RUTGERS UNIVERSITY
Ph.D. in Management Program
Fall 2014

Management of Innovation and Technology (26:620:671-01)
Thursday 5:30-8:20 pm
Room 1-WP 358

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INTRODUCTION

This course focuses on the management of innovation and technology in organizations. It surveys theory and research on innovation as outcome (product, service, technology, practice) and on the process of development and implementation of innovation in organizations.

Through readings, presentations, and class discussion the following types of questions will be examined:

- What is innovation and how does it differ from related concepts such as creativity, invention, technology, and change?
- How do innovations develop over time from ideas to successful outcomes?
- What factors will influence successful or unsuccessful development, commercialization, diffusion, adoption, and implementation of innovation?
- What are types of innovation and in what ways they differ? How each innovation type could contribute to organizational conduct and outcome?
- What are innovation attributes and how each would affect its adoption? How do the attributes differ among innovation types?
- Why are some organizations more successful in developing or implementing innovation than others? What are the characteristics of innovative organizations?
- What managerial processes and organizational systems facilitate innovation process and outcome? What roles organizational leaders could play? What roles organizational members could play?
- What environmental and institutional forces affect innovation in organization? What innovation strategies help organizations succeed in uncertain environments and competitive markets? How organizations yield in or resist to institutional forces in adopting innovation?
- What are the positive or negative consequences of innovation for organizational effectiveness and continued success? For employee development and growth? And for the well being of the larger social system and natural environment?

- What are similarities and differences between innovation performance and firm performance? How can innovation continually influence firm performance over time?
- What are conceptual and methodological issues in the study of innovation in organization?
- What are recent research trends on the management of innovation and technology in organizations?

COURSE REQUIREMENTS

Participation (20%)

You are expected to read the required weekly assignments, prepare questions/comments for each reading, and come to class ready to discuss the week's readings.

You will be assigned to prepare a 1-2 page summary of the central thesis and contributions of an article, distribute it to class members, and lead the discussion of that article in class. In your summary, as much as possible link the focal article with the other readings of the week.

Your contributions in class throughout the semester to your classmates' learning will guide the participation grade.

Mid-Term Project (30%)

The purpose of the mid-term paper is to: (1) allow you to select and learn about a topic related to innovation management that would be of interest to you; (2) conduct a literature review of the topic; and (3) share your learning about it with others in class.

Please consult with me about your choice of the topic. Submit a one-page synopsis of the mid-term paper, including a reference list of 5-10 articles specifically related to the topic before *October 9*.

The mid-term paper is due on *October 23.* There is no length requirement; the papers received in the past were approximately 10 pages (typed, double-spaced, 1" margin on all sides, font 12).

In addition, you will present your paper in class on *October 23*. Prepare PowerPoint slides for a ten minute presentation, and make hard copies (6 slides per page, two-sided) for all class members.

Term Project (50%)

The main assignment of the course is writing a research proposal for conducting an empirical study of a topic related to the management of innovation and technology. The topic can be the same as that of the mid-term project, or you may select a new topic. Please submit a one page synopsis of proposal, including a descriptive title it for my approval before *November 13*.

The term project is due on *December 11*. There is no length requirement; the papers received in the past were approximately 20 pages (typed, double-spaced, 1" margin on all sides, font 12).

The term project should include the following parts:

(1) Significance and potential theoretical and empirical contributions of the proposed research;
(2) 2-4 research questions;
(3) An in-depth literature review of the selected topic;
(4) 2-4 hypotheses; and
(5) Methodology for data collection and analysis, including sampling, operationalization of variables, and estimation technique.

Please note that you only write a proposal for conducting research. You will neither collect nor analyze data for this assignment.

In writing the term project, please follow the style guide of a selected management journal (*AMJ, SMJ, JMS*), and ensure that all ideas and passages that are taken from others' work are properly cited and quoted according to academic standards.

You will also make a 15-minute presentation of your term project on *December 4th or 11th*. Hard copies of the presentation slides (6 slides per page, two-sided) should be distributed to class members.

Academic Integrity

All students are expected to know, understand and live up to the standards of Rutgers University's Academic Integrity. See http://academicintegrity.rutgers.edu/integrity.shtml

COURSE PLAN AND REQUIRED READINGS[1]

Week 1 [9/4]: Innovation in Organization

Drucker, P. F. 1985. The discipline of innovation. *Harvard Business Review*, May-June: 67-72.

Schilling, M.A. 2010 (or 2013 edition). *Strategic Management of Technological Innovation.* New York: McGraw Hill Irwin. [*Chapter 2* – Industry dynamics and technological innovation; *Chapter 3* – Types and patterns of innovation.]

