A Brief History of IT Acquisition Reform

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This paper examines the federal government's historic attempts to reform the purchase of information technology starting in the 1960's with the Brooks Act for ADPE; looks at the unintended consequences of the 1990's reforms including the Federal Acquisition Streamlining Act of 1994 (FASA) and the Clinger-Cohen Act of 1996; touches on the effects of the internet and the E-Government Act of 2002; investigates OMB's early role and later Obama-era initiatives around IT accountability; and, finally, reviews the latest attempt at IT reform: the Federal IT Acquisition Reform Act (FITARA). It concludes with an examination of how IT reform has not worked and will likely never work until the government develops an organizational design for information technology that flows from an accepted over-arching strategy.

> *So we beat on, boats against the current, borne back ceaselessly into the past.*[1]

Introduction

The United States government has spent over $1 trillion dollars[2] on information technology in the last fifty years and the results have been less than stellar, often highlighted by a dazzling array of waste and duplication. Between 1965 and the present, Congress, the Executive, and individual agencies have struggled to promulgate policies to efficiently and economically harness the power of information technology. Unfortunately, in great measure they have failed—with the recent high profile fiasco accompanying the launch of **Healthcare.gov**,[3] offering a sadly familiar anecdote. Since 2003 alone, the government has canceled $9.2 billion worth of IT investments, upon determinations the projects could not work or were no longer needed.[4]

Indeed, the duplication and wasteful expenditures shock the conscience. In 2011, the Government Accountability Office (GAO) reported that the government was simultaneously operating 661 human resource systems, 781 supply chain management systems, and 1,536 information and technology management systems.[5] Redundancy of this nature is an extravagant waste of tax payer dollars, but at least those systems could found and identified. Recently, the GAO reported that only two of twenty four examined agencies had established software licensing asset management programs, thereby making it functionally impossible for the government to even know which commercial software it had purchased.[6]

There's a problem here, and it's hiding in plain sight: The massive fragmentation of IT acquisition, the lack of consolidation of certain processes, the internal competition between organizations, and the failure of the government to create an over-arching IT strategy are the flaws at the heart of a government-wide dysfunction that disrupts IT procurement. The government contracting literature that narrowly pertains to information technology has almost exclusively focused on tactical issues like cyber-security, privacy, software licensing, intellectual property, or accessibility for those with disabilities. Until now, there has been little critical assessment of the current fractured procurement structure that hampers the government's ability to competently spend on IT.[7]

This paper examines the historic attempts to reform the purchase of information technology starting in the 1960's with the Brooks Act for ADPE;[8] looks at unintended consequences of the 1990's reforms including the Federal Acquisition Streamlining Act of 1994 (FASA)[9] and the Clinger-Cohen Act of 1996;[10] touches on the effects of the

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internet and the E-Government Act of 2002;[11] investigates OMB's early roll and later Obama-era initiatives around IT accountability; and, finally, reviews the latest attempt at IT reform: the Federal IT Acquisition Reform Act (FITARA).[12]

This paper concludes with an examination of how IT reform has failed and will likely never work until the government develops an organizational design for information technology that flows from an accepted over-arching strategy. Absent a bona-fide strategy, the government will continue down the path of administering ad-hoc tactics, passively endorsing a dreary tradition of wasteful spending.

The Early Years: Monolithic Bureaucracy and Delay

The Brooks Act for ADPE

In the beginning there was the Brooks Act.[13] In the days when Information Technology (IT) was still called Automated Data Processing Equipment (ADPE),[14] the Brooks Act gave almost complete authority for the purchasing of computer technology to the General Services Administration (GSA).

The key language of the Brooks Act provided for the Administrator of the GSA to "coordinate and provide for the economic and efficient purchase, lease and maintenance of automatic data processing equipment by Federal agencies."[15] Between 1965[16] and the advent of the Clinger-Cohen Act in 1994,[17] Federal employees, with a few important exceptions,[18] were forced to work through the GSA for IT: either to have the GSA arrange for the procurement directly or to approve the budgetary spend and then receive the delegated authority to proceed independently.[19]

When the Brooks Act became law in 1965, the world's computational power was dominated by the IBM mainframe. The United States government was the largest computer consumer, driving at least 62% of the entire computer industry's annual revenue.[20] Although these computers were complex and expensive, the purchase of them was simplified because the predominant mode of acquisition was to buy processing in timed increments or "time-sharing." They were rented (in a sense) on a usage model not dissimilar from car rentals.[21] The notion to consolidate these procurements around the GSA wasn't overtly controversial at the time,[22] and mainframe acquisition was simplified by the narrow field of providers and the limited choices available.[23]

In 1965, the Government was deploying these computers in esoteric "one-off" ways to calculate otherwise impossible results—like the simulation of nuclear explosions. So while the workloads performed on mainframes were complex scientific algorithms, the procurement of the devices was appreciably more trivial, the volume was relatively low, and ostensibly it could be mastered. It was a simpler time.

The Personal Computer: Distributed Democratization of Information

On August 12, 1981, IBM introduced the first personal computer.[24] By the end of 1982, IBM was shipping one PC for every minute of the business day.[25] By the end of 1984, IBM's PC revenues were over $4 billion on a product with an original unit price of only $1,565.[26] In part, because IBM elected to use a readily available third party operating system called DOS,[27] there was a frenetic explosion of products, software and services where previously there had been only one monolithic rentable device—the mainframe.

Suddenly, the government, as did private industry, discovered that the records, transactions, and documents formerly stuffed into filing cabinets could be infinitely more useful if they were converted to electronically stored data.[28] Further, whole manual processes could be automated by the creation of customized software or by the integration of existing commercial software, or a combination thereof.

Between 1984 and 1994, the government spent $200 billion on information systems, incrementally spending 6% more each year.[29] This was the first wave of the great democratization of computer processing—where the lower cost entry points and the highly distributed nature of the technology made it feasible, for the first time, to break the stranglehold of centralized oversight.

Worldwide, the information technology industry exploded.[30] The manifold choice of products were so quickly overwhelming it fostered the creation of expert research services like Gartner[31] and Forrester[32] who were paid consulting fees just to advise Industry clients on how to sort through the confusing and massive array of products that fit newly evolving IT categories. It was a particularly confusing time for all consumers of IT—almost nothing had commodified,[33] and any whiz-kid with a dog and a garage[34] might be developing the next great IT product.

With the expansion and explosion of IT underway, the antiquated Brooks Act (built in 1965), with a processing aperture better suited to the procurement of mainframes—began to crack.[35]

Reforms of the Period and Information Technology

The National Performance Review of 1993

In the midst of this remarkable computing transformation, the Clinton Administration[36] and Congress began a series of government inquiries specifically directed at procurement reform. IT was not the targeted focus of reform, but because IT accounted for nearly 12.5%[37] of the Government spend on goods and services, it would fall under the microscope and be greatly affected.

In September of 1993, Vice President Al Gore produced the first National Performance Review (NPR).[38] In addition to highlighting some extant procurement absurdities (like the multi-paragraph specification of a Government approved ash-tray),[39] Gore struck a theme that would eventually have profound consequences for how the government purchased IT. He focused on a series of examples where centralized purchasing had caused extreme inefficiencies. He called for the end of "Government service monopolies" including the GSA, and specifically regarding computers he said that the "advantages of centralized purchasing…[had] faded and the disadvantages had grown."[40]

In the Report, Gore directed the GSA Administrator to increase the delegation of procurement authority to agencies for the purchase of IT from the current $2.5 million to - $50 million, $20 million, and $5 million depending upon an agencies size, IT budget and management record.[41] While the Brooks Act was still alive, Gore had foreshadowed the coming decentralization and fragmentation.

Cohen's Computer Chaos

Thirteen months later, in October of 1994, Senator William S. Cohen (R-ME) published "Computer Chaos: Billions Wasted Buying Federal Computer Systems."[42] Cohen dissected the core problem with the Brooks Act and GSA's role in wasteful computer procurement.

> Three decades later, the Brooks Act appears increasingly anachronistic in an era of small low cost desktop computers, rapidly changing technology, numerous suppliers… and the dawn of the information highway.[43]

Unlike Gore (in the NPR), Cohen did not believe "centralized" computer purchasing was erroneous. In fact, he endorsed the need for "effective oversight."[44] Instead, Cohen focused his criticism on the GSA's actual behavior and the inherent weaknesses of the Brooks Act. One of his primary concerns was that the GSA was not staffed appropriately to effectuate the oversight envisioned by the Brooks Act.[45] He found the Act itself was defective because it was designed so that any GSA denial could be easily over-ridden.[46] He pointed out that in the prior year the GSA approved 716 delegation requests totaling almost $20 billion while only denying 84 requests valued at just $1.4 billion.[47] Eventually most of those GSA denials were simply resubmitted and then approved.[48] The world had changed and the Act had not.

In short, GSA was a bureaucratic roadblock adding no value and forcing an additional 45 to 90 days[49] to a process that was already too cumbersome. This was further complicated by the Act's requirement to force all Information Technology related protests to the Government Services Board of Contract Appeals (GSBCA) whose "de novo" review standard enticed government procurement lawyers to protest more frequently.[50] All this ensured, that by the time the government received the desired information technology, it was already antiquated. Cohen stated, "The fiction of centralized control of computer systems acquisitions is uncovered…GSA is a paper tiger that slows down both good and bad acquisitions, but cannot stop them."[51]

Federal Acquisition Streamlining Act of 1994

The day after Computer Chaos was published in 1994, President Clinton signed into law the Federal Acquisition Streamlining Act (FASA).[52] FASA was the culmination of years of effort to make government procurement more efficient, most recently infused by the work of the Section 800 panel.[53] The dual conceit of FASA was that the government was wasting money by building products to unique government specifications despite the multiple commercial analogues readily available for purchase in the marketplace. Furthermore, the Federal Acquisition Regulations (FAR) imposed a uniquely burdensome set of requirements on commercial companies, repulsing them from the market and thereby diminishing contracting competition.[54]

FASA's major feat was to define the government notion of "commercial products,"[55] state a preference for the procurement of these types of products,[56] and lessen the regulatory burden on their providers.[57] All commercial information technology products sold to ordinary consumers and businesses suddenly fit this new procurement category with the implicit invitation

to compete for government business, under less oppressive conditions. Additionally, it sanctioned a new contracting mechanism for agency heads to enter into government-wide Indefinite Delivery Indefinite Quantity (IDIQ) contracts where task and delivery orders issued under those vehicles could not be protested.[58] Lastly, in another move that would have major implications, it created a $2,500 micro-purchase threshold below which government employees could exercise their own sound judgment to make small, efficient purchases, instead of using the competition rules of the FAR.[59]

FASA was a triumph for commercial IT reform, but even though William Cohen was one of its sponsors, the Brooks Act survived and the GSA remained the entry-point for all IT purchases.[60] So despite its detractors in Congress (among them William Cohen) and the paperwork charade required to purchase IT via the GSA, the Brooks Act, persisted. But things were about to change.

The Information Technology Management Reform Act of 1995 (ITMRA)

After 42 years as a Member of Congress, Jack Brooks (D-TX) lost his reelection bid in the Republican landslide of 1994.[61] Brooks had been a formable figure in Congress and it was unlikely that the repeal of the Act bearing his name would have been possible prior to his departure.[62] With Brooks now back in Texas, Senator Cohen was able to push through the mother of all IT procurement reform: The Information Technology Management Reform Act of 1996 ("ITRMA").**[63]** (ITRMA was later renamed "The Clinger-Cohen Act" in honor of its principal sponsors Rep. William Clinger[64] and Sen. William Cohen,[65] (hereinafter "Clinger-Cohen."))

To this day, Clinger-Cohen is the most extensive and radical legislative change affecting the procurement of information technology.

The Deregulation of Clinger-Cohen
For starters, Clinger-Cohen repealed the Brooks Act. In its place it granted the Director of the Office of Management and Budget (OMB) broad responsibilities for setting policy and regulation for federal IT acquisition.[66] In keeping with Gore's spirit of deregulation, it pushed flexibility out to the agencies so they could acquire technology without the necessity to get discrete transactional authority.[67] IT procurement at the agency level was to be managed through OMB's annual budgeting process.[68] Beyond that, there were no requirements to use any particular methodology to procure IT (as long as it was within the bounds of the FAR).

Across the top of each executive agency, there was to be a newly appointed Chief Information Officer (CIO) who would report to the head of the agency, and help map an IT strategy for the organization.[69] In deference to the billions that had been wasted on large "big-bang" projects there was a stated preference to purchase IT in modular or incremental steps so that each step could be assessed for risk prior to moving forward to completion.[70] Lastly, almost as an after-thought, Clinger-Cohen required the Director of OMB to designate other executive agencies to create government-wide acquisition contracts (GWACs) for IT.[71] This new GWAC authority was about to have significant ramifications.

