

Frank Nagle
 Morgan Hall 262
 Harvard Business School
 Boston, MA 02163
 frank@hbs.edu
<http://www.franknagle.com/>

Faculty Appointments

Harvard Business School

- Assistant Professor, Strategy Unit 2018 – Present

University of Southern California

- Assistant Professor, Management and Organization, Marshall School of Business 2015 – 2018

Affiliations

Harvard Business School

- Co-Director HBS/Linux Foundation Core Infrastructure Initiative 2018 – Present
- Faculty Affiliate, Managing the Future of Work Project 2018 – Present
- Faculty Affiliate, HBS Digital Initiative 2018 – Present
- Faculty Affiliate, Laboratory for Innovation Science 2018 – Present

Organization for Economic Cooperation and Development (OECD)

- Advisor to the Working Party on Innovation and Technology Policy 2018 – Present

European Commission/Open Forum Europe

- Board of Experts Member for study on Impact of Open Source on Technological Independence, Competitiveness, and Innovation in Europe, 2019 – Present

University of Southern California

- Faculty Affiliate, Annenberg Research Network on International Communication 2016 – Present
- Faculty Affiliate, Annenberg Innovation Lab 2017 – Present
- Co-Founder and Co-Director, Marshall Digitopolis 2016 – 2018
- Faculty Affiliate, Lloyd Greif Center for Entrepreneurial Studies 2016 – 2018

Education

Harvard Business School, Boston, MA, USA

May 2015

- Doctor of Business Administration in Technology and Operations Management
- Committee: Shane Greenstein (co-chair), Marco Iansiti (co-chair), Carliss Baldwin, Karim Lakhani, Feng Zhu
- Dissertation Title: The Digital Commons: Tragedy or Opportunity? The Effect of Crowdsourced Digital Goods on Innovation and Economic Growth
 - Harvard Business School Wyss Award for Excellence in Doctoral Research
 - INFORMS TIMES Doctoral Dissertation Award, 2016 Runner-Up
 - Grigor McClelland Doctoral Dissertation Award, 2016 Finalist¹

Georgetown University, Washington, DC, USA

January 2011

- Master of Science in Computer Science, focus in Information Security
- Master's Thesis Title: Quantifying Privacy Breaches in Social Networks

City University, London, UK

September 2007

- Master of Science in International Business Economics, Graduated with Distinction
- Master's Thesis Title: High-Tech IPO's in the US and Europe Before, During, and After the Dot-Com Bubble

Georgetown University, Washington, DC, USA

May 2004

- Bachelor of Science in Computer Science, Cum Laude
- Minors: Science and Technology in International Affairs; Music

Peer Reviewed Journal Publications

- F. Nagle. and F. Teodoridis. (2020). “Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration.” *Strategic Management Journal*, 41(1), pp. 55-85.
 - Selected for AOM Best Paper Proceedings, 2019
- S. Shah and F. Nagle. (2020). “Why do User Communities Matter for Strategy?” *Strategic Management Review*, 1(2), pp. 305-353.
- F. Nagle. (2019). “Open Source Software and Firm Productivity.” *Management Science*, 65(3), pp. 1191-1215.
 - Strategic Management Society (SMS) Best Conference Paper, 2014 Finalist
- F. Nagle. (2018). “Learning By Contributing: Gaining Competitive Advantage Through Contribution to Crowdsourced Public Goods.” *Organization Science*, 29(4), pp. 569-587.
 - European Academy of Management (EURAM) Conference – Innovation Strategic Interest Group Best Paper, 2018 Winner
 - Strategic Management Society (SMS) Conference - Knowledge and Innovation Interest Group Best Conference Paper, 2017 Winner
 - Strategic Management Society (SMS) Best Conference Paper, 2017 Nominated
 - AOM Technology and Innovation Management Best Paper, 2016 Finalist
 - Selected for AOM Best Paper Proceedings, 2016
- S. Greenstein and F. Nagle. (2014). “Digital Dark Matter and the Economic Contribution of Apache.” *Research Policy* 43 (4), pp. 623-631.
 - Lead Article.

