

ITHI Working Paper Series

#5. ACADEMIC ENTREPRENEURSHIP: BACK TO THE FUTURE

by **Henry Etzkowitz**

Sir Peter Hall, the University of London's distinguished regional innovation expert, organized a special track at the recent European Regional Science Association Conference in Delft, The Netherlands, on the question of whether policy interventions such as "Technopoles," can create high tech conurbations (RSA, 2012). The prospectus noted that the weight of academic discussion on science parks has been negative, but that this advice has been ignored as parks are founded at an increasing pace. Is the belief in a science park "cargo cult" so strong that it cannot be deterred, or do its proponents know something that researchers have missed? Discussion in the cafes, on the canal boat, and during the walking tour, was lively and a special journal issue, led by Sir Peter, will present the results of the debate.

A related issue, with even greater relevance for the Triple Helix thesis, is whether universities are effectual technology transfer actors and spin-off creators (Etzkowitz, 2012). Easily available statistics, such as the AUTM (Association of University Technology Managers) survey, may undercount (Leydesdorff, 2012), especially since the "marketing model of technology transfer," commonplace in the United States, leads some firm-founders to fly under the radar in order not to have information about their inventions or business models passed on to competitors. Thus, negative conclusions may be premature and may even serve to deter emerging entrepreneurial universities from trying, creating a self-fulfilling prophecy.

I have been following the progress of StartX, the student initiated Accelerator that provides coaching and mentoring to start-ups involving Stanford students (Etzkowitz, 2012). The government helix was represented by Stanford's student government in StartX's founding, playing a key role in bringing together academia and industry to initiate this not-for-profit accelerator. StartX hosts four classes of start-ups each year, with the summer quarter open to ventures from elsewhere. Founded in 2010, "more than 160 founders have started sixty companies with StartX, and eighty percent of them are funded and still growing" (Techcrunch, 2012), in comparison to the seven firms that the AUTM database shows arising through official channels during the last academic year. It may reasonably be expected that still other firms are emerging from Stanford, apart from the StartX and Office of Technology Licensing regimes.

Social Science Redux

StartX also hosts occasional events with presentations of interest to its members and friends. I recently attended a talk by Gustaf, a key member of the entrepreneurial team of Voxer, a San Francisco based start-up with a walkie talkie application for smartphones. Gustaf's presentation of Voxer's strategy implied that the quantitative and qualitative tools to analyze and encourage firm growth were very close to social science research techniques. Therefore, Voxer might look for people with social science, as well as computer science, backgrounds for future employees to work with these techniques.

The knowledge that firms like Voxer are using social science-like tools in their business could be a point of entry to encourage social science students to combine their training with computer science as an entry path to these jobs. Indeed, Copenhagen University has an interdisciplinary program uniting the two areas.

Linking the computer and social science disciplines in the start-up process was highlighted by a recent visit to Copenhagen hosted by the student organization “Suitable for Business” (www.suitableforbusiness.dk). The premise is that since computer scientists are relatively scarce and social scientists more plentiful, the firm growth process could be speeded up by bringing in social scientists rather than encouraging computer scientists to learn social science, though the two way interchange is, of course, ideal.

Resolving the Academic Entrepreneurship Dilemma

While in Boston to speak to Calestous Juma’s annual Workshop on International Development at Harvard’s Kennedy School of Government (Harvard, 2012), I took the opportunity to meet with Bill Aulet, director of MIT’s Martin Trust Entrepreneurship Center and catch up on recent developments (MIT, 2012).

Founded by Ed Roberts, an early researcher on entrepreneurship, the Center runs a highly successful business plan competition and has recently begun an entrepreneurship-coaching program for student firm founders. The summer program provides successful applicants with a stipend of \$20,000 so that they can focus on their project. Although the program’s purpose is to encourage start-ups, a group effort by its very nature, it is targeted at individuals in order to allay opposition to the project by some MIT faculty and administrators. Opponents were concerned that the Institute’s playing an active role in encouraging firm-formation could jeopardize MIT’s 501C3 status, the term for the legal clause that regulates its existence as a not-for-profit organization.

In the early post-war , Karl Compton, the President encouraged faculty to incubate firms in the university’s laboratories and served on the advisory board of the American Research and

Development (ARD), the first venture capital firm, founded in 1946. MIT played a key role in organizing ARD and indeed was one of the firms investors. Compton convinced colleagues at other US technological universities to invest in ARD. Its first success was the Digital Equipment Corporation (DEC), a firm emanating from a government funded research project at MIT, of Second World War origins, to develop an aircraft-training simulator. In the course of developing a simulator, Ken Olsen, and his colleagues invented the mini-computer. When funding from several military agencies finally ran out and the lab was about to close, MIT’s Treasurer, Horace Ford, also an advisor to ARD, introduced the venture capital firm to the project. An investment offer from ARD led to the formation of DEC, and the subsequent efflorescence of the mini-computer industry on Route 128.

MIT, however, soon drew back from Compton’s hands on approach to firm formation. Indeed, the Institute sold its shares of ARD stock as soon as Compton retired, well before the great financial and technical success of DEC! A so-called “Chinese Wall” has since been erected between university and industry in the form of conflict of interest regulations that discourage firm incubation in the lab, out of concern that the university’s not for profit status will be placed at risk or the unfounded fear that basic research will be displaced.

