctoral appointments, and entering freshman SAT scores. (tnm)

¹ TheCenter. (July 2000). The Myth of Number One: Indicators of Research University Performance. The Lombardi Program on Measuring University Performance, University of Florida. 19 pp.

Tierney, William G. (1988). “Organizational Culture in Higher Education.” Journal of Higher Education 59, 2-21.

Offers a rationale as to why organizational culture is a useful concept for understanding management and performance in higher education; the concept of culture provides a framework to diagnose colleges and universities as a means of overcoming distinct problems. After a survey of attempts to define culture in organizations in general, and higher education in particular, offers a case study of a public state college. (tnm)

Application: Since understanding organizational culture can help foster achievement of shared goals, the study of an organization’s culture could be a means of effectively achieving

the transformation to an Entrepreneurial University. These essential items could be analyzed in terms of the features that would be appropriate (or essential to) an Entrepreneurial University (for each feature, one sample/adapted question is included):

- *Environment: How does the EU define its environment?*
- *Mission: How is it defined?*
- *Socialization: How do new members become socialized?*
- *Information: Who has it and how is it disseminated?*
- *Strategy: How are decisions arrived at and who makes them?*
- *Leadership: What does organization expect from its leaders?*

Toma, J. Douglas, Greg Dubrow, and Matthew Hartley. (2005). The Uses of Institutional Culture: Strengthening Identification and Building Brand Equity in Higher Education. ASHE Higher Education Report Series, 31(2), 105 pp.

The concept of an institutional culture has concrete uses in colleges and universities. Culture is defined as “a strong set of institutional norms, values, and beliefs.” The authors argue universities benefit when they work to develop a strong institutional culture, which connects people and institutions, particularly benefiting external relations and the campus community. The culture helps clarify the institution’s image (or “brand equity”).

The book explores how institutional identification, brand equity, and institutional culture can be used to yield tangible strategic and managerial benefits. Finally, provides references to other sources that show how institutions can shift their institutional cultures. (tnm)

Application: Could consider what the elements are of the institutional culture of an Entrepreneurial University: its unique norms, values, and beliefs. How would one recognize when they are present? How might one build the brand equity of UIUC as an Entrepreneurial University?

UNESCO-CEPES. European Centre for Higher Education (2006). Special Issue: Entrepreneurial Universities in Europe: Legacies, Realities and Aspirations. Higher Education in Europe XXXI (2), 103-228. http://www.cepes.ro/publications/hee_eng.htm.

Contents: Institutional Approaches to Entrepreneurialism: Reflections on the Case of “Babeş -Bolyai” University in Cluj-Napoca. Mircea Miclea. Entrepreneurialism at the University of Novi Sad. Fuada Stanković. Institutional Approaches to Entrepreneurialism at the University of Belgrade. Srbijanka Turajlić. Entrepreneurialism at the University of Zagreb: Managing the Sustainability of Change. Vlasta Vizek Vidović and Aleksa Bjeliš. Development and Prospects of Academic Entrepreneurship Education in Germany. Heinz Klandt and Christine Volkmann. Management by Results and Higher Education Evaluation as Fashions

and Success Stories: The Case of Finland. Leena Treuthardt, Mira Huusko, and Taina Saarinen.

Wingspread Journal (2007). [Special issue:] Beyond the Ivory Tower. [? Racine, Wisc.] The Johnson Foundation. 37 pp. <http://www.henceonline.org/CivicEngagement-WingSpread-FNL.pdf>

A goal of The Johnson Foundation is to expand the civic mission of higher education. "Civic engagement" speaks to the responsibility of higher education to prepare students for citizenship and civic roles in institutions. Civic engagement deepens student learning as well as promotes community service and political engagement.

This issue of the Wingspread Journal traces the importance and history of the civic mission in higher education, evaluates higher education's achievements in this domain, and looks to the future. Articles in this issue describe specific programs of student, faculty, and institutional participation and engagement. Projects described focus on neighborhood partnerships, advocacy organizations, elementary school students, health programs, service-learning, non-profit organizations, community social welfare organizations, and urban communities. Includes a page of resources on civic engagement. (tnm)

Note: of special interest may be a table, "Levels of Commitment to Community Engagement, Characterized by Key Organizational Factors Evidencing Relevance to Institutional Mission." < www.henceonline.org/resources/institutional >:

Zemsky, Robert, Gregory R. Wegner, and William F. Massy. (2005). Remaking the American University: Market-Smart and Mission-Centered. New Brunswick: Rutgers University Press, 231 pp.

Argues that American universities have drifted toward private purposes and their own agendas. To make the U.S. university more publicly relevant requires making it more "mission-centered" and "market-smart." That is, it must use funds earned in the market to fund programs that realize the university's mission. Chapters in the book provide detail and context for this concept: market impacts on academic enterprises, the markets for educational services, the relation between mission and markets, impact of commercial publishing of academic research, the thwarted innovation of e-learning, and ownership of teaching. Prescriptions for maximizing flexibility and independence are offered: specifically, being 'market-smart and mission-centered' means being politically savvy. (tnm)

Application: the book's focus seems to be more toward traditional college and university institutions: the Entrepreneurial University may need to find a new mold. It is not one of cultivating new markets and revenue (commercialization) to fulfill a mission, but that the mission itself is now one that is entrepreneurial and market-savvy.