

Leaders for Manufacturing Junior Faculty Research Grant, 1988-1991
Arthur D. Little Foundation Research Grant, 1984-1985
National Association for Purchasing Management Dissertation Fellowship, 1981-1982
Richard D. Irwin Dissertation Fellowship, 1981-1982

MBA Subjects Taught at MIT:

15.734	Operations Management for EMBA	Spring 2011
15.760	Introduction to Operations Management	Spring 86, 87, 88, 95, 97, 98, 02, 04, 05
15.761	Operations Management	Spring 83-85, Fall 89, 90, 93, 95, 99
15.768	Operations Mgmt in the Service Sector	Fall 2007, 2008, 2009, 2010
15.769	Operations/Manufacturing Strategy	Fall 83,85,88,90,01,09, Spr 90,93,98,00,02-05,07-14
15.778	Operations Management (Sloan Fellows)	Summer 2010, 2011
15.779	Manufacturing Management (Sloan Fellows)	Fall 1986, 88, 89, Spring 1991
15.795	Managing for Product Quality	Fall 1984
15.795	Technology Supply Chains/SC Strategy	Fall 1995, 2002, Spr 1996, 2000, 2001
15.795	Seminar on the Auto Industry	Fall 1994
15.799	Design for Manufacturability	Fall 1988, Spring 1988
15.S10	Operations for Entrepreneurs	Spring 2023
15.515	Accounting for Manufacturing	Summer 1991, 92, 93, 94, 95, 96

Phd Theses Supervised:

Gary Burchill, 1993; Daniel Kim, 1993; Nitin Joglekar, 1997; Edward Anderson, 1997, Maureen Lojo, 1998; Geoffrey Parker, 1998; Chris Couch, 1999; Sharon Novak, 1999; Andjelka Kelic, 2005; Hongmin Li, 2007; Theodore Piepenbrock, 2009; Chintan Vaishnav 2009; Erica Gralla, 2012. Tom Heaps-Nelson, 2014. Ali Farahanchi 2016. Sergey Naumov 2019.

Books:

The U.S. Automobile Manufacturing Industry, U.S. Department of Commerce, Office of Technology Policy, (joint with R. St. Clair), 1996.

Clockspeed: Winning Industry Control in the Age of Temporary Advantage, Perseus Books, 1998.

Faster, Smarter, Greener: The Future of the Car and Urban Mobility, Cambridge MA: MIT Press 2017. (Joint w/ V. Sumantran and D. Gonsalvez.)

Selected Articles:

"Manufacturing Strategy: A Methodology and an Illustration," *Interfaces*, Vol. 15, No. 6, November-December 1985, pp. 28-46, (joint with A. Hax).

"Quality Improvement and Learning in Productive Systems," *Management Science*, Vol. 32, No. 10, October 1986, pp. 1301-1315.

"Managing Quality Improvement," in Sepehri, M. (ed.) *Quest for Quality: Managing the Total System*, Industrial Engineering and Management Press, Atlanta, 1987 (joint with D.Bridge).

