Fox School of Business
TEMPLE UNIVERSITY

MIS 9003 – MIS Doctoral Seminar – Spring 2018
Economic Research on Strategic Management of IT
Wednesday 9:30 AM – 12:00 PM

Draft as of January 12, 2018, subject to change

Instructor

- Dr. Min-Seok Pang (Ph.D., University of Michigan)
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- Office Hours: Wednesday 1-3pm, or by appointment
- Course Site : http://community.mis.temple.edu/mis9003spring2018/

Course Objective

The purposes of this seminar are threefold. First, it aims to help students build a "mental map" of contemporary research on strategic management of information technology (IT) in the "economics of information systems (IS)" discipline. This seminar focuses on a range of core IS research topics such as business value of IT, IT governance, IS outsourcing, and system development, so that the students can develop broad and deep understanding of important issues in strategic management of enterprise information systems.

Second, this course intends to guide the students to become scholars who can produce original, high quality research in economics of IS. Toward that end, the students are required to submit two deliverables. One, the students will conduct an in-depth literature review(s) on one or two research streams of their choosing. Two, by the end of the semester, the students will produce original research proposals that consist of their own theoretical development and hypotheses.

Third, this course will use two textbooks listed below to help the students understand how to come up with good research ideas and to develop them to concrete research proposals. The students will learn how to explore a wide range of knowledge and ideas from various backgrounds and to exploit them for promising research opportunities.

Readings and Textbooks

- List of selected journal articles available below.
- Johnson, S. (2010) *Where Good Ideas Come From: The Natural History of Innovation*, New York, NY: Riverheads Books.

Grading and Deliverables

Weekly Brief (20%)

- Each week, a student is assigned to one or two papers and required to summarize them in <u>no more than 300 words.</u>
- Briefs are to be submitted to the class site (http://community.mis.temple.edu/mis9003spring2018/) by the end of the day before a class (i.e. Tuesday 11:59 PM EST).
- The students will lead a discussion for the assigned paper(s) in-class. In discussing a paper, the students are also expected to explain background theories and/or econometric methodologies to the fellow students.

Participation (20%)

- The students are expected to actively participate in in-class discussions.

Literature Review (20%)

- The students are required to submit an in-depth literature review on one or two research topics of their choosing. Topics should be from the ones listed in the course schedule below or closely related to them.
- The literature review should be no more than five-page long in double-space, 11-point text, one-inch-margin in all four sides.

Presentation of Research Proposal Idea (10%)

- In Week 10, the students will present their ideas for final research proposals.

Final Research Proposal (30%)

- By the end of the semester, the students will submit a proposal for original research that has a strong potential for publication in a premier IS journal (*Management Science*, *MIS Quarterly*, or *Information Systems Research*).
- The research proposal will consist of Introduction, Theoretical Background, Hypotheses Development, Empirical Methods, and potential data sources. It may not include analysis results.
- The research proposal should be no more than 15-page long in double-space, 11-point text, one-inch-margin in all four sides.

Course Policies

- Keep monitoring announcements on the class site (http://community.mis.temple.edu/mis9003spring2018/).
- Email: Use @temple.edu email account for all correspondents with the instructor. Email messages sent from a non-Temple account may not be responded.
- <u>Inclement Weather</u>: Generally, in case of inclement weather, a class will not be canceled as long as the University is open.
- <u>Cell phones</u> should be turned off, muted, or turned to vibrate during class. Please do not send or receive texts, tweets, e-mail, etc. or other communications during class.

- <u>Please arrive for class on time</u>. Be advised that being late to class disturbs the peers' learning.

Course Schedule (tentative)

This schedule is <u>tentative</u> and subject to change.