The Tradeoff: Speed vs. Waste and Duplication

Unintended Consequences: Deregulation and Unleashing Distributed Disorder

By the end of 1996, the National Aeronautics and Space Agency (NASA), the National Institutes of Health (NIH), the Department of Commerce, and the GSA all had government-wide contracts for commercial IT products and services.[72] Alarmingly, many of the IT products and services available on these contracts were redundant. Contract proliferation was authorized in Clinger-Cohen and appeared to be the crystallization of Gore's notion of entrepreneurial government: better results could be found through internal competition and by breaking "service monopolies."[73]

It was also a complete departure from the monolithic strangle-hold previously held by GSA. Now individual government buyers had an abundance of places to shop for mostly the same IT products and services. Even more significantly (for agency buyers in a hurry), the Brooks Act "de novo" disappointed bidder protest process at the GSBCA,[74] was replaced by an almost complete inability to protest any order placed against any of the new GWACs.[75] Compared to the frustratingly slow pace of IT procurement that preceded FASA and Clinger-Cohen, this was a new era of procurement immediacy.

On the downside (for tax-payers), this created the perverse effect of government competing against itself for the identical products and services from industry—rather than using market power to have a single negotiation or entry point with sellers. Because the contracting entities were using funds from other agencies, and stood to make small fees against each inter-agency transaction,[76] they had no manifest incentive to ensure best practices around pricing.[77] In fact, the fees they gained from transactions could provide an incentive to seek higher volumes of transactions, rather than seek prudent IT

investments.[78] It also created an infinite variety of market entry points for products like software, making those investments and deployments harder to track from an IT asset management perspective.

By 2003, Congress was concerned enough about the state of government procurement (in general) that it created an Acquisition Advisory Panel ("AAP") and tasked it with "reviewing laws, regulations, and government-wide acquisition policies regarding the use of commercial practices, performance-based contracting, the performance of acquisition functions across agency lines of responsibility, *and the use of Government-wide contracts*."[79]

The AAP Report on Inter-Agency Contracting

While the Panel's inquiry was wide-ranging and not directly focused on IT, it did create a specific Working Group to study inter-agency contracting including the IT "government-wide acquisition contracts" (GWACs) authorized under Clinger-Cohen.[80] Upon research and analysis, the inter-agency contracting Working Group determined that by FY 2006, there were approximately 15 separate government-wide acquisition contracts (GWACs) for commercial IT managed by four different executive agencies.[81]

Since FASA exempted all IDIQs from bid protests,[82] there was suspicion that the reason $142 billion or 40% of the entire discretionary spend in 2004 (not all IT related) had gone through these vehicles was that they were a potential dodge of normal competitive procedures.[83] Through their inquiry, the Panel noticed that there was waste and duplication in these contracts, "While the Panel recognizes that some competition between the agencies is desirable, inefficient duplication threatens to dilute the overall value of interagency contracts."[84]

Roger Waldron, a member of the panel, published a separate contemporaneous piece arguing for all commercial IT contracting to be transferred back to the GSA. Waldron pointed out,

> The lack of sound acquisition planning across the government has led to costly duplication of goods and services that are available under various interagency contracts. The failure to limit the number of interagency contracts disperses the government's collective purchasing power… and consequently [the government] may not receive the lowest price…it would otherwise seem entitled to.[85]

Other problems with the new deregulation soon became apparent.

FASA's Micro-Purchase Threshold

The government's power to gain economy of scale was further eroded by the FASA's micro-purchase threshold of $2,500.[86] In 2000, Steven Schooner and Neil Whiteman published an article about the effect of the new micro-purchase authority combined with government credit cards commonly known as "purchase cards."[87] By 1999 there were approximately 340,000 government employees in more than 60 organizations authorized to use cards.[88] Schooner and Whiteman speculated, among other things, that purchase card transactions "at some point before or during 1999" would account for more than 4% of all the money spent on federal procurement.[89] They suggested that this percentage could grow as high as 10%. They also speculated that some of the spending would be for information technology.[90]

Because one of the problems with purchase card spending was it could obscure details about the actual product or service purchased, it was impossible to know for sure how much was being spent on IT via purchase cards.[91] But assuming information technology's historic portion of discretionary spending at about 12.5%,[92] perhaps as much as 1.25% of the government's budget was being expended on personal computers and associated software products through card transactions.[93]

The inability to aggregate these transactions for better pricing plus the lack of visibility into what was purchased and where it was finally deployed compounded an already monumental problem. Additionally, the purchase card program produced rebated fees for the agencies that used the cards.[94] Again, just as with the GWACs, a perverse incentive was in place to maximize card usage as a means to increase rebate funds which the agencies perceived to be free or "found" money.[95]

From an IT management perspective, this invisibility and the lack of aggregation caused the potential for profound irrationality. At one point, Mark Day, the Deputy Assistant Commissioner of the Federal Acquisition Service at GSA, was made aware that one IT company (Cisco) had sold 1,600 separate maintenance contracts for the same product, at one small agency, via micro-purchases.[96]

The Lost Years—OMB's Failure to Lead

The words of Clinger-Cohen were unambiguous: "The Director [of OMB] shall promote and be responsible for *improving the acquisition, use,* and disposal of information technology by the Federal Government."[97]

Since almost nothing of significance about IT was promoted or directed to the agencies by OMB in the immediate aftermath of Clinger-Cohen (more on this shortly), it's instructive to review the testimony provided by OMB at the original Committee Hearing to consider S. 946,[98] the first formal draft Bill of Clinger-Cohen, in the summer of 1995.[99]

As first drafted, Clinger-Cohen provided discrete operational power for the management of all government IT to OMB. Additionally, to support the Director in this management role, the Bill required the President to appoint a Federal Chief Information Officer who would jointly work with the Director to manage the entire government IT domain.[100]

Specifically, the Director, assisted by the new Federal CIO, was to,

> …*develop*, coordinate, and *supervise* the implementation of policies, principals, standards, and guidelines for informa-tion resources, performance of information resources… [and to]…*determine information resources…to be provided in common for executive agencies.*[101]

During the S. 946 Hearing, it became apparent that OMB wanted no part of this freshly contemplated responsibility. John Koskinen, the Deputy Director for Management, warned against appointing a Federal CIO to work for the Director of OMB.[102] He testified that the current draft of the legislation "continues a model of central micro-management rather than one in which the agencies take full responsibility for their systems."[103] He believed that the OMB should stick to its budget knitting and the individual agencies' responsibil-ity and accountability should not be "undermine[d]"[104] by the creation of a Federal CIO. He did not believe a case had been made for "….creating an elaborate process that virtually transfers the current GSA oversight program to OMB and a new Federal Chief Information Officer. The lengthy assign-ment of duties to the [new] CIO would undermine, not enhance, responsibility and accountability of agencies for management."[105]

Koskinen further promoted the notion that OMB was not staffed nor resourced to handle a centralized oversight role.[106] He testified that the "contemplated responsibilities are *operational* in nature and do not fit with the institution's policy role."[107] (In oral testimony, he was benignly chastised by Senator Cohen who wondered why OMB had an "M" in its name if it had no management capability.)[108]

When Clinger-Cohen finally passed, the Federal CIO had been deleted and the operational role of OMB was notably watered-down.[109] Nonetheless, even though considerably softened, the over-arching responsibility for government-wide IT procurement now rested with OMB, *whether they wanted it or not.*

The Laissez Faire Years—1996-2002

As IT oversight transferred to OMB, the government entered a short window of unprecedented prosperity. The national revenue was almost perfectly balanced to expenditures between 1996 and 1997.[110] Then suddenly there were remark-able surpluses lasting three consecutive years (1998- 2001).[111] In the high-water mark of 2000, the government collected $236 billion more than it obligated.[112] It was in this era of easing budgetary pressure that OMB assumed its putative IT leadership role.

Perhaps in part because it was insufficiently staffed;[113] perhaps in part it was resistant to the role;[114] or maybe because there were no immediate budgetary pressures[115]—whatever the reason, OMB offered no meaningful proactive guidance on IT (as it related to rationalizing systems, reducing redundan-cies, seeking efficiencies or best practices in relation to IT procurement) until 2002.

In the fullness of six years, the OMB issued 17 memoranda where information technology was the primary topic.[116] Each of them lacked a declarative operational statement related to "improving the acquisition" of information technology. All of them read like policy pronouncements with passive guid-ance—only modified by concerns for Y2K[117] as the nation approached the end of the 20th century.[118]

Six years into Clinger-Cohen, no qualitative "strategic" forward leaning leadership on IT procurement had been forthcoming.[119] In the meantime (as we will later see), the massively fragmented and disorganized purchasing of IT was metastasizing across the government.

Congress Meets the Internet

While the OMB was discordantly (or perhaps reluctantly) coming to terms with its new found IT responsibility, the

second great wave of data democratization was erupting under its nose. In the same time-frame Clinger-Cohen was signed into law in 1996, the internet bloomed.[120] In 1990, Tim Berners-Lee (a British engineer), developed and integrated several components of technology that facilitated a standardized way to store and display content on what we now call a webpage.[121] Shortly thereafter, in 1994, Mosaic Communications released the first consumer friendly web-browser "Netscape"—which simplified the ability to view content stored on webpages.[122] In this way (almost at once) the World Wide Web was born.

The E-Government Act of 2002

At the time Clinger-Cohen became law, there were approximately 34 million internet users worldwide.[123] Six years later, by 2002, that number had grown to over 500 million.[124] In the United States 46% of all the households were wired to the internet[125] and 56% of all Americans had visited a government website.[126] With this incredible growth, touching every facet of the economy,[127] the Government rightfully felt compelled to respond. So while the issues of waste, redundancy and multiple contracts for the same IT products were still pungent—the government shifted its attention to the promotion of "electronic government services" for the citizenry.

In a hearing to discuss an appropriate government response to the growth of the internet, the focus was on the need for speedy and efficient government services delivered via the internet.[128] Congressman Jim Turner (D-TX) testified that the government was "wasting time of millions of citizens, who deserve the modern effective government [that] information technology can help us achieve."[129]Mark Everson, the Deputy Director for Management at OMB and Mark Forman, the Associate Director for Information Technology and E-Government at OMB,[130] testified that their goal was to ensure that all government services were available via the internet in "not more than three clicks."[131]

Only scant attention was given to issues of procurement efficiency and waste.[132] Nonetheless, two witnesses sounded warnings.

Linda Koontz from the GAO stated,

> Regardless of approach, we believe that strong and effective central management leadership for information resources and technology is needed in the federal government to address the wide range of IT challenges, which include *but are not limited to e-government*.[133]

The former CIO of the Department of Commerce, Roger Baker was blunt in his assessment of government IT. Baker testified,

> *There is no cohesive strategy*, there are too many points of control, and there is nearly complete lack of standards and processes….at least 25% of agency IT funds are wasted… caused by ad-hoc infrastructure…That's why we need a Federal CIO. We need somebody with the charter to look at Federal Government IT as an *enterprise issue*.[134]

When the E-Government Act (E-Gov) became law in December of 2002,[135] it codified a position that had already been created within OMB: the Administrator of E-Government.[136] The Act's primary concern was ensuring that the Government was well equipped to deal with services delivered to citizens electronically while maintaining mutual privacy and security. (In addition to creating the Administrator role, it codified the existence of the Federal CIO Council, which had been meeting since 1996, under the authority of Executive Order 13011).[137]

OMB Briefly Addresses Waste (2002-2005)

On the heels of the E-Gov Act, from 2002 to 2005, OMB exerted a novel operational tone. In 2002 the Director noticed that in one particular area—"On-Line Rule Making," the government had at least nine systems hosted by multiple agencies attempting to capture the same information.[138] In the words of the Director, "the purpose of the memorandum [was] to advise agency heads of our [*OMB's*] intention to consolidate redundant IT systems relating to the President's on-line rulemaking initiative."[139] It was trivial in terms of dollars, but, a full six years after Clinger-Cohen, it was OMB's the first operational statement to address wasteful IT redundancy.

Later in 2002, the creation of the Department of Homeland Security (DHS) forced an analysis of the IT systems of the previously autonomous agencies now consolidating into one. The Director issued a memorandum halting any planned IT acquisitions in excess of $500,000 and ordered the creation of an IT Investment Council to try to reconcile the various redundant systems in DHS—for the purposes of consolidation.[140]

In January of 2003, the Director announced a plan to move forward with the consolidation of twenty two government payrolls systems to two with the prospect of saving the government $1.2 billion.[141] Most significantly the Director launched a new initiative called "SmartBuy" targeting the

acquisition of commercial software. OMB had finally come to see the commercial software acquisition problem in stark terms (now seven years after Clinger-Cohen). The Director wrote, "The federal government plans to spend more than $58 billion on information technology…[with more than] 4 million desktop, laptop, and networked computers…[an] *uncoordinated approach to acquiring common software is wasteful and ineffective.*"[142]

The Director then designated the GSA to lead an interagency team in negotiating government-wide enterprise licenses for software.[143] Likewise he directed each agency to refrain from entering or renewing any new software licensing agreements pending a review by OMB and the SmartBuy initiative team.[144]

And then it was over.

