



**Statement of
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before the**

**Committee on Homeland Security and Governmental Affairs
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Hearing on “Identifying Critical Factors for Success in Information Technology Acquisitions”

Good morning, Chairman Carper, Ranking Member Coburn, and Members of the Committee.

Thank you for the opportunity to testify before the Committee on how the government can continue its efforts to manage information technology (IT) effectively and efficiently.

I am here in my capacity as the Executive Vice Chair of the Industry Advisory Council (IAC). IAC is an advisory body and the industry partner for the non-profit American Council for Technology (ACT), an organization led by government IT officials and established in 1979. ACT created the Industry Advisory Council in 1989 in order to improve communications and understanding between government and industry. Today, IAC is comprised of nearly 500 private sector firms that provide information resources, management products and services for and with government. Our member firms include hardware manufacturers, software companies, systems integrators, consulting service providers, telecommunications companies and professional services companies; the majority of our members are small businesses. I work for IBM, an IAC member company, and serve there as the Executive Director with the IBM Center for The Business of Government. I have worked previously for two other IAC member companies, Pragmatics and SRA International. However, as stated above, I am here today representing IAC and ACT.

This unique government-industry partnership, collectively referred to as “ACT-IAC”, was created to facilitate the strategic use of technology to improve the business and mission performance in the public sector. ACT-IAC provides services that promote education, communication and collaboration across all levels of government. ACT-IAC brings industry and government executives together to exchange information, support professional development, improve communications and understanding, solve issues, and build partnership and trust, thereby enhancing government’s ability to serve the nation. ACT-IAC provides an objective, vendor-neutral and ethical forum for the study and analysis of public sector management and technology issues, and by providing education and training on best practices to industry and government personnel. ACT-IAC is not an advocacy group, business development organization, or lobby; we are a non-profit whose goal is better government. More information about ACT-IAC is available on our website at www.actiac.org.

Before addressing the subject of what government can learn from industry about the effective use of IT to improve performance, I would like to note that I am especially pleased to be appearing before this Committee given a historical connection: in 2001-2002, while still in government as the senior career official for information and IT policy and budget issues with the Office of Management and Budget (OMB) near the end of a 14-year OMB tenure, I spent much time working with Committee staff while coordinating Administration discussions with Congress around the E-Government Act of 2002. And it is an honor to join Karen Evans, with whom I worked at OMB at the beginning of her tenure as Administrator for the Office of E-Government and IT.

Managing Complex Programs that Rely on IT

As this Committee has highlighted over many years of focus, every Federal agency relies on information technology to provide services to the public and support its operations. The ability to manage these assets effectively and efficiently has a direct impact on agency success.

History tells us that any major program, project, or transformation involving IT brings great potential for positive change and benefits, but also brings risks that the program will not produce

the outcomes envisioned. Such risks can be introduced due to factors that include political pressures, interagency coordination, integration with legacy systems, multiple contractors, new software development, requirements creep, unexpected events.

Over the past several months, ACT-IAC has joined a number of stakeholder groups in a dialogue with OMB and Administration leaders regarding how best to improve the government's capacity to manage IT programs effectively. Accordingly, ACT-IAC has drawn upon many best practices and lessons learned across government and industry, and formulated an initial set of critical success factors for major IT programs. These factors broaden the focus from IT oversight to overall program management, and take into account the policy and political realities within which the Federal government operates. In this model, IT is a strategic centerpiece of a transformation toward the goal of better government.

ACT-IAC has captured these success factors in a Framework that we refer to as "*7-S for Success*" (we are providing the full Framework to the Committee for the record as well). The 7-S Framework evolved through a collaborative process that included both government and industry experts and executives, and reflects lessons learned through a true public-private partnership and real world experience with effective practices from both sectors. The Framework sets forth a set of principles and guidelines to be considered at the outset of any major IT project or program. We believe that the application of this Framework to a major IT program review should reduce risk and increase the likelihood of positive outcomes.

