

Authors

Name Dan Shi
Affiliation Ted Rogers School of Management, Ryerson University
Country Canada
Bio statement MBA Candidate 2013,
Ted Rogers School of Management,
Ryerson University

Name Chienwen Yu
Affiliation Department of Management,
Bridgewater State University
Country United States
Bio statement Assistant Professor,
Department of Management,
Bridgewater State University

Principal contact for editorial correspondence.

Title and Abstract

Title University Incubator and Quadruple Helix Interactions in the U.S. and
Canada

Abstract As universities add new roles for economic development to their traditional missions of education and research, university incubators are growing with unprecedented speed. The establishment and performance of such university incubators challenge the evolving interactions of university, industry and government. The interactions of the three parties/pillars have been described as the Triple Helix (TH) theory, in order to assist major institutions with economic development and the dynamics of innovation that they have co-created (Etzkowitz & Leydesdorff, 2000). The fourth pillar, civil society or public sector as many researchers recognized, was soon added to form the Quadruple Helix theory and to foster a more open and sustainable path of innovation and economic growth (Liljemark, 2004; Delman & Madsen, 2007; Ahonen & Hämäläinen, 2012). The improvement of each pillar, like civil society, will help strengthen the other pillars and overall regional economic growth (Ahonen & Hämäläinen, 2012). The inclusion of civil society into the system of innovation and economic development requires multiple methods and channels of interaction and communication ((Ahonen & Hämäläinen, 2012).

This new approach to innovation in policy includes a general shift away from planning-oriented policies that focus on innovation inputs to more flexible,

entrepreneur-oriented policies that focus on market development. This new and broader approach to innovation also takes into consideration the fact that both demand and supply side factors influence the way innovations emerge and diffuse in markets and within the wider society. The need for user-oriented innovation in addition to demand-oriented is recognized. The users and user communities are seen as increasingly important for business success and for development of commercially successful innovations (Arnkil et al., 2010). Four different QH models developed by Robert Arnkil and his colleagues in their CLIQ (Creating Local Innovation in a Quadruple Helix) project report provide the basis for our analysis and comparison: 1) “TH + users model”, 2) “Firm-centered Living Lab model”, 3) “Public sector-centered Living Lab model”, 4) “Citizen-centered model” (Arnkil et al., 2010).

Our research will explore the characteristics and roles of university incubators in the transformation of university and civil society. It will study the impact of such incubators on the quadruple helix of university-government-industry-civil society relationships. Particular attention will be given to the interactions between university and government, and university and civil society. Interviews will be conducted on successful university incubators, such as business start-ups in the Southern Ontario region of Canada, the New York-Boston area, and the San Francisco-Silicon Valley area, where most of the university incubators are concentrated. We attempt to discover the four QH models applied in the incubators and also to correlate the user-driven and citizen-centered approach to innovation with commercially successful innovations achieved by incubators in the two areas of the U.S. and the one area of Canada.

The incubators in each of the three areas have their own essential characteristics and may possess their own QH innovation approach. San Francisco-Silicon Valley is the most popular destination for high tech entrepreneurs and venture capital firms, and it has produced and incubated many successful companies such as Apple, Google and Facebook. The New York-Boston area has many famous universities and is the originating place of university incubators. This region contains the headquarters of big financial services and of many bio tech, pharmaceutical and industrial firms, with which incubators can work and produce benefits. Southern Ontario of Canada has good governmental financial support for incubators and flexible immigration policies for entrepreneurs. It has successfully attracted investment and immigrant entrepreneurs from abroad. This will be a unique study of entrepreneurship that compares the university incubators in the three areas. In the study, an optimal QH model and the “best practice” would be recommended for incubators and entrepreneurs.

Research Methodology

Interviews have been conducted with entrepreneurs, incubator administrators, university executives and local government officials connected with the universities in San Francisco- Silicon Valley, New York/Boston area and Southern Ontario. Most of the interviews are scheduled for May 2013. Due to the time constraint for interviews and analysis, research findings and conclusions are in progress, but they will be reported on time for the conference. Qualitative data from interviews will be the basis for the research analysis and comparison of incubator models. Quantitative data will be

collected from questionnaires to supplement the analysis. Questionnaires will be prepared for interviewees of different organizations, and the questionnaires for different locations will remain the same.

Significance of Research

Theoretically, the research will be a further development of triple helix and quadruple helix model. The study highlights the characteristics and roles of incubation universities in the innovation systems consisting of university-government-industry-civil society interactions. It will fill in blank spots in our understanding of the uniqueness and significance of university incubators in the macro ecosystem. It will also contribute to the research on entrepreneurship education and provide current data and analyses of university incubators.

In practice, the research will provide a broad view for the growth of university incubators in economic, regional and social development. It would be helpful for incubators of universities to attract more attention and resources from government agencies, universities, industries, communities and citizens. It could be a good reference for program design, resources leveraging, and other specific operations of university incubators. It will be an up-to-date study of university incubators and interactions with triple helix and quadruple helix, as well as a timely presentation of research findings and conclusions at the Triple Helix International Conference of 2013.

References

- Ahonen, L., & Hämäläinen, T. (2012). *CLIQ: A Practical Approach to the Quadruple Helix and More Open Innovation, Sustaining Innovation: Collaboration Models for a Complex World*. SpringerLink : Bücher. ISBN: 1461420776, 9781461420774
- Arnkil R., Järvensivu A., Koski, P. & Piirainen, T. (2010). *Exploring Quadruple Helix – Outlining user-oriented innovation models*. University of Tampere, Institute for Social Research, Work Research Centre, Tampere.
- Delman, J., & Madsen, ST. (2007). *Nordic triple helix collaboration in knowledge, innovation, and business in China and India: a preliminary study*. NIAS-Nordic Institute of Asian Studies, Copenhagen.
- Etzkowitz, H. (2008). *The Triple Helix: University-Industry-Government Innovation in Action*. London: Routledge.
- Etzkowitz, H. and Leydesdorff L. (2000). “The Dynamics of Innovation: From National Systems and ‘Mode 2’ to a Triple Helix of University-Industry-Government Relations,” *Research Policy*, 29(2), 109–123.
- Khan, MR. & Al-Ansari, M. (2005). *Sustainable innovation as a corporate strategy*. Intellectual Assets Management, Saudi Aramco, Dharan.
- Liljemark, T. (2004). *Innovation Policy in Canada Strategy and Realities*. Swedish Institute for Growth Policy Studies, Östersund.
- Leydesdorff, L. & Sun, Y. (2009). “National and International Dimensions of the Triple Helix in Japan: University-Industry-Government Versus International Co-Authorship Relations,” *Journal of the American Society for Information Science and Technology* 60(4), 778–788.
- Leydesdorff, L. & Deakin, M. (April 2011). *The Triple-Helix Model of Smart Cities: A Neo- Evolutionary Perspective*, *Journal of Urban*

Technology, 18(2), 53-63.

Deakin, M. & Allwinkle, S. (2007). "Urban Regeneration and Sustainable Communities: The Role of Networks, Innovation, and Creativity in Building Successful Partnerships," *Journal of Urban Technology* 14(1), 77-91.

MacGregor, S. P., Marquès P., Simon A, Bikfalvi, A. & Llach, J. (2010). *CLIQboost, Baseline Research for CLIQ Interreg IVC*. Documenta Universitaria, July. ISBN: 978-84-92707-34-8

Schwartz, M. & Hornyck, C. (July 2008). Specialization as strategy for business incubators: An assessment of the Central German Multimedia Center, *Technovation*, 28(7), 436-449, ISSN 0166-4972, 10.1016/j.technovation..02.003.

Moses, B. (2002). Media and Civil Society. *Media Asia*, 29(1), 42-42. Retrieved from

The Digital Media Zone Backgrounder. (2013). Retrieved from

http://digitalmediazone.ryerson.ca/wp-content/uploads/2013/03/DMZ_GeneralBackgrounder_March2013.pdf

The Triple Helix Association. (2013). Retrieved from

<http://www.triplehelixassociation.org/>