The Laissez Faire Years—Part 2 (2005-2008)

Just as quickly as OMB had begun to notice the problems of unchecked and uncoordinated acquisition, it fell acutely mute. There is almost nothing of consequence published by OMB on the topic of IT between 2005-2008.[145] The almost complete abandonment of direction and guidance is all the more puzzling because the E-Government Act of 2002 had established an Office of Electronic Government inside of OMB with the Administrator of that office reporting to the Director.[146] So, as more authority and resources coalesced around the Director, OMB produced even less procurement activism or oversight.

Some of this may have been because it was never staffed appropriately. Close to the 10th anniversary of Clinger-Cohen in 2005, Glenn Schlarman, the information policy branch chief in OMB's Office of Information and Regulatory Affairs noted the small size of the organization. He commented that it would be better if they had 20 people instead of 10.[147] Nevertheless, if any work was being done to gain control of IT procurement spending or to shape a centralized vision of IT in general, it was not being published to the agencies via memoranda and remains invisible to this day.

Government by Individual Heroics

This indictment of OMB's lack of activism or coherent strategy for IT oversight does not mean that all parts of the government were unconcerned with waste and duplicity. To the extent that anything proactive occurred, it appeared to be happening on the singular initiative of individual agencies.[148]

In fact, the Department of Defense (DoD) had formed the "Enterprise Software Initiative" (ESI) in 1998 (predating SmartBuy) to consolidate and negotiate software license agreements and believed it had saved $3 billion by 2008.[149] Likewise, the Defense Federal Acquisition Regulation Supplement (DFARS) was revised in October of 2002 to require any buyer of software to first check the ESI website to determine if existing software inventory could fill a requirement.[150] Finally, the work started through the SmartBuy program announced in 2003, had resulted in at least 37 Blanket Purchase Agreements under the GSA Schedule for specific software products by June of 2014.[151]

Unfortunately, compared to the $600 billion that had been spent in the preceding decade, these savings were trivial.[152]

Assessing the Damage

What were the consequences of the laissez faire years? When a GAO assessment was made in 2011 of the duplication and waste of IT investments across the government, the following staggering table was produced:[153]

IT Investment Category	IT Systems Per Category	Total Spending ($millions)
IT Management	1,536	$35,500
Supply Chain Management	777	$3,300
Financial Management	580	$2,700
H.R. Management	622	$2,400
Health	444	$5,000
Administrative	301	$800
Planning and Budget	292	$700
Total	4552	$50,400

Approximately $50 billion had been budgeted in 2011 (alone) to maintain or develop 4,552 different IT systems covering only seven functional categories, suggesting massive government-wide redundancy. Given the rapid acceleration of IT's central role in all forms of commerce, it seemed highly probable that many, if not most of these systems, had proliferated in the 15 years since Clinger-Cohen.[154]

Putting it Back Together: Ad-Hoc Tactics and The Inchoate Quest for Central Control

The Missed Opportunity of S. 946

In retrospect, it's unfortunate that S. 946, with its stronger mandate to manage IT, and its creation of the Federal Chief

Information Officer role, did not make into Clinger-Cohen in 1996. There were some eminently useful centralized functions in S. 946 that could have helped control waste and duplication and perhaps ultimately led to a unifying procurement strategy.

Among other things, the Director of OMB was to Chair the new interagency Federal CIO Council. The function of this council was to "coordinate government-wide multi-agency programs."[155] The thrust of the organization was to find ways to share "common infrastructure services," to include things like common government wide email and to "designate an executive agent to contract" for such services.[156] This was also be going to be supported by the creation of the "Common Use Account"[157] which was a budgetary bucket for IT into which multiple agencies could contribute funds and then deploy without concern of violating the Anti-Deficiency Act[158]or any other fiscal laws. The Director of OMB was to administer this fund.[159]

S. 946 had contemplated a real apparatus for providing leadership with a mandate to find places where purchasing economies of scale could be utilized for IT across the entire government. The leadership role combined with the authority to use "any appropriate action"[160] was a clarion call for the Director of OMB to be a powerful figure—beyond a mere reviewer of budgets. If the Director was suitably motivated (and politically supported), S. 946 gave him the legal power to insist that multiple agencies share the same specific business systems government-wide. He could have also used this power to forcefully bargain with commercial suppliers for best terms on any number of fronts. This was far more authority than the Administrator of GSA enjoyed through the Brooks Act—indeed, it was far more power than anybody had ever had for control of IT acquisition in the Government.

Alas, it was not to be. Instead power had been dissipated and fractured. Disorder was the new normal.

The Obama Era—"Openness" and IT Accountability

When President George W. Bush entered office in 2001, he was the fortuitous beneficiary of historic budget surpluses. When President Barack Obama entered office, eight years later, he was less fortunate. During the Presidential campaign, in the fall of 2008, Lehman Brothers filed its legendary bankruptcy.[161] The next day, the global insurance company AIG received an $80 billion dollar bailout loan, from the U.S. Treasury.[162] Increasingly concerned for a global economic collapse, Congress (almost spontaneously) composed and

passed the Emergency Economic Stabilization Act of 2008 (often called TARP).[163]

In the midst of this great economic uncertainty, Obama became the President.[164] In February, the President signed the American Recovery and Investment Act of 2009 (ARRA) scripting $1.4 trillion in deficit spending for FY'09.[165] Despite compelling economic distractions, the President maintained a commitment to a new level of accountability and transparency.[166]

In March, Obama appointed Vivek Kundra to be the nation's first Federal CIO reporting to the Director of OMB.[167] Kundra immediately harmonized the twin pressures of the mounting budget deficit and the "openness" mandate, with the publication of the Federal IT Dashboard in the summer of 2009.[168]

Kundra explained,

> On my first day on the job…I was handed a portfolio that included $27 Billion in IT projects that were years behind schedule, and over budget. I quickly found that the sheer size of the portfolio often led to a sense of faceless accountability….The IT Dashboard shines a light on these projects, including if they are on schedule and within budget….[169]

Suddenly, openness and accountability were OMB's urgent maxims.

An Outpouring if Initiatives

With the new Federal CIO in place at OMB, the pace of activity related to IT was brisk. Within a few short years the government generated a prodigious amount of directives:

- The IT Dashboard—2009[170]
- President's 25 Point Plan to Reform Information Technology—2010[171]
- Federal Data Center Consolidation Initiative—2010[172]
- Immediate Review of Information Technology Projects—2010[173]
- Information Technology Investment Baseline Management Policy—2010[174]
- TechStat Sessions—2010[175]
- Chief Information Officer Authorities—2011[176]
- PortfolioStat—2012[177]
- Digital Government: Building a 21st Century Platform to Better Serve the American People—2012[178]
- Improving Financial Systems Through Shared Services—2013[179]

Each of these initiatives fell within three broad categories: 1) transparency for accountability, 2) increased review and rationalization, and 3) consolidation.

In brief, the IT Dashboard was an accountability project where the Federal CIO had taken each agency's major IT investments (along with risk assessments and budget performance information) and published the relevant data along with a picture of the CIO who ostensibly owned the IT portfolio.[180] The TechStat sessions were face to face review session with each agency, to inspect specific risky investments to determine how they could be turned around.[181] The PortfolioStat direction was for each agency to find specific systems that could be shared or consolidated with another agency.[182] The Data Center initiative was for each agency to inventory its data-centers and determine a plan for reduction and consolidation.[183] The Chief Information Officer Authorities memoranda was a reminder for the Agencies to include the agency CIO in all budgeting matters related to IT.[184]

Along with these specific plans of action, OMB delivered two large compilations: "*The President's 25 Point Implementation Plan to Reform Federal Information Technology Management*"[185] and "*Digital Government: Building a 21st Century Platform to Better Serve the American People.*"[186]

The ambitious 2010 "25-Point Plan" was the omnibus compendium of all the subsequent memoranda and initiatives. The key promises of the 25-points included:[187]

- Turnaround or terminate at least one-third of underperforming IT projects within 18 months.
- Shift to a Cloud-First Policy—requiring each agency to identify 3 "must move" services to be eventually transferred to the Cloud.
- Reduction of data centers by at least 800 by 2015.
- Only approval for IT programs that had dedicated program management, implemented with modular approach, using specialized IT professionals.
- Collaboration with Congress to 1) consolidate commodity IT funding under Agency CIO's and 2) develop flexible budget models that align with modular development.
- Launch of an interactive platform for pre-RFP collaboration between industry and the government.

The "Digital Government" opus underscored the E-Gov Act ethos while reminding the agencies of President Obama's commitment to "openness." It stated three primary objectives:[188]

- Enable the American People and an increasingly mobile workforce to access high-quality digital government information and services anywhere, anytime, on any device.
- Ensure that as the government adjusts to this new digital world, we seize the opportunity to procure and manage devices, applications, and data in smart, secure and affordable ways.
- Unlock the power of government data to spur innovation across our Nation and improve the quality of services for the American people.

Taken together, this stunning volume of activism ended the previous laissez faire era. Unfortunately, even this progressive tactical assault on IT waste was met with resistance. Progress remained glacial. The GAO was quick to point out that, while there had been some improvements, with some potential for savings, the initial thrust of activity had significantly decelerated and objectives had not been met. As a paper exercise, the achievements had been impressive—but when it came to execution, significant accomplishments were hard to find.

The GAO Speaks—Initiatives Fall Short

In a series of reports released between 2010 and 2014, the GAO had been hopeful that OMB could realize savings through these ambitious initiatives, but no single action had been considered a qualified success.

On the issue of transparency, the IT Dashboard never lived up to its promise as the place where the public and government could review current IT investments and determine how the projects were doing.[189] The GAO testified, in June of 2014, that the dashboard was not accurate, that some agencies had removed major projects, and that the dashboard had not been updated for "fifteen of the previous twenty four months."[190] Furthermore, when GAO reviewed the dashboard in October of 2012, not a single Department of Defense project was identified as being a "high" or "moderately high" risk investment.[191]

On the issue of consolidation, the PortfolioStat exercise failed to drive out duplication by forcing the agencies to conduct annual inventories of their IT assets (with one focus area being software licensing).[192] GAO reported that only two of the

twenty four agencies investigated had any ability to manage their software licensing inventory caused in part, "lack of direction from OMB."[193] Likewise, for the Data Center Consolidation effort OMB was chided for not performing oversight "in all key areas."[194] Furthermore, OMB had originally misrepresented the amount of actual data-centers, under-estimating the total by an astounding 3,967 centers.[195]

On the issue of accountability and rationalizations, the TechStat sessions designed as face-to-face executive sessions to turnaround, halt or terminate specific IT projects proved infrequent, covering only "18.5% of the investments…that had a medium or high-risk CIO rating."[196] When criticized for not continuing the face-to-face reviews at the original pace, the Federal CIO testified that the approach had shifted to a training exercise to enable the agencies to conduct the reviews themselves.[197]

In short, these promising initiatives flowed like water through a sieve gaining little, if any, traction. (To make matters worse, Kundra resigned from his post as the Federal CIO, less than a year after rolling out his ambitious 25-point plan. His replacement Steven VanRoekel also resigned. At the time of this writing, there is no Federal CIO.)[198]

New Efforts—Federal Information Technology Acquisition Reform Act (FITARA)

Congress Increases Oversight

Parallel with the new OMB activism, the House Committee on Oversight and Government Reform began new and aggressive scrutiny of government IT procurement. Between July of 2011 and February of 2013, the Committee held six hearings where the issue of IT waste was discussed. In -the pages and hours of written and oral testimony, there was an inchoate but palatable sense that the government could get IT sprawl under control if it could simply consolidate some of the activity and apply greater pressure toward accountability.[199] All of the hearings added to the dialogue of wasteful IT investments, but the fourth hearing was particularly fierce due to the presence of Senator Tom Coburn. Ostensibly the hearing was an opportunity for the Comptroller General to present the 2012 annual report on Duplicative Programs where 51 areas had been identified for the reduction of "duplication, overlap and fragmentation."[200] Coburn seized the moment to highlight that IT waste was merely a microcosm of the structural problems that caused chronic redundancy government-wide. "Duplication in this country has been created by the ruling

class of career politicians seeking to slap short-term fixes on problems in order to claim credit at home…We spend $38 billion a year on IT of which $20 billion is wasted."[201]

H.R. 1232

In the fall of 2012, (while still conducting Hearings), the House Committee on Oversight and Government Reform introduced H.R. 1232, the Federal Information Technology Reform Act (FITARA).[202] With the accompanying House report, boldly announcing that the "existing framework for IT acquisition and deployment is now 17 years old, a virtual eternity in terms of [IT] evolution,"[203] the Bill raised the hope of addressing some of the issues that had led to massive IT fragmentation. In the draft legislation, the House Committee did not mandate the consolidation of command and control of IT to one body, but it attempted to create "shared centers" where certain IT procurement activities could be potentially consolidated for government-wide use.