The 7-S Framework does not constitute a checklist for compliance purposes. Rather, it represents a management approach for large transformations, in which each of the seven "S" factors represents a key area of focus, but all of the "S's" enhance the potential for delivering successfully. We strongly believe that successful implementation of major IT programs requires an honest assessment by, and ongoing conversation among, program leadership and stakeholders regarding the health of the program. We also believe that how these leaders and organizations manage change as programs evolve, and support teams and individuals address needed change in a positive way, is a key element of success across the entire Framework. We hope that the 7-S

Framework will help contribute to more consistent, high-quality performance in managing IT programs across government.

Before delving into the elements of the 7-S Framework, I would again note that the Framework reflects is based on ACT-IAC's engagement with members from both the public and private sectors. Our experience indicates that government and industry share many common elements with regard to the implementation of large scale IT systems, as well as important differences. With regard to commonalities, leaders across government and industry recognize the value of information technology, and seek to apply IT to increase effectiveness and efficiency. Both government and industry benefit from many talented people who are committed to doing their best for their organizations. And there are factors that are consistent across large and complex IT programs in both sectors, such as multiple stakeholders, large and organizationally diverse project teams, and the need for agility in implementing technological change.

Managing large IT programs in Government does involve unique elements as well, including:

- Laws and rules that can require significant processes, time, and resources to revise if needed.
- A focus on compliance that can, if not implemented effectively, overwhelm efforts by leaders to view and manage IT as a strategic asset.
- Funding that emanates from a budget process where planning occurs up to 30 months before the money is actually spent on a program or contract.
- Lack of knowledge about how to leverage the acquisition process to facilitate rapid adoption and innovation.
- A comparatively large installed base of legacy systems can require large investments to replace.
- Regular and public attention that can magnify impacts more quickly than is often the case in industry.

Adapting commercial best practice to help improving how Government acquires and manages complex IT programs, through the 7-S Framework or similar approaches, must account for these

kinds of elements in order to succeed in the public sector. Agencies can learn much from industry – the key is how best to adapt these lessons in a government setting.

Key Success Factors in Reviewing Major Programs that Leverage IT– The “7-S for Success” Framework

The 7-S Framework addresses two sides of the strategic imperative for IT program management: the political/policy/oversight factors, which can support or sink an initiative from above and thus are grouped under “Managing Up and Out”; and the business/technical factors, which can promote or undermine an initiative from within and thus are grouped under “Managing Across and Down”. It is important to note that these factors do not always fall neatly in one category or the other; for example, the “Managing Up and Out” section discusses how teams will operate and communicate, which is also vital to “Managing Across and Down”.

The seven critical success factors include:

Managing Up and Out

1. Stakeholder Commitment and Collaborative Governance
2. Skilled Program Manager and Team
3. Systematic Program Reviews

Managing Across and Down

4. Shared Technology and Business Architecture
5. Strategic, Modular, and Outcomes-Focused Acquisition Strategy
6. Software Development that is Agile
7. Security and Performance Testing Throughout

Managing Up and Out

1. **Stakeholder Commitment and Collaborative Governance** – Most complex programs involve numerous stakeholders at political, policy, and management levels, and often multiple agencies, contractors, and other non-government constituencies. There should be clear lines of accountability and responsibility among these players, as well as a process that engages key stakeholders. Finally, there should be a shared commitment to the program's success across affected parties.

Establishing a collaborative and accountable governance structure – chaired by a senior official from the lead mission Agency who has access to the Agency head, and includes senior executives from other implementing Agencies and key contractors – incorporates the interests of each stakeholder group. This approach also focuses on each entity's responsibility area and contribution to the larger program goals, and establishes a way to review progress collectively and with accountability for results. Key elements of a collaborative governance process include:

- Ongoing interaction with -- and management of -- key stakeholder relationships, including users, contractors, relevant constituency groups, and oversight organizations like Congress, GAO, OMB, and IGs.
- Effective integration across key functions within the lead agency, including program, budget, contracts, HR, IT, and other relevant offices.
- Understanding of and accounting for political, legal, and policy imperatives that must be addressed.
- Clearly documented roles, responsibilities, and accountability structures.
- Early and ongoing identification of risks and development of mitigation strategies.
- A communications process to ensure that the key players talk to each other about the right issues at the right time, and that business, technical, policy and other changes are well-aligned.

