NPS-AM-11-C8P04R01-028

EXCERPT FROM THE

PROCEEDINGS

OF THE

EIGHTH ANNUAL ACQUISITION RESEARCH SYMPOSIUM WEDNESDAY SESSIONS VOLUME I

IT Acquisition: Expediting the Process to Deliver Business Capabilities to the DoD Enterprise

Jacques Gansler and William Lucyshyn, University of Maryland

Published: 30 April 2011

Prepared for the Naval Postgraduate School, Monterey, California 93943

ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

The research presented at the symposium was supported by the Acquisition Chair of the Graduate School of Business & Public Policy at the Naval Postgraduate School.

To request Defense Acquisition Research or to become a research sponsor, please contact:

NPS Acquisition Research Program
Attn: James B. Greene, RADM, USN, (Ret.)
Acquisition Chair
Graduate School of Business and Public Policy
Naval Postgraduate School
555 Dyer Road, Room 332
Monterey, CA 93943-5103
Tel: (831) 656-2092
Fax: (831) 656-2253
E-mail: jbgreene@nps.edu

Copies of the Acquisition Sponsored Research Reports may be printed from our website www.acquisitionresearch.net

ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

Preface & Acknowledgements

During his internship with the Graduate School of Business & Public Policy in June 2010, U.S. Air Force Academy Cadet Chase Lane surveyed the activities of the Naval Postgraduate School's Acquisition Research Program in its first seven years. The sheer volume of research products—almost 600 published papers (e.g., technical reports, journal articles, theses)—indicates the extent to which the depth and breadth of acquisition research has increased during these years. Over 300 authors contributed to these works, which means that the pool of those who have had significant intellectual engagement with acquisition issues has increased substantially. The broad range of research topics includes acquisition reform, defense industry, fielding, contracting, interoperability, organizational behavior, risk management, cost estimating, and many others. Approaches range from conceptual and exploratory studies to develop propositions about various aspects of acquisition, to applied and statistical analyses to test specific hypotheses. Methodologies include case studies, modeling, surveys, and experiments. On the whole, such findings make us both grateful for the ARP's progress to date, and hopeful that this progress in research will lead to substantive improvements in the DoD's acquisition outcomes.

As pragmatists, we of course recognize that such change can only occur to the extent that the potential knowledge wrapped up in these products is put to use and tested to determine its value. We take seriously the pernicious effects of the so-called "theory–practice" gap, which would separate the acquisition scholar from the acquisition practitioner, and relegate the scholar's work to mere academic "shelfware." Some design features of our program that we believe help avoid these effects include the following: connecting researchers with practitioners on specific projects; requiring researchers to brief sponsors on project findings as a condition of funding award; "pushing" potentially high-impact research reports (e.g., via overnight shipping) to selected practitioners and policy-makers; and most notably, sponsoring this symposium, which we craft intentionally as an opportunity for fruitful, lasting connections between scholars and practitioners.

A former Defense Acquisition Executive, responding to a comment that academic research was not generally useful in acquisition practice, opined, "That's not their [the academics'] problem—it's ours [the practitioners']. They can only perform research; it's up to us to use it." While we certainly agree with this sentiment, we also recognize that any research, however theoretical, must point to some termination in action; academics have a responsibility to make their work intelligible to practitioners. Thus we continue to seek projects that both comport with solid standards of scholarship, and address relevant acquisition issues. These years of experience have shown us the difficulty in attempting to balance these two objectives, but we are convinced that the attempt is absolutely essential if any real improvement is to be realized.

We gratefully acknowledge the ongoing support and leadership of our sponsors, whose foresight and vision have assured the continuing success of the Acquisition Research Program:

- Office of the Under Secretary of Defense (Acquisition, Technology & Logistics)
- Program Executive Officer SHIPS
- Commander, Naval Sea Systems Command
- Army Contracting Command, U.S. Army Materiel Command
- Program Manager, Airborne, Maritime and Fixed Station Joint Tactical Radio System

- Program Executive Officer Integrated Warfare Systems
- Office of the Assistant Secretary of the Air Force (Acquisition)
- Office of the Assistant Secretary of the Army (Acquisition, Logistics, & Technology)
- Deputy Assistant Secretary of the Navy (Acquisition & Logistics Management)
- Director, Strategic Systems Programs Office
- Deputy Director, Acquisition Career Management, US Army
- Defense Business Systems Acquisition Executive, Business Transformation Agency
- Office of Procurement and Assistance Management Headquarters, Department of Energy

We also thank the Naval Postgraduate School Foundation and acknowledge its generous contributions in support of this Symposium.

