

## Chapter 4

### Crafting A Policy Subsystem: Issues and Evidence Grounded in the Advocacy Coalition Framework

This chapter chronicles the formation, development, and maturation of information resources management (IRM) as a policy subsystem and as a management practice from 1975 to the end of 2002. Federal information policy's self-conscious history spans the latter half of the 20<sup>th</sup> Century and "is based on a set of interrelated laws and guidelines that govern the information transfer process."<sup>197</sup> Information resources management became an object of public policy attention due mainly to efficiency-based reform initiatives, and attempts to "assert democratic (which is to say, political) control over the information bureaucracy and, to a lesser extent, over the information industry itself."<sup>198</sup>

"The history of Federal information policy development," notes Harold C. Relyea of the Library of Congress "predates the functional formation of the Federal government, beginning instead with the Constitution."<sup>199</sup> Indeed, numerous information matters were addressed as the drafters of the Constitution outlined and defined institutional responsibilities.<sup>200</sup> Today's information resources management policies encompass broad-based management policies for information and its management, information technology and its acquisition, information assurance and critical infrastructures, and associated resources. Despite the Constitutional antecedent and its connections to

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<sup>197</sup> Herson, Peter. "Government Information: A Field in Need of Research and Analytical Studies," in McClure, Charles R., Peter Herson, and Harold C. Relyea, eds., *United States Government Information Policies: Views and Perspectives*. Norwood, NJ: Ablex Publishing Corporation, 1989, p. 12.

<sup>198</sup> Garson, *Computer Technology and Social Issues*, p. 290.

<sup>199</sup> Relyea, *Historical Development of Federal Information Policy*, p. 25.

<sup>200</sup> For example, Article I, Section V, "Each house shall keep a journal of its proceedings, and from time to time publish the same . . ." and Article II, Section I, "The President . . . may require the opinion, in writing, of the principal officer in each of the executive departments . . ."

national information policy, information resources management was formally constituted as a policy subsystem and an area of management concern only in the waning moments of 1980.<sup>201</sup>

The story of IRM policy in this chapter is told in three parts, and at several levels of granularity. Section one chronicles the formation of the policy subsystem. Discussing the pre-policy subsystem environment, that is the events prior to 1981, helps in understanding the conditions conducive for policy subsystem formation. Section two, in discussing the nascent policy subsystem from 1981-1996, contributes to understanding policy subsystem maturation. Section three examines the complex events of the mature policy subsystem from 1997-2002, and contributes to understanding the complexity and dynamics of policy subsystems.

In each section of this chapter the research probes deeper into the heart of the policy subsystem, examining policy issues, identifying coalitions and their values, and examining policy change for clues to understanding issue transformation. In a metaphorical sense, and borrowing a term from digital imaging, this is “pixelating policy,” magnifying (increasing the granularity of) portions of the IRM policy subsystem’s evolution until the individual pixels that constitute issue transformation can be seen and studied.

#### 4.1 Formation of a Policy Subsystem: The Pre-Policy Subsystem Environment

Understanding events distant in time from present experience poses the challenge of context setting. One needs to get a feel for the societal conditions that existed at that time, and that contributed to or inspired policy change. Because policy subsystem formation is a complex event, this section escorts the reader back in time, sets a context, and provides a backdrop to enable us to understand the felt need for legislation to deal with the nation’s paperwork problem. Beginning as early as 1960, these events provide a rich tableau of stimuli exerting influence on the composition and focus of the IRM policy subsystem. In constructing a general background, relevant events prior to 1975 are presented without reference to the ACF. However, beginning

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<sup>201</sup> The Paperwork Reduction act of 1980, P.L. 95-511, was signed into law on December 11, 1980 by President Carter.

with the events of 1975 and continuing through the end of 2002, the chronology is structured using the ACF as outlined in the previous chapter (section 3.4.1, pp. 66-70).

Political leadership between the years 1960 and 1975 showed both stability and change. Shown in Table 4.1<sup>202</sup> is a summary of political parties in leadership positions in the legislative and executive branches of the US government; stability was evident as both houses of the Congress remained firmly in the control of the Democratic Party. In fact, Senate Democrats had the same Majority Leader throughout this entire period. There were, however, four Presidents during this time, two Democrats and two Republicans. One President of each party failed to serve out the complete term to which he was elected: President Kennedy was assassinated in 1963, and President Nixon resigned the office in 1974. And while sympathy in the wake of Kennedy’s death is believed to have helped further the Johnson Administration’s legislative agenda, the level of antipathy following Nixon’s resignation may have had a chilling effect on Republican-led initiatives.

