# Managing the Invisible: How We Can Improve the Odds of Successful IT Projects

***By Mark E. Salesky***

**Overview**
While IT systems are fundamental to the operations of the US Government, failures in large-scale Federal Information Technology (IT) projects are regrettably common. While Technology and IT governance have matured, the Federal IT workforce still lags in other foundational skills. Leadership, communications, understanding of contracts, and the balance of schedule and cost are equally necessary for the project participants to move beyond their assigned tasks and work to solve project-level challenges and achieve overall project success.

## IT Project Management has evolved, but not enough.

The IT workforce is now more technically competent and credentialed than ever before. Both enterprise and software development tools are widely available with great cross-platform standardization. Since the 1990's the evolution of higher-level programming languages has made it technically easier and faster to build more complex, useful, and engaging applications.

In pace with the technical advances, the governance and management of IT projects within the Federal sector have also greatly improved. Over the last 25 years, project management of IT has evolved into a recognized valuable discipline, not just an additional duty expected of senior technical specialists. Reflecting this, the Clinger Cohen Act (aka Information Technology Management Reform Act of 1996) formally established the role of the agency Chief Information Officer (CIO) to establish accountability for agency IT activities – addressing development risks, IT spending, and measurable successes to agency performance.[i] Within Department of Defense (the largest consumer agency of IT in the Federal government) The Defense Acquisition Workforce Improvement Act of 1990[ii] formalized the requirements for certification in 14 career fields, including IT. Responsibilities are clear, and workforce training standards in these fields are well defined.

Further, IT project management (as well as other project management domains like systems engineering, civil engineering, industrial production and maintenance) has benefitted from research, consortia, standardization, and workforce certification. Generally accepted principals of project management have emerged, such as the dynamic relationships of scope, cost, and schedule. And the profession has elaborated on the analysis and management of these relationships in thousands of books, blogs, and articles. IT Project management has reached a level of maturity.

So we in the management of IT programs should be at the success rate of, say, new building construction, shouldn't we? Sure, some new buildings have structural defects that need remediation, but by-in-large, they don't come crashing down two-thirds the way through development. Sadly, IT projects often do.

Certainly, IT projects can be successful. The tidal shift of our economy to E-commerce ($264.2 billion in 2013)[iii], continues to move us irreversibly to a digitally-based way of life. The President's IT investment budget for FY2015 is steady in the civilian agencies, slightly down in Defense, for a total of $81.3 billion.[iv] We must be doing *something* right.

And yet, *Computerworld* published an October 2013 article that noted the "success rate for large, multi-million dollar commercial and government IT projects is very low."[v] The article quoted data from the Standish Group showing that only 6.4 percent of large IT projects from 2003-2012 were successful. The data further noted that 41.4 percent of these large-scale projects failed and were either abandoned or re-started from scratch, while the remaining 52 percent were over-budget, behind schedule, or failed to meet user expectations.[vi]

A recent example of problematic meta-projects was the initial rollout of the HealthCare.gov website in 2013. Testimony to Congress by various participants on the project placed major fault on the lack of effective management and communications among stakeholders.[vii] The multitude of contractors—55 in total[viii]—concentrated on their contractual responsibilities, as they were obliged by contract, but in the process the overall project outcome was neglected. They performed as a collection of capable performers, but not a team. On the software alone, "the use of multiple contractors to develop different aspects of the system appears to have resulted in a lack of compatibility," reported CNN.[ix] Would stronger focus on communication, collaboration, and information-sharing have made a positive difference in the outcome? Best practices tell us an emphatic "*yes"*.

In another mega-project, in 2006 the Department of Homeland Security designed the Secure Border Initiative (SBINet) to create a virtual fence at the U.S. Southwestern border. A Center for International Policy report highlighted that "the government's lack of focus and strategy meant that its primary contractor was largely on its own. Boeing had to come up with what they thought the government wanted and…neither party worked closely with each other in terms of developing it."[x] At its cancellation in 2011, a Government Accountability Office estimated it would cost an addition $1.9 billion to complete.[xi]

We can admit that managing IT projects is hard, with many challenges. Not the least of which is that information is an invisible commodity until its point-of-use. Contrast IT with construction of a new high-rise building. Every piling, girder, air handler, panel, door, and window – every component can be seen, touched, distinguished from every other piece. By-in-large, a common language and terminology is used throughout the construction. Not so with IT projects. Various components often need different programming, done by staff with rare and perishable skills that are expressed almost exclusively through a keyboard. Until we see the results in prototype or final deliverable, we must manage a set of invisible actions to produce invisible procedures which handle invisible information, for the benefit of end-users who are also frequently invisible. And let's not minimize the common fact that few project sponsors share the common language of programmers. Perhaps more with IT than any other project management type, we must depend on individuals who make up the team to apply their skills toward the end result

*before* we can see the results of their work. Knowing this, is there be any question why the pieces often don't come together?