Book Chapters, Conference Proceedings, and Permanent Working Papers

- F. Nagle. and F. Teodoridis. (2019). “Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration.” *Academy of Management Best Paper Proceedings*.
- F. Nagle. (2018). “The Digital Commons: Tragedy or Opportunity? A Reflection on the 50th Anniversary of Hardin’s Tragedy of the Commons.” *Harvard Business School Working Paper 19-060*.
- F. Nagle. (2016). “Learning By Contributing: Gaining Competitive Advantage Through Cooperative Contribution to Public Goods.” *Academy of Management Best Paper Proceedings*.
- E. Altman, F. Nagle, and M. Tushman. (2015). “Innovating Without Information Constraints: Organizations, Communities, and Innovation When Information Costs Approach Zero.” In *Oxford Handbook of Creativity, Innovation and Entrepreneurship*, pp. 353-378, edited by Michael A. Hitt, Christina Shalley, and Jing Zhou. Oxford University Press.
- F. Nagle and C. Riedl. (2014). “Online Word of Mouth and Product Quality Disagreement.” *Academy of Management Best Paper Proceedings*. Full paper available as *Harvard Business School Working Paper 13-091*.
- E. Altman, F. Nagle, and M. Tushman. (2013). "Technology and Innovation Management." In *Oxford Bibliographies in Management*, edited by Ricky W. Griffin. New York: Oxford University Press.

Technical Reports and White Papers

- F. Nagle, J. Wilkerson, J. Dana, and J. Hoffman. (2020). “Vulnerabilities in the Core: Preliminary Report and Census II of Open Source Software.” The Linux Foundation Core Infrastructure Initiative.

Practitioner-Oriented Publications

- F. Nagle and F. Teodoridis. (2020). “Do You Need More ‘Jacks of All Trades’ in Your R&D Department?” *Harvard Business Review Online*, forthcoming.
- E. Altman and F. Nagle. (2020). “Accelerating Innovation Through a Network of Ecosystems: What Companies Can Learn from the United Nations.” *Sloan Management Review*, Summer 2020, 61(4).
- R. Kumar and F. Nagle. (2020). “The Case for AI Insurance.” *Harvard Business Review Online*, April 29, 2020.
- F. Nagle. (2018). “Capturing Value from Free Digital Goods.” *Sloan Management Review*, Spring 2018, 59(3), pp. 16-18.
- C. Nutt and F. Nagle (2010). “Will Laws that Build Upon PCI-DSS Lead to Greater Security?” *Secure Times*, Spring 2010, 5(1).

Working Papers

- F. Nagle. “Us and Them: Predicting Firm Stock Performance via Social Media Sentiment About Competitors.”
 - Under review
- F. Nagle. “Government Technology Policy, Social Value, and National Competitiveness.” *Harvard Business School Working Paper 19-103*.
 - Under review
- E. Altman, F. Nagle, and M. Tushman. “The Translucent Hand of Managed Ecosystems: Open Adaptation and Ambidextrous Governance Perspectives.” *Harvard Business School Working Paper 19-096*.
 - Second round revision requested
- F. Nagle, R. Seamans, and S. Tadelis. “Transaction Cost Economics in the Digital Economy: A Research Agenda.” *Harvard Business School Working Paper 21-009*.
 - Under review
- S. Li, F. Nagle, and A. Zhou “The Role of Social Capital in the U.S. Economy: Evidence from Employee-Level Professional Connections from LinkedIn”.
- N. Wright, S. Greenstein, and F. Nagle. “Open Source Software and Global Entrepreneurship.” *Harvard Business School Working Paper 20-139*.
 - Under review
- F. Nagle, E. Seo, and S. Shah. “A Little Help From My Friends: The Impact of Receiving Assistance on Participation in Online Knowledge-Sharing Communities.” *Harvard Business School Working Paper 21-026*.
 - Under review

Work In Progress

- H. Lifshitz-Assaf and F. Nagle. “Goldilocks and the Three Programmers: Unpacking the Relationship Between Online Contributions and Productivity at Work.”
- F. Nagle, S. Ransbotham, and G. Westerman. “Security Investment as a Strategic Response.”
- K. Lakhani, F. Nagle, and H. Piezunka. “Do Programmers Pay to Be Open?”
- F. Nagle, and H. Lifshitz-Assaf. “The Impact of COVID-19 on Knowledge Worker Productivity.”

