

## Rebecca Henderson

John and Natty McArthur University Professor, Harvard University

### Curriculum Vitae

#### Contact Details

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#### Education

Harvard University, Ph.D.	1983-1988
Doctorate in Business Economics. Thesis: <i>The Failure of Established Firms in the Face of Technological Change: A Study of Photolithographic Alignment Equipment.</i>	
Massachusetts Institute of Technology, S.B.	1978-1981
Mechanical Engineering.	

#### Academic Employment:

John and Natty McArthur University Professor, Harvard University	2011-
Senator John Heinz Professor of Environmental Management, Harvard Business School	2009-2011
Eastman Kodak LFM Professor, MIT Sloan School,	1999-2009
Marvin Bower Visiting Professor, Harvard Business School	2002-2003
Tenured Associate Professor, MIT Sloan School,	1995-1999
Research Associate, National Bureau of Economic Research,	1995-
Thomas Henry Carroll Foundation Visiting Professor of Management, Harvard Business School.	1996-1997
Robert Noyce Associate Professor, MIT Sloan School,	1993-1995
Research Fellow, National Bureau of Economic Research,	1990-1995
Visiting Assistant Professor, Stanford Graduate School of Business,	1992-1993.
Assistant Professor, MIT Sloan School,	1988-1992

#### Non Academic Employment:

McKinsey and Company	Summer associate.	Summer 1986
Harvard University	Research assistant, K. Clark.	Summer 1985
General Electric	Analyst, strategic planning.	Summer 1984
McKinsey and Company	Analyst.	1981-1983

## Honors and Awards:

Elected Member, British Academy of Arts and Sciences	2019
Elected Member, American Academy of Arts and Sciences	2019
Financial Times “Director of the Year”	2019
The Aspen Institute “Ideas Worth Teaching” Award	2019
Viipuri Prize in Strategic Management	2017
Clarendon Lecturer in Management, Oxford University	2011
Dan & Mary Lou Schendel Best Paper Prize	2010
Teacher of the Year, MIT Sloan School	2001
Runner-up, Teacher of the Year	1990,1993,1995,1996, 1998,2000,2004,2009
ASQ Award for Scholarly Contribution	1996
Dively Award for best thesis proposal, Harvard.	1988
Alumnae Award, (outstanding female graduate) MIT.	1981
Elected to <i>Phi Beta Kappa</i>	1981

## Boards and Advisory Panels

### *Public Boards*

Idexx Laboratories Inc., Portland ME	2003 -
Amgen Inc., Thousand Oaks, CA	2009 - 2020

### *Non Profit Boards*

CERES	2017 -
The Boston Symphony Orchestra (Board of overseers)	2015 - 2019
The Leading Change Network	2012 - 2019
The Center for Higher Ambition Leadership	2013 - 2017
The Ember Corporation, Cambridge MA	2001 - 2009
The Whitehead Institute for Biomedical Research, Cambridge, MA.	1999 - 2006
Linbeck Construction Corporation, Houston Texas.	2000 - 2004

### *Advisory Panels*

Member, Nominations Committee, American Economic Assoc.	2019 – 2020
The Department of Social and Decision Sciences, Carnegie Mellon	1995 – 1998
The Wharton School of Business, Management Department	1995 – 2000
The Platform, Inc	2000 – 2001
3G	2001 – 2002

## Anti-Trust Experience

Retained by the Department of Justice as an expert witness in connection with the remedies phase of the Microsoft trial. Summer 1999 – Spring 2000. Declaration available on line at:

[www.usdoj.gov/atr/cases/ms\\_remediespapers.htm](http://www.usdoj.gov/atr/cases/ms_remediespapers.htm)

## Editorial Responsibilities

### *Member, Editorial Board:*

Management Science	2000 – 2008
Organization Science	2002 – 2010
Strategic Organization	2001 – 2006
The Strategic Management Journal	1994 – 2002
Economics of Innovation and New Technology	1995 – 2006
Research Policy	1998 – 2014
Department Head, Strategy, <u>Management Science</u>	1995 – 2000

## Publications

### *Books*

Reimagining Capitalism in a World on Fire, Hachette Public Affairs, Spring 2020

Leading Sustainable Change: An Organizational Perspective. Jointly edited with Ranjay Gulati and Michael Tushman. Oxford University Press, Spring 2015

Accelerating Energy Innovation: Insights from Multiple Sectors. Jointly edited with Richard Newell. NBER and the University of Chicago Press, Chicago and London, 2011.

