

# KEVIN ZHU

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## **EDUCATION**

*Stanford University*

Stanford, CA

Management Science & Engineering (formerly Engineering-Economic Systems)

M.S. 1994-1996

Ph.D. 1994-1999

- Focus on economics of technology and innovation
- Dissertation: *Strategic Investment in Information Technologies: A Real-Options and Game-Theoretic Approach*

## **RESEARCH**

*Theme: Innovation and Technology Strategy in the Digital Economy*

- Business technology adoption, diffusion and productivity in global contexts
- Innovation and competition in technology-intensive industries (e.g., software, finance and healthcare)
- Enterprise information systems and data analytics for finance, operations and e-commerce
- Information in supply chains: Integrating IT and operations management
- Internet-based online markets, e-commerce, online and offline (O2O) integration
- Healthcare in the digital age: Life science meets information science

Citations data: [Google Scholar](https://scholar.google.com/citations?user=kxzhu) = 12500, *h-index* = 31 (as of 9/1/2021)

## **TEACHING**

Teaching interest:

- Innovation and Technology Strategy
- Business Intelligence Systems and Analytics
- Digital Transformation, E-Commerce and Social Media
- Digital Healthcare

Courses taught at UC San Diego:

- Innovation/Technology Strategy, Rating=4.5~5.0/5.0 (MBA), 4.6~5.0/5.0 (EMBA)
- Disruptive Technologies in Healthcare, Rating=5.0/5.0 (EMBA)
- Executive Education (Technology Management, Innovation Leadership, Digital Healthcare), Rating=4.8~5.0/5.0

## **AWARDS & HONORS**

- Distinguished Fellow Award, INFORMS Information Systems Society, 2018
- CAREER Award, U.S. National Science Foundation, 2005-2010.
- U.S. National Science Foundation Industry/University Cooperative Research Grant on the Adoption and Impact of IT on Business, 2000-2005.
- The World's Top 17<sup>th</sup> (based on 2006 data) and Top 10<sup>th</sup> (based on more recent data) "Most Productive Scholar in Information Systems" (out of 3,000 academics worldwide), *Communications of the Association for Information Systems* (CAIS).
- Grant for Technology Adoption and Commercialization in Developing Countries, *California Institute for Telecommunications and Information Technology* (Cal-IT<sup>2</sup>), 2005-2007.
- Best Paper Award, The 10<sup>th</sup> CSWIM Workshop on Information Management, 2016.
- Best Paper Nominee, Conference on Information Systems and Technology (CIST), 2014, San Francisco, CA.
- Best Paper Award, Americas Conference on Information Systems, 2004, New York, NY. (out of 900 papers).
- Best Paper Award, International Conference on Information Systems (ICIS), 2003, Seattle, WA. (out of 600 papers).
- Best Paper Award, International Conference on Information Systems (ICIS), 2002, Barcelona, Spain (out of 526 papers).
- Single Investigator Innovation Grant, Univ. of California Academic Senate, 2004-05.
- Faculty Career Development Award, University of California, 2002-03.
- The Charles and Twyla Martin Excellence in Teaching Award, Dean's Honoree, 2001.
- Award of Academic Excellence, Stanford University, 1996.

## **EDITORIAL BOARDS**

- *Management Science*: Associate Editor, 2007-08
- *Information Systems Research* (ISR): Associate Editor, 2006-08
- *MIS Quarterly* (MISQ): Associate Editor for special issues, 2006-present
- *Journal of the Association of Information Systems* (JAIS): Associate Editor, 2005-2011

## **PUBLICATIONS** (by peer reviewed academic journals)

1. "Competition among Proprietary and Open-Source Software Firms: The Role of Licensing on Strategic Contribution," by T. August, W. Chen and K. Zhu, *Management Science*, 67(5), p. 3041-3066, 2021.
2. "Monday Effect" on Performance Variations in Supply Chain Fulfillment: How IT-Enabled Procurement May Help, by M. Dresner, Y. Yao and K. Zhu, *Information Systems Research*, 30(4), p.1402-1423, 2019.
3. "Measuring and Managing the Externality of Managerial Responses to Online Customer Reviews," by W. Chen, B. Gu, Q. Ye, and K. Zhu, *Information Systems Research*, 30(1), p.81-96, 2019.