## Beyond the technical competencies

To increase the odds of success, we need a set of foundational skills beyond each individual's own technical proficiencies, including:

- **An understanding of basic Project Management** – It is common understanding that developers never want to finish development – a credit to their sense of thoroughness and intent to craft the best possible solution. Of course, project success depends on more than functional excellence. If the entire team understands the necessary balance of scope, cost, schedule and quality, then team members can better recognize how deadlines roll up to the top WBS of the project.
- **Leadership and Followership** – Team members comply with good management, but they excel with good leadership. Training to recognize the difference between good and inadequate leadership traits is an investment in team members to find innovation-driven efficiencies, to have defects reported early, to discover the potential issues or oversights well before a manage will find out through reports.
- **Communications** – Technical communications in IT projects is difficult because it frequently requires technical translation. With regular practice and coaching, all team members can participate in technical communications of complex IT topics. Also, when team members gain confidence in the clear and consistent communications from the PM, individuals are more likely to apply their technical skills to the overall project outcome.
- **Financial Management** – Budget is always both an enabler and a limiter. When team members understand how projects are funded and financially managed, they have more motivation to find efficiencies, or to limit wasteful expenses.
- **Contracting Basics** – Government contracting has restrictions and mandates which have little resemblance to the ordinary transactions of every-day life. Cultivating among team members sensitivity to the very structured ways of government contracting can at least reduce frustration when contract mods, change orders, of Continuing Resolutions intrude into the schedule of the project.

The Federal Government CIO Council surveyed the Federal IT workforce in 2011 and summarized the top skills of the Federal IT workforce (12,105 respondents)[xii], shown in the left column, and the top individual and organization training needs in the right column.

| Current Skills of the IT Workforce | Needed Training for the IT Workforce |
|---|---|
| Microsoft Windows Desktop Operating Systems | Contracting/Procurement |
| Desktop Applications | Administration and Management |
| Client-Server | Forensics |
| Systems Support and Helpdesk | Information Management |
| Network Operating Systems | Administration and Management |
| Information Management | Computer Network Defense |
| Broadband | Leadership |
| Network Security | Financial Management |

The implication is strong – insufficient training in communications, analysis, and procurement – in other words, *foundational project skills* -- not the software or hardware skills, throws an IT project off balance and risk overall project success.

The CIO Survey suggests that missing from the training plan of too many Federal IT employees is a cohesive and comprehensive core skillset of these "foundational" skills. Yes, training dollars are always scarce, and technical skills are a must, but there is clear evidence that complementary skills in leadership, communication, and project management are equally important to the project success. The nature of managing this invisible digital commodity requires heavy reliance on each team member to work towards the overall project success, not just their individual contributions. And if the entire project team shares these foundational skills, from the CIO, the CIO office staff, software specialists, project managers, contractors, Contracting Officer Representatives (COR), financial analysts, and OMB and GAO oversight staff, we increase the odds of a successful project completion by all measures: working deliverables, on schedule, on budget, with satisfied users.

### *About the Author:*

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i National Defense Authorization Act of Fiscal Year 1996. Public Law 104–106. Washington DC: United States Government. Retrieved from http://www.dol.gov/ocfo/media/regs/ITMRA.pdf

ii 10 United States Code 1701-1864. (n.d.). Defense Acquisition Workforce Improvement Act. Public Law 101-510. Washington DC: Unites States Government.

iii Department of Commerce. (2014, May 15). Quarterly Retail E-Commerce Sales. Retrieved from www.census.gov: http://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf

iv Office of E-Goverment and Information Techology, Office of Management and Budget. (2014, March 4). Report. Retrieved from http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/omb_presidents_it_budget_for_fy_2015_summary_chart.pdf

vhttp://www.computerworld.com/s/article/9243396/Healthcare.gov_website_didn_t_have_a_chance_in_hell_?pageNumber=1

vi Ibid

vii http://www.slate.com/blogs/weigel/2013/11/27/what_did_cgi_federal_get_wrong_with_healthcare_gov.html

viii http://www.npr.org/blogs/alltechconsidered/2013/10/25/240532575/a-diagram-of-healthcare-gov-based-on-the-people-who-built-it

ix http://www.cnn.com/2013/10/22/politics/obamacare-website-four-reasons

x http://www.homelandsecuritynewswire.com/why-sbinet-has-failed

xi http://www.fiercegovernmentit.com/story/dhs-cancels-sbinet/2011-01-14

xii Federal Chief Information Officers Council (CIOC), in partnership with the U.S. Office of Personnel . (2011). Retrieved from Information Technology Workforce Capability Assessment : https://cio.gov/wp-content/uploads/downloads/2012/09/2011_ITWCA_Results_Report_Final_5.31.11.pdf