### *Journal Articles (Refereed).*

Innovation in the 21<sup>st</sup> Century: Architectural change, purpose, and the challenges of our time. Forthcoming in Management Science.

Tackling Climate Change Requires Organizational Purpose, Jointly with George Serafeim, American Economic Review, Papers and Proceedings, May 2020

Making the Numbers? “Short Termism” and the Puzzle of Only Occasional Disaster.” Jointly with Hazhir Rahmandad and Nelson P. Reppenng. Management Science, Published online in Articles in Advance 08 November 2016

“Real Effects of Relational Contracts” Jointly with Steven Blader, Andrea Pratt & Claudine Gartenberg, American Economic Review, Papers and Proceedings, May 2015

“Why do Firms have Purpose? The Firm’s Role as a Carrier of Identity and Reputation”. Jointly with Eric Van Den Steen, American Economic Review, Papers and Proceedings, May 2015

With Susan Helper, 2014 “Management Practices, Relational Contracts and the Decline of General Motors”. *Journal of Economic Perspectives*, Volume 28, Number 1—Winter 2014—Pages 49–72

With Robert Gibbons, 2012. “Relational Contracts and Organizational Capabilities.” *Organization Science*, Vol. 23, No. 5, September–October 2012, pp. 1350–1364.

"Getting Big Too Fast: Strategic Dynamics with Increasing Returns and bounded rationality". Jointly with John Sterman, Eric Beinhocker and Lee Newman. Management Science, Vol. 53(4), April 2007, pp. 683-696.

"Platform owner Entry and Innovation in Complementary Markets: Evidence from Intel". Jointly with Annabelle Gawer. Journal of Economics and Management Strategy, Vol. 6(1), Spring 2007, pp. 1-34.

"The Innovator's Dilemma as a Problem of Organizational Competence" Journal of Product Innovation Management, 2006, Volume 23, pp5-11.

"Inertia and incentives: Bridging Organizational Economics and Organizational Theory" Joint with Sarah Kaplan. Organization Science, September-October 2005, Vol 16, No 5, pp509-521.

"Patent citations and the geography of knowledge spillovers: A reassessment: Comment" Joint with Adam Jaffe and Manuel Trajtenberg, American Economic Review, March 2005, 416-464

"Knowledge Spillovers, Geographic Location, and the Productivity of Pharmaceutical Research," with Jeffrey Furman, Margaret K. Kyle and Iain Cockburn. Annales d'Economie et de Statistique, Special Issue in memory of Zvi Griliches, July/December 2005, Vol 79-80 pp 165-188.

"Do Firms Change Capabilities by Hiring New People? A study of the Adoption of Science-based Drug Discovery" Joint with Nico Lacetera and Iain Cockburn. 2004. Advances in Strategic Management, 2004, vol. 21.

"Discontinuities and senior management: assessing the role of recognition in pharmaceutical firm response to biotechnology" Joint with Sarah Kaplan and Fiona Murray Industrial & Corporate Change 2003 Vol 12: pp 203-233.

"Putting Patents in Context: Exploring Knowledge Transfer from MIT" Joint with Ajay Agrawal. Management Science, Vol 28, No 1, 2002, pp 44-60. Reprinted in Advances in Strategic Management, Volume 26, "Economic institutions of strategy", Edited by J. Nickerson and B. Silverman, 2009.

"Scale and scope in drug development: unpacking the advantages of size in pharmaceutical research." Jointly with Iain Cockburn. Journal of Health Economics, 2001, Vol 20, p 1033-1057.