[1] The reading list has been prepared in cooperation with Fernando Sánchez Henríquez, a PhD student at Rutgers University.

Week 2 [9/11]: Innovation Process and Type – I

Damanpour, F., & Aravind D. 2012. Organizational Structure and innovation revisited: From organic to ambidextrous structure. In M. Mumford (Ed.), *Handbook of Organizational Creativity,* pp. 483-513. New York: Elsevier. [Read pages 483- 492.]

Rogers, E. M. 1995 (or 2003 edition). *Diffusion of Innovation*. New York: Free Press. [*Chapter 1* – Elements of Diffusion.]

Tornatzky, L.G., & Fleisher, M. 1990. *The Process of Technological Innovation*. Lexington, MA: Lexington Books. [*Chapter 2* – Technological innovations: Definitions and perspectives; *Chapter 3* – Technological innovation as a process.]

Henderson, R.M., & Clark, K.B. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35: 9-30.

Miles, I. 2005. Innovation in services. In J. Fagerberg, D. C. Mowery & R. R. Nelson (Eds.), *The Oxford handbook of innovation* (pp. 433-458). Oxford: Oxford University Press.

Week 3 [9/18] Innovation Process and Type – II

Ross, P. F. 1974. Innovation adoption by organizations. *Personnel Psychology*, 27: 21-47.

Lapointe, L. & Rivard, S. 2007. A triple take on information system implementation. *Organization Science*, 18 (1): 89-107.

Tether, B. S., & Tajar, A. 2008. The organizational-cooperation mode of innovation and its prominence amongst European service firms. *Research Policy*, 37: 720-739.

Ganter, A., & Hecker, A. 2013. Persistence of innovation: Discriminating between types of innovation and sources of state dependence. *Research Policy*, *42*(8): 1431-1445.

Camisón, C. & Villar-López, A. 2014. Organizational innovation as an enabler of technological innovation capabilities and firm performance. *Journal of Business Research*, 67: 2891-2902.

Week 4 [9/25]: Innovation and Performance

Rogers, E. M. 1995 or 2003. *Diffusion of Innovation.* New York: Free Press. [*Chapter 11* – Consequences of innovation.]

Roberts, P.W., & Amit, R. 2003. The dynamics of innovative activity and competitive advantage: The case of Australian retail banking, 1981 to 1995. *Organization Science*, 14: 107-122.

Cho, H.-J. & Pucik, V. 2005. Relationship between innovativeness, quality, growth, profitability, and market value. *Strategic Management Journal*, 26(6): 555-575.

Rosenbusch, N., Brinckmann, J., & Bausch, A. 2011. Is innovation always beneficial? A meta-anlysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing*, 26: 441-457.

Sapprasert, K., & Clausen, T. H. 2012. Organizational innovation and its effects. *Industrial and Corporate Change*, 21(5): 1283-1305.

Week 5 [10/2]: Structure and Innovation

Schilling, M.A. 2010 (or 2013 edition). *Strategic Management of Technological Innovation.* New York: McGraw Hill Irwin. [*Chapter 10* – Organizing for innovation.]

Damanpour, F., & Aravind D. 2012. Organizational Structure and innovation revisited: From organic to ambidextrous structure. In M. Mumford (Ed.), *Handbook of Organizational Creativity*, pp. 483-513. New York: Elsevier. [Read pages 492-513.]

O'Reilly, C., & Tushman, M. 2013. Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives*, 27(2): 324-338.

Wang, C. L., & Rafiq, M. 2014. Ambidextrous organizational culture, contextual ambidexterity and new product innovation: A comparative study of UK and Chinese high-tech firms. *British Journal of management*, 25(1): 58-76.

Bock, A. J., Opsahl, T., George, G. & Gann, D. C. 2012. The effects of culture and structure on strategic flexibility during business model innovation. *Journal of Management Studies*, 49(2): 279-305.

Week 6 [10/9]: Innovation and Creativity

Amabile, T. M. 1988. A model of creativity and innovation in organizations. In L. L. Cummings and B. M. Staw (eds.), *Research in Organizational Behavior*, Vol.10: 123-167.

Scott, S. & Bruce, R. 1994. Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37: 580-607.

Yuan, F. & Woodman, R. W. 2010. Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal*, 53(2): 323-342.

Baer, M. 2012. Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal,* 55(5): 1102-1119.

Anderson, N., Potočnik, K., & Zhou, J. 2014. Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5): 1297-1333.

Week 7 [10/16]: Leadership and Innovation

Howell, J.M., & Higgins, C.A. 1990. Champions of technological innovations. *Administrative Science Quarterly,* 35: 317-341.