Week	Date	Topic
1	Jan 17	*Business Value of IT*
2	Jan 24	*Firm Boundary*
3	Jan 31	*Organizational Capabilities*
4	Feb 7	*Competition and Partnership*
5	Feb 14	*System Development*
6	Feb 21	*IT Governance and Control*
7	Feb 28	*IS Outsourcing*
	Mar 7	Spring Break (No Class)
	Mar 9	Literature Review Due
8	Mar 14	*Innovation*
9	Mar 21	*Government and Public Policies*
10	Mar 28	*Student Presentations of Research Proposals*
11	Mar 30	*Labor*
12	Apr 4	*Healthcare*
13	Apr 11	*Information Security*
14	Apr 18	*Student-Selected Topics and Papers*
	May 4	Research Proposal Due

Required Readings (tentative, subject to change)

<u>Week 1 – Business Value of IT</u>

- Anderson, M.C., Banker, R.D., and Ravindran, S. (2006) "Value Implications of Investments in Information Technology," *Management Science* (52:9) pp. 1359-1376.
- Aral, S. and Weill, P. (2007) "IT Assets, Organizational Capabilities, and Firm Performance: How Resource Allocations and Organizational Differences Explain Performance Variation," *Organization Science* (18:5) pp. 763-780.
- Cheng, Z.C. and Nault, B.R. (2007) "Industry-Level Supplier-Driven IT Spillovers," *Management Science* (53:8) pp. 1199-1216.
- Ho, J., Tian, F., Wu, A., and Xu, S.X. (2017) "Seeking Value Through Deviation? Economic Impacts of IT Overinvestment and Underinvestment," *Information Systems Research* (28:4) pp. 850-862.
- Kim, K., Mithas, S., and Kimbrough, M. (2017) "Information Technology Investments and Firm Risk across Industries: Evidence from the Bond Market," *MIS Quarterly* (41:1) pp. 1347-1367.

Week 2 – Firm Boundary

- Johnson, Introduction and Chapter 1 (The Adjacent Possible).
- Baker, G.P. and Hubbard, T.N. (2004) "Contractibility and Asset Ownership: On-Board Computers and Governance in U.S. Trucking," *Quarterly Journal of Economics* (119:4) pp. 1443-1479.
- Ray, G., Wu, D., and Konona, P. (2009) "Competitive Environment and the Relationship between IT and Vertical Integration," *Information Systems Research* (20:4) pp. 585-603.
- Dewan, S. and Ren, F. (2011) "Information Technology and Firm Boundaries: Impact on Firm Risk and Return Performance," *Information Systems Research* (22:2) pp. 369-388.
- Rawley, E. and Simcoe, T.S. (2013) "Information Technology, Productivity, and Asset Ownership: Evidence from Taxicab Fleets," *Organization Science* (24:3) pp. 831-845.
- Tae, C.J., Pang, M.-S., and Greenwood, B.N. (2018) "When Your Problem Becomes My Problem: The Impact of Airline IT Disruptions on On-Time Performance of Competing Airlines," A Working Paper

Week 3 – Organizational Capabilities

- Johnson, Chapter 2 (Liquid Network).
- Bharadwaj, S., Bharadwaj, A., and Bendoly, E. (2007) "The Performance Effects of Complementarities Between Information Systems, Marketing, Manufacturing, and Supply Chain Processes," *Management Science* (18:4) pp. 437-453.
- Rai, A., Pavlou, P.A., Im, G., and Du, S. (2012) "Interfirm IT Capability Profiles and Communications for Cocreating Relational Value: Evidence from the Logistics Industry," *MIS Quarterly* (36:1) pp. 233-262.
- Tambe, P., Hitt, L.M., and Brynjolfsson, E. (2012) "The Extroverted Firm: How External Information Practices Affect Innovation and Productivity," *Management Science* (58:5) pp. 843-859.
- Rai, A., Arikan, I., Pye, J., and Tiwana, A. (2015) "Fit and Misfit of Plural Sourcing Strategies and IT-Enabled Process Integration Capabilities: Consequences of Firm Performance in the U.S. Electric Utility Industry," *MIS Quarterly* (39:4) pp. 865-885.

Week 4 – Competition and Partnership

- Johnson, Chapter 3 (The Slow Hunch).
- Chi, L., Ravichandran, T., and Andrevski, G. (2010) "Information Technology, Network Structure, and Competitive Action," *Information Systems Research* (21:3 pp. 543-570.