James B. Greene, Jr.
Rear Admiral, U.S. Navy (Ret.)

Keith F. Snider, PhD
Associate Professor

Panel 4 – Improving IT Acquisition

Wednesday, May 11, 2011	
11:15 a.m. – 12:45 p.m.	**Chair: Michael McGrath,** Vice President, Systems & Operations Analysis, Analytic Services, Inc. ***IT Acquisition: Expediting the Process to Deliver Business Capabilities to the DoD Enterprise*** Jacques Gansler and William Lucyshyn, University of Maryland ***Making Acquisition Measurable*** Kevin Buck and Diane Hanf, The MITRE Corporation ***Command and Control Rapid Prototyping Continuum (C2RPC) Transition: Bridging the Valley of Death*** Nicholas Gizzi, PMW 150

Michael McGrath—Vice President, Systems and Operations Analysis (SOA), Analytic Services, Inc. Dr. McGrath became the vice president in October 2007. He leads ANSER's operations in the Science and Technology, Enterprise Systems and Planning, and Operations Analysis and Management mission areas. He is responsible for developing and delivering services that enable the clients of Analytical Services, Inc., to address critical challenges in national security and public safety, and to improve the effectiveness of public-sector programs. Dr. McGrath leads a workforce whose expertise spans a wide range of technology and application domains in research, acquisition, information systems and defense operations.

Dr. McGrath served as Deputy Assistant Secretary of the Navy for Research, Development, Test, and Evaluation from February 2003 to September 2007. His role was to aggressively drive new technologies from all sources across Navy and Marine Corps platforms and systems and to develop programs to bridge the gap in transitioning from science and technology to acquisition. He was also responsible for integrating test and evaluation with the evolutionary acquisition process. His leadership was key to the restructuring of the Future Naval Capabilities program, the success of the Rapid Technology Transition program, and the establishment of the Navy Enterprise T&E Board of Directors and the Navy Lab and Centers Competency Group.

Prior to his return to government service in 2003, Dr. McGrath spent five years as vice president for Government Business at the Sarnoff Corporation, a leading R&D company with both commercial and government clients. He was responsible for developing programs to meet government needs for innovative dual use technologies in sensors and microelectronics, networking and information technology, and bio-technology.

Dr. McGrath's previous government experience includes weapon system logistics planning and management at Naval Air Systems Command, acquisition policy in the Office of the Secretary of Defense, and several technology management positions. He was the first OSD Director of the Computer-aided Acquisition and Logistics Support program. At DARPA, he managed programs in Agile Manufacturing, Electronic Commerce Resource Centers, and Affordable Multi Missile Manufacturing. He also served in leadership positions for several DoD-wide initiatives to improve manufacturing and reduce the cost of defense systems. As the Assistant Deputy Under Secretary of Defense (Dual Use and Commercial Programs), he directed the Commercial Technology Insertion Program, the Commercial Operating and Support Savings Initiative, and the Department's Title III industrial base investments.

Dr. McGrath holds a BS in Space Science and Applied Physics (1970) and an MS in Aerospace Engineering (1972) from Catholic University, and a doctorate in Operations Research from George Washington University (1985). He was an adjunct associate professor at GWU in 1987–1988. He is active in several industry associations and study groups, including studies by the Defense Science Board and the National Research Council.

IT Acquisition: Expediting the Process to Deliver Business Capabilities to the DoD Enterprise

Jacques Gansler—Former Under Secretary of Defense for Acquisition, Technology, and Logistics, and Professor, Roger C. Lipitz Chair in Public Policy and Private Enterprise, School of Public Policy, University of Maryland. Dr. Gansler is the Director of both the Center for Public Policy and Private Enterprise and the Sloan Biotechnology Industry Center. As the third-ranking civilian at the Pentagon from 1997 to 2001, Professor Gansler was responsible for all research and development, acquisition reform, logistics, advance technology, environmental security, defense industry, and numerous other security programs.

