Industry Advisory Council

Transition Study Group

Returning Innovation to the Federal Government with Information Technology

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Executive Summary: Returning Innovation to the Federal Government with Information Technology

The nation is engaged in two wars and faces the biggest financial crisis since the Great Depression. The federal agenda includes finding ways to provide 47 million uninsured Americans with health coverage, becoming energy self-sufficient and improving the education system. All the while, the government must pay Social Security recipients, care for veterans, fund highway construction, ensure worker health and safety, regulate drugs and medical devices and undertake many more complicated and important tasks.

If the incoming Obama administration wants to effectively deal with these urgent issues and provide a high level of service to American taxpayers, it must modernize government and be ready to embrace innovative solutions.

This may sound simple, but it will require a new mindset, a change in leadership, improved management capabilities and different methods for making IT investment decisions.

As it currently stands, the government is resistant to change, taking risks and innovation. There was a time when this was not the case, when the government helped create leading-edge technologies like supercomputers and the Internet to meet big challenges. Today, government lags an average 10 to 15 years behind the private sector in incorporating the latest technologies and processes to improve operations. The result is that the government is often viewed as unresponsive, inefficient and bureaucratic.

The federal government spends more than $70 billion directly on IT projects and over $30 billion indirectly, but report after report has found that the federal IT systems are plagued by bad management, poor planning and a failure to use best practices. For a wide variety of reasons, procurement practices and management reward caution, not risk. This has led to utilization of legacy technologies, resulting in incremental improvements at best while transformative technologies that could make a meaningful difference have fallen by the wayside. Rather than encourage innovation by industry, the government's management and procurement processes have penalized new ideas, constrained communication between buyer and seller, and emphasized risk avoidance rather than return on investment.

To bring about change and real reform, the Obama administration will have to break with the past and take a number of bold new steps. A key watch word must be innovation. The administration must engage in market research for new IT investments, and seek state of the art answers and new solutions before the procurement process begins.

The Obama transition team is defining an innovation framework built around a new Chief Technology Officer, a major step in the right direction. We believe the new administration must go further, placing the CTO as the head of a new Government Innovation Agency that would serve as an incubator for new ideas, serve as a central repository for best practices and

incorporate an innovation review in every project. As we envision it, the Government Innovation Agency would house Centers of Excellence that would focus on ways to achieve performance breakthroughs and leverage technology to improve decision making, institute good business practices and improve problem solving by government employees.

It also would be wise for the new administration to consider choosing a small percentage of projects selected for investment to be designated as "high risk/high reward," and managed with a risk acceptance approach that recognizes that failures will occur. Agency program and executive managers must be educated in managing and encouraging innovation and risk, and better options for encouraging risk acceptance and risk sharing with industry must be developed.

Small improvements in major federal programs or continued use of old line technologies can longer be accepted. The old ways of doing things can no longer be tolerated. World leading technology management skills and innovative technologies must be applied by the government to meet the 21st century challenges.

Returning Innovation to the Federal Government with Information Technology

THE ISSUE

The federal government can take advantage of emerging information technologies to modernize operations and improve quality of service. However, making effective use of IT will require a change in the leadership approach and the IT investment decision processes. IT systems are fundamental to performance improvements in most federal programs, and innovation is required to drive transformational changes. The new administration must address federal executives' aversion to change and the overly constricting risk management mentality. Innovation must be injected into the processes that control modernization spending while appropriate risk management is retained.

CURRENT SITUATION

Historically, the technologies created to solve the massive challenges faced by government have spawned leading-edge innovations for use in the private sector. Supercomputers and the Internet are just two examples of technologies created to address complex problems faced by government. Indeed, ARPAnet and the subsequent development of the Internet spawned a global industry and changed the world.

Once a market-maker, the government during the last 30 years has been overtaken by the private sector as the primary driver of IT innovation. Today, government is challenged to keep pace with the private sector, lagging an average 10 to 15 years behind in incorporating the latest technologies and processes to improve mainstream operations. As a result, government operations increasingly dependent on IT automation are seen as unresponsive, inefficient, bureaucratic and costly.