4. “Engaging Voluntary Contributions in Online Communities: A Hidden Markov Model,” by W. Chen, X. Wei, and K. Zhu, Management Information Systems Quarterly (MISQ), 42(1), p.83-100, 2018.
5. “The Asymmetric Impact of Customer Information Portability on Service Competition: Evidence from the Global Wireless Industry,” by X. Wei and K. Zhu, Production and Operations Management, 27(5), p.839-858, 2018.
6. “Green Process Innovation and Financial Performance in Emerging Economies: Moderating Effects of Absorptive Capacity and Green Subsidies,” by X. Xie, J. Huo, G. Qi and K. Zhu, IEEE Transactions on Engineering Management, Vol. 63, No.1, p.101-112, 2016.
7. “Lock-in Strategy in Software Competition: Open Source Software vs. Proprietary Software.” by K. Zhu and Z. Zhou, Information Systems Research, Vol. 23, No. 2, p.536-545, 2012.
8. “Do Electronic Linkages Reduce the Bullwhip Effect? An Empirical Analysis of the U.S. Manufacturing Supply Chains.” by Y. Yao and K. Zhu, Information Systems Research, Vol.23, No.3, p.1042-1055, 2012.
9. “Why Do Firms Adopt Innovations in Bandwagons? Herding under Competition in Open Standards Adoption.” by S. Xu and K. Zhu, International Journal of Technology Management, Vol. 59, Nos. 1/2, p.63-91, 2012.
10. “The Effects of Information Transparency on Suppliers, Manufacturers and Consumers in Online Markets.” Z. Zhou and K. Zhu, Marketing Science, Vol. 29, No.6, p.1125-1137, 2010.
11. “Information Technology in Supply Chains: The Role of IT-enabled Resources under Competition.” S. Dong, S. Xu, and K. Zhu, Information Systems Research, Vol. 20, No.1, p.18-32, 2009.
12. “How Does Information Technology Shape Supply Chain Structure? Evidence on the Number of Suppliers.” J. Dedrick, S. Xu, and K. Zhu, Journal of Management Information Systems (JMIS), Vol.25, No.2, p.41-72, 2008.
13. “The Process of Innovation Assimilation by Firms in Different Countries: A Technology Diffusion Perspective,” K. Zhu, K. Kraemer, and S. Xu, Management Science, Vol. 52, No. 10, p.1557-1576, 2006.
  - “Highly Cited Paper” by *Web of Science™*
14. “Migration to Open-Standard Interorganizational Systems: Network Effects, Switching Costs, and Path Dependency,” K. Zhu, K. Kraemer, V. Gurbaxani, and S. Xu,

Management Information Systems Quarterly (MISQ), Vol. 30, special issue on standards, p. 515-539, 2006.

15. "Innovation Diffusion in Global Contexts: Determinants of Post-Adoption Digital Transformation of European Companies." K. Zhu, S. Dong, S. Xu, and K. Kraemer, European Journal of Information Systems, Vol. 15, No. 6, p. 601-616, 2006.
16. "Post-Adoption Variations in Usage and Value of E-Business by Organizations: Cross-Country Evidence from the Retail Industry," K. Zhu, and K. Kraemer, Information Systems Research, Vol. 16, No. 1, p. 61-84, 2005.
  - "Top 1% of the Academic Field of Social Sciences" by *Web of Science*<sup>TM</sup>
17. "Information Transparency of Business-to-Business Electronic Markets: A Game-Theoretic Analysis," K. Zhu, Management Science, Vol. 50, No. 5, p. 670-685, 2004.
18. "The Complementarity of IT Infrastructure and Ecommerce Capability: A Resource-based Assessment of Business Value." K. Zhu, Journal of Management Information Systems, Vol. 21, No.1, p.167-202, 2004.
  - "Highly Cited Paper" by *Web of Science*<sup>TM</sup>
19. "Information Technology Payoff in E-Business Environments: An International Perspective on Value Creation of E-Business in the Financial Services Industry," K. Zhu, K. Kraemer, S. Xu, and J. Dedrick, Journal of Management Information Systems, Vol. 21, No. 1, pp.17-54, 2004.
20. "Economics of Digital Bundling: The Impacts of Digitization and Bundling on the Music Industry," K. Zhu, and B. MacQuarrie, Communications of the ACM, Vol. 46, No. 9, p.264-270, 2003.
21. "E-Business Adoption by European Firms: A Cross-Country Assessment of the Facilitators and Inhibitors," K. Zhu, K. Kraemer, and S. Xu, European Journal of Information Systems, Vol. 12, No. 4, p. 251-268, 2003.
  - "Highly Cited Paper" by *Web of Science*<sup>TM</sup>
22. "Strategic Exercise of Real Options: Investment Decisions in Technological Systems," K. Zhu, and J. Weyant, Journal of Systems Science and Systems Engineering, Vol. 12, No. 3, p.257-278, 2003.
23. "Ecommerce Metrics for Net-Enhanced Organizations: Assessing the Value of Ecommerce to Firm Performance in the Manufacturing Sector," K. Zhu, and K. Kraemer, Information Systems Research, Vol. 13, No. 3, p. 275-295, 2002.
  - "Highly Cited Paper" by *Web of Science*<sup>TM</sup>