Universities expect that the requirements of “inurement” limit to approximately ten percent the activities on their premises that have a profit-making connotation (Donovan, 2011). It is typically required that different people than those active in the lab will organize the firm in separate facilities. However, there is provision for a leave of absence for a faculty firm founder, with return expected in a couple of years, although an advisory role may be continued through the one-fifth rule, invented at MIT in the early twentieth century to regulate consulting activities (Etzkowitz, 2002). Nevertheless, an MIT professor who

wished a continuing higher level of involvement with his firm, but still believed he had a significant contribution to make to the university, recently resigned his academic post with regrets.

The Brazilian Innovation Law of 2004 creatively solves the problems of dual roles, duplication of facilities and personnel, by allowing start-up firms and university labs to co-exist as a single entity. At the Pontifical Catholic University of Rio Grande del Sul (PUCRS), the 4G biotech firm and lab members divide their efforts among research projects and commercial activity, implicitly following the “Polyvalent knowledge” model (Etzkowitz and Viale, 2010). The Brazilian Innovation Law of 2004 is the most significant innovation in public policy to promote academic entrepreneurship since the US Bayh-Dole Act of 1980 (Maculan and Mello, 2009).

The Obama administration’s current policy is to encourage start-ups from universities (IGERT, 2011). It is highly unlikely that the Justice Department will sue universities for increasing their involvement in firm formation, when that is now a key part of the country’s economic renewal policy to end the Second Great Depression (Etzkowitz, In Press). The President sponsors a webinar series in which more experienced universities share their commercialization experience with less experienced schools. Having increased funds for academic research in the stimulus package during the early part of its administration, without providing support for commercialization, the Obama administration is limited to shifting funds within constrained budgets, for example, establishing a 500 million dollar translational research program in the National Institutes of Health (NIH), with existing funds (Etzkowitz, 2012).

Conflicting policies are currently hobbling academic entrepreneurship, creating cognitive dissonance by simultaneously encouraging and discouraging efforts. Just as New York State constitution was reinterpreted some years ago to allow ancillary commercial activities on campus such as bookstores and travel agencies, so may it be envisioned that a similar reinterpretation might take place at the national level. Alternatively, the law regulating not-for-profit organizations could be revised following the example of the Bayh-Dole Act, clarifying Patent Law regarding the disposition of intellectual property rights emanating from federally funded research. Indeed, by giving universities the mission to put knowledge to use, the legislation of 1980 nudged universities to take more explicit steps to capitalize knowledge.

Back to the Future

MIT should return to its roots as the original entrepreneurial university, founded in 1862, and, through projects like its own Entrepreneurship Center and Stanford’s StartX, increase efforts to infuse its region with new technology and firms even as “ivory tower” universities, like Johns Hopkins, have recently taken up a leading role in realizing the university’s third mission. Start-ups, like Voxer, should hire social as well as computer scientists to develop growth techniques and metrics and governments at all levels, student, local, regional, national and multi-national can spin-off projects, like StartX, to stimulate academic entrepreneurship and regional development.

References

Donovan, M (2011). Senior Associate Vice President for Real Estate Planning. Boston University. Communication to the Author.

Etzkowitz, H (2012). “The Start-up Factor” in *Innovation Governance in an Open Economy: Shaping Regional Nodes in a Globalized World*. Rickne, Lastadius, and Etzkowitz Eds. London: Routledge,

Etzkowitz, H (2002). *MIT and the Rise of Entrepreneurial Science*. London: Routledge

Etzkowitz, H 2012 Triple Helix Travels: Innovation on the Move *Helice* Vol 1 No.1. pp 3-4.

Etzkowitz, H and Viale, R (2010). Polyvalent Knowledge and the Entrepreneurial University: A Third Academic Revolution? *Critical Sociology* 36: 4, July

Etzkowitz, H (2012). An Innovation Strategy to End the Second Great Depression. In. Ranga and Etzkowitz Eds. *Innovating Our Way Out of the Economic Crisis, European Planning Studies September 2012*.

Harvard, (2012) ksgexecprogram.harvard.edu/getLink.aspx?val=ifed IGERT, (2011). President Obama's Initiative on University Research Commercialization: How Universities Plan To Respond" [http://](http://www.igert.org/announcements/158)

www.igert.org/announcements/158 Leydesdorff, L (2012). Report on Silicon Valley: Global Model or

Unique Anomaly *Helice* Vol 1 No.1. pp 9-10 Maculan, A and Mello, J (2009). University start-ups for breaking

lock-ins of the Brazilian economy *Science and Public Policy* 36

(2): 109-11 MIT (2012). entrepreneurship.mit.edu RSA (2012). [www.regional-studies-](http://www.regional-studies-assoc.ac.uk/events/2012/may-)

delft/ Techcrunch (2012). <http://techcrunch.com/2012/06/02/inside-startx>

[-stanfords-spring-2012-demo-day-tctv/](http://stanfords-spring-2012-demo-day-tctv/)