By its nature, the federal government faces many daunting challenges. It has annual disbursements of $3.1 trillion, counts every person in the country, forecasts the nation's weather, combats terrorism, approves new drugs, handles food safety, cares for veterans, provides health insurance for the elderly, and delivers a wide array of government services. But federal agency operations are constrained by workforce demographics and the government's complex mosaic of organizations and management processes. Inadequate staffing makes automation essential, yet an inability to effectively deliver meaningful automation improvements means agencies are hampered with old, inefficient work processes. As a result, agencies are often ineffective, and usually disappoint their citizen customers. The Government Accountability Office recently highlighted the issue as a major challenge for the new president:

> "While some progress has been made in recent years, agencies still, all too often, lack the basic management capabilities needed to address current and emerging demands. As a result, any new administration will face challenges in implementing its policy and program agendas because of shortcomings in agencies' management capabilities." (Testimony of Gene l. Dadaro, GAO-08-1153T, September 10, 2008)

While it takes decades to address demographic issues, information technologies can be applied to counterbalance staffing issues by streamlining and modernizing operations. This is much more complicated than budgeting sufficient money and contracting for a solution. In spite of spending over $70 billion directly on IT projects and over $30 billion indirectly, the federal government experiences significant problems. These problems were highlighted by the Office of Management and Budget and in GAO reports to Congress. For example, the Office of E-Government and Information Technology summarized the situation on the www.Results.gov website:

> "We are especially bad managers of very large IT projects. We buy more IT goods and services than anyone else in the world and should be the best at it, but we're not. Our primary problem is that we are not as good as we need to be at clearly defining the functionality we want a large, new IT system to provide: if we don't know what we're trying to purchase, we will almost certainly not acquire what we need to better serve the country." (www.results.gov, November 5, 2008)

There are nearly 500 major IT programs on the list of high-risk projects, each averaging more than $30 million. These projects are considered high risk because of cost, schedule, and security problems. Eighty-five percent of these projects are at risk of failing because of poor planning, according to OMB and GAO (David Powner, GAO-08-1051t, July 31, 2008). The same study found that the remaining 15 percent are at risk because of generally poor performance.

Over a decade ago, the Clinger-Cohen Act was passed by Congress to facilitate use of commercial best practices in modernizing the federal government. It included provisions calling for the use of IT investment reviews in a "Capital Planning and Investment Control (CPIC)" framework developed by the Government Accountability Office and implemented by federal agencies under guidance contained in OMB Circular A-11. The GAO has continued to pressure agencies to reduce and control risks.

Over the past five years, agencies have been driven to focus on risk reduction as a way to control program performance problems. This is understandable given that the multi-million dollar scale of federal IT projects introduces unique complexity and challenges in development, maintenance, and deployment. However, the data show that there has been extensive focus on control and too little focus on improved program planning.

Faced with the critical need to produce and manage large-scale IT systems, the government has established a series of processes designed to eliminate the risks inherent to the creation of technology. Budgetary vetting processes, including the Information Technology Review Board

(ITRB) and OMB technology reviews, focus on certainty of achieving the promised results within the committed timeframe. Oversight organizations, including the Inspectors General and Government Accountability Office, produce reports focused on why projects are either failing or performing poorly. Management processes, driven by the specter of congressional oversight or press exposure, focus on finding, mitigating, and punishing program problems. Procurement processes, driven by laws intended to ensure fair competition, focus on bringing program requirements down to a level where many companies can bid. Federal employees are not motivated or rewarded to take on risk. The unintended consequences of these risk management approaches is to ensure that programs that utilize known, legacy technologies rise to the top while programs proposing unproven technologies are sent back to the drawing board.

We believe that the federal government is overly focused on risk reduction, and does not take advantage of innovations in technology and management needed to improve operations and address today's significant performance problems. While standardization, risk aversion and oversight have brought order to what could have been chaos in the last decade, it is time to mature these processes and take them to the next level to achieve breakthrough performance.

In the private sector, new and innovative IT solutions are forces for both business and social change. In the federal government, those innovations are often viewed as problematic, unproven, and risky. As a result, the private sector is more successful in its use of technology. This is not because it has fewer failures, but because it has bigger successes. While the federal government frequently limits itself to incremental improvements, efforts at transformative technologies abound in the private sector. Those that succeed transform organizations and entire markets. Moreover, many companies (81 percent in the February 2008 Innovation Poll) now operate with paradigms such as "failure to innovate brings risk" and "sustainable innovation reduces risk".

Federal government suppliers are no longer motivated to offer innovative and transformative new solutions to its challenges. Suppliers often are told that innovative solutions are too risky and cannot be evaluated against standard criteria. Moreover, an agency IT department is often responsible for buying or building a solution that can easily fit with the internal customer's current operation. The more change in current operations required by innovation, the less likely the internal customer will be willing to accept the solution. Indeed, the government procurement process has created a captive industry of suppliers who specialize in responding to detailed specifications for low-risk solutions created by government agencies. Rather than encourage innovation by industry, the government's procurement processes penalize non-conformance and new ideas, constrain communication between buyer and seller, and emphasize risk avoidance rather than return on investment.

What are the barriers to innovation in agencies today?