- "A Quality Control Model with Learning Effects," *Operations Research*, May-June 1988, Vol. 36, No. 3, pp. 437-444.
- "Technology Choice, Product Life Cycles, and Flexible Automation," *Journal of Manufacturing and Operations Management*, Vol. 1, No. 4, 1988, 372-396 (joint with L. Li).
- "Equilibrium Exit in Stochastically Declining Industries," *Games and Economic Behavior*, Vol. 1, No. 1, 1989, 40-59 (joint with L. Li).
- "Dynamic Process Improvement," *Operations Research*, Vol. 37, No. 4, 580-591, (w/E. Porteus).
- "A Tactical Planning Model for Manufacturing Subcomponents of Mainframe Computers," *Journal of Manufacturing and Operations Management*, Vol. 2, No. 1, 1989, 4-34, (w/ S. Graves.)
- "Optimal Investment in Product-Flexible Manufacturing Capacity," *Management Science*, Vol. 36, No. 4, 1990, 449-466, (joint with R. Freund).
- "Cost Estimation Tools to Support Product Design," *Proceedings of the ASME Manufacturing International Conference*, March 1990, Atlanta, GA. (joint with Karl Ulrich).
- "Seasonal Inventories and the Use of Product-Flexible Manufacturing Technology," *Annals of Operations Research*, Vol 26, pp. 351-375, 1990 (joint with Jonathan Caulkins).
- "Interdisciplinary Product Design Education," *IEEE Transactions on Engineering Management*, Vol. 37, No. 4, November, 1990, pp 301-305 (joint with Steven Eppinger, Karl Ulrich).
- "Developments in Manufacturing Technology and Economic Evaluation Models," *Logistics of Production and Inventory*, S.C. Graves, A. Rinnooy Kan, and P. Zipkin (eds.), in the North Holland Series of Handbooks in Operations Research and Management Science, 1993.
- "Manufacturing Equipment Development and Sourcing," *Toray Business Review*, Nov 1993.
- "Technology Supply Chains and Business Cyclicity," *Toray Business Review*, Nov 1994. "An Empirical Study of Manufacturing Flexibility in Printed Circuit Board Assembly" (joint w/ F. Suarez and M. Cusumano), *Operations Research*, Vol. 44, No. 1, pp. 223-240.
- "Industry Clockspeed and Competency Chain Design: An introductory essay," *Proceedings of the 1996 Manufacturing and Service Operations Management Conference*, Dartmouth College, Hanover, New Hampshire June 24-25, 1996, pp. 140-144.
- "Time vs. Market Orientation in Product Concept Development: Empirically-based Theory Generation," *Management Science*, April 1997. (joint with Gary Burchill)
- "Power Diffusion in Automotive Supply Chains," in *Proceedings of the Symposium Perspectives of the Automotive Industry into the 21st Century*, Institute for International Economic Studies, Tokyo, Oct 1997.
- "Biography of a Killer Technology: Optoelectronics Drives Industrial Growth with the Speed of Light," published in 1997 by the Optoelectronics Industry Development Association, 2010 Mass Ave, NW, Suite 200, Wash. DC 20036-1023. (w/ L. Kimerling)

- "Bundling and Pricing of Modular Machine Tools Under Demand Uncertainty," in Furderer, Ralph and Andreas Herrmann (eds.), *Optimal Bundling*, Springer, 1998. (co-authored with N. Tonshoff and A. Huchzermeier).
- "Business Cycles and Productivity in Capital Equipment Supply Chains," in S. Tayur, M. Magazine and R. Ganeshan (eds.) *Quantitative Models for Supply Chain Management*, Boston: Kluwer Press, 1998. (joint with Edward Anderson).
- "Industry Clockspeed and Competency Chain Design," in Comacchio, A., G. Volpato, and A. Camuffo (eds.), *Automation in Automotive Industries*, New York: Springer, 1999.
- "Manufacturing Technology Sourcing Practices in the USA," *International Journal of Production Research*, Vol. 37, No. 4, pp. 939-956, 1999. (joint with T.S. Baines & D. E. Whitney)
- "Clockspeed-based Strategies for Supply Chain Design," Spring 1999, *Supply Chain Management Review*.
- "Is the Make-Buy Decision Process a Core Competence?" in Moreno Muffatto and Kulwant Pawar (eds.), *Logistics in the Information Age*, Servizi Grafici Editoriali, Padova, Italy, 1999, pp. 31-63. (joint w/ D. Whitney).
- "Upstream Volatility in the Supply Chain: The Machine Tool Industry as a Case Study," *Production and Operations Management*, Vol. 9, No. 3, Fall 2000, pp. 239-261. (joint w/ E. Anderson, G. Parker).
- "Clockspeed-based Strategies for Supply Chain Design," *Production and Operations Management*, Vol. 9, No. 3, Fall 2000, pp. 213-221.
- "Automotive Industry: Internet-Driven Innovation and Economic Performance," in Robert Litan and Alice Rivlin (eds.), *The Economic Payoff from the Internet Revolution*, Washington: Brookings Institution, 2001. (joint w/D. Raff).
- "Rapid Response Capability in Value-Chain Design," *Sloan Management Review*, Vol. 43, No. 2, Winter 2002, pp. 69-75. (joint w/ R.Vardan, R. Pethick, J. El Hout).
- "Automobiles," in Benn Steil, David Victor and Richard Nelson (eds.), *Technological Innovation and Economic Performance*, Princeton, NJ: Princeton University Press, 2002. (joint with Daniel Raff).
- "Are you Modular or Integral? Be Sure your Supply Chain Knows," *Strategy + Business*, Issue 39, 2005.
- "Modeling tradeoffs in three-dimensional concurrent engineering," *Journal of Operations Management*, Vol 23, 2005, pp. 389-403. (with B. Golany and H. Naseraldin)
- "RFID: Exploding Edges and Potential for Disruption," in Claus Heinrich (ed.) *RFID and Beyond: Growing Your Business through Real World Awareness*, Wiley 2005. (joint with N. Klym and D. Trossen).
- "Value Chain Design and Three-Dimensional Concurrent Engineering," in Ki-Chan Kim (ed.), 2006, *Business Eco-Systems: Relationships between large and Small Firms*, Federation of Korean Industries.
- "Technology Roadmapping: A Tutorial," in *Marketing in the Unpredictable World*, Amitabha Ghose and Ishita Mukherjee (eds.), ICFAI Research Centre, 2007. (joint with E. Bruce.)