24. "Using Real Options Analysis for Evaluating Uncertain Investments in Information Technology," P. Tallon, R. Kauffman, H. Lucas, A. Whinston, and K. Zhu, Communications of the AIS, 2002, Vol. 8, p. 136-167.

## **BOOKS & BOOK CHAPTERS**

25. Global E-Commerce: Impacts of National Environments and Policy, K. Kraemer, J. Dedrick, N. Melville, and K. Zhu (eds.), Cambridge University Press, Cambridge, UK., 2006.
26. "Global Convergence and Local Divergence in E-Commerce: Cross-Country Analyses," K. Zhu, S. Xu, K. Kraemer, and J. Dedrick, in Global E-Commerce: Impacts of National Environments and Policy, K. Kraemer, J. Dedrick, N. Melville, and K. Zhu (eds.), Cambridge University Press, 2006.
27. "Information Transparency Hypothesis: Economic Implications of Information Transparency in Electronic Markets," K. Zhu, in Advances in the Economics of Information Systems, K. Tomak (ed.), p. 15-42, Idea Group Publishing, Hershey, PA., 2005.
28. "What Drives E-Business Diffusion among Firms? Evidence from European Companies." K. Zhu, et al., in The European eBusiness Report, European Commission, p. 195-203, 2004.

## **CASE STUDIES**

1. "Dexcom: Sensors and Data Analytics for Continuous Heart Monitoring," 2017
2. "Sotera Wireless: Continuous Heart Monitoring and Beyond," 2014.
3. "Health IT: Transforming Healthcare with Affordable Technologies," 2011.
4. "Qualcomm: Capturing Value from Technological Innovations in the Face of Rapid Change and Hot Competition," 2010.
5. "Innovation in Real Time – the Case of iPhone/iPad," 2010.
6. "Skype - Navigating the VoIP Evolution," 2008.
7. "Standards War between Blu-ray vs HD-DVD," 2007.
8. "Evaluating Technology Investment Projects: The Real-Options Approach," 1999.

## **ACADEMIC CONFERENCES**

1. "Release Early, Release Often"? The Impact of Release Frequency in Open Source Software Co-Creation (with W. Chen and V. Krishnan), CSWIM, June 25-26, 2016.
  - *Best Paper Award*
2. "Does Customer Poaching Payoff in the Face of Competition and Technology Change?" by X. Wei and K. Zhu, Hawaii International Conference on Systems Sciences, Kauai, HI,