"Untangling the Origins of Competitive Advantage" Jointly with Iain Cockburn and Scott Stern, Strategic Management Journal, Fall 2000, Volume 21, 1123-1145. Reprinted in The SMS Blackwell Handbook of Organizational Capabilities: Emergence, Development and Change, C. Helfat, ed. Blackwell, 2003. Oxford, UK

"Absorptive Capacity, Coauthoring Behavior, and the Organization of Research in Drug Discovery" Jointly with Iain Cockburn. Journal of Industrial Economics, June 1998, Volume XLVI, No. 2. pp157-182.

"Universities as a Source of Commercial Technology: A Detailed Analysis of University Patenting, 1965-1988" Jointly with Adam Jaffe and Manuel Trajtenberg. Review of Economics and Statistics, Vol. 80, No. 1, February 1998 pp 119-127. Also published in a slightly different form as "University Patenting Amid Changing Incentives for Commercialization" in G. B. Navaretti, P.

Dasgupta, K. G. Maler and D. Siniscalco, Eds., Creation and Transfer of Knowledge, Springer, 1998; reprinted in Technological Entrepreneurship: Institutions and Agents Involved in Technology Transfer, Ed Don Sigel, Edward Elgar, 2007.

"The Perils of Excellence: Barriers to Effective Process Improvement in Product-Driven Firms" Jointly with Jesus del Alamo, Todd Becker, James Lawton, Peter Moran, Saul Shapiro and Dean Vlasak. Production and Operations Management, Vol. 7, No. 1, Spring 1998, pp 2-18.

"University versus Corporate Patents: A Window on the Basicness of Invention" Jointly with Adam Jaffe and Manuel Trajtenberg. Economics of Innovation and New Technology, 1997, Vol 5, No. 1, pp 19-50.

"Scale, Scope and Spillovers: The Determinants of Research Productivity in Drug Discovery." Jointly with Iain Cockburn. Rand Journal of Economics, Spring 1996, 27(1), pp. 32-59. To be reprinted in Pharmaceutical Economics, William Comanor & Stuart Schweitzer, Editors.

"Measuring Competence? Exploring firm effects in drug discovery." Jointly with Iain Cockburn. Strategic Management Journal, Volume 15, pp 63-84, Special issue Winter 1994.

"The Evolution of Integrative Capability: Innovation in Cardiovascular Drug Discovery" Industrial and Corporate Change, Vol 3, No. 3, Winter 1994 pp 607-630.

"Racing to Invest? The Dynamics of Competition in Ethical Drug Discovery." Jointly with Iain Cockburn. Journal of Economics and Business Strategy, Volume 3, No. 3, Fall 1994, 481-519.

"Of Life Cycles Real and Imaginary: The Unexpectedly Long Old Age of Optical Lithography" Research Policy, 1995, Vol. 24, pp 631-643.

"Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations." Joint with Adam Jaffe and Manuel Trajtenberg. Quarterly Journal of Economics, August 1993, Vol. 434, pp 578-598. Reprinted in Recent Developments in Growth Theory, Daron Acemoglu Editor, Elgar, Cheltenham UK, Fall 2004, and in The Knowledge Spillover Theory of Entrepreneurship, Zoltan J. Acs., Editor. Edward Elgar, Forthcoming.

"Underinvestment and Incompetence as Responses to Radical Innovation: Evidence from the Photolithographic Industry." Rand Journal of Economics. Vol.24, No.2, Summer 1993

"A Process Control Methodology Applied to Manufacturing GaAs MMICs. (Jointly with Peter Moran, Scott Elliott, Neil Wylie and Jesus del Alamo.) IEEE Transactions on Semiconductor Manufacturing, November 1991, Vol.4., No.4

"Manufacturing Costs for Advanced Composites Aerospace Parts." With C. Shipp and T. Gutowski. SAMPE, (Society for the Advancement of Material and Process Engineering.) Vol. 27, No. 3, May/June 1991.