- Chellappa, R.K., Sambamurthy, V., and Saraf, N. (2010) "Competing in Crowded Market: Multimarket Contact and the Nature of Competition in the Enterprise Systems Software Industry," *Information Systems Research* (21:3) p. 614-630.
- Tanriverdi, H. and Uysal, V.B. (2011) "Cross-Business Information Technology Integration and Acquirer Value Creation in Corporate Mergers and Acquisitions," *Information Systems Research* (22:4) pp. 703-720.
- Ceccagnoli, M., Forman, C., Huang, P., and Wu, D.J. (2012) "Cocreation of Value in a Platform Ecosystem: The Case of Enterprise Software," *MIS Quarterly* (36:1) pp. 263-290.
- Tafti, A., Mithas, S., and Krishnan, M.S. (2013) "The Effect of Information Technology–Enabled Flexibility on Formation and Market Value of Alliances," *Management Science* (59:1) pp. 207-225.

Week 5 – System Development

- Johnson, Chapter 4 (Serendipity).
- Subramanyam, R., Ramasubbu, N., and Krishnan, M.S. (2012) "In Search of Efficient Flexibility: Effects of Software Component Granularity on Development Effort, Defects, and Customization Effort," *Information Systems Research* (23:3) pp. 787-803.
- Langer, N., Slaughter, S.A., and Mukhopadhyay, T. (2014) "Project Managers' Practical Intelligence and Project Performance in Software Offshore Outsourcing: A Field Study," *Information Systems Research* (25:2) pp. 364-384.
- Ramasubbu, N., Bharadwaj, A., and Tayi, G.K. (2015) "Software Process Diversity: Conceptualization, Measurement, and Analysis of Impact on Project Performance," *MIS Quarterly* (39:4) pp. 787-807.
- Ramasubbu, N. and Kemerer, C.F. (2016) "Technical Debt and the Reliability of Enterprise Software Systems: A Competing Risks Analysis," *Management Science*, (62:5) pp. 1487-1510.
- Kang, K., Hahn, J., and De, P. (2017) "Learning Effects of Domain, Technology, and Customer Knowledge in Information Systems Development: An Empirical Study," *Information Systems Research* (28:4) pp. 797-811.

Week 6 – IT Governance and Control

- Johnson, Chapter 5 (Error).
- Banker, R.D., Hu, N., Pavlou, P.A., and Luftman, J. (2011) "CIO Reporting Structure, Strategic Positioning and Firm Performance," *MIS Quarterly* (35:2) pp. 487-504.
- Xue, L., Ray, G., and Gu, B. (2011) "Environmental Uncertainty and IT Infrastructure Governance: A Curvilinear Relationship," *Information Systems Research* (22:2) pp. 389-399.
- Li, C., Peters, G.F., Richardson, V.J., and Watson, M.W. (2012) "The Consequences of Information Technology Control Weaknesses on Management Information Systems: The Case of Sarbanes-Oxley Internal Control Reports," *MIS Quarterly* (36:1) pp. 179-203.

- Masli, A., Richardson, V.J., Watson, M.W., and Zmud, R.W. (2016) "Senior Executives' IT Management Responsibilities: Serious IT-Related Deficiencies and CEO/CFO Turnover," *MIS Quarterly* (40:3) pp. 687-708.
- Benaroch, M. and Chernobai, A. (2017) "Operational IT Failures, IT Value Destruction, and Board-Level IT Governance Changes," *MIS Quarterly* (41:3) pp. 729-762.

Week 7 – IS Outsourcing

- Johnson, Chapter 6 (Exaptation).
- Susarla, S., Subramanyam, R., and Karhade, P. (2011) "Contractual Provisions to Mitigate Holdup: Evidence from Information Technology Outsourcing," *Information Systems Research* (21:1) pp. 37-55.
- Gopal, A. and Koka, B.R. (2012) "The Asymmetric Benefits of Relational Flexibility: Evidence from Software Development Outsourcing," *MIS Quarterly* (36:2) pp. 553-576.
- Susarla, S. (2012) "Contractual Flexibility, Rent Seeking, and Renegotiation Design: An Empirical Analysis of Information Technology Outsourcing Contracts," *Management Science* (58:7) pp. 1388-1407.
- Bapna, R., Gupta, A., Ray, G., and Singh, S. (2016) "IT Outsourcing and the Impact of Advisors on Clients and Vendors," *Information Systems Research* (27:3) pp. 636-647.
- Angst, C.M., Wowak, K.D., Handley, S.M., and Kelley, K. (2017) "Antecedents of Information Systems Outsourcing Strategies in U.S. Hospitals: A Longitudinal Study," *MIS Quarterly* (41:4) pp. 1129-1152.