- January 2016; International Industrial Organization Conference, Philadelphia, PA, April 2016.
3. "Competition among Proprietary and Open-Source Software Firms: The Role of Licensing on Strategic Contribution." By T. August, W. Chen, and K. Zhu. INFORMS Annual Meeting, Philadelphia, PA, Nov 1-4, 2015.
  4. "Engaging the Wisdom of Crowds: Structural Analysis of Dynamic User Contributions in Online Communities." By W. Chen, X. Wei and K. Zhu), International Industrial Organizations Conference, Boston, MA, April 2015
  5. "Motivating User Contribution in Online Communities: Reputation and Virtual Rewards." By W. Chen, X. Wei and K. Zhu, Hawaii Intl Conf on System Sciences, Kauai, HI, January 2015.
  6. Engaging the Wisdom of Crowds: Structural Analysis of Dynamic User Contributions in Online Innovation Communities. by Chen, W., X. Wei, and K. Zhu. Workshop on Information Systems and Economics (WISE), Auckland, New Zealand, Dec 17-19, 2014.
  7. Competition among Proprietary and Open-Source Software Firms: The Role of Licensing on Strategic Contribution. by August, T., W. Chen, and K. Zhu. Conference of Information Systems and Technology (CIST), San Francisco, CA, Nov 8-9, 2014.
    - *Best Paper Nominee*
  8. "Engage the Wisdom of Crowds: Structural Analysis of Dynamic User Contributions in Online Innovation Communities." with W. Chen and A. Wei, INFORMS Annual Meeting, San Francisco, CA, Nov 9-12, 2014.
  9. "Motivating User Contributions to Online Communities: A Structural Modeling Approach." with W. Chen and A. Wei, Summer Workshop on Information Management, June 21-22, 2014.
  10. "Engage the Wisdom of Crowds: Structural Analysis of Dynamic User Contributions in Online Innovation Communities." with W. Chen and A. Wei, POMS 25<sup>th</sup> Annual Conference, Atlanta, GA, May 9-12, 2014.
  11. "The Impact of Licensing on Open Source and Proprietary Software Competition." with T. August and W. Chen, INFORMS Annual Meeting, Minneapolis, MN, Oct 6-9, 2013.
  12. "A Structural Hidden Markov Model about Online Communities." with W. Chen and A. Wei, INFORMS Annual Meeting, Minneapolis, MN, Oct 6-9, 2013.
  13. "A Structural Hidden Markov Model on User Contributions in Online Communities." with W. Chen and A. Wei, NBER Summer Institute -- Economics of IT and Digitization Workshop, Boston, MA, July 18-19, 2013.
  14. "Release Early, Release Often? An Empirical Analysis of Release Strategy in Open Source Software Co-Creation." With Wei Chen and Vish Krishnan, Pacific Asia Conference on Information Systems (PACIS), Jeju Island, South Korea, June 18-22, 2013.
  15. "Reducing Consumer Switching Costs with Portability: Evidence of Market Competition in the Global Wireless Industry," with A. Wei, Workshop on Information Systems and Economics (WISE), Orlando, FL, Dec 15-16, 2012.
  16. "Motivating Contributions to Online Knowledge Communities: Reputation and Virtual Rewards." with W. Chen and A. Wei, AIS-SIGBPS Workshop on Business Processes and Services, Orlando, FL, Dec 15, 2012.
  17. "Release Early, Release Often? An Empirical Analysis of Release Strategy in Open Source Software." with W. Chen and V. Krishnan, INFORMS Annual Meeting, Phoenix, AZ, Oct 14-17, 2012.