- “Value network dynamics in 3G-4G wireless communications: a Systems Thinking approach to Strategic Value Assessment,” *Journal of Business Research*, 2008, (joint with M. Pagani).
- “Destination Dynamics: Evolution and Governance of Tourist Destinations, *Proceedings of the the 12th International Research Symposium on Service Excellence in Management*, Cornell University, June 2011. (joint w/L. Padurean).
- “The Evolutionary Path for Corporate Sustainability Based on the Double Helix Model: The Case of GM Korea from 2002-2009,” *Korea Business Review* (KBR vol. 16 no 2, 2012 May, pp. 119-152. (<http://www.kasba.or.kr/>). (joint with Ki Chan Kim, Ji Yun Park, Sung-sang Lee, Edward Keith G. Capoy.)
- “Dynamic Business Share Allocation in a Supply Chain with Competing Suppliers,” *Operations Research* 61(2) : 280-297. 2013. (joint with Hongmin Li and Hao Zhang).
- “Assessing trade-offs among multiple objectives for humanitarian aid delivery using expert preferences,” *Production & Operations Management*, Vol. 23, No. 6, pp. 978-989. 2014. (w/E. Gralla & J. Goentzel).
- “Problem formulation and solution mechanisms: a behavioral study of humanitarian transportation planning.” *Production & Operations Mgmt*, 25 (1), pp. 22-35. 2016. (w/E. Gralla & J. Goentzel).
- "Industrial Symbiosis Among Small and Medium Scale Enterprises: Case of Muzaffarnagar, India." *REWAS 2016: Toward Materials Resource Sustainability*, edited by Randolph E. Kirchain et al., Springer, 2016. pp. 173-177. (w/ Shourjomoy Chattopadhyay, Nandini Kumar, and Elsa Olivetti).
- “End-to-end Supply Chain Strategies: Parametric Study of the Apparel Industry,” *Production and Operations Management*, 2017. (w/Shardul Phadnis)
- “Going Mobile: The Personalized, On-Demand Future of Urban Transportation,” *Sloan Management Review – Frontiers Research Highlight*, October 5, 2017. (w/V. Sumantran & D. Gonsalvez)
- “The Personalized Future of Urban Transportation,” *Sloan Management Review*, Spring 2018, (with V. Sumantran and D. Gonsalvez)
- “Managing operational capabilities in startup companies,” *Academy of Management Global Proceedings*, Vol. Tel Aviv, No. 2018. Published Online:28 Jan 2019. (with L. Padurean and S. Naumov) <https://journals.aom.org/doi/abs/10.5465/amgblproc.telaviv.2018.00179.abs>
- “Unintended Consequences of Automated Vehicles and Pooling for Urban Transportation Systems,” *Production & Operations Management*, 29(5), 1354-1371. 2020. (w/S. Naumov & D. Keith).
- “Operations for Entrepreneurs: Can OM make a difference in Entrepreneurial Theory and Practice?” *Production & Operations Management*, 31(12), 4599-4615, 2022. (w/L. Padurean and S. Naumov).
- “Market Expansion through Online-buying to Store-pickup (O2S): Implications for End-to-end Supply Chain Strategy,” *International Journal of Production Economics*. To appear, 2024. (w/Shardul Phadnis).