Week 8 – Innovation

- Johnson, Chapter 7 (Platforms).
- Forman, C. and van Zeebroeck, N. (2012) "From Wires to Partners: How the Internet Has Fostered R&D Collaborations within Firms," *Management Science* (58:8) pp. 1549-1568.
- Kleis, L., Chwelos, P., Ramirez, R.V., and Cockburn, I. (2012) "Information Technology and Intangible Output: The Impact of IT Investment on Innovation Productivity," *Information Systems Research* (23:1) pp. 42-59.
- Mani, D., Srikanth, K., and Bharadwaj, A. (2014) "Efficacy of R&D Work in Offshore Captive Centers: An Empirical Study of Task Characteristics, Coordination Mechanisms, and Performance," *Information Systems Research* (25:4) pp. 846-864.
- Kim, K., Gopal, G., and Hoberg, G. (2016) "Does Product Market Competition Drive CVC Investment? Evidence from the U.S. IT Industry," *Information Systems Research* (27:2) pp. 259-281.
- Saldanha, T.J.V., Mithas, S., and Krishnan, M.S. (2017) "Leveraging Customer Involvement for Fueling Innovation: The Role of Relational and Analytical Information Processing Capability," *MIS Quarterly* (41:1) pp. 267-286.

Week 9 – Government and Public Policies

- Pang, M.-S., Tafti, A., and Krishnan, M.S. (2014) "Information Technology and Administrative Efficiency in U.S. State Governments - A Stochastic Frontier Approach," *MIS Quarterly* (38:4) pp. 1079-1101.
- Pang, M.-S., Tafti, A., and Krishnan, M.S. (2016) "Do CIO IT Budgets Explain Bigger or Smaller Governments? - Theory and Evidence from U.S. State Governments," *Management Science* (62:4) pp. 1020-1041.
- Pang, M.-S. (2017) "Politics and Information Technology Investments in the U.S. Federal Government in 2003-2016," Information Systems Research (28:1) pp. 33-45.
- Pang, M.-S. and Pavlou, P.A. (2017) "Armed with Technology – Preventing Fatal Shootings by the Police," A Working Paper.
- Cheng, Z., Pang, M.-S., and Pavlou, P.A. (2017) "Mitigating Traffic Congestion: The Role of Intelligent Transportation Systems," A Working Paper

Week 11 – Labor

- Glaeser, Chapter 4 (How Were the Tenements Tamed?)
- Aral, S., Brynjolfsson, E., and Wu, L. (2012) "Three-Way Complementarities: Performance Pay, Human Resource Analytics, and Information Technology," *Management Science* (58:5) pp. 913-931.
- Bloom, N., Garicano, L., Sadun, R., and Van Reenen, J. (2014) "The Distinct Effects of Information Technology and Communication Technology on Firm Organization," *Management Science* (60:12) pp. 2859-2885.
- Tambe, P. and Hitt, L.M. (2014) "Job Hopping, Information Technology Spillovers, and Productivity Growth," *Management Science* (60:2) pp. 338-355.
- Pierce, L., Snow, D.C., and McAfee, A. (2015) "Cleaning House: The Impact of Information Technology Monitoring on Employee Theft and Productivity," *Management Science*, forthcoming.
- Atasoy, H., Banker, R.D., and Pavlou, P.A. (2016) "On the Longitudinal Effects of IT Use on Firm-Level Employment," *Information Systems Research* (27:1) pp. 6-26.

Week 12 - Healthcare

- Miller, A.R. and Tucker, C. (2009) "Privacy Protection and Technology Diffusion: The Case of Electronic Medical Records," *Management Science* (55:7) pp. 1077-1093.
- Menon, N.M. and Kohli, R. (2013) "Blunting Damocles' Sword: A Longitudinal Model of Healthcare IT Impact on Malpractice Insurance Premium and Quality of Patient Care," *Information Systems Research* (24:4) pp. 918-932.