18. “Motivating Contributions to Online Knowledge Communities: Reputation and Virtual Rewards.” with W. Chen and A. Wei, INFORMS Annual Meeting, Phoenix, AZ, Oct 14-17, 2012.
19. “Numbers Portable: Will Markets Become More Competitive under MNP?” with X. Wei, Workshop on Information Systems and Economics (WISE), Dec. 7-9, 2011.
  - also International Conference on Information Systems (ICIS) Doctoral Consortium, Nov. 30-Dec. 3, 2011.
20. “Economics of IT-enabled Innovations: Research Frontiers in Social Media, Open Innovation and Digital Markets,” China Association for Information Systems Annual Conference, Shanghai, China, Dec. 2-4, 2011.
  - *Keynote Speech*
21. “The Motivation and Impacts of Innovation in Open Source Software.” with W. Chen, The 2011 Summer Workshop on Information Management, June 25-26, 2011.
22. “Does Customer Acquisition Pay off? Competition of Customer Poaching in Network Industries.” with X. Wei, International Industrial Organization Conference (IIOC), Boston, MA, April 8-10, 2011.
23. “Public Policy, Competition and Entrepreneurship in Network Industries with Switching Costs.” with X. Wei, American Economic Association Annual Meeting (AEA), Denver, CO, Jan. 6-10, 2011.
24. “Reducing Consumer Switching Costs with Portability: Evidence of Market Competition in the Global Wireless Industry,” with A. Wei, Kauffman Foundation Entrepreneurship Workshop, Denver, CO, January 2011.
25. “Porting Away Market Share or Profitability: Competition under Mobile Number Portability Regulation.” with X. Wei, International Conference on Information Systems (ICIS), St. Louis, MO, Dec. 12-15, 2010.
26. “How Does Information Technology Affect Inventory? The Role of Moderators and Mediators.” with R. Lai and S. Xu, The 2010 Summer Workshop on Information Management, June 19-20, 2010.
27. “Does Pro-competition Policy Achieve the Intended Effect? Evidence from Mobile Number Portability.” with X. Wei, International Industrial Organization Conference (IIOC), Vancouver, Canada, May 14-16, 2010.
28. “Does IT Really Reduce Inventory? Opening up the Black Box between IT and Inventory.” with R. Lai and S. Xu, Workshop on Information Systems and Economics (WISE), Phoenix, AZ, Dec. 14-15, 2009.
29. “Does IT Reduce Inventory? New Doubts from Evidence Using Executives’ College Majors and Other Instrumental Variables.” with R. Lai and S. Xu, Workshop for Empirical Research in Operations Management, The Wharton School, PA, Nov. 12-13, 2009.
30. “Internal versus External Innovation Strategy and Firm Performance,” with A. Wei, Institute for Operations Research and the Management Sciences (INFORMS) Annual Conference, San Diego, CA, Oct.11-14, 2009.
31. “Electronic Markets and the Cure for the ‘Monday Blues’”. with O. Yao and M. Dresner, Conference on Information Systems and Technology (CIST), San Diego, CA, Oct.10-11, 2009.
32. “The Impact of Reduced Customer Switching Costs.” with X. Wei, International Conference on Telecommunication Systems Management (ICTSM), Monterey, CA, July 9-12, 2009.



33. "Lock-in and Software Competition: How Does Proprietary Software Compete against Open Source Software?" with Z. Zhou, POMS Workshop on Innovation & Technology Management, San Diego, CA, May 12-13, 2008.
34. "The Role of Standard Management: Evidence from the Global Wireless Telecommunications Industry." with X. Wei, Conference of the Production and Operations Management Society (POMS), San Diego, CA, May 9-12, 2008;
35. "Information technology and the number of suppliers in a supply chain: is there a relationship?" with J. Dedrick and S. Xu, the 41<sup>st</sup> Hawaii International Conference on System Sciences (HICSS), Jan. 7-10, 2008.
36. "The business value of CRM systems: a resource-based perspective." with S. Dong, the 41<sup>st</sup> Hawaii International Conference on System Sciences (HICSS), Jan. 7-10, 2008.
37. "The Role of Standards and Switching Costs: Evidence from Global Wireless Telecommunications Industry," with A. Wei, Workshop on Information Systems and Economics (WISE), Montreal, Canada, Dec. 8-9, 2007.
38. "Conflict of Interest in Information Transparency in an Electronic Market with Two-sided Competition," with Z. Zhou, International Conference on Information Systems (ICIS), Montreal, Canada, Dec. 10-12, 2007.
39. "Electronic Procurement and the Number of Suppliers: An Empirical Analysis," INFORMS Annual Conference, Seattle, WA., Nov. 4-7, 2007.
40. "Supplier Base Downsizing? Contingency Effects in Digitized Supply Chain Relationships," with J. Dedrick and S. Xu, INFORMS Conf on Information Systems and Technology (CIST), Seattle, WA, Nov. 3-4, 2007.
41. "The Business Value of CRM Systems: Productivity, Profitability, and Time Lag," with S. Dong, Workshop on Information Systems and Economics (WISE), Evanston, IL., Dec. 9-10, 2006.
42. "Platform Battle with Lock-in," with Z. Zhou, International Conference on Information Systems (ICIS), Milwaukee, WI., Dec. 10-13, 2006.
43. "Effects of Information Transparency on Supply Chain Coordination Under Competition," with Z. Zhou, INFORMS Annual Conference, Pittsburgh, PA., Nov. 5-7, 2006.
44. "Lock-in Customers and Lock-out Competitors? Competing Against Zero-Price Open Source Platforms," with Z. Zhou, INFORMS Conf on Information Systems and Technology (CIST), Pittsburgh, PA., Nov. 4-5, 2006.
45. "Information Transparency and Discriminatory Pricing in B2B E-markets," with Z. Zhou, Manufacturing & Service Operations Management, Atlanta, GA, June 19-20, 2006.
46. "Network Effects and Herd Behavior in Open Standard Adoption," with S. Xu, Workshop on Information Systems and Economics (WISE), Irvine, CA, Dec. 10-11, 2005.
47. "CRM and the Incentive to Share Customer Information," with E. Kim and B. Lee, Workshop on Information Systems and Economics (WISE), Irvine, CA, Dec. 10-11, 2005.
48. "Understanding technology adoption by different firms: A context-augmented innovation diffusion perspective," INFORMS Conference on Information Systems and Technology (CIST), Nov. 12-13, 2005.
49. "Value of Information Technology in E-Business Environments: The Missing Links in the Renewed IT Value Debate," with S. Xu, 25<sup>th</sup> International Conference on Information Systems (ICIS), Washington DC, Dec. 2004.
50. "Internet Technology Diffusion at the Firm Level: Empirical Evidence from Asia-Pacific Region, Europe, and North America," with S. Xu and K.L. Kraemer, International