The novelty of the HR 1232, in that regard, was the pilot creation of a Common Application Collaboration Center (Collaboration Center) and the permanent creation of Assisted Acquisition Centers of Excellence (AACE). The Collaboration Center was to be one government-wide focal point to "provide technical expertise necessary for coordinated IT acquisition best practices."[204] The AACE's were to be a series of government-wide centers specializing in specific IT topic areas related to IT product categories.[205] The thought was that a specific agency would be appointed to take the lead on certain commercial IT products—for the benefit of the entire government. In both cases these centers were to be available for "optional" support to the entire government. There was no mandate that they be used, but they were available should an agency desire help. In this way, perhaps some consolidation of expertise and best practices could voluntarily occur.

Federal IT Acquisition Reform Act (FITARA)—Codifying the Status Quo

The House passed H.R. 1232 on February 26, 2014.[206] After radical editing by the Senate,[207] the Federal Information Technology Acquisition Reform Act (FITARA) was signed into law by President Obama in December of 2014.[208] A line by line examination of FITARA is beyond the scope of this paper, but, in large measure, FITARA simply codified the already existing tactics memorialized by OMB in its directives between 2009 and 2012.[209] The FITARA that survived lost

some of its key "enterprise oriented" provisions. Specifically, the Collaboration Center pilot and the Assisted Acquisition Centers of Excellence detailed in H.R. 1232 were deleted. Also lost was the mandate for the CIO Council to take the leadership role in the coordination of inter-agency practices.[210] Instead, FITARA focuses on codifying the status quo—attempting to codify the memoranda emanating from OMB since 2009.

FITARA's primary contribution is a granting of accelerated power to civilian agency CIO's who are now required to take a "significant role" in the IT budgeting process.[211] Beyond that, the law provides little novelty and only nominal change.[212]

Reforming IT Reform—It's Time for an Enterprise Strategy

The recent Obama-era OMB initiatives and FITARA are well intentioned, but the fact remains that neither offers an over-arching strategy. One of the main reasons that Clinger-Cohen failed to reign in waste and why all the intervening reform efforts, including FITARA, are likely to have only limited impact, is the absence of an "enterprise" organizational design for IT acquisition and management. There are guidelines, regulations, and initiatives, – but there is no centralized integrated strategy supported by a corresponding organizational structure.[213]

Read in a vacuum, the recent OMB initiatives are hard to criticize. Nonetheless, these well-meaning initiatives are trapped within a dysfunctional structure. "The President's 25 Point Implementation Plan"[214] was not a strategy—it articulated 25 concrete tactics to try to achieve a particular short-term outcome. "Digital Government: Building a 21st Century Platform to Better Serve the American People"[215] addressed the need to ensure that government systems managing public data (as an asset) were designed to maximize the public's ability to use the data. It was a component of a strategy—but at the end of the day, it continues a tradition of tactics. The IT Dashboard, if accurately maintained, is a terrific tool to gain transparency and visibility into the IT spend. But unless the information it provides can be aligned to a strategy, or in other words, unless government officials know what to do with the Dashboard data, it's simply another spigot of random performance information. The muddle endures.

IT Strategy Is Inhibited because Government Is Not an Enterprise

At the core of the strategy vacuum is the oft ignored reality that the government does not operate like a conventional enterprise. Rather, the government "manages" its IT like a holding company with a portfolio of many disparate assets.[216] The current structural approach is to treat the agencies as independent entities with the ability to determine their own IT paths guided by maxims like "Cloud First"[217] with, at best, loosely coupled oversight at the budgetary level from OMB. This approach lacks cohesion and inhibits the ability to develop and exploit best practices. It is ad-hoc structure without strategy at its worst.[218] It also inhibits the ability to develop valued expertise or to deploy any of the various continuous improvement methodologies that have been so useful for certain industries.[219]

The chaotic results are exactly what one would expect from the government's current choice of organizational structure. Imagine Walmart funding individual IT investments to be run independently and in parallel by its Inventory, Finance, Sales, Marketing, and Human Resources departments and then surprised to learn they all chose different software applications and infrastructure to do similar things. Clinger-Cohen inadvertently supported this approach, as have all the intervening initiatives and attempts at reform. All the efforts at reform have stayed within the four walls of the dysfunctional procurement structure, and therefore cannot produce significant improvements.

Centralized command and control lost its appeal with the Brooks Act because there was an impression that GSA's centralized authority was a box-checking exercise that added no value.[220] But, the experience of the Brooks Act should not be dispositive. There was no aligned strategy under the Brooks Act—just as there is no guiding IT strategy now. When it comes to IT, our government needs to stop behaving like a private-equity holding company. The citizenry has much at stake. Our government is for the people, funded by the people, and we have a right to ensure the success of the entire "enterprise" portfolio, not just the rare individual agency or sub-agency that can economically deploy IT. William Cohen's words of 1994 still echo,

> [W]eak oversight…[has] led to the American taxpayers not getting their money's worth [on IT expenditures]. Effective management and control over such a significant portion of the budget is seriously lacking and the federal government's problems with buying computers is widespread.[221]

Roger Baker's precision 2002 assessment still rings true, "*There is no cohesive strategy*, there are too many points of control…caused by ad-hoc infrastructure…We need somebody with the charter to look at Federal Government IT as an *enterprise issue*."[222]

A Glimmer of Hope?

On December 4, 2014 the nation's newest Administrator of the Office of Federal Procurement Policy, Anne Rung,[223] issued a memo calling for, among other things, "enterprise-wide" vendor management.

Relationships with vendors are still managed individually across thousands of procurement units, which makes it challenging for both the acquisition workforce and the vendor community to drive improved outcomes. Mirroring other governments and industry, who manage industry relationships *as a single enterprise*, OFPP will, within 90 days of the date of this memorandum, develop a plan to recruit the Federal Government's first Vendor Manager for top IT commercial contractors.[224]

It's a ray of hope and a promising start. It's also consistent with Congress's inchoate but intuitive desire—to put it all back together—to gain centralized control with the goal of creating an actual IT strategy—an IT strategy that drives an organizational structure for improved outcomes.

Without this first step, to create an enterprise strategy for IT, nothing can change and many years from now we will still be shocked and appalled at the incredible waste that is our current method for managing government IT acquisition. *JCM*

ENDNOTES

1   F. Scott Fitzgerald, The Great Gatsby, 180 (Scribner ed. 2004) (1925).

2    $1 trillion is a conservative estimate. A precise tally is impossible. Senator William Cohen estimated that $200 billion was spent between 1984 and 1994. See Cohen infra note 20 at 1. Representative John Mica estimated that $600 billion was spent between 2003 and 2013. See Wasting Information Technology Dollars, infra note 199 at 4. This $800 billion total covers just 20 of the 50 years described. It also neglects any spending by the 58 independent federal agencies including the Central Intelligence Agency and the Judicial and Legislative branches which are not required to report IT investments. See GAO-14-671T infra note 190 at 5. The official budget for IT in Fiscal Year 2014 was approximately $82 billion. Id. at 1.

3   **Healthcare.gov** was the website mandated by the Patient Protection and Affordable Care Act (Pub. L. 111-148). Upon launch in October 2013, the website failed. For concise chronology see Clint Boulton, **Healthcare.gov**'s Sickly Launch Defined Bad IT Projects in 2013, The CIO Report: WSJ (December 24, 2013) available at **http://blogs.wsj.com/cio/2013/12/24/healthcare-govs-sickly-launch-defined-bad-it-projects-in-2013/**. See generally Steven Brill, Code Red: Obama's Trauma Team, Time Magazine (February 27, 2014). Politics may have impaired **Healthcare.gov**'s development. See "Behind the Curtain of **Healthcare.gov** Rollout, H. Comm. on Oversight and Government," Maj. Staff Report, 113th Cong. (2014).

4   See "Data Centers and the Cloud, Part II: The Federal Government Take on Optimizing New Information Technologies Opportunities to Save Taxpayers Money: Hearing Before the Subcomm. on Government Operations of the Comm. on Oversight and Government Reform House of Representatives," 103 Cong. (2013) at 2.

5   See U.S. Gov't Accountability Office, GAO-11-826, Information Technology: OMB Needs to Improve its Guidance on IT Investments (2011).

6   See U.S. Gov't Accountability Office, GAO-14-413, Federal Software Licenses: Better Management Needed to Achieve Savings Government-Wide (2014).

7   For cyber-security and privacy, see Michael Ian Morrison, "The Acquisition Supply Chain and the Security of Government Information Technology Purchases," 42 Pub. Cont. L. J. 749 (2013); Joshua S. Parker, "Lost in the Cloud: Protecting End-User Privacy in Federal Cloud Computing Contracts," 41 Pub. Cont. L.J. 385 (2012); Jon. W. Burd, "Government Contractor Perspectives on Cybersecurity," 47 Procurement Law. 12 (2012). For software licensing and Intellectual Property Rights see Debra Brubaker Burns, "Titans and Trolls Enter the Open Source Arena," 5 Hastings Sci. & Tech L.J. 33 (2013); Marco Iansiti, "Government IT Procurement Processes and Free Software," 41 Pub. Cont. L.J. 197 (2012); Rebecca K. Livey, "Microsoft Windows Vista: The Beginning Or The End of End-User License Agreements as We Know Them?" 39 St. Mary L.J. 339 (2007). For IT accessibility see M. Christine Fotopulos, "Civil Rights Across Borders: Extraterritorial Application of Information Technology Accessibility Requirements Under Section 508 of the Rehabilitation Act," 36 Pub. Cont. L.J. 95 (2006); Christopher R. Yukins, "Making Federal Information Technology Accessible: A Case Study in Social Policy and Procurement," 33 Pub. Cont. L.J. 667 (2004). Other literature is less easy to classify. For an international comparison between the US IT procurement regime and Canadian, see Katherine M. John, "Information Technology Procurement in the United States and Canada: Reflecting On the Past With an Eye Towards the Future," 48 Procurement Law 4 (2013). For an assessment of the False Claims Act and IT, see Michael J. Davidson, "Applying The False Claims Act to Commercial IT Procurements," 34 Pub. Cont. L.J. 25 (2004). For information technology and Trade Agreements, see Sean P. Bamford, "A Perfect Asymmetry: The Interplay Between The Buy American Act's Information Technology Exception and the Trade Agreements Act," 43 Procurement Law. 1 (2008). For an assessment of the how the Federal Acquisition Regulations inhibit modern software development techniques, see Benjamin J. Balter, "Toward A More Agile Government: The Case For Rebooting Federal IT Procurement," 41 Pub. Cont. L.J. 149 (2011).

8   Pub. L. No. 89-306, codified at 40 U.S.C. §
      759; commonly referred to in the name of its
      principal sponsor Jack Brooks (D-Tex) .

9   Federal Acquisition Streamlining Act of 1994, Pub.
      L. No. 103-355, 108 Stat. 3243 (1994).

10   The Clinger-Cohen Act of 1996 was originally enacted
      as the Information Technology Management Reform
      Act of 1996 (Divisions D and E of P.L. 104-106). The
      law was renamed the Clinger-Cohen Act by Pub. L. 104-
      208, 110 Stat. 3009-393 (1996); 40 U.S.C § 1412.

11   The E-Government Act of 2002, Pub. L.
      107-347, 44 U.S.C. 3601 (2002).

12   H.R. 3979, 113th Cong. Subtitle D—Federal
      Information Technology Acquisition Reform of The
      Carl Levin and Howard P. "Buck" McKeon National
      Defense Act for Fiscal Year 2015 (2014).

13   See Brooks supra note 8.

14   Terms to describe technology have evolved over time
      just as the technology itself continues to evolve. It is
      fair to say that Automated Data Processing (ADP) was
      more closely associated with mainframe technology
      era. The term "Information Technology," may have first
      been coined in 1958, see Harold J. Leavitt and Thomas
      L. Whisler, "Management in the 1980's" Harvard
      Business Review (November 1958) available at **https://
      hbr.org/1958/11/management-in-the-1980s/ar/1**.