U.S. Political Leadership, 1960-1975								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep	Ind.
1961-3	John F. Kennedy	87 <sup>th</sup>	64	36		262	175	
1963-5	John F. Kennedy Lyndon B. Johnson	88 <sup>th</sup>	66	34		258	176	
1965-7	Lyndon B. Johnson	89 <sup>th</sup>	68	32		295	140	
1967-9	Lyndon B. Johnson	90 <sup>th</sup>	64	36		248	187	
1969-71	Richard M. Nixon	91 <sup>st</sup>	57	43		243	192	
1971-3	Richard M. Nixon	92 <sup>nd</sup>	54	44	2	255	180	
1973-5	Richard M. Nixon Gerald R. Ford	93 <sup>rd</sup>	56	42	2	242	192	1

Table 4.1 U.S. Political Leadership, 1960-1975

<sup>202</sup> Composition of the U.S. Congress was drawn from “Political Divisions of the House of Representatives (1789 to Present)” and “Party Divisions in the Senate, 1789 – Present.” Available online at <http://clerk.house.gov> and <http://www.senate.gov>, Art & History Home, respectively. Downloaded December 9, 2003.

Socio-economically, the years 1970 through 1975 brought substantial but not always pleasant change; both the U.S. economy and the society were undergoing significant adjustments. Several indicators provide evidence and underscore the point. Shown in Table 4.2, for example, the United States' Gross Domestic Product rose 57% - \$1,039.7 billion in 1970 to \$1,635.2 billion in 1975.<sup>203</sup> The median U.S. family income rose 2.1% - \$38,954 in 1970 to \$39,784 in 1975.<sup>204</sup> However, during that same time period, the consumer price index rose 39% - 38.8 in 1970 to 53.8 in 1975,<sup>205</sup> and the unemployment rate rose 73% - 4.9% in 1970 to 8.5% in 1975.<sup>206</sup> Mortgage interest rates, an indicator anecdotally said to depict a clearer picture of the economy, also rose during this period. Historical rates of 30-year conventional mortgages show an interest rate of 7.73 % in April 1971, a spike to 10.02% in September 1974, and a

<b>Selected Socio-Economic Indicators, 1970-1975</b>		
	1970	1975
US Gross Domestic Product (billions)	\$1,039.7	\$1,635.2
Median US Family Income	\$38,954	\$39,784
Annual Average Consumer Price Index	38.8	53.8
Annual Unemployment Rate	4.9%	8.5%
Mortgage Interest Rates -- on Jan 1 and Dec 31 -- and the high for the year	7.33 - 7.48% 7.73% (1971)	9.60 - 9.09% 9.60%

Table 4.2 Selected Socio-Economic Indicators, 1970-1975

<sup>203</sup> These were "current year," dollar figures. See U.S. Department of Commerce, Bureau of Economic Analysis, available online at <http://www.bea.doc.gov/bea/dn/gdplev.xls>. Downloaded December 9, 2003.

<sup>204</sup> Medial US Family Income statistics are drawn from the U.S. Census Bureau's Current Population Survey, Historical Income Tables, Table F-23, *Families by Total Money Income, Race, and Hispanic Origin of Householder*. Income is reported in 2001 CPI-U-RS 28/ adjusted dollars. Available online at <http://www.census.gov/hhes/income/histinc/f23.html>. Downloaded December 9, 2003; URL reference updated August 4, 2004.

<sup>205</sup> U.S. Department of Labor, Bureau of Labor Statistics. *Consumer Price Index*. Available online at <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiat.txt>. In this series, 1982-84 = 100. Downloaded December 9, 2003.

<sup>206</sup> U.S. Department of Labor, Bureau of Labor Statistics. *Historical Household Data*, Table A-1: Employment Status of the Civilian Non-Industrial Population 16 Years and Over, 1969 to Date. Available online at <ftp://ftp.bls.gov/pub/suppl/empsit.cpseea1.txt>. Downloaded December 9, 2003.

retreat to 9.09% by the end of 1975.<sup>207</sup> The Cold War provided a persistent and ominous backdrop of international tensions. However, it was the hot war in Vietnam, the wrenching domestic social upheaval, and the almost daily revelation of scandals inside and outside government that increasingly captured the news cycle, a cycle progressively more dominated by television. Many significant events, however, escaped the attention of the “small screen.”