Computer Science Publications

- F. Nagle. (2013). "Privacy Breach Analysis in Social Networks." In Studies in Mining Social Networks and Security Information, edited by Zeki Erdem, Tansel Ozyer, Suheil Khoury and Jon Rokne. Springer Verlag.
- F. Nagle, L. Singh, and A. Gkoulalas-Divanis. (2012). "EWNI: Efficient Anonymization of Vulnerable Individuals in Social Networks", *Proceedings of The 16th Pacific - Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2012)*. Republished in *Lecture Notes in Computer Science: Vol. 7302. Advances in Knowledge Discovery and Data Mining* (pp. 359-370).
- A. Ramachandran, L. Singh, E. Porter, and F. Nagle. (2012). "Exploring Re-Identification Risks in Public Domains", *Proceedings of the Tenth Annual International Conference on Privacy, Security, and Trust (PST 2012)*. Best Student Paper
- F. Nagle, L. Singh. (2009). "Privacy in Online Social Networks: Empirical Evidence from Facebook", *Proceedings of the 2009 International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Hellenic American University, Greece, July 2009.
- F. Nagle, M. Sutton. (2006). "Emerging Economic Models for Vulnerability Research", *Proceedings of The Fifth Workshop on the Economics of Information Security (WEIS 2006)*, University of Cambridge, England, June 2006. Republished as Chapter 1 in Cyber Fraud: Tactics, Techniques, and Procedures, edited by James Graham, Rick Howard, Ralph Thomas, and Steve Winterfield, 2nd Edition. (2010). CRC Press, Auerbach Publications.

Honors, Awards, and Grants

- Linux Foundation Core Infrastructure Initiative Grant (\$509,000 w/ Karim Lakhani), 2020
- Council on Foreign Relations, Term-Member, 2019-2024
- Best Paper Proceedings, Academy of Management, 2019
- Linux Foundation Core Infrastructure Initiative Grant (\$500,000 w/ Karim Lakhani), 2018
- Best Paper, European Academy of Management (EURAM) Conference – Innovation Strategic Interest Group, 2018 Winner
- LinkedIn Economic Graph Challenge, 2017 Winner (w/ Shelley Li, Milan Miric, Pai-Ling Yin, and Noam Wasserman)
- USC Institute for Outlier Research in Business Funding Grant (\$25,000 w/ Shelley Li, Milan Miric, Pai-Ling Yin, and Noam Wasserman), 2017
- Best Conference Paper, Strategic Management Society Conference - Knowledge and Innovation Group, 2017 Winner
- Best Conference Paper, Strategic Management Society Conference, 2017 Nominated
- Outstanding Track Associate Editor, International Conference on Information Systems, 2017
- National Bureau of Economic Research (NBER) Digitization Grant (\$15,000), 2017
- Lord Foundation, USC Marshall Seed Funding – Marshall Digitopolis (\$3,000), 2016
- Best Paper, Academy of Management – Technology and Innovation Management Division, 2016 Finalist
- INFORMS TIMES Doctoral Dissertation Award, 2016 Runner-Up
- Grigor McClelland Doctoral Dissertation Award, 2016 Finalist¹
- Best Paper Proceedings, Academy of Management, 2016
- Wyss Award for Excellence in Doctoral Research, Harvard Business School, 2014
- Best Conference Paper, Strategic Management Society Conference, 2014 Finalist
- Best Paper Proceedings, Academy of Management, 2014
- Received Excellent / High Pass on HBS Doctoral Qualifying Exam, 2013

Invited Presentations

- 2020 – Carnegie Mellon, University of Pittsburgh
- 2019 – HBS Future Assembly, Boston University, OECD/HBS Business and Policy Perspectives on Digital Conference
- 2018 – Organization for Economic Cooperation and Development (OECD)