15   See Brooks supra note 8 at § 759(a)(1).

16   The Brooks Act was codified in 1965.

17   See Clinger-Cohen supra note 10.

18   The Department of Defense (DoD) was exempt from
      the Brooks Act in relation to information systems
      supporting intelligence activities or cryptology related
      to national security. Additionally, the DoD need not
      interact with the GSA for information technology
      supporting Command and Control or weapon systems.
      The Central Intelligence Agency was also free of GSA
      control, see Brooks Act supra note 8 § 759(3).

19   See generally, Ralph C. Nash & John Cibinic, Determining
      What Constitutes ADPE: Another Congressionally-Mandated
      Boondoggle 7 Nash & Cibinic Rep. ¶ 17 (March 1993).

20   See William S. Cohen, Computer Chaos:
      Billions Wasted Buying Federal Computer
      Systems, (October 12, 1994) at 17.

21   In 1969, you could rent an IBM System 360 for $5,330
      per month or purchase one outright for $253,000, see
      "IBM Archives" available at **http://www-03.ibm.com/ibm/
      history/exhibits/mainframe/mainframe_PP2025.html**.

22   Retrospectively, in 1993, Senator William Cohen believed
      that Congress had been naive in thinking that GSA was well
      suited to the task, in part, because they did not have the
      resources nor the skills, see Cohen supra note 20 at 16.

23   In the mid-1960's there were four dominant mainframe
      companies/products: IBM 360, Burroughs B6500,
      CDC 7600, GE 600. For history of mainframe
      computing, see generally "History of Computing
      Project" available at **http://www.thocp.net/**.

24   IBM staged a marketing event at the Waldorf Astoria in
      New York City. See "IBM Archives" available at **http://www
      03.ibm.com/ibm/history/exhibits/pc25/pc25_birth.html**.

25   Id.

26   See Byte Magazine (Sept. 1985) available at **https://
      archive.org/stream/byte-magazine-1985-09/1985_09_
      BYTE_10-09_Homebrewing#page/n401/mode/2up**.

27   "DOS" stood for Disk Operating System. The outsourcing of
      an operating system to a third party was a break of tradition
      for IBM. The provider of DOS was a diminutive company
      in Seattle called Microsoft. See generally MS-DOS Early
      Source Code available at **http://www.computerhistory.
      org/atchm/microsoft-ms-dos-early-source-code/**.

28   For concise history of "data" with a timeline, see
      generally "A Brief History of Data" available at **http://
      www.chartcube.com/blog/a-brief-history-of-data/**.

29   See Cohen supra note 20 at 1.

30   Harvard economists Dale W. Jorgenson and Kevin J.
      Stiroh noted the acquisition price of computers fell by
      "16.6% annually" between 1990 and 1996, driving an
      enormous upswing in computer investments. "By 1996
      U.S. business spent over $160 billion (in 1992 dollars)
      on new computers and consumers bought an additional
      $52.7 billion." See Dale W. Jorgenson & Kevin J. Stiroh,
      "Information Technology and Growth "(January 1999),
      available at **http://scholar.harvard.edu/jorgenson/data**.

31   Founded by Gideon Gartner, 1979, (NYSE: IT) See
      http://www.gartner.com/technology/about.jsp.

32   Founded by George F. Colony, 1983, (NASDAQ: FORR)
      See **https://www.forrester.com/coverageareas**.

33   The early personal computing days were marked
      by competing operating systems including DOS,
      CPM, OS/2, Windows, multiple versions of UNIX,
      and various Apple products. See generally Michael
      Muchmore, "30 Years of Operating Systems," PCMag
      (Aug. 12, 2011) available at **http://www.pcmag.com/
      article2/0%2c2817%2c2390922%2c00.asp**. There
      was also wide variety in every packaged business
      software category. In word processing alone the market
      included WordStar, WordPerfect, Word, Multimate,
      and XyWrite each with noteworthy market share.
      See generally the history of WordStar available at
      http://wordstar.org/index.php/wordstar-history.

34   Garages were useful; dogs were not mandatory; see
      "HP's Garage Timeline" available at **http://www8.
      hp.com/us/en/hp-information/about-hp/history/hp-
      garage/hp-garage-timeline.html**, see also "Steve Jobs'
      Garage" available at **http://cicorp.com/Apple/garage/**.

35   There was another noteworthy issue with the Brooks
      Act that went beyond GSA's tight procurement grip. The
      Brooks Act was amended in 1984 forcing all disappointed
      bidders for information technology procurements to seek

redress at the Government Services Contract Board of Appeals (GSCBA). The standard of review at the GSCBA was the equivalent of de novo review—where the GSBCA would substitute its own judgment for that of the procuring agency in determining protest outcomes. This allowed for the disappointed bidder to mount the equivalent of a trial. This was different than the standard employed by the Government Accountability Office (GAO) who merely ensured that government deployed a rational basis for its award decision. The mandated path to the GSBCA for protests contributed to a controversy on many fronts. The protest bar, who gained from the ability to put on evidentiary trials, believed that this de novo forum was the appropriate remedy. See George M. Coburn ,The Importance of De Novo Review To An Adequate Bid Protest Remedy, 9 Nash & Cibinic Rep. ¶ 26. See also Larry Smith, New Venue, 15 Of Counsel 20 (July1996) for an overview of the protest venue debate after the Brooks Act was repealed in 1996 and GAO became the consolidated protest forum.

36   William J. Clinton, 42nd President of the United States (January 1993–January 2001).

37   See Cohen supra note 20 at 2.

38   Al Gore, From Red Tape to Results: Creating a Government That Works Better and Costs Less: National Performance Review (1993)

39   A standard ashtray was described, in part, as "A Type 1, glass, sqaure, 4 ½ inch (114.3mm) ash receiver… minimum of four cigarette rests, spaced equidistant around the periphery and aimed at the center of the receiver.." available at **http://www.ibiblio.org/npr/npr-1/npr-1-3.html**.

40   See Gore supra note 38 at Chapter 1, available at **http://govinfo.library.unt.edu/npr/library/ nprrpt/annrpt/redtpe93/24b2.html**

41   Id.

42   See Cohen supra note 20.

43   Id. at 17.

44   Contrary to Gore's decentralization quest and desire for competition for services between the agencies, Cohen believed, "Computer systems acquisition should be overseen from wherever the government can concentrate its computer acquisition expertise— in a reformed GSA, OMB, or a senior management interagency group." See Cohen supra note 20 at 28.

45   Cohen noted, "Only 30 people [at GSA] managing $27 billion a year." Id. at 25.

46   The Brooks Act allowed for rebuffed agencies to take GSA denials to the Office of Management and Budget where it was possible and likely to get an override. Id at 20.

47   See Cohen supra note 20 at 25.

48   Id.

49   Id.

50   "This authority allows…protestors to go on fishing expeditions to identify other areas where the agency may have made a mistake." Id. at 22; see also GSBCA supra note 35. The GAO had also noted that "almost half (44 percent) of all large dollar…information technology acquisitions were protested." See U.S. Gov't Accountability Office, GAO/T-OGC-95-19, Procurement Reform, Opportunities for Change (1995).

51   See Cohen supra note 20 at 24. (emphasis added).

52   See FASA supra note 9.

53   This particular Panel had been authorized in Section 800 of the National Defense Authorization Act for Fiscal Year 1991, Pub. L 101-510. The Panel submitted its report to Congress in January of 1993. Among 335 recommendations was the desire to exempt commercial items from certain regulations and to increase the ability to use simplified methods to procure goods and services below certain monetary thresholds. See U.S. Gov't Accountability Office, NSIAD-94-5 Acquisition Reform (1993).

54   "One of the more important aspects of the Federal Acquisition Streamlining Act is that it enables the government to buy commercial items on commercial terms. Commercial companies [have in the past found] it difficult and costly to do business with the government." See Joseph A. Drelicharz, Highlights of the Federal Acquisition Act of 1994, Lowering Government's Cost of Doing Business, Program Manager (Nov.-Dec. 1994). See generally, Nancy O. Dix, Fernand A. Lavallee, Kimberly C. Welch, "Fear and Loathing of Federal Contracting: Are Commercial Companies Really Afraid to Do Business with the Federal Government? Should They Be?" 33 Pub. Cont. L.J. 5 (2003).

55   See FASA supra note 9 at § 8001–8003; implemented at FAR 2.101.

56   Id.; implemented at FAR Subpart 12.101.

57   The language of FASA in § 8003 gave latitude to the FAR Council to determine which provisions of the FAR would no longer be applicable to "commercial items." When implemented at FAR 12.503, the FAR Council had removed a series of onerous provisions to include: Walsh-Healey Act, Contingent Fees, Drug Free Work Place, Anti-Kickback Act, Truth in Negotiations, and Cost Accounting Standards.

58   See FASA supra note 9 at § 2304c(d) for Armed Services and § 303J(d) for Civilian Agencies; (eventually modified by FAR 16.505(10)(B) in 2009 which allowed for protests where orders were in excess of $10 million, see No Protests infra note 75).

59   See FASA supra note 9 at § 4301; implemented at FAR 2.101 (the original threshold was $2,500; subsequently raised to $3,000 in 2006 (FAC 2005-13)).

60   Both the Armed Services and Civilian Agency language of FASA explicitly stated nothing in FASA should be construed to "modify" or "impair" the Brooks Act; See FASA supra note 9 at § 2304d(d) and at § 303k(b).

61   For the first time in 40 years, Republicans won majorities in both the House and Senate. Brooks lost to a 37 year old Republican—Steve Strockman. See generally, "1994 Elections," available at **http://www.nytimes. com/1994/11/10/us/1994-elections-congress-overview- gop-celebrates-its-sweep-power-clinton-vows.html**.

62   Noted for being a protégé of both Lyndon Johnson and Sam Rayburn, Brooks was the Chairman of the House Government Operations Committee between1975-1988. It is Jack Brooks pictured over Jackie Kennedy's shoulder on Air Force One, as Lyndon Johnson is sworn to office on November 22, 1963. See Brooks Obituary available at **http://www.nytimes.com/2012/12/06/us/politics/jack-brooks-former-texas-congressman-dies-at-89.html?pagewanted=all&_r=0**.

63   See Clinger-Cohen supra note 10.

64   William F. Clinger, Jr., (R-PA) (H. Reps. '79-'93).

65   William S. Cohen (R-ME) (H. Reps. '73-'79; Sen. '79-'97; Sec. Def. '97-'01).

66   "The Director shall promote and be responsible for improving the acquisition, use, and disposal of information technology by the Federal Government to improve the productivity, efficiency, and effectiveness of Federal programs…" See Clinger-Cohen supra note 10 at § 5112(b).

67   The language authorized several possible contracting approaches but in general the head of each agency was authorized to pursue acquisition of information technology, independently, as long as the head did not violate the law. Id. at § 5124(a)(1).

68   Agencies were required to deploy a Capital Planning and Investment Control (CPIC) program to provide for the "selection of information technology investments" which would be integrated into the annual "budget" process to include, "minimum criteria to be applied in considering whether to undertake a particular investment …" Id. at § 5122. In practice this was an exercise where agencies completed detailed annual submittals to OMB called Exhibit 53 and Exhibit 300. Exhibit 53 required each agency to discretely define its entire IT portfolio while Exhibit 300 required a justification for certain "major" IT investments. See generally "Guidance on Exhibits 53 and 300—Information Technology and E-Government" available at **http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/fy14_guidance_on_exhibits_53_and_300.pdf**.

69   See Clinger-Cohen supra note 10 at § 5125.

70   Id. at § 5202.

71   "The Director shall designate (as the Director considers appropriate) one or more heads of executive agencies as executive agent for Government-wide acquisitions of information technology." Id. at § 5112(e). In the immediate aftermath, the clause drew little attention. The Congressional Research Service (CRS) Report, written a full year after Clinger-Cohen, fails to mention the clause exists. See Glenn J. McLoughlin, Information Technology Reform Act of 1996, Congressional Research Service, Library of Congress (1997).

72   The dominant contracts measured by revenue ceiling were Department of Commerce's: COMMITS; GSA's: 8(a)STARS, ANSWER, MILLENIA, MILLENIA LITE; National Institute of Health's: CIO-SP2i, IW2nd, ECS III; National Aeronautics and Space Agency: SEWP III. See AAP infra note 79 at 231-232.

73   See Gore supra note 38.

74   See GSBCA supra notes 35 and 50.

75   This was the concatenated result of the pre-existing FASA based protest limitation on IDIQ's applied to the newly created authority under Clinger-Cohen for certain agencies to enter into GWACs (a form of IDIQs for IT); see FASA supra note 58.

76   The contract holding agencies generally charged the buying agencies a small percentage of the transaction for the service provided. In September 2005 a survey of these fees showed that the GSA typically charged .75% of the transaction while other agencies had fees ranging from .25% to 1%. See Report infra, note 79 at 231.