- There is often little market research to ensure an adequate understanding of the state-of-the-art in available or evolving solutions for a given business need.

- Agencies often have little or no infusion of technical or management staff trained outside of the government community of employees and contractors, creating a knowledge barrier between the broader private sector and government.

- Government employees expect from previous experience that their management will only approve a solution they understand. Combined with little experience outside the government, this ensures that selected solutions resemble existing solutions and preclude performance breakthroughs.

- Government staffs are trained in government processes designed to avoid risks. IT selection and investment reviews use magnitude of change as a measure of risk, and devalue options with large risk. In many agencies, Congress explicitly focuses on creating a control process to limit reforms.

- No systemic motivation exists to encourage either government employees or contractors to explore breakthrough solutions. Greed and fear, the two primary motivators of innovation in the capitalist system, are nearly eliminated in government. Indeed, motivation in government appears to be the inverse of that in the private sector, with regulation providing the motivation and fear providing the resistance to change

- Federal procurement processes are focused on micro, not macro competition. Offers are evaluated based on lowest price for a defined solution instead of maximum government gain.

- Industry suppliers have no incentive for proposing innovative solutions to government problems by offering "outside the box" proposals because they are frequently eliminated from competition as either too risky or not understanding the problem.

The new administration has the opportunity to better harness the power of the federal government's IT spending as a strategic enabler to achieve critical national objectives in areas such as the economy, the war on terror, homeland security, health care, and environmental sustainability. Our government must learn to once again to use its massive IT spending to motivate the creation of highly innovative solutions to its complex challenges. Those solutions will help drive government to better results and better efficiency.

ACHIEVING PERFORMANCE BREAKTHROUGHS

Information technology is going through a significant period of change, creating two major categories for performance breakthroughs in government. One involves business process automation and improving the cost and quality of transactional operations. The other deals with knowledge process innovation to better leverage available staff for improved speed and quality in problem solving. Figure 1 illustrates how the technology trends have diverged to create these two sets of opportunities.