- 2017 – Federal Trade Commission (FTC), NBER Productivity Seminar, Gould School of Law (USC), Duke Strategy Conference, Boston College, Harvard Business School, Boston University
- 2016 – Annenberg School for Communication (USC), INFORMS TIMES Emerging Scholars
- 2015 – University of California – Los Angeles, University of Maryland, Harvard Business School, University of Pennsylvania, University of Southern California, Carnegie Mellon University, McGill University
- 2014 – Columbia University, Bocconi University, IESE Business School, Temple University, University College London, Boston College, NBER Productivity Seminar

Invited Panel Presentations

- 2019 – Georgetown University John Carroll Weekend “FinTech and the Future”, Harvard Business School Reunion Weekend “Will Robotics and AI Lead Engineers to Rule the World?”, SMS Annual Conference “AI, Firm Strategy, and Organization: Cognitive Technologies Beyond the Hype”

Conference Presentations

- “The Role of Social Capital in the U.S. Economy: Evidence from Employee-Level Professional Connections from LinkedIn.”
 - National Bureau of Economic Research (NBER) Summer Institute, Online, July 2020
- “A Little Help From My Friends: The Impact of Receiving Assistance on Participation in Online Knowledge-Sharing Communities.”
 - Academy of Management Annual Conference, Online, August 2020²
 - Strategic Management Society Conference, Minneapolis, MN, October 2019
 - Boston College Digital Innovation Workshop, May 2019
- “Jack of All Trades and Master of Knowledge: The Role of Generalists in Novel Knowledge Integration.”
 - Academy of Management Annual Conference, Boston, MA, August 2019
 - **Selected for Best Paper Proceedings**
- “Government Technology Policy, Social Value, and National Competitiveness.”
 - Society for Institutional & Organizational Economics (SIOE) Conference, Online, June 2020
 - National Bureau of Economic Research (NBER) Summer Institute, Boston, MA, July 2018
 - Open and User Innovation (OUI) Conference, New York, NY, August 2018
 - Research Conference on Communications, Information, and Internet Policy (TPRC), Washington, DC, September 2018
- “Transaction Cost Economics in the Digital Economy: A Research Agenda.”
 - AOM Conference on Big Data and Managing in a Digital Economy, Surrey, UK, April 2018²
- “Security Investment as a Strategic Response.”
 - Workshop on the Economics of Information Security, San Diego, CA, June 2017²
- “Goldilocks and the Three Programmers: Unpacking the Relationship Between Online Contributions and Productivity at Work.”
 - Academy of Management Annual Conference, Boston, MA, August 2019
 - Organization Science Winter Conference, Park City, UT, March 2018
 - Israel Strategy Conference, Haifa, Israel, December 2017²
 - Academy of Management Annual Conference, Atlanta, GA, August 2017
 - Collective Intelligence Conference, New York University, June 2017
- “Learning By Contributing: Gaining Competitive Advantage Through Contribution to Crowdsourced Public Goods.”
 - European Academy of Management Conference, Reykjavik, IS, June 2018