- Key program performance metrics that are incorporated into annual performance plans for stakeholders, to promote shared accountability so that each stakeholder shares equity with the success of the program.
- An approach that promotes ongoing, honest assessment and supports moving forward from failure to reach overall program success in business scope, technology advancements, and innovative delivery.
- Sustained leadership commitment, as transformational or complex programs inevitably go through high and low points; key to success is a willingness to accept risks and learn from mistakes, and a continued focus on achieving long-term goals rather than becoming consumed by short-term but addressable problems.

2. **Skilled Program Manager and Team** – There must be an accountable, qualified, and properly positioned senior leader of the program, who reports to a Senior Agency governance leader. This Program Manager (PM) should ideally be highly proficient at technical, business (both government and commercial business processes), organizational, programmatic, and interpersonal levels. The PM could come from the technology, acquisition, or mission organization, so long as the person possesses skills across these areas and operates under a strong governance process. The PM should ensure that a sound Integrated Program Team (IPT) team includes the following elements:

- The PM should be empowered to bring on a strong team of leaders across disciplines who can maximize the likelihood of positive outcomes, and work together to course-correct for problems along the way. It is likely that there will be a hierarchy of teams and competency areas reporting to the PM, since a major program almost always consists of sub-projects that must be managed towards a common outcome.
- The PM team must also include resources, whether direct report or matrixed, from relevant stakeholder groups, such as IT, policy and regulatory, strategic planning, the user community, acquisition, legal, outreach (public and congressional affairs), finance, and HR; cross-agency teams should include representatives from each agency.
- The PM should ensure that all of the major program management disciplines -- such as Requirements, Financials, Acquisition, Communications, Risk, Earned Value,

Change, Integration and Release/Testing -- are properly staffed, with ongoing training offered across program areas.

- The PM should ensure that IPT members understand clear responsibilities that are documented, so that everyone knows who is doing what; and help members to approach their role through supporting the team to reach objectives, rather than simply through addressing process and compliance issues.
- Performance metrics for key individuals should include consistent measures related to achieving system and program milestones; this is especially true where a program cuts across organizational lines, so that performance metrics reflect the multi-organizational nature of the activity, rather than affecting only the organization for which the employee works.

3. **Systematic Program Reviews** – In addition to assessing progress against programmatic goals, governance leaders and the PM should ensure that all of the “S factors” are reviewed on a regular basis. As part of these reviews, success should be celebrated and actual or potential problems promptly and openly identified for correction. This will promote timely consideration of whether the program is 1) making progress against program goals, and 2) ensuring that all key “S for Success” factors are in place and working well to minimize risk; performance issues that are not corrected quickly then become accountability issues to be addressed as soon as possible. These reviews must be designed and implemented to ensure the following:

- All major aspects of the program, including IT, policy, acquisition, business process, and regulatory changes, are addressed. These areas should be assessed as part of status updates throughout the overall master cost/schedule/program goals, and should identify any needed risk mitigations along with responsible individuals and needed deadlines.
- Each key stakeholder should provide an update on what they have done since the last review to support the PM and the execution of program objectives. The PM should also make clear to each stakeholder what is needed from him or her between the current and the next review.

- Reviews should include senior representatives from key contractors where appropriate, to ensure unified agreements on status, risks, and necessary actions or changes.
- Reviews should be designed so that the agency can provide periodic program updates to oversight organizations, including Congress, GAO, OMB, and IGs.