"Architectural Innovation: The Reconfiguration of Existing Product Technologies and The Failure of Established Firms." With Kim Clark, March 1990, Administrative Science Quarterly, Vol 35, pp9-30. Reprinted in The Management of Innovation, John Storey Ed, Elgar, London, 2004, in Managing Strategic Innovation and Change, M.Tushman and P. Anderson Eds, Oxford University Press, 2004, and in Strategic Management of Technology and Innovation, Robert Burgelman,

Clayton Christensen and Steven Wheelwright, Eds, Oxford University Press, 2004. Translated into Chinese for inclusion in an ASQ sponsored collection of "best papers" in 2005.

*Journal Articles (Not-refereed).*

“Climate in the Boardroom: Struggling to Reconcile Business as Usual with the End of the World as We Know It”. Forthcoming Daedalus, special issue on Climate Change and the Professions.

“Do managers have a role to play in sustaining the institutions of capitalism?” Jointly with Karthik Ramanna, Brookings, 2015, <https://www.brookings.edu/wp-content/uploads/2016/06/BrookingsInstitutionsofCapitalismv5.pdf>

“Drug Industry mergers Won’t Necessarily Benefit R&D” Research Technology Management July –August 2000, Vol 43 No 4. P 10 – 11.

"The Interactions of Organizational and Competitive Influences on Strategy and Performance." With Will Mitchell, Summer 1997, Strategic Management Journal Vol 18, Summer special issue, pp5-14.

"Managing Innovation in the Information Age" Harvard Business Review, January-February 1994, 100-106. Reprinted in Seeing Differently, J.S. Brown, Ed., Harvard Business School Press, Boston MA, 1997 and in The Product Development Challenge, Kim B. Clark and Steven C. Wheelwright, Eds, Harvard Business School Press, Boston MA, 1995.

"Breaking the Chains of Embedded Knowledge: Architectural Innovation as a Source of Competitive Advantage." Design Management Journal, Vol.2, No.3, Summer 1991

*Chapters in Edited Volumes.*

“Interrogating Corporate Purpose: Values based firms and the struggle to build a just and sustainable world” Forthcoming in Political Economy and Justice, Danielle Allen, Yochai Benkler and Rebecca Henderson, Editors. University of Chicago Press.

“The Impact of Artificial Intelligence on Innovation” Jointly with Iain Cockburn and Scott Stern. The Economics of Artificial Intelligence, edited by Ajay Agrawal, Joshua Gans, and Avi Goldfarb, NBER/University of Chicago

“Unpacking the dynamics of successful change: Ten insights from the private sector” Chapter 3 in Transformational Change in Environmental and Natural Resource Management, Edited by Michael D. Young and Christine Esau. Routledge, London and New York, 2016.

“Making the Business Case for Environmental Sustainability” Chapter 2 in Leading Sustainable Change, Edited by Rebecca Henderson, Ranjay Gulati and Michael Tushman, Oxford University Press, Spring 2015.

"What do managers do? Exploring Persistent Performance Differences among Seemingly Similar Enterprises" " Jointly with Robert Gibbons. Chapter 17, pages 680-731 in The Handbook of Organizational Economics, Robert Gibbons and John Roberts, Editors, Princeton University Press, Princeton and Oxford, 2013.

“Schumpeterian Competition and Diseconomies of Scope: Illustrations from the History of Microsoft and IBM”. Joint with Tim Bresnahan and Shane Greenstein. Chapter 4, pages 203-276 in The Rate and Direction of Inventive activity Revisited, Ed J. Lerner & Scott Stern, NBER conference volume, University of Chicago Press, 2012, Chicago and London.

“Strategic Advantage and the Dynamics of Organizational Competence”. Chapter 17 in S. Chowdhury, Next Generation Business Handbook: New Strategies from Tomorrow’s Thought Leaders, 2004 by John Wiley & Sons, New Jersey, pp. 294-312.

“Publicly funded science and the productivity of the pharmaceutical industry” with Iain Cockburn, Chapter 1 in Innovation Policy and the Economy, Number 1, 2000, National Bureau of Economic Research, Adam Jaffe, Josh Lerner and Scott Stern, editors, The MIT Press, Cambridge MA.