Business was booming in the computing and telecommunications sectors; new products and capabilities were being developed for business and government customers eager to integrate these innovations into their processes and programs.<sup>208</sup> In 1960 the Digital Equipment Corporation introduced its PDP-1, the first commercial mini-computer to use a keyboard and monitor. By 1962, Purdue University expressed its interest in computers as an academic field of study by founding the first formal computer science department. In 1964, the same year the Beatles appeared on the Ed Sullivan Show, Paul Baran of RAND published his seminal paper on packet-switching networks that have no single outage point.

By 1965, IBM Corporation introduced its first integrated circuit-based computer, the very popular model 360. The Department of Defense’s Advanced Research Projects Agency continued to push the leading edge of technology, sponsoring a study of a “cooperative network of time-sharing computers.” In 1966 engineers at ITT demonstrated a method of transmitting data using optical pulses to code binary data and glass fibers as the conductors. The year 1969 witnessed several debuts: Sesame Street, automatic teller machines (ATMs), and barcode scanners. The ARPANET was commissioned by the Department of Defense for research into networking, and Alan Kay wrote his doctoral thesis describing a hypothetical “personal computer.”

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<sup>207</sup> Federal Reserve Bank of Chicago. “Consumer Information: Frequently Asked Questions.” Available online at [http://www.chicagofed.org/consumerinformation/faqs/economic\\_data.cfm](http://www.chicagofed.org/consumerinformation/faqs/economic_data.cfm). Information is contained in the Interest and Credit section. Historical interest rates, from Federal Home Mortgage Corporation data, are weekly averages beginning April 2, 1971. Downloaded December 9, 2003.

<sup>208</sup> The events chronicled in this section were drawn from: Brunner, Borgna, ed. *Time Almanac 2001 with Information Please*. Boston, MA: Family Education Company, 2000, pp. 584 and 692-695; Wright, John W., ed. *The New York Times 2001 Almanac*. New York, NY: Penguin Reference Books, 2000, pp. 80-83, 787-788, and 797-798.; and Zakon, Robert H., “Hobbes’ Internet Timeline v5.4.” Available online at <http://www.zakon.org/robert/internet/timeline>. Downloaded October 23, 2002.

As computing and communications technologies became mainstream tools of businesses and governments, they also became more relevant to the individual. In 1970, Lexitron introduced the first word processor; floppy disks were introduced for data storage, and the first cross-country ARPANET link was established. In 1972 Atari announced the arcade game PONG - probably the first commercially available computer game - starting the revolution in adolescent entertainment. In an effort to provide researchers on the ARPANET with useful tools, Larry Roberts wrote the first electronic program to read, file, forward, and respond to electronic mail messages.

While the Paris Peace Accords of 1973 officially ended the Vietnam War, they did little to stem the domestic political turmoil in the US. The White House was implicated in the Watergate cover-up, Vice President Spiro Agnew resigned over charges of tax fraud, and Gerald Ford became Vice President. Gasoline prices skyrocketed, and Israel fought a war beginning on Yom Kippur, the 4<sup>th</sup> Arab-Israeli war. IBM introduced the “Winchester” disk drive; a “bit-mapped” monitor capable of high-resolution graphics was developed; and Xerox Corporation began marketing the first hand-held “mouse.” Intel introduced the 8080 processor, and the first international ARPANET connection was established. The following year, networking researchers Vint Cerf and Bob Kahn specified the design of a transmission control program, the forerunner of the Internet’s TCP/IP protocol set. Telenet, the first public packet data service was initiated.

Issues, some of which were to become central to the IRM policy subsystem, were already surfacing. Visibility of these issues was due to several factors: privacy and accessibility of information were visible due to domestic upheaval, government’s reaction to civil disobedience, and the promise of computer technology; paperwork had been a “crabgrass” issue since at least the mid 1940’s; and the proliferation of computing and its hidden costs made IT acquisition an efficiency concern of the 1960’s. Information and information technology figured prominently in these early policy discussions.

In 1961 the Bureau of the Budget (BoB) commissioned a study to investigate the feasibility of centralizing and computerizing the many personal records residing in individual agencies. The Committee on the Preservation and Use of Economic Data of

the Social Science Research Council, headed by Professor Richard Ruggles of Yale University, recommended in its 1965 report that the BoB immediately establish a Federal Data Center. