APPENDIX:

READINGS FOR YOUR FURTHER BACKGROUND, NOT REQUIRED:

RE: CLASS ONE – INNOVATION DRIVERS - These Readings, again, are not required, and are included for your future follow-up:

Growth Economics:
NSF, 2010 Science and Engineering Indicators
(http://www.nsf.gov/statistics/seind10) read highlights for Chapters with data on R&D levels and science and engineering workforce and education

Innovation Systems and Indirect Innovation Factors:
World Economic Forum, 2010-11 Global Competitiveness Report

Robert W. Rycroft (Assoc. Prof., George Washington Univ.) and Don E. Kash (Prof., George Mason Univ.), Innovation Policy for Complex Technologies, Issues in Science and Technologies (NAS publication, Wash., D.C., Fall 1999 issue) [innovation as complex, networked process]

National Innovation Initiative (E. Milburgs), Valuing Long Term Innovation Strategies (v.1.2) (October 12, 2004 draft), pp.1-12 [valuation of innovation economy]


Accounting Treatment of Intangible Innovation-Related Assets:


Venture Capital Role:
Paul A. Gompers and Josh Lerner, The Venture Capital Cycle (MIT Press 1999) pp. 4-11


The “Valley of Death” Problem:
Peter Fiske (CEO, RAPT Industries), “Uncle Sam; The Most Important High-Tech Venture Investor in America – The RAPT Story” (draft report 2004)


Rick E. Yanuzzi, In-Q-Tel: A New Partnership Between the CIA and the Private Sector, Defense Intelligence Journal, Vol. 9, No. 1 (2000) [CIA’s In-Q-Tel program]

Josh Lerner (Prof., Harvard Business Sch.), The Design of Effective Public Venture Capital Programs, paper in NIST, Managing Technical Risk, NIST GCR 00-787 (April 2000) pp. 80-93 [rationale for public role in funding development]

Glenn R. Fong (Prof. American Sch. Of Int’l Man.-Thunderbird), Repositioning the Advanced Technology Program, Issues in Science and Technology (Fall 2001) (8 pages) [critique of ATP program]


RE: CLASS TWO – THE SCI/TECH ORGANIZATIONAL FRAMEWORK – These Readings, again, are not required, and are included for your future follow-up:

The Organization of U.S. Science Mission Agencies:
Jennet Conant, Tuxedo Park (Simon and Shuster 2002) (biography of Alfred L. Loomis founder of MIT’s Rad Lab) pp. 178-289 [MIT’s Rad Lab emerges in WWII as model for federally funded but not controlled R&D centers]

Jennet Conant, 109 East Palace (Simon and Shuster 2005) (the Los Alamos organizational model)


Harvey M. Sapolsky, Science and the Navy – the History of the Office of Naval Research (Princeton Univ. Press 1990), pp. 9-81 (Chpts. 2-4) [ONR as mission-based basic science agency – model for agencies that follow]


William A. Blanpied) (American Assoc. for the Advancement of Science, Wash., D.C. 1995) pp. xiv-xliv (Introduction by the Editor), selected memos, including pp.8-13 (interview with V. Bush) [proposal for Presidential Science Advisor]

G. Pascal Zachary, Endless Frontier, Vannevar Bush, Engineer of the American Century (MIT Press 1999)[biography of Vannevar Bush]

Mitchell Waldrop (at NSF), The Dream Machine, J.C.R. Licklider and the Revolution that Made Computing Personal (Sloan Foundation Technology Series)(Viking 2001) (pp.456-466) [section on NSF role in NSFnet]


Glenn R. Fong (Prof., Amer. Sch. of Int’l Management at Thunderbird), The U.S. High-Performance Computing and Communications Initiative; A Case Study in U.S. Technology Policy (draft April 2004) pp. 1-34 [agency collaboration on computing]

The DARPA Model:

DARPA, DARPA Over the Years (Oct. 27, 2003)[darpa.mil/overtheyears.html] pp. 1-3 [brief intro to DARPA organization]


RE: CLASS FOUR – THE COMPETITIVENESS CHALLENGE—These Readings are, again, not required, and are included for your future follow-up:

The Competitive Challenge to U.S. Manufacturing:
Barry C. Lynn (Fellow, New America Foundation), End of the Line (Doubleday 2005) pp. 1-18 [complex globalization of manufacturing; the anti-global view]


Michael Dertouzos, Richard Lester, Robert Solow (MIT Commission), Made in America, Keeping the Productive Edge (MIT 1990) [classic on the mfg. productivity challenge of the 80’s-90’s]


National Research Council (NAS), Board on Science, Technology and Economic Policy, Securing the Future, Regional and National Programs to Support the Semiconductor Industry (Charles Wessner, Ed.) (The National Academies Press 2003) pp. 1-5, 9-62, (Summary and Introduction), 189-253(Chapt. IV, Competing Programs, paper by Thomas Howell) [material on efforts to gain advanced technology manufacturing leadership by China]

The New Services Challenge from Globalization:


Carl J. Dahlman (Georgetown Univ.) and Anuja Utz (World Bank), India and the Knowledge Economy: Leveraging Strengths and Opportunities (World Bank Institute Learning Resources Series) Chapt. I, pp. 1-20 [India’s emerging knowledge service economy]


NASSCOM (India), Advantage India (2004) [elements of India’s competitive services strategy]

Shri Rajeeva Ratna Shah, Sec., Dept. of Industrial Policy and Promotion, India, “Information Technology Key Technology Economic Driver of 21st Century [India]” (2004) (presentation) [India’s services strategy]

RE CLASS FIVE: THE ENERGY TECHNOLOGY CHALLENGE – These Readings, again, are not required, and are included for your future follow-up:

Charles Weiss (Distinguished Prof., Georgetown Univ.) and William B. Bonvillian, Structuring an Energy Technology Revolution (MIT Press 2009)


RE: OTHER ISSUES – THE SCIENCE TALENT CHALLENGE, AND THE SCIENCE ADVOCACY SYSTEM – These Readings, again, are not required, and are included for your future follow-up:

The Science Talent Challenge:

William J. Bamol (Prof. of Economics, NYU), Education for Innovation: Entrepreneurial Breakthroughs vs. Corporate Incremental Improvements, National Bureau of Economic Research (working paper, April 30, 2004)

Federation of American Scientists, The Learning Federation, Roadmap on Instructional Design, pp. 1-6, Roadmap on Building Simulations and Exploration
Environments, pp. 1-14 (2003)[fas.org, search for “Learning Science and Technology R&D Roadmaps”]


S.1549, Technology Talent bill, introduced Oct. 15, 2001 by Senators Lieberman, Mikulski, Bond and Frist, passed Nov. 27, 2002 as title in HR 4664, NSF Authorization bill (P.L. 107-305)

*The Science Advocacy System:*
Lisa Anderson (Dean, School of International and Public Policy, Columbia Univ.), Pursuing Truth, Exercising Power, Social Science and Public Policy in the 21st Century (Columbia Univ. Press 2003), pp. 7-40 (Chapt. 2, the American History of Scientific Policy and Policy-Making [organizing the academy for public policy])


Dr. Henry Kelly, President of the Federation of American Scientists, power point slide presentation on Reforming the Science Advice to Government process - http://www.cspinet.org/integrity/ct/visualkelly.pdf

*The Life Science Innovation Challenge:*

National Institute of Medicine (NAS), Enhancing the Vitality of the National Institutes of Health: Organizational Changes to Meet New Challenges (National

FDA, Innovation/Stagnation - Challenge and Opportunity on the Critical Path to New Medical Products (March 2004)
<http://www.fda.gov/oc/initiatives/criticalpath/whitepaper.html>

Resource: Science Policy Bootcamp
William Bonvillian

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