“Luck,” “Leadership” and “Strategy”. Economics Meets Sociology, Volume 17 in Advances in Strategic Management, Edited by Joel A.C. Baum and Frank Dobbin, pp 285-290, 2000 by Jai Press Inc, Stamford Connecticut

“Measuring Competence? Exploring Firm Effects in Drug Discovery” Jointly with Iain Cockburn. Chapter 6 in The Nature and Dynamics of Organizational Capabilities, Edited by Giovanni Dosi, Richard R. Nelson and Sidney G. Winter, 2000 by Oxford University Press, Oxford, UK.

“The Economics of Drug Discovery” Jointly with Iain Cockburn, Chapter 5 in Pharmaceutical Innovation, edited by Ralph Landau, Basil Achilladelis and Alexander Scriabine, Chemical Heritage Press, Philadelphia PA 1999, pp 308-331.

"Pharmaceuticals and Biotechnology" Jointly with Iain Cockburn, Luigi Orsenigo and Gary Pisano. Chapter 13 in US Industry in 2000: Studies in Competitive Performance. David Mowery, Editor. Board on Science, Technology and Economic Policy, National Research Council. National Academy Press. Washington, DC, 1999.

"The Pharmaceutical Industry and the Revolution in Molecular Biology: Interactions Among Scientific, Institutional and Organizational Change." Jointly with Luigi Orsenigo and Gary Pisano. Chapter 7 in The Sources of Industrial Leadership, Cambridge University Press, David Mowery and Richard Nelson, Editors, Cambridge University Press, 1999, pp 267-311.

"On the Dynamics of Forecasting in Technologically Complex Environments: The Unexpectedly Long Old Age of Optical Lithography" In Technological Innovation: Oversights and Foresights, Raghu Garud, Pravenn Nayyar and Zur Shapira, Editors, Cambridge University Press, New York, 1997.

"The Determinants of Research Productivity in Ethical Drug Discovery." (Jointly with Iain Cockburn) In The American Enterprise Institute Conference Volume: Competitive Strategies in the Pharmaceutical Industry, Robert B Helms, Ed. Washington DC, 1996.

"Maintaining Leadership across Product Generations: The Case of Canon in Photolithographic Alignment Equipment" in Managing Product Development, Toshihiro Nishiguchi, Ed. Oxford University Press, 1996. (This book was awarded the 1996 Shingo Prize for Excellence in Manufacturing research.)

"Technological Change and The Management of Architectural Knowledge." In Transforming

Organizations, Edited by T. Kochan and M. Useem. Oxford University Press, Oxford, U.K., 1992. Reprinted in Organizational Learning, edited by Michael D. Cohen and Lee S. Sproull, Sage Publications Inc, CA, 1996.

*Conference Proceedings.*

"Public-private interaction in pharmaceutical research" (Jointly with Iain Cockburn) in the Proceedings of the National Academy of Sciences 93/23 (November 12, 116) p.12725-12730

"Controlling Variability of Sub-micron Gate Lithography in a GaAs MMIC Manufacturing Environment." (Jointly with Peter Moran, Jesus del Alamo, Neil Wylie and Scott Elliott.) Presented at the SEMI Advanced Semiconductor Manufacturing Conference, pp136a-g. September 1990, Danvers, MA.

"Workload Regulating Wafer Release in a GaAs Fab Facility." International Semiconductor Manufacturing Science Symposium, May 1990, San Francisco, CA. (Jointly with James Lawton, Al Drake, Lawrence Wein, Ron Whitney, and Dick Zuanich.)

**Teaching Materials**

*HBS Cases*

"Aetna & the Transformation of Health Care." Jointly with Russ Eisenstat and Matthew Preble. February 2018.