Yukl, G. 1999. An evaluative essay on current conceptions of effective leadership. *European Journal of Work and Organizational Psychology*, 8: 33-48.

Elenkov, D.S., Judge, W., & Wright, P. 2005. Strategic leadership and executive innovation influence: An international multi-cluster comparative study. *Strategic Management Journal*, 26: 665-682.

Chen, M. Y. C., Lin, C. Y. Y., Lin, H. E., & McDonough III, E. F. 2012. Does transformational leadership facilitate technological innovation? The moderating roles of innovative culture and incentive compensation. *Asia Pacific Journal of Management*, 29(2): 239-264.

Donate, M.J., & Sánchez de Pablo, J.D. (In press.) The role of knowledge-oriented leadership in knowledge management practices and innovation, *Journal of Business Research*, http://dx.doi.org/10.1016/j.jbusres.2014.06.022

Week 8 [10/23]: Mid-Term Paper Submission and Presentation

Adams, R., Bessant, J. & Phelps, R. 2006. Innovation management measurement: A review. *International Journal of Management Review*, 8 (1): 21-47.

Week 9 [10/30]: Organizational Learning and Innovation

Cohen, W.M., & Levinthal, D.A. 1990. Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly,* 35: 128-152.

March, J.G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2: 71-87.

Atuahene-Gima, K. 2005. Resolving the capability-rigidity paradox in new product innovation. *Journal of Marketing*, 69(October): 61-83.

Boliva-Ramos, M.T., Garcia-Morales, V.J., & Garcia-Sanchez, E. 2012. Technological distinctive competencies and organizational learning: Effects on organizational innovation to improve firm performance. *Journal of Engineering and Technology Management*, 29: 331-357.

Jain, A. 2013. Learning by Doing and the Locus of Innovative Capability in Biotechnology Research. *Organization Science*, 24(6): 1683-1700.

Week 10 [11/6]: Evolutionary Models of Innovation

Utterback, J. M. 1994. Innovation and industrial evolution. In *Mastering the Dynamics of Innovation.* [*Chapter 4* – Innovation and industrial evolution.] Cambridge, MA: Harvard Business School press.

Anderson, P. & Tushman M. L. 1990. Technological discontinuities and dominant designs: A cyclical model of technological change. *Administrative Science Quarterly*, 35(4): 604-633.

Rogers, E. M. 1995 or 2003. *Diffusion of Innovation.* New York: Free Press. [*Chapter 7* – Innovativeness and adopter categories.]

Chandy, R.K., & Tellis, G.L. 2000. The incumbent's curse? Incumbency, size, and radical product innovation, *Journal of Marketing*, 64 (3): 1-17.

Damanpour, F. & Magelssen, C. 2014. Adoption and de-adoption of organizational innovation: A longitudinal analysis of the effects of program status and cost. Working paper, Rutgers Business School, Newark, NJ.

Week 11 [11/13]: Knowledge, Capability, and Innovation

Kogut, B., & Zander, U. 1992. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization science*, 3(3): 383-397.

Grant, R.M. 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17 (Winter Special Issue): 109-122.

Eisenhardt K, Martin J. A. 2000. Dynamic capabilities: What are they? *Strategic Management Journal*, 21: 1105-1121.

Bierly, P., Damanpour, F. & Santoro, M. 2009. The application of external knowledge: organizational conditions for exploration and exploitation. *Journal of Management Studies*, 46(3): 481-509.

Phene, A. & Almeida, P. 2008. Innovation in multinational subsidiaries: The role of knowledge assimilation and subsidiary capabilities. *Journal of International Business Studies*, 39: 901-919.

Week 12 [11/20]: Open Innovation and Collaboration Networks

Lichtenthaler, U. 2011. Open innovation: Past research, current debates, and future direction. *Academy of Management Perspectives*, 25(1): 75-93.

Felin, T., & Zenger, T. R. 2014. Closed or open innovation? Problem solving and the governance choice. *Research Policy*, 43(5): 914-925.

Garriga, H., von Krogh, G., & Spaeth, S. 2013. How constraints and knowledge impact open innovation. *Strategic Management Journal*, 34(9): 1134-1144.

Schilling, M. A., & Phelps, C. C. 2007. Interfirm collaboration networks: The impact of large-scale network structure on firm innovation. *Management Science*, 53(7): 1113-1126.

Funk, R. 2014. Making the most of where you are: Geography, networks, and innovation in organizations. *Academy of Management Journal*, 2014, 57 (1): 193–222.

November 27: No Class

Weeks 13 [12/4]: Term Project Workshop

Weeks 14 [12/11]: Term Project Poster Presentation