Before joining the Clinton Administration, Dr. Gansler held a variety of positions in government and the private sector, including Deputy Assistant Secretary of Defense (Material Acquisition), Assistant Director of Defense Research and Engineering (electronics), Executive Vice President at TASC, Vice President of ITT, and engineering and management positions with Singer and Raytheon Corporations.

Throughout his career, Dr. Gansler has written, published, and taught on subjects related to his work. Dr. Gansler recently served as the Chair of the Secretary of the Army's Commission on Contracting and Program Management for Army Expeditionary Forces. He is a member of the Defense Science Board and also a member of the National Academy of Engineering and a Fellow of the National Academy of Public Administration. Additionally, he is the Glenn L. Martin Institute Fellow of Engineering at the A. James Clarke School of Engineering, an Affiliate Faculty member at the Robert H. Smith School of Business and a Senior Fellow at the James MacGregor Burns Academy of Leadership (all at the University of Maryland). For 2003–2004, he served as Interim Dean of the School of Public Policy. For 2004–2006, Dr. Gansler served as the Vice President for Research at the University of Maryland. [jgansler@udm.edu]

William Lucyshyn—Director of Research and Senior Research Scholar, Center for Public Policy and Private Enterprise, School of Public Policy, University of Maryland. In this position, Mr. Lucyshyn directs research on critical policy issues related to the increasingly complex problems associated with improving public-sector management and operations, and how government works with private enterprise. Current projects include: modernizing government supply chain management, identifying government sourcing and acquisition best practices, and Department of Defense business modernization and transformation. Previously, Mr. Lucyshyn served as a program manager and the principal technical advisor to the Director of the Defense Advanced Research Projects Agency (DARPA) on the identification, selection, research, development, and prototype production of advanced technology projects. Prior to joining DARPA, Mr. Lucyshyn completed a 25-year career in the U.S. Air Force. Mr. Lucyshyn received his bachelor's degree in Engineering Science from the City University of New York and earned his master's degree in Nuclear Engineering from the Air Force Institute of Technology. He has authored numerous reports, book chapters, and journal articles. [lucyshyn@umd.edu]

Abstract

Information technology (IT) offers inestimable capability and has been leveraged extensively in DoD business systems, as well as virtually in all weapon systems. As a proportion of both functionality and cost, information technology now represents a significant part of all acquisition programs underway today. By all indication, this proportion will only increase in the future as the DoD continues to transform its forces and business systems. The purpose of our research is to examine alternative IT acquisition processes and provide a recommended process for use in the development of DoD's business systems. We make recommendations for a new IT acquisition process, a governance structure, and risk reduction strategies.

Report Summary

Information technology (IT) offers inestimable capability and has been leveraged extensively in DoD business systems, as well as virtually in all weapon systems. As a proportion of both functionality and cost, information technology now represents a significant part of all acquisition programs underway today. By all indication, this proportion will only increase in the future as the DoD continues to transform its forces and business systems.

The DoD's goal is to acquire these systems quickly and cost effectively. However, this goal is rarely achieved because the deliberate process through which information technology and systems are acquired by the DoD does not, and cannot, keep pace with the rapid pace of development in today's information age. Therefore, improving acquisition processes is critical to provide the required capabilities in an effective and efficient manner.

The DoD has made several attempts to revise its acquisition policies, with the purpose of shortening the acquisition cycle time. These policies, however, are based on a single acquisition model that applies to both major automated information systems and major defense weapon systems acquisition programs, and the reform initiatives have generally not had much impact (especially with regard to IT acquisitions).

As a result, the timeline for IT acquisitions remains incredibly lengthy—a recent House Armed Services Committee (HASC) Panel on Defense Acquisition Reform found that defense IT systems were taking 48 to 60 months to delivery (HASC Panel, 2010), while the Deputy Secretary of Defense, William J. Lynn III, recently stated that the implementation of new IT systems takes an average of 81 months (Jackson, 2011). With commercial IT on a 12 to 18 month upgrade cycle, the result is that DoD's new IT systems are several generations behind by the time they are implemented.