Managing Across and Down

4. **Shared Technology and Business Architecture** – Major IT programs involve complex interfaces with internal and external users, back-end applications, operational processes, policies, and supporting infrastructure. It is vital that a business and technology architecture guide activities across the team. At a minimum, this architecture should:

- Set goals for how interfaces and new business processes should work in practice, while remaining flexible enough to encourage changes during development and execution; ideally, a strong Chief Architect, reporting to the PM, would be assigned to this task.
- Emphasize innovative but proven technologies (e.g., cloud computing, mobile) that preferably have a low threshold for adoption, as well as a strategy for how new technologies and related business processes will be integrated with legacy systems and business processes.
- Include a focus on security and privacy of information as an integrated element in business process and system development, and not be managed as a separate activity.

5. **Strategic, Modular, and Outcomes-Focused Acquisition Strategy** – The PM must collaborate with the acquisition organization and other stakeholders in the IPT, and then work with the private sector early on, to define a set of strategic requirements, a program management model, and an acquisition strategy that supports the outcome-based goals associated with the program in a best-value approach. Other elements of this strategy include:

- An acquisition process that starts well before contract award (e.g., with market research, requirements identification, and RFIs), and lays out the goals, timelines, source selection and evaluation approaches for key contracts along with a synchronized contract award schedule. Project life cycle milestones should also influence when contracts must be in place; for example, contracts for more complex elements or infrastructure may need to be awarded first.
- Procurements that have consistent incentives, milestones, and review processes to encourage collaboration toward a mutual objective. Commercial products or services should be acquired where feasible and appropriate, along with a strategy to ensure that they complement the target architecture during integration; commercially available IT and shared services should be preferred over building IT from scratch.
- Available or potential contract vehicles that are objectively assessed; for existing vehicles, any relevant weaknesses or limitations should be addressed.
- Clear roles for government and industry partners with specified interface points and information needs, as well as defined acquisition management processes to ensure coordinated, disciplined, and efficient and effective contract oversight.
- Alignment with a program management plan that provides clear roles and responsibilities, integrates leadership, and manages processes and interactions among key organizations for successful post-contract award management.
- A strategic funding strategy that is tied to programmatic and acquisition goals and objectives, with a modular approach so that value can be assessed on a regular basis to secure additional funding. This is especially important for contract awards that require funding over multiple budget years, so that funds for those project phases can be built into the budget request for those years.

6. **Software Development that is Agile** – Over the past several years there has been increased interest in a shift away from large-scale and long-term systems development that may take years before the first functionality is available for testing. A more innovative approach is found in agile software development, under which applications are developed in an iterative fashion whenever possible, with small-scale roll-outs, frequent feedback from end users, and communication with program management and governance leaders on changes needed

throughout. This approach reduces risk and increases the chances for program success. We believe it applies to major programs with varied business processes that involve IT applications. Other aspects include:

- Applications that take advantage of open source and reusable code whenever appropriate and cost-effective.
- Incorporation of “Human Design Frameworks” -- which account for how people actually perform their work -- as a component of the Agile model, to ensure that these elements of design are central to development.
- Resource commitments from the end user and customers. Key end users and customers should be embedded in the program team, and be matrixed back to their organization so that daily decisions/tradeoffs on functionality can be made, and that the IT and Program office can get input from the customer and end user as part of those decisions.

7. **Security and Performance Testing Throughout** – Modules should be tested and released in phases throughout design, development, and operations – both for individual components and collective (ultimately end-to-end) system performance. Key elements include:

- Security, privacy and testing objectives and strategies should be established before any development starts, so that these critical components are embedded into the DNA of the program; this should reduce issues during the testing cycle, helping improve speed to effective implementation.
- User acceptance, functional, and load testing must be planned for and implemented at each phase of the program rollout.
- Testing should align with independent validation and verification (IV&V) efforts as appropriate.
- Security testing should occur in parallel with performance testing. Security requirements and testing needs should be included as part of the program processes from inception.

Chairman Carper, Ranking Member Coburn, and Members of the Committee, on behalf of ACT-IAC we appreciate the opportunity to appear today. We believe that the 7-S for Success

Framework sets forth a management approach that can significantly increase the potential for success in major IT programs in the public sector. Thank you.