"Reimagining Capitalism: Towards a Theory of Change": Jointly with Tony He and Brian Tomlinson, Apr 04, 2016

"Gotong Royong: Toward Sustainable Palm Oil": Jointly with Hann-Shuin Yew & Monica Baraldi. Publication Date: Mar 17, 2016, Revision Date: Jun 06, 2016

"Greening Walmart: Progress and Controversy": Jointly with James Weber  
Publication Date: Feb 11, 2016

"Chevron under fire" Jointly with George Serafeim and Christine Snively, HBS No 9-115-031

"Omar Selim: Building a Values Based Asset Management Firm" Jointly with George Serafeim and Shannon Gombos, January 2015, HBS No 115-021

"Mondragon: A model for the world? Jointly with Michael Norris, March 2014. HBS No 314-061

"Henry Schein: Doing well by doing good" Jointly with Rafaella Sadun, Aldo Sesia and Russell Eisenstat, February 2014, HBS Case No: 714-450

"Xylem: Let's Solve Water" Jointly with James Weber, September 2013. HBS Case No: 313-082  
"Royal DSM: Fighting Hidden Hunger" Jointly with Noah Fisher and Mary Shelman, May 2013, HBS Case no 313-085.

"Triodos Bank – Conscious Money in Action" Jointly with Kate Isaacs and Katrin Kaeufer, June



2013, HBS Case No 313-109

"Sustainable Tea at Unilever." Jointly with Frederik Peter Nellemann, December 2011, Harvard Business School Case 712-438.

"Colgate-Palmolive: Staying ahead in Oral Care" Jointly with Ryan Johnson, August 2011. HBS Case No 311-120

"Nestlé SA: Nutrition, Health and Wellness Strategy" Jointly with Ryan Johnson, August 2011. Harvard Business School Case 311-119.

"The Smart Grid" Jointly with Noel Maurer, and Cathy Ross 2010. Harvard Business School Case 310-072.

"Kodak and the Digital revolution" Jointly with G. Gavetti, S, Giorgi. November 2004, #705448

"D-Wave Systems: Building a Quantum Computer" Jointly with A. MacCormack and A. Agrawal, April 2004, #604073

"Nokia and MIT's Project Oxygen" Jointly with D. Yoffie, January 2004, #704474

"Mercury Computer Systems: The evolution from integrated technology to open standards" Jointly with Nancy Confrey, August 2003, #704424

"Ember Corporation: Developing the Next Ubiquitous Network Standard" Jointly with Nancy Confrey, February 2003, #703448

"Corning Inc: Technology Strategy in 2003" November 2002, #703440

#### *HBS Technical & Background Notes*

"Is Maximizing Shareholder Value a Fiduciary Duty?" Jointly with Tony He. December 2017.

"Climate Change in 2017: Implications for Business." Jointly with Amram Migdal. April 2017.

"Business and the Building of Inclusive Institutions" Jointly with Tony He, March 2016

"A Note on Industry Self-regulation", Jointly with Amram Migdal, forthcoming spring 2015, HBS No: 315-074,

"Investor Short-termism: Really a Shackle?" Jointly with Clayton Rose, Revised January 2015, HBS No: 314-117

"Relational Contracts and the roots of sustained competitive advantage" April 2013, HBS No: 313-105

"Managers and Market Capitalism" Jointly with Karthik Ramanna, January 2012 HBS No: 112043

*MIT Cases (Available at <https://mitsloan.mit.edu/mstir>)*

“Nike Considered: Getting Traction on Sustainability” Jointly with C. Reavis, R. Locke, and C. Lyddy, December 2008

“Corning Inc: The Growth and Strategy Council”, Jointly with C. Reavis, April 2008

“Gridlogix”, Jointly with C. Reavis and N. Hofmeister, March 2008

“Eli Lilly: Recreating Drug Discovery for the 21<sup>st</sup> century” Jointly with C. Reavis, March 2008

“Eli Lilly’s Project Resilience: Anticipating the future of the pharmaceutical industry” July 2007

“Sun Power: Focused on the future of the solar power industry” Jointly with J. Conkling and S. Roberts, July 2007

“Ventures in Salt: Compass Minerals International” Jointly with J. Sterman and R. Nanda, January 2005