Conference on Information Systems: International Symposium on Asia-Pacific, Washington DC, Dec. 2004.

51. "Factors Affecting E-Business Diffusion in Organizations: Differences between Developed and Developing Countries," with S. Xu and K. Kraemer, 10<sup>th</sup> Americas Conference on Information Systems (AMCIS), New York, USA, August 6-8, 2004.
  - *Best Paper Award (out of 900 papers worldwide)*
52. "Economic Implications of B2B Electronic Markets: The Private and Social Desirability of Information Transparency," The 37<sup>th</sup> Hawaii International Conference on System Sciences (HICSS-37), Hawaii, January 5-8, 2004.
53. "Assessing Drivers of E-Business Value: Results of a Cross-Country Study," with S. Xu and J. Dedrick, 24<sup>th</sup> International Conference on Information Systems (ICIS), Seattle, WA, 2003.
  - *Best Paper Award (out of 600 papers worldwide)*
54. "A Cross-Country Study of Electronic Business Adoption Using the Technology-Organization-Environment Framework," with K. Kraemer and S. Xu, 23<sup>rd</sup> International Conference on Information Systems (ICIS), Barcelona, Spain, 2002.
  - *Best Paper Award (out of 526 papers worldwide)*
55. "The economic impact of B2B exchanges on supplier-manufacturer relationships: the interaction of industry structure and exchange design," with R. Plice and V. Gurbaxani, The 14<sup>th</sup> Workshop on Information Systems and Economics (WISE), Barcelona, Spain, Dec. 14-15, 2002.
56. "E-Business Initiatives and IT Infrastructure: An Empirical Study of the U.S. Manufacturing Industry," with K. Kraemer, International Conference on Electronic Business (ICEB), May 23-26, 2002.
57. "The Informational Effects of B2B Online Exchanges: Is Data Transparency a Benefit or Threat?" The 13<sup>th</sup> Workshop on Information Systems and Economics (WISE), New Orleans, LA., Dec. 15-16, 2001.
58. "Equilibrium Conditions Characterizing B2B-Exchange Participation in a Seller-Concentrated and Buyer-Unconcentrated Industry Setting," with V. Gurbaxani and R. Plice, The 13<sup>th</sup> Workshop on Information Systems and Economics (WISE), New Orleans, LA., Dec. 15-16, 2001.
59. "Real Options Analysis for Evaluating Uncertain Information Technology Investments," with R. Kauffman, H. Lucas, P. Tallon and A. Whinston, 22<sup>nd</sup> International Conference on Information Systems (ICIS), Proceedings p. 637-640, New Orleans, LA, Dec. 16-19, 2001.
60. "The Informational Role of Business-to-Business Exchanges," INFORMS Annual Conference (e-commerce session chair), Miami Beach, FL., Nov. 4-7, 2001.
61. "Evaluating Information Technology Investment: Cash Flows or Growth Options?" Workshop on Information Systems and Economics, Charlotte, NC, Dec. 11-12, 1999.