- **Best Conference Paper, Innovation Strategic Interest Group, Winner**
 - Strategic Management Society Conference, Houston, TX, October 2017
 - **Best Conference Paper, Nominated**
 - **Best Conference Paper, Knowledge and Innovation Interest Group, Winner**
 - DRUID Society Conference on Entrepreneurship, Organization, and Innovation, New York University, June 2017
 - Workshop on Information Systems and Economics (WISE), Dublin, IE, December 2016
 - Academy of Management Annual Conference, Los Angeles, CA, August 2016
 - **Technology and Innovation Management Division Best Paper, Finalist**
 - **Selected for Best Paper Proceedings**
 - Open and User Innovation Conference, Harvard Business School, August, 2016
 - Strategic Management Society Special Conference, Rome, IT, June 2016
 - Organization Science Winter Conference, Park City, UT, February 2016
- “Managed Ecosystems and Translucent Governance Structures: Capabilities for Engaging Communities”
 - Academy of Management Annual Conference, Boston, MA, August 2019
 - Wharton Technology and Innovation Conference, April 2019
 - Strategic Management Society Conference, Houston, TX, October 2017²
 - Academy of Management Annual Conference, Los Angeles, CA, August 2016
 - Open and User Innovation Conference, Harvard Business School, August, 2016
 - Collective Intelligence Conference, New York University, June 2016²
- “Open Source Software and Firm Productivity”
 - National Bureau of Economic Research (NBER) Summer Institute, Boston, MA, July 2016
 - American Economic Association (AEA) Annual Meeting, Boston, MA, January 2015
 - INFORMS Annual Meeting, San Francisco, CA, November 2014
 - INFORMS Conference on Information Systems and Technology (CIST), November 2014
 - Strategic Management Society Conference, Madrid, Spain, September 2014
 - **Best Conference Paper, Finalist**
 - 2nd Conference on Knowledge Commons, NYU Engelberg Center on Innovation Law & Policy, September 2014
 - Academy of Management Annual Conference, Philadelphia, PA, August 2014
 - Harvard Business School TOM Alumni Research Workshop, August 2014
 - Open and User Innovation Conference, Harvard Business School, July 2014
 - DRUID Society Conference on Entrepreneurship, Organization, and Innovation, Copenhagen Business School, June 2014
 - ZEW Conference on the Economics of Information and Communication Technologies, Centre for European Economic Research, Mannheim, Germany, June 2014
 - Charles River Conference, Harvard Business School, May 2014
 - Consortium on Competitiveness and Cooperation (CCC), Boston University, April 2014
- “Innovating without Information Constraints: Organizations, Communities, and Innovation When Information Costs Approach Zero”
 - 2nd Conference on Knowledge Commons, NYU Engelberg Center on Innovation Law & Policy, September 2014
- “Online Word of Mouth and Product Quality Disagreement”
 - Academy of Management Annual Conference, Philadelphia, PA, August 2014
 - **Selected for Best Paper Proceedings**
 - Workshop on Information Systems and Economics (WISE), Orlando, FL, December 2012²
 - Workshop on Information in Networks (WIN), NYU Stern, September 2012²
- “Us and Them: Predicting Firm Stock Performance via Social Media Sentiment About Competitors”
 - Workshop on Information in Networks (WIN), NYU Stern, September 2013
 - Academy of Management Annual Conference, Orlando, FL, August 2013
 - 11th ZEW Conference on the Economics of Information and Communication Technologies, Center for European Economic Research, Mannheim, Germany, June 2013

- London Business School Trans-Atlantic Doctoral Conference, London, UK, May 2013
- “Supply-Chain Based Network Effects in In Information Technology Adoption”
 - Academy of Management Annual Conference, Orlando, FL, August 2013²

Media Coverage and Interviews

- Media Coverage – Forbes, The Motley Fool, The Register, The San Diego Union-Tribune, Politico, HBS Working Knowledge, TechRepublic, ZDNet, Computer Weekly, Dark Reading, Security Magazine, DevOps
- Interviews (Written Media) –The New Stack, ReadWrite, ITWeb
- Interviews (Podcasts) – CHAOSSCast, Security Ledger, The New Stack, Council on Foreign Relations - The World Next Week

Teaching Experience

- **Harvard Business School**
 - Strategy, 2019-present
 - Executive Education courses on digital transformation, strategy, and cybersecurity
- **University of Southern California – Marshall School of Business**
 - BUAD 497 – Strategic Management, 2016-2018.
 - Doctoral Research Methods in Strategy and Organizations (Guest lecturer), 2016-2017.
 - Doctoral Seminar in Strategic Management (Guest lecturer), 2016-2018.
 - Advanced Management Program (Executive Education), 2017.
- **Harvard Business School** (as a doctoral student)
 - Analytics – Teaching Fellow for pre-MBA program, 2011 – 2014. Head Teaching Fellow, 2013, 2014.
 - Technology & Operations Management – Teaching Fellow for core MBA course, Fall 2013.
 - Managing Innovation – Teaching Fellow for elective MBA course, Spring 2012.
 - Leading Change and Organizational Renewal – Facilitator for Executive Education course, 2011.
- **Federal Bureau of Investigation (FBI)**
 - Network Investigation Techniques for Agents – Developer and lead instructor for a required course for all new FBI cyber agents, 2009 – 2010.
 - Wireless Security – Lead instructor, 2008 –2009.
- **Georgetown University**
 - Computer Hardware Fundamentals – Teaching Assistant, Spring 2004.
 - Computer Science I – Teaching Assistant, Spring 2002 and Fall 2003.
 - Computer Science II – Teaching Assistant, Spring 2003.
 - Introduction to Computer Science I – Teaching Assistant, Fall 2002.