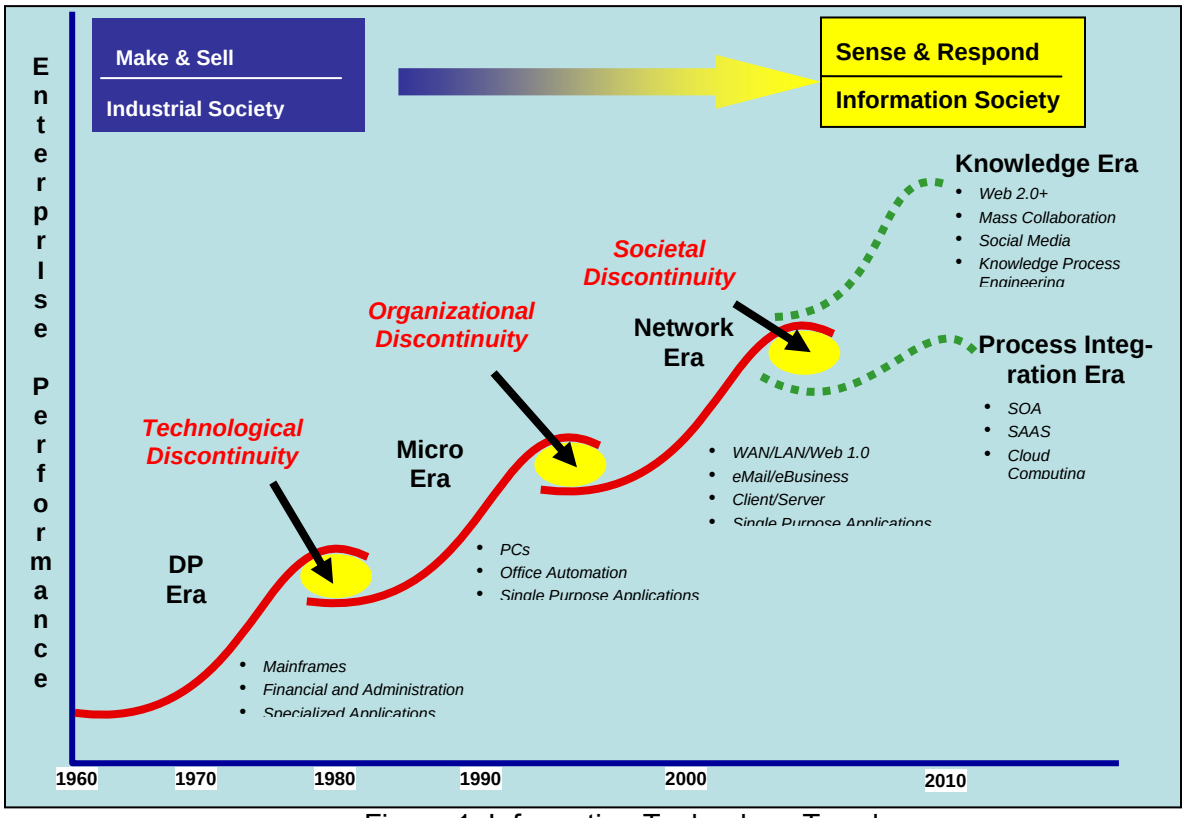

Figure 1: Information Technology Trends

The first category, process integration, creates significant opportunity for reducing budget, improving process quality, and relieving staffing needs. The government has thousands of systems that cannot work together and were never designed to do so. This is because components of processes were automated in 1990s era PC or client server technology. Today's technologies such as service-oriented architecture constructs, use standards and end-to-end process integration to automate processes in a manner that reduces operating costs and errors. These technologies free up labor to focus on problem solving.

The second category uses Web 2.0 (social networking) tools to facilitate rapidly bringing together experts and data to discuss and resolve issues. These tools provide data analysis, collaboration and content management infrastructure, and leverage mass collaboration concepts for sharing information and solving problems.

For government to leverage either of these categories, agencies must learn how to evaluate innovative solutions and manage IT projects using a portfolio approach to balance risks and benefits.

A ROADMAP TO REFORM

The Obama transition team is defining an innovation framework built around a new Chief Technology Officer. Current IT investment decisions are made by departments or agencies using a standardized Capital Planning and Investment Control Process comprising six steps:

1) government programs identify a performance gap;
2) programs work with their agency Chief Information Officer's staff to refine needs and identify solutions alternatives;
3) programs construct a business case;
4) agency executives review business cases and select investments;
5) investments are incorporated in agency budget request submissions to the Office of Management and Budget; and
6) OMB accepts or rejects proposed investment based on quality of business case and availability of funding for the underlying program.

In order for the planned CTO to provide leadership and orchestrate innovation within and across agencies, there will need to be significant changes in the federal IT investment processes.

In general, the CTO should oversee a new Government Innovation Agency that would serve as an incubator and source of best practices for bringing to government technology-enabled performance breakthroughs. The Government Innovation Agency would work in the following manner:

- Centers of Excellence: The Government Innovation Agency would house Centers of Excellence for government program areas such as social services and lines of business of the federal government where significant performance breakthroughs are needed to address performance problems or are possible based on commercial innovation. For example, a Center of Excellence would focus on best practices for workflow and transactions processing in government lines of business that can leverage automation to improve quality, cycle time, or efficiency. Alternatively, a center would focus on web 2.0 collaboration solutions in lines of business that can leverage technology to improve decision making and problem solving by government employees. In addition, the center

would provide best practices on communication and cross agency collaboration among practitioners.

- Best Practices "to be" deployed: The agency would be responsible for tracking best practices innovation and change management best practices, including establishing measures of success and performance gain targets. The agency would identify when government needs to change to employ best practices, and when best practices need to be adapted for government. Each Center of Excellence would integrate innovation and best practices into a "to be" segment architecture that would document how best practices would be leveraged for performance breakthroughs.

- Change Management Assistance: The agency would bring in and develop expertise to provide change management assistance to agencies attempting performance breakthroughs.

- Each Center of Excellence would be staffed by agencies that have the business need addressed. An agency with a need would send a program manager caliber person to the COE, who would work collaboratively with the representatives from other agencies to build the business case for an IT investment. Similarly, the Center of Excellence would respond to a board comprising agencies with the business need. While the person is at the agency, they would be trained in emerging trends, program management, etc.

- The person from the agency would be the lead in the Center of Excellence for that agency. He or she would compile the business case and present it first to the center's board and then to the agency Investment review board. After obtaining approval, the detailee would go back to the host agency to get it done.

- Agencies would create two portfolios for themselves: one to run the agency and the other to change the agency. The "run the agencies" portfolio would comprise incremental improvement solutions. The "change the agency" portfolio would comprise a more balanced portfolio of risky, innovative and strategic solutions for achieving major performance gains.

CONCLUSION

American taxpayers can no longer afford the luxury of small improvements in major federal programs. We must create world-leading technology management skills to match the challenges presented by applying disruptive technologies to massive problems. As a companion paper entitled *Using Federal Information Technology as a Strategic Weapon to Strengthen the American Economy* argues**,** we must translate the new technologies, techniques and skills

created in solving the world's largest problems into competitive advantages for U.S. companies in the global competitive market.

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