- Bhargava, H. and Mishra, A.N. (2014) "Electronic Medical Records and Physician Productivity: Evidence from Panel Data Analysis," *Management Science* (60:10) pp. 2543-2562.
- Ayabakan, S., Bardhan, I., Zheng, Z.E., and Kirksey, K. (2017) "The Impact of Health Information Sharing on Duplicate Testing," *MIS Quarterly* (41:4) pp. 1083-1103.
- Atasoy, H., Chen, P.-y., and Ganju, K. (2017) "The Spillover Effects of Health IT Investments on Regional Healthcare Costs," *Management Science*, forthcoming

Week 13 – Information Security

- Kwon, J. and Johnson, M.E. (2014) "Proactive versus Reactive Security Investments in the Healthcare Sector," *MIS Quarterly* (38:2) pp. 451-471.
- Wang, J., Gupta, M., and Rao, H.R. (2015) "Insider Threats in a Financial Institution: Analysis of Attack-Proneness of Information Systems Applications," *MIS Quarterly* (39:1) pp. 91-112.
- Mitra, S. and Ransbotham, S. (2015) "Information Disclosure and the Diffusion of Information Security Attacks," *Information Systems Research* (26:3) pp. 565-584.
- Angst, C.M., Block, E.S., D'Arcy, J., and Kelley, K. (2017) "When Do IT Security Investments Matter? Accounting for the Influence of Institutional Factors in the Context of Healthcare Data Breaches," *MIS Quarterly* (41:3) pp. 893-916.
- Pang, M.-S. and Tanriverdi, H. (2017) "Security Breaches in the U.S. Federal Government," A Working Paper

Week 14 – Student-Selected Papers (To be updated)

- Each student will choose a paper for reading, with the instructor's guidance and permission, from top-tier academic journals with a topic of previous weeks.

Academic Integrity – ZERO TOLERANCE

Plagiarism and academic dishonesty can take many forms. The most obvious is copying from another student's materials, but the following are also forms of this:

- Copying materials directly from the Internet (or another source) without a proper citation crediting the author
- Turning in an assignment from a previous semester as if it were your own
- Having someone else complete your assignment and submitting it as if it were your own
- Use of assignments completed in one class as any part of a project assigned in another class
- Sharing/copying homework assignments.

There will be zero tolerance for blatant plagiarism or any other type of academic dishonesty. In particular, plagiarizing someone's work (be it a classmate's or on the Internet) is strictly prohibited. Under this zero tolerance policy, in any occurrence of academic cheating, a formal complaint will

immediately be filed with the University Discipline Committee (UDC). This incident will be listed on the student's permanent academic record. The instructor will not discuss the penalty for violating this policy and simply direct the student to this paragraph in the class syllabus.

Academic Honesty

Temple University believes strongly in academic honesty and integrity. Plagiarism and academic cheating are, therefore, prohibited. Essential to intellectual growth is the development of independent thought and a respect for the thoughts of others. The prohibition against plagiarism and cheating is intended to foster this independence and respect.

Plagiarism is the unacknowledged use of another person's labor, another person's ideas, another person's words, another person's assistance. Normally, all work done for courses is expected to be the individual effort of the student presenting the work. Any assistance must be reported to the instructor. If the work has entailed consulting other resources -- journals, books, or other media -- these resources must be cited in a manner appropriate to the course. It is the instructor's responsibility to indicate the appropriate manner of citation. Everything used from other sources -- suggestions for organization of ideas, ideas themselves, or actual language -- must be cited. Failure to cite borrowed material constitutes plagiarism. Undocumented use of materials from the World Wide Web is plagiarism.

Academic cheating is, generally, the thwarting or breaking of the general rules of academic work or the specific rules of the individual courses. It includes falsifying data; submitting, without the instructor's approval, work in one course which was done for another; helping others to plagiarize or cheat from one's own or another's work; or actually doing the work of another person.

The penalty for academic dishonesty can vary from receiving a reprimand and a failing grade for a particular assignment, to a failing grade in the course, to suspension or expulsion from the University. The penalty varies with the nature of the offense, the individual instructor, the department, and the school or college.

Students who believe that they have been unfairly accused may appeal through the School or College's academic grievance procedure.