Professional Service

- Ad-Hoc reviewer for Management Science, Organization Science, Strategic Management Journal, Administrative Science Quarterly, Strategy Science, Information Systems Research, Research Policy, Journal of Law, Economics, and Organizations, Journal of Economics and Management Strategy, Academy of Management Discoveries, Strategic Entrepreneurship Journal, and Telecommunications Policy
- Grant Reviewer for 2020 Digital Infrastructure Research sponsored by Ford Foundation, Sloan Foundation, Mozilla Foundation, and Open Society Foundation
- Mentor for Industry Studies Association (ISA) Professional Development Workshop for Early Career Scholars (2020)
- Program Committee Member and Accessibility Chair, ACM Collective Intelligence Conference (2020)
- Program Committee Member, ACM Collective Intelligence Conference (2019)
- Program Committee Member, Workshop on the Economics of Information Security (2019)
- Associate Editor, International Conference on Information Systems (2017)
- Program Committee for INFORMS Conference on Information Systems and Technology (CIST 2014 – 2017).
- Symposium Session Organizer for Academy of Management (2016, 2017, 2019)
- Symposium Session Organizer for Strategic Management Society (2019)
- Session chair for Academy of Management (2016) and Strategic Management Society (2016)

- Reviewer for Strategic Management Society Conference (2017, 2019), European Academy of Management (2018), Academy of Management Annual Conference for TIM and OCIS divisions (2013, 2014)
- Grant reviewer for Canada Research Chairs (Canadian educational sponsorship program)
- Grant reviewer for Social Sciences and Humanities Research Council (Canadian equivalent of the NSF)
- Discussant for LBS TADC 2013, ZEW ICT 2013, DRUID 2014, ZEW ICT 2014.
- Reviewer for Social Network Mining, Analysis and Research Trends: Techniques and Applications, ed. I-Hsien Ting.
- Reviewer for Studies in Mining Social Networks and Security Information, edited by Zeki Erdem, Tansel Ozyer, Suheil Khoury and Jon Rokne.

Institutional Service

Harvard Business School

- Strategy Seminar Series, co-coordinator 2019 – present
- Dissertation Committee Member: Christopher Eaglin

Marshall School of Business, University of Southern California

- Marshall Digitopolis, school wide initiative supporting research on digital business, co-founder 2016 – 2018
- Strategy Faculty Recruiting Committee, member 2015 – 2016
- Strategy Seminar Series, coordinator 2016 – 2018
- Qualifying Exam Committee Member: Jihoon Hong (Marketing)

Harvard Business School (as a doctoral student)

- Student Advisory Group – Member of committee that advises the doctoral office on student policies, 2012-2015
- Wyss Mentoring Award Committee – Member of selection committee for faculty mentoring award, 2013-2015
- Student Mentor for incoming doctoral students in the TOM unit, 2013-2015
- Panel member for various presentations to incoming and accepted doctoral students at HBS

Professional Experience

Alphamatician

Advisory Board Member

Boston, MA

November 2018 - Present

Nexleaf Analytics

Advisory Board Member

Los Angeles, CA

April 2018 - Present

Multiple Big Data Analytics Startups

Technical Advisor

Various Locations

April 2012 - Present

Mandiant Inc. (acquired by FireEye)

Senior Security Consultant

Alexandria, VA

October 2008 – May 2011

Deloitte & Touche LLP

Senior Consultant, Federal Security and Privacy

Washington, DC

September 2007 – October 2008

iDefense, A VeriSign Company

Assistant Director of Vulnerability Intelligence

Dulles, VA & London, UK

September 2005 – September 2007

iDefense, Inc.

Security Analyst

Reston, VA

May 2003 – September 2005

Nokia Mobile Phones

Software Engineer Intern

Burlington, MA

June 2002- August 2002

¹ Unable to attend award ceremony, therefore not included on published list of finalists

² Presented by a co-author