77   The propensity to waste the resources of others is a well-known (albeit controversial) economic concept re-articulated by Professor Garrett Hardin in 1968. See "Tragedy of the Commons," available at **http://www.garretthardinsociety.org/articles/art_tragedy_of_the_commons.html**.

78   Id.

79   Report of the Acquisition Advisory Panel to the Office of Federal Procurement Policy and the United States Congress (January 2007) at ix (emphasis added). The Panel was authorized by Congress in the National Defense Authorization Act for Fiscal Year 2004. See NDAA at §1423, Pub. L. 108-136 (2003).

80   Five Working Groups were appointed to study laws affecting the following areas: Commercial Practices, Performance Based Contracting, Small Business, Federal Acquisition Workforce, and Interagency Contracting. Id. at ix.

81   See Contracts supra note 72.

82   See IDIQ's supra note 75.

83   The Report noted that 66% of all the transactions ordered against IDIQ's were for single orders in excess of $5 million—worth a total of $63.7 billion. The fact that so much business volume was transacted with minimal transparency and limited competition procedures concerned the Panel. The AAP's key recommendation in this area was to reform the law so that any order against an IDIQ valued in excess of $5 million had fresh procedural requirements that would enhance competition and allow for disappointed bidders to protest. See Report supra note 79 at 10. (Eventually, the Panel's recommendations were codified in two phases: Section 843 of the National Defense Authorization Act for FY 2008, Pub. L. No. 110-181 mandated enhanced competition for orders over $5 million. This required all contractors to receive a fair opportunity to be considered on a prospective order and required the government to provide more disclosure around the requirements and evaluation factors. Additionally it provided the right to a debriefing for disappointed bidders. A year later, Section 863 of the National Defense Authorization Act for FY 2009, Pub. L. No. 110-417, required competition notification for all contractors on an IDIQ, regardless of order size. The implementation of these changes appears in section 16.5 of the FAR; specifically FAR 16.505(10)(B) now allows for GAO protests of orders in excess of $10 million.) The growth in use of multiple-award IDIQ's was a topic of controversy in this era. See Karen D. Thornton, Fine-Tuning Acquisition Reform's Favorite Procurement Vehicle, The Indefinite Delivery Contract, 31

Pub. Cont., L.J. 383 (2002); see also, John A. Howell, Governmentwide Agency Contracts: Vehicle Overcrowding on the Procurement Highway, 27 Pub. Cont. L.J. 395 (1998).

84   See Report supra note 79 at 14.

85   See Roger D. Waldron, Back to the Future: Interagency Contracting Centralized and Managed Through GSA, 43 PROCURE LAW 1 (2008). At the time of the article, Waldron was practicing law at Mayer Brown, in Washington DC. Previously, he had been the Acting Deputy Chief Acquisition Officer at the GSA. At the time of this writing, he is the President of the Coalition for Government Procurement.

86   See FASA supra note 59.

87   See Steven L. Schooner and Neil S. Whiteman, "Purchase Cards and Micro-Purchases: Sacrificing Traditional United States Procurement Policies at the Altar of Efficiency," P.P.L.R. (2000).

88   Id. at § 2.3.

89   Id.

90   Id.

91   Id. at § 4.3.

92   See Cohen supra note 20 at 2.

93   (12.5%/10%) = 1.25%. This number is pure guesswork as it was impossible to track the transactions to the level of detail required. Schooner and Whiteman speculated that purchase card transactions could account for as much as $18 billion for FY 2000. Based on Schooner and Whiteman's conjecture, even if only .25% of the purchase card spend was for software or personal computers it would equate to $450 million ($18 billion * .025) consumed without traceability. See Schooner & Whiteman, supra note 87 at § 2.3; § 4.3.

94   Purchase card usage generated rebates similar to consumer affinity cards. Schooner and Whiteman noted that the Department of Defense had received $20 million in rebated cash during FY 1999 and theorized that based on trend-lines could expect as much as $40 million in FY 2000. Id. at § 4.5.

95   Id.

96   Telephone Interview with Mark Day, Deputy Assistant Commissioner, Federal Acquisition Service, Government Services Administration (Nov 26, 2014).

97   See Clinger-Cohen supra note 10 at § 5112(b). (emphasis added).

98   S. 946, 104th Cong. (1995).

99   See To Facilitate, Encourage, and Provide for Efficient and Effective Acquisition and Use of Modern Information Technology by Executive Agencies; To Establish the Position of Chief Information Officer of the United States in the Office of Management and Budget; To Increase the Responsibility and Public Accountability of the Heads of the Departments and Agencies of the Federal Government for Achieving Substantial Improvements in the Delivery of Services to the Public and in Other Program Activities Through the Use of Modern Information Technology in Support of Agency Missions; And for Other Purposes: Hearing Before the Subcomm. on Oversight of Government Management and The District of Columbia, S. 946, 104th Cong. (1995).

100   "There is established in the Office of Management and Budget an Office of the Chief Information Officer of the United States…appointed by the President." See S. 946 supra note 98 at § 131.

101   Id. at § 122. (emphasis added). The enacted Clinger-Cohen only required the Director to "promote" and "improve acquisition" rather than "develop" and "supervise" all government IT. See Clinger-Cohen supra note 10 at § 5112(e).

102   See S. 946 Hearing supra note 99 at 31 and 243.

103   Id. at 243.

104   Id.

105   Id. at 31.

106   Id at 243.

107   Id at 32 (emphasis added). Koskinen would later get his chance to manage. He was appointed by President Clinton to oversee the Government's response to the Year 2000 computer (Y2K) problem. In 2001, he stated the Y2K problem was the "greatest management challenge the world had faced in the last 50 years." See David M. Abshire, "Triumphs and Tragedies of the Modern Presidency: Seventy-six Case Studies in Presidential Leadership." (2001) at 271. Koskinen is the current Commissioner of the IRS, confirmed in 2013.

108   See S. 946 Hearing supra note 99 at 14 and 32.

109   See S. 946 vs. Clinger-Cohen supra note 101.

110   The Deficit Reduction Act of 1993 (Pub. L. 103-66) had raised top tax rates on high income individuals. This tax increase combined with the **dot.com** IT explosion and the associated capital gains taxes generated by the overheated stock market produced new revenues for the government. For the government budget between 1990 and 2006, see "The Budget Deficit Under Clinton," available at **http://www.factcheck.org/2008/02/the-budget-and-deficit-under-clinton/Factcheck.org**.

111   Id.

112   As part of the budget submission for FY 2000, President Clinton had submitted a budget table that estimated the entire government "outlay" for the year would be $1.76 trillion with an anticipated budget surplus of $117 billion. The actual surplus of $236 billion was almost exactly 100% greater. See "The Budget for Fiscal Year 2000, Historical Tables," available at **http://www.gpo.gov/fdsys/pkg/BUDGET-2000-TAB/pdf/BUDGET-2000-TAB-3-1.pdf**.

113   Koskinen had sounded this warning, see S. 946 Hearing supra note 99 at 243.

114   Koskinen called OMB a policy organization not well suited to operations, Id. at 32.

115   See Budget supra note 112.

116 See Memorandum from the Director of OMB to Heads of Executive Agencies, Implementation of the Information Technology Management Reform Act of 1996, M-96-20, (April 4, 1996); Memorandum from the Director of OMB to Heads of Executive Agencies, Funding Information Systems Investments, M-97-02 (October 25, 1996); Memorandum from the Director of OMB to Heads of Executive Agencies, Multiagency Contracts Under the Information Technology Management Reform Act of 1996, M-97-07 (February 26, 1997); Memorandum from the Director of OMB to Heads of Executive Agencies, Interagency Support for Information Technology, M-97-09 (March 10, 1997); Memorandum from the Director of OMB to Heads of Executive Agencies, Evaluation of Agency Implementation of Capital Planning and Investment Control Processes, M-97-12 (April 25, 1997); Memorandum from the Director of OMB to Heads of Executive Agencies, Information Technology Architectures, M-97-16 (June 18, 1997); Memorandum from the Director of OMB to Heads of Executive Agencies, Comprehensive Plans and Associated Funding Requirements for Achieving Year 2000 Computer Compliance, M-98-14(August 13, 1998); Memorandum from the Director of OMB to Heads of Executive Agencies, Revised Reporting Guidance on Year 200 Efforts, M-99-09 (January 26, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, 2000 Readiness of High Impact Federal Programs, M-99-12 (March 26, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Reporting Continued Progress Addressing the Year 2000 Problem, M-99-15 (April 30, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Minimizing Regulatory and Information Technology Requirements That Could Affect Progress Fixing the Year 2000 Problem, M-99-17 (May 14, 1999); Memorandum from the Director of OMB to Heads of Executive Departments, Privacy Policies on Federal Websites, M-99-18 (June 2, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Security of Federal Automated Information Systems, M-99-20 (June 23, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Revised Reporting Guidance on Year 2000 Efforts, M-99-21 (August 6, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Reporting Y2K Compliance of Non-Mission Critical Systems, M-00-03 (November 10, 1999); Memorandum from the Director of OMB to Heads of Executive Agencies, Privacy Policies and Data Collection on Federal Websites, M-00-13 (June 22, 2000); Memorandum from the Director of OMB to Heads of Executive Agencies, Guidance on Implementing the Government Information Security Reform Act, M-01-08 (January 16, 2001). See "OMB Memoranda" available at **http://www.whitehouse.gov/omb/memoranda_default**.

117 "Y2K" stood for the Year 2000. It was the moniker given to the problem of older IT applications that had been developed with only two bytes available to store year-date information. As the computational world approach the year 2000, it was necessary to have four bytes, so that, for example, the year 1900 could be distinguished from the year 2000. Most of the contemporaneous government websites covering the issue in 1999 are now gone. See generally Christopher R. Yukins, Ross W. Dembling, Richard G. Moore, David S. Black, "The Millennium Bug: The Year 2000 And Federal Contracting," 29 Pub. Cont. L.J. 55 (1999). See also Kathleen Melymuka, "Y2K The Hunt for Global Glitches," CNN Tech, (March 10, 1999) available at **http://www.cnn.com/TECH/computing/9903/10/global-y2k.idg/**.

118 Among the 17 memoranda, there were four addressing the Capital Planning and Investment Control (CPIC) process as required by Clinger-Cohen—(essentially describing the requirements to isolate IT in the annual budgetary submission to OMB). See Early Memoranda supra note 116 at M-96-20, M-97-02, M-97-07, M-97-12; four announcing alerts on security or privacy policies, id. at M-99-18, M-99-20, M-00-13, M-01-08; and seven exhorting the agencies to deal appropriately with the coming Year 2000 (Y2K) problem, id. at M-98-14, M-99-20, M-99-15, M-99-17, M-99-21, M-00-03. Two of the memoranda were not easily classifiable. One was the pro-forma announcement of the creation of three interagency groups—"the Chief Information Officer's Council, the Government Information Technology Services Board, and the Information Technology Resources Board—to advise [the Director] in carrying out," his responsibilities under Clinger-Cohen, (as mandated by Executive Order No. 13011), id. at M-97-09. The last was an intensely dense guide to "Information Technology Architectures" that (at its bottom) advised the agencies it was their responsibility to ensure that their particular agency CIO was responsible for an agency architecture that integrated the agency's "business processes and goals…with IT acquisition." Id. at M-97-16.

119 It is not completely clear why so little direction devolved from OMB. The Y2K problem was widely seized by industry as the compelling event to force the retirement and consolidation of antiquated systems. The Department of Commerce had even predicted the same when it stated one of the industrial economic effects of Y2K would be the "shifting forward [of] new productive software or hardware investments," see "Economics of Y2K and Impact on the United States," Dept. of Commerce (1999) available at **http://www.esa.doc.gov/Reports/economics-y2k-and-impact-united-states**. Perhaps there were less visible activities occurring behind the scenes—not captured in the archived memoranda. For instance, in June of 2001, OMB established the position of Associate Director for Information Technology and E-Government and appointed Mark Forman to lead the effort. (There are no artifacts of this appointment on OMB's website.) Later in 2002, in his testimony in support of the E-Government Act of 2002, Forman stated that significant progress had been made on in the last six months on several government portals and initiative websites. See E-Gov Hearing, infra note 128. By August of 2003, he had resigned. See Darby Patterson, "Washington's E-Gov Ambassador Resigns," GovTech (Aug. 6, 2003) available at **http://www.govtech.com/e-government/Washingtons-E-Gov-Ambassador-Resigns.html**.

120 By 1996, American On-Line was the dominant entry path to the internet with about 10 million users worldwide. See generally Farhad Manjoo, "Jurassic Web, The Internet of 1996 is Almost Unrecognizable Compared With What We Have Today," Slate (February 24, 2009) available at **http://www.slate.com/articles/technology/technology/2009/02/jurassic_web.html**.