Further, studies of both commercial and government IT projects revealed a number of alarming realities. The Standish Group's 2009 CHAOS Report reveals that only 32% of all projects succeed, with 44% identified as challenged and 24% as failed. As defined by this report, a successful project is one that is delivered on time, on budget, with required features and functions (Levinson, 2009). Finally, the GAO found that nearly half of all federal government major IT projects were rebaselined with half of those being rebaselined more than once (GAO, 2008). Clearly, the DoD is not altogether unique in its IT acquisition failures. However, the risks for the DoD are likely much greater given the demands of the warfighter and the DoD's unique mission.

A number of recent studies have examined the problems with DoD IT acquisition and provide recommended solutions. The following list constitutes the most recent, relevant reports on DoD IT acquisition:

- National Research Council's *Achieving Effective Acquisition of IT in the DoD* (Computer Science and Telecommunications Board, 2010);
- U.S. House Armed Services Committee Panel's *Defense Acquisition Reform: Findings and Recommendations* (HASC Panel, 2010);
- TechAmerica's (2010) Government Technology Opportunity in the 21st Century: Improving the Acquisition of Major IT Systems for the Federal Government;
- Association for Enterprise Information's (AFEI, 2010) Industry Perspectives on the Future of DoD IT Acquisition;
- IT Acquisition Advisory Council's (ITAAC, 2010) A Roadmap for Sustainable IT Acquisition Reform: Congressional Summary;

- Defense Science Board's (2009) Department of Defense Policies and Procedures for the Acquisition of Information Technology; and
- GAO's (2009) DoD Needs to Strengthen Management of its Statutorily Mandated Software and System Process Improvement Efforts.

Finally, with growing concern over the DoD's IT acquisitions, Congress legislated that the DoD develop a new acquisition process. The National Defense Authorization Act 2010 (NDAA, 2010) mandates that the Secretary of Defense implement a new IT acquisition process based on the 2009 Defense Science Board Task Force report. It further stipulates that it "be designed to include: early and continual involvement of the user; multiple, rapidly executed increments or releases of capability; early, successive prototyping to support an evolutionary approach; and a modular, open-systems approach."

In summary, DoD policies and processes must be modified to provide for an effective information technology acquisition model. The purpose of our research is to examine alternative IT acquisition processes and provide a recommended process for use in the development of DoD's business systems. We make recommendations for a new IT acquisition process, a governance structure, and risk reduction strategies.

References

Association for Enterprise Information (AFEI). (2010). *Industry perspectives on the future of DoD IT acquisition.* Arlington, VA: Author.

Computer Science and Telecommunications Board. (2010). *Achieving effective acquisition of IT in the DoD.* Washington, DC: National Research Council.

Defense Science Board (DSB). (2009). *Department of Defense policies and procedures for the acquisition of information technology* (Defense Science Board Report). Washington, DC: Defense Science Board, Office of the USD(AT&L).

GAO. (2008). *Information technology: OMB and agencies need to improve planning, management, and oversight of projects totaling billions of dollars* (GAO-08-1051T). Washington, DC: Author.

GAO. (2009). *DoD needs to strengthen management of its statutorily mandated software and system process improvement effort* (GAO-09-888). Washington, DC: Author.

House Armed Services Committee (HASC) Panel. (2010, March 23). *HASC panel on Defense acquisiton reform: Findings and recommendations*. Washington, DC: GPO.

IT Acquisition Advisory Council (ITAAC). (2010). *A roadmap for sustainable IT acquisition reform: Congressional summary.* Arlington, VA: Author.

Jackson, W. (2011, February 16). DoD's Lynn wants to enlist private sector in cyber defense. *Government Computer News*. Retrieved from http://gcn.com/articles/2011/02/16/rsa-6-lynn-dod-cyber-defense.aspx

Levinson. (2009). *CHAOS summary 2009.* Standish Group.

TechAmerica Foundation. (2010). *Government technology opportunity in the 21st century: Improving the acquisition of major IT systems for the federal government* (GTO-20). Arlington, VA: Author.