121 In the early days, the internet had been the almost exclusive domain of academics and scientists who were sharing remote networked computers and communicating using esoteric protocols. See "World Wide Web" available at **http://webfoundation.org/about/sir-tim-berners-lee/**.

122 See "Internet History" available at **http://www.internethistorypodcast.com/2014/04/on-the-20th-anniversary-an-oral-history-of-netscapes-founding/**.

123 See "Internet Growth" available at **http://www.internetworldstats.com/emarketing.htm**.

124 Id.

125 See E-Gov Hearing infra note 128 at 216.

126 Statement of Patricia McGinniss, President and CEO, Council for Excellence in Government Id. at 229.

127 See Deficit Reduction supra note 112. See generally, Jodi Kantor, A Brand New World in Which Men Ruled, N.Y. Times, December 23, 2014, available at **http://www.nytimes.com/interactive/2014/12/23/us/gender-gaps-stanford-94.html?_r=0**.

128 See, To Enhance the Management and Promotion of Electronic Government Services and Processes by Establishing an Office of Electronic Government within the Office of Management and Budget, and by Establishing a Broad Framework of Measures that Require Using Internet-Based Information Technology to Enhance Citizen Access to Government Information and Services and for Other Purposes, 107th Cong. (2002).

129 Id. at 187.

130 The position had just been created in June of 2001. See OMB supra note 119.

131 See E-Gov Hearing supra note 128 at 190 and 191.

132 Everson and Forman did in fact mention among a long list of "chronic problems," that "Agencies have made unnecessarily duplicative information technology investments." Id. at 193.

133 Id. at 221.

134 Id at 240.

135 The E-Government Act of 2002, Pub. L. 107-347, 44 U.S.C. 3601 (2002).

136 Id. at § 3602.

137 See Federal Information Technology, Executive Order 13011 (July 16, 1996) at § 3.

138 OMB listed the nine different systems and calculated that without consolidation the government would spend $32 million by 2003, See Memorandum from the Director of OMB to Heads of Executive Departments, Redundant Information Systems Relating to On-Line Rulemaking Initiative, M-02-08 (May 6, 2002) available at **http://www.whitehouse.gov/omb/memoranda_default**.

139 Id.

140 See Memorandum from the Director of OMB to Heads of Executive Departments, Reducing Redundant IT Infrastructure Related to Homeland Security, M-02-12 (July 19, 2002) available at **http://www.whitehouse.gov/omb/memoranda_default**.

141 See Memorandum from the Director of OMB to Heads of Executive Departments, Consolidating and Standardizing Federal Civilian Payroll Processing, M-03-05 (January 10, 2003) available at **http://www.whitehouse.gov/omb/memoranda_default**.

142 See Memorandum from the Director of OMB to Heads of Executive Departments, Reducing Cost and Improving Quality in Federal Purchases of Commercial Software, M-03-14(June 2, 2003) available at **http://www.whitehouse.gov/omb/memoranda_default**. (Emphasis added.).

143 Id.

144 Id.

145 It announced a successful SmartBuy contract with Oracle late in fiscal year 2005. See Memorandum from the Director of OMB to Heads of Executive Departments, SmartBuy Agreement with Oracle, M-05-25 (August 25, 2005) available at **http://www.whitehouse.gov/omb/memoranda_default**. There is not a single published memoranda on the topic of IT in 2006. The only memoranda of 2007 pertain to security concerns related to the Windows operating system. See Memorandum from the Director of OMB to Heads of Executive Departments, Ensuring New Acquisitions Include Common Security Configurations, M-07-18 (June 1, 2007) available at **http://www.whitehouse.gov/omb/memoranda_default**. In the final days of the Bush Administration, the Director issues a last memo underscoring the authority that Clinger-Cohen had intended for the individual agency Chief Information Officers. He reminds the agencies that the CIOs have the "ultimate responsibility for the governance, management, and delivery of the IT mission," within the agency. See Memorandum from the Director of OMB to Heads of Executive Departments, Information Technology Management Structure and Governance Framework, M-09-02 (October 21, 2008) available at **http://www.whitehouse.gov/omb/memoranda_default.**. These are the only substantive memoranda on the topic of IT archived on OMB's website for the years 2005-2008.

146 See E-Gov supra note 11 at § 3602.

147 See David Perera, A Decade Ago Clinger-Cohen Brought Reforms, Federal Computer Week, June 20, 2005, available at **http://fcw.com/articles/2005/06/20/a-decade-ago-clingercohen-brought-reforms.aspx**.

148 The Chief Information Officers Council that had been started in 1996 under an Executive Order 13011, and ultimately codified under the E-Government Act, remains a bit of a mystery. Section 3603 of the E-Government Act required CIO's of most executive agencies to meet as the "principal interagency forum for improving agency practices related to design, acquisition…sharing…of Federal Government Information Resources. See E-Gov supra note 11 at § 3603(d). To the extent the Council was active, it has not been well memorialized. The Council has archived only three documents predating 2009. See Federal Chief Information Officer's Council, available at **https://cio.gov/**.

149 See Enterprise Software Initiative History available at **http://www.esi.mil/LandingZone.aspx?id=101&zid=1**.

150 "Departments and agencies shall fulfill requirements for commercial software and related services, such as software maintenance, in accordance with the DoD Enterprise Software Initiative." See DFARS Subpart 208.7402(1) available at **http://www.acq.osd.mil/dpap/dars/dfars/html/current/208_74.htm**.

151 See GSA SmartBuy available at **http://www.gsa.gov/portal/category/25726**.

152 See Wasting Information Technology Dollars Hearing, infra note 199 at 4.

153 See U.S. Gov't Accountability Office, GAO-13-796T, OMB and Agencies Need to More Effectively Implement Major Initiatives to Save Billions of Dollars (2013).

154 Oversight in Clinger-Cohen relied upon OMB's budgetary approval process to control wasteful IT spending. In 2006, GAO reported that of the 29 budget justifications reviewed, post OMB approval, all had weaknesses and were often inadequate. See U.S. Gov't Accountability Office, GAO-06-250, Agencies Need to Improve the Accuracy and Reliability of Investment Information (2006).

155 See S. 946 supra note 98 at §122.

156 Id. at § 153.

157 Id. at § 331-332.

158 In general the Anti-Deficiency Act prohibits agencies from expending funds in a way that exceeds their appropriation from Congress. See 31 U.S.C. 1341.

159 See S. 946 supra note 98 at § 332. Shortly after Clinger-Cohen, President Clinton did in fact create this Council through Executive Order and it was later codified through the E-Government Act. See Executive Order supra note 137. The Council's website only maintains three documents that pre-date 2009. See CIO Council supra note 148.

160 "The Director may take any action that the Director considers appropriate, including an action involving the budgetary process or appropriations management process to enforce accountability for poor performance…" Id. at § 123(f)(1).

161 For a concise history of the mortgage crises that caused the collapse of Lehman Brothers, and others, see Steve Denning, "Lest We Forget: Why We Had a Financial Crises," Forbes (Nov. 22, 2011) available at http://www.forbes.com/sites/stevedenning/2011/11/22/5086/.

162 AIG had pestered the government the entire weekend (Sept. 13-14) for a bailout—and the government had steadfastly refused. After the bankruptcy of Lehman Brothers, the government determined the markets could not withstand another default of such magnitude and agreed to lend $80 billion to AIG in exchange for 79.9% ownership interest in the company. See Mathew Karnitsching, U.S. to Take Over AIG, WSJ (Sept. 16, 2008) available at http://www.wsj.com/articles/SB122156561931242905.

163 The stated goal of the Act was to "restore the liquidity and stability to the financial system." TARP gave incremental authority of the Secretary of the Treasury to spend up to $700 billion on troubled assets. See Emergency Economic Stabilization Act of 2008, Pub. L. 110-343, 12 U.S.C. 5201, (Oct. 3, 2008). The government had moved with lightning speed: Lehman Brothers declared bankruptcy on September 15, AIG was bailed out on September 16, and the TARP legislation was drafted and signed into law on October 3, 2008. For a later efficacy assessment see Allan Sloan, "That Low-Down, No-Good Financial Bailout? Do the Math: It Paid Off Big for Taxpayers," Wash. Post (Jan. 4, 2015) available at http://www.washingtonpost.

com/business/economy/bailout-highly-profitable-for-taxpayers-when-you-look-at-the-right-numbers/2015/01/01/dc2a05a6-8fa5-11e4-a412-4b735edc7175_story.html.

164 The Obama Administration began on January 20, 2009. The economy shed approximately 645,000 jobs a month between November 2008 and April 2009. See Peter Goodman, "U.S. Unemployment Rate Hits 10.2%, Highest in 26 Years," NYT (Nov. 6, 2009), available at http://www.nytimes.com/2009/11/07/business/economy/07jobs.html?_r=0.

165 The Act had the principal prescription to pump up to $840 billion into the economy in order to "preserve and create jobs." See American Recovery and Reinvestment Act of 2009, Pub. L. 111-5. The Act combined with TARP triggered the most significant deficit accumulation since World War II. (The deficits for the period 2009-2012 equaled about 30%-40% more than revenues collected. For historical comparison, in 1942-1945 the government spent 51%-69% more than it collected.) The budget deficit was $1.4 trillion in FY'09, $1.3 trillion in FY'10, $1.3 trillion in FY'11, and $1.1 trillion in FY12. See Historical Whitehouse Budget Tables available at http://www.whitehouse.gov/omb/budget/Historicals.

166 One of his first official acts was to issue a memorandum to the heads of all executive agencies promising to "… establish a system of transparency…to disclose information rapidly in forms that the public can readily find and use." See President Barack Obama, Memorandum for the Heads of Executive Departments and Agencies, Transparency and Open Government, (January 2009) available at http://www.whitehouse.gov/open/about. See also Jennifer LaFleur "Obama Begins Rollback of Bush-Era Secrecy," ProPub (Jan. 21, 2009) available at http://www.propublica.org/article/obama-begins-rollback-of-bush-era-secrecy.

167 The President changed the name of the Administrator of the Office of Electronic Government (residing in OMB, authorized under the E-Government Act of 2002), to the Federal Chief Information Officer. See E-Gov supra note 11. The Administrator role hadn't undergone any legislative change or re-authorization.

168 Kundra used the Exhibit 300's IT investment data submitted by agencies through the CPIC budget process required under Clinger-Cohen. See CPIC supra note 68. The Dashboard was a visual presentation of the status of major IT projects government-wide making it easy to determine which projects were considered risky and how projects were doing against against budget and schedule. Id. At almost the same time as the release of the Dashboard, the Director of OMB issued a memorandum stating, "…our Nations finances are on an unsustainable course, and it is imperative that we restore fiscal responsibility… The bottom line is that we do not have the luxury of simply spending more; we must continually review all spending…" See Memorandum from the Director of OMB to Heads of Executive Departments, Identifying Low-Priority Agency Programs, M-10-20 (June 8, 2010) available at http://www.whitehouse.gov/omb/memoranda_default.

169 See Vikek Kundra, Sunshine, Savings, and Service, available at http://www.whitehouse.gov/blog/2011/03/17/sunshine-savings-and-service.

170 See, IT Dashboard available at https://itdashboard.gov/.

171 See Vivek Kundra, 25 Point Implementation Plan to Reform Federal Information Technology Management, (December 2010), available at **https://www.dhs.gov/ sites/default/files/publications/digital-strategy/25-point-implementation-plan-to-reform-federal-it.pdf**.

172 See Memorandum from the Federal CIO of the United States to Heads of Executive Departments, Federal Data Center Consolidation Initiative, (February 26, 2010) available at **http://www.whitehouse.gov/omb/memoranda_default**.

173 See Memorandum from the Federal CIO of the United States to Heads of Executive Departments, Immediate Review of Information Technology Projects, M-10-31 (July 28, 2010) available at **http://www. whitehouse.gov/omb/memoranda_default**.

174 See Memorandum from the Federal CIO of the United States to Heads of Executive Departments, Information Tehcnology Investment Baseline Management Policy, M-10-27 (June 28, 2010) available at **http://www. whitehouse.gov/omb/memoranda_default**.

175 See Vivek Kundra,"TechStat Improving Government Performance," (February 24, 2010) available at **http://www.whitehouse.gov/blog/2010/02/24/ techstat-improving-government-performance**.

176 See Memorandum from the Director of OMB to Heads of Executive Departments, Chief Information Officer Authorities, M-11-29 (August 8, 2012) available at **http:// www.whitehouse.gov/omb/memoranda_default**.

177 See Memorandum from the Director and the Federal CIO of OMB to Heads of Executive Departments, Implementing PortfolioStat, M-12-10 (March 30, 2012) available at **http://www.whitehouse.gov/omb/memoranda_default**.

178 See Digtial Government: Building a 21st Century Platform to Better Serve the American People" (May 2012) available at **http://www.whitehouse.gov/sites/default/files/omb/ egov/digital-government/digital-government.html**.

179 See Memorandum from the Director of OMB to Heads of Executive Departments, Improving Financial Systems Through Shared Services, M-13-08 (March 25, 2013)) available at **http://www. whitehouse.gov/omb/memoranda_default**.

180 See Dashboard supra note 170.

181 See TechStat supra note 175.

182 See PortfolioStat supra note 177.

183 See Datacenter Consolidation supra note 172.

184 See CIO Authorties supra note 176.

185 See 25 Point Plan supra note 171.

186 See Digital Government supra note 178.

187 See 25 Point Plan supra note 171 at 1.

188 See Digital Government supra note 178 at 2.

189 See Dashboard supra note 170.

190 See U.S. Gov't Accountability Office, GAO-14-671T, Reform Initiatives Can Help Improve Efficiency and Effectiveness (2014) at 11. See also U.S. Gov't Accountability Office, GAO-10-701, OMB's Dashboard Has Increased Transparency and Oversight, But Improvements Needed (2012).

191 As one example the GAO cited that the Defense Enterprise Accounting & Management System (DEAMS) did not appear on the Dashboard despite its troubled history. U.S. Gov't Accountability Office, GAO-13-98, Information Technology Dashboard: Opportunity Exists to Improve Transparency and Oversight of Investment Risk at Select Agencies (2012) at 15. See also GAO-12-565R and GAO-12-134, DoD Financial Management: Reported Status of Department of Defense Enterprise Resource Planning System (2012).

192 See PortfolioStat supra note 177.

193 U.S. Gov't Accountability Office, GAO-14-413, Federal Software Licenses: Better Management Needed to Achieve Significant Savings Government-Wide (2014).

194 U.S. Gov't Accountability Office, GAO-13-378, Data Center Consolidation: Strengthened Oversight Needed to Achieve Cost Savings Goal (2013). See also U.S. Gov't Accountability Office, GAO-13-627T, Data Center Consolidation: Strengthened Oversight Needed to Achieve Cost Savings Goal (2013).

195 In April of 2013, OMB's original estimate accounted for 3,133 data centers. By July of 2013, the number had increased to 7,100. Representative Mica commented that as for consolidation, "it looks like we have gone in reverse." See Data Centers and the Cloud supra note 4 at 73-74.

196 See GAO-13-98 supra note 191 at 15.

197 See Wasting Information Technology Dollars Hearing infra note 199 at 133.

198 Vivek Kundra resigned in August of 2011. Steven VanRoekel resigned in September of 2014.

199 The First hearing focused on the recent advent of the IT Dashboard and the need for continued transparency to root out inefficient spending. See Transparency and Federal Management IT Systems: Hearing Before the Subcomm. on Technology, Information Policy, Intergovernmental Relations and Procurement Reform of the H. **Comm.on** Oversight and Government Reform, 112 Cong. (2011). The Second hearing discussed the level of training and capability of the acquisition workforce and queried whether it was time to develop a specialized cadre just for the procurement of IT. See On Frontlines in Acquisition Workforce's Battle Against Taxpayer Waste: Hearing Before the Subcomm. on Technology, Information Policy, Intergovernmental Relations and Procurement Reform of the H. **Comm.on** Oversight and Government Reform, 112 Cong. (2011). The Third hearing focused on the GAO's report of specific duplicative IT programs in the Department of Defense and the Department of Energy. At this hearing, the Department of Homeland Security (DHS) was praised for their efforts to reduce duplicative IT program spending across the sub-agencies that makeup DHS. The CIO, Richard Spires testified to his enterprise governance model which was to look horizontally across the entire DHS enterprise and create categories of functionality and ensure that only one project provided any particular functionality for the entire enterprise. See How Much is Too Much? Examining

Duplicative IT Investments at DOE and DOD: Hearing Before the Subcomm. on Technology, Information Policy, Intergovernmental Relations and Procurement Reform of the H. Comm.on Oversight and Government Reform, 112 Cong. (2012); The Fourth hearing was dominated by Senator Tom Coburn (R-OK). See Government 2.0: GAO Unveils New Duplicative Program Report: Hearing Before the H. Comm. on Oversight and Government Reform, 112 Cong. (2012); Coburn brought a copy of "Back in Black," self-published the previous summer—wherein he isolated specific actions to save the Treasury $9 trillion. See Tom Coburn, M.D., "Back in Black, A Deficit Reduction Plan," (July 2011). The Fifth hearing was a reiteration of the consistent waste of IT spending across the board. The former CIO of the Patent & Trademark Office testified that the "decentralized nature of IT acquisition across the government has created a culture that is detrimental to performance and efficiency." See Wasting Information Technology Dollars: How Can the Federal Government Reform its IT Investment Strategy? Hearing Before the H. Comm. on Oversight and Government Reform, 112 Cong. (2013) at 79. The Final hearing was an opportunity to discuss the merits of the Committee's new draft Bill: The Federal IT Acquisition Reform Act. See Time to Reform Information Technology Acquisition: The Federal IT Acquisition Reform Act: Hearing Before the H. Comm. on Oversight and Government Reform, 112 Cong. (2013).

200   See Government 2.0 Hearing id. at 13.

201   See Government 2.0 supra note 199 at 78 and 105. Coburn statement of $38 billion was wrong, but he may have been referring to the portion of the IT budget designated to operations and maintenance of legacy systems. The GAO reported that in fiscal year 2014, the operations and maintenance budget was $57.9 billion and the development budget was $17.2 billion. See GAO-14-671T supra note 190 at 5.

202   See H.R. 1232, 113th Cong. (2014).

203   See FITARA House Report (113-359) 113th Cong. at 2.

204   The Director of OMB was to establish a three year pilot "Collaboration Center" project. See HR 1232 supra note 202 at § 11501. The Center was to be staffed by 12 full time program managers and at least one detailee from each executive agency for a period of at least one year. Id.

205   The AACE's were to be designated (or redesigned) every three years by the Director of OMB in consultation with Chief Acquisition Officers Council and the CIO Council. Id. at § 402. The AACE's were to sit inside various executive agencies where they would have specialized acquisition expertise in select IT acquisition topic areas as determined by the Director of OMB. Id. In consideration of the proper placement of the AACE's, the Director was to consider the ability of any particular AACE to "aggregate demand from multiple executive agencies..to acquire innovative or emerging … technologies using various contracting methods…[and] maximize the use of commercial item acquisition." Id.

206   The other notable elements of HR 1232 included: Required "participation" from the CIO in the IT budget process. Id. at § 101. The CIO Council was to be the "lead inter-agency forum for improving agency coordination of practices." Id. at § 102(d). With this new mandated authority, the CIO Council was to "develop cross agency shared services

and shared platforms." Id. The GAO was to "examine the effectiveness" of the CIO council with reports due at specified anniversary dates. Id at § 103. For Data Center Optimization, the Federal CIO was provide agency guidance and required to report to Congress and the relevant Congressional Committees on progress annually. Id. at § 203. Title III required the Director of OMB to devise a plan to create an entire government-wide inventory of software assets with the goal of preventing agencies from re-buying software where unused capacity was still available. Id. at 301. The Director was to compile an IT spending analysis that would inform decisions for future strategic sourcing. Id. The Director was required to do an analysis of government websites to determine which were duplicative or overlapping so that some could be eliminated or consolidated. The CIO Council was to define "policies and guidelines for the adoption of…cloud products and services." Id at § 303. Each executive agency was prohibited from entering into any new government-wide contract prior to submitting a business case which was approved by the Administrator for Federal Procurement Policy. Id. at § 3312. Agencies were to build plans to "support efforts to hire, retain, and train an information technology acquisition cadre of appropriate size and skill." Id. at § 411. Title V called for the Office of Federal Procurement Policy to update the FAR to require agencies to use services and supplies that were classified under the Federal Strategic Sourcing Initiative and in cases where those supplies or services were not used, the agency would be required to document the value of purchasing through another source. Id. at § 501. The Administrator of the GSA was tasked with creation of a new strategic sourcing initiative for the purchase of software to include the possibility of licensing software once—for use across the entire government. Id at § 502. The Director of OMB was tasked with providing more transparency to IT investments with the new mandate to provide visibility into at least 80% of all government-wide IT investments and at least 60% of all the investments in executive agencies. Id at § 505. The Federal Acquisition Regulatory Council was required to "prescribe a regulation making it clear that agency personnel are permitted and encouraged to engage in responsible and constructive exchanges with industry." Id. at § 506.

207   The Senate Committee on Homeland Security and Governmental Affairs reduced the 69 pages of HR 1232 to 32 pages.

208   See FITARA supra note 12.

209   See generally OMB Memoranda supra note 116.

210   See H.R. 1232 supra note 202 at § 102.

211   See FITARA supra note 12 at § 831

212   Codifying the effect of the Federal CIO's IT Dashboard, FITARA requires the Director of OMB to publish a list of "each major information technology investment, without regard to whether the investments are for new information technology acquisitions or for operations…including data on cost, schedule, and performance." Id. at § 832. This does include DoD investments. The CIO of each agency is also required to provide a categorization of each investment according to risk. Id. On a quarterly basis the CIO is required to update risk assessments. Id. The CIO and the Administrator of the Office of Electronic Government (also known as the Federal CIO) are required to conduct a

review to identify the root causes of investments that have been rated as risky for four consecutive quarters. Id. For civilian agencies, if the investment is still rated as high risk, a year after the original risk review, the Director of OMB "shall deny any request for additional development," until there is sufficient capability to deliver the remaining project. Id. Each agency is now required to annually perform an asset management assessment of its IT portfolio with an eye toward looking for places to consolidate and/or share capacity and capability with other agencies. Id. at § 833. This was the PortfolioStat exercise that OMB had mandated in 2012. See PortfolioStat supra at note 177. As for the consolidation of data-centers, FITARA requires that each agency develop a comprehensive inventory of its data-centers along with a multi-year strategy to consolidate. See FITARA supra note 12 at § 834. This was the Data-Center Consolidation Initiative previously requested by OMB in 2010. See Data Center supra note 172. Two things FITARA brings to the government that had not previously been mandated by OMB. To increase the government's expertise in the acquisition of information technology, agencies are directed to update their "acquisition human capital plans" to include a strategy for developing an acquisition cadre specializing in IT. See FITARA supra note 12 at § 835. Additionally, the Administrator of the GSA is directed to develop an approach where software can be licensed at an enterprise level for use anywhere in the government. Id. at § 837.

213 It might be possible to have Gore's notion of internal competition integrated into a strategy if that strategy had ever been codified. Instead the government proceeded without any strategy for internal competition and redundancies blossomed. See Waldron supra note 85.

214 See 25 Point Plan supra note 171.

215 See Digital Gov supra note 178.

216 "The decentralized nature of IT acquisition across the government has created a culture that is detrimental to performance and efficiency. A decentralized organization that has separate and distinct contracting offices embedded within the various operating units across even a single agency is highly inefficient." See Doug Bourgeois, (former CIO of The Patent and Trademark Office), Wasting Information Technology Dollars Hearing supra note 199 at 79.

217 See President's 25 Point Plan supra note 171 at 6.

218 "The organization must have a strategy which links the outside and inside, and that strategy must be continually adjusted to fit the changing environment. Thus the choice of strategy is an essential input to organizational design. Design without purpose and strategy is meaningless…" Richard M. Burton, The Future of Organizational Design: An Interpretative Synthesis in Three Themes, Journal of Organizational Design, JOD 2(1); 42-44 (2013). (emphasis added).

219 American industry has made great strides in the elimination of waste through continuous improvement methodologies. The average car on the road today is twice as old as the average car from the 1970's. JD Power's reports that worst car models today have an average of only .8 problems per new car compared to the 3.3 reported in 1987. See James Surowiecki, Better All The Time, The New Yorker, November 10, 2014 at 81.

220 See Cohen supra note 20.

221 Id. at 1.

222 See Baker supra note 134.

223 Anne E. Rung was confirmed as the Administrator of the Office of Federal Procurement Policy on September 11, 2014. See Jason Miller, "Anne Rung Confirmed as OFPP Administrator" Fed New Radio (Sept. 11, 2014) available at **http://www.federalnewsradio.com/517/3700115/Anne-Rung-confirmed-as-OFPP-administrator**.

224 See Anne E. Rung, Memorandum for Chief Acquisition Officers, Transforming the Marketplace: Simplifying Federal Procurement to Improve Performance, Drive Innovation and Increase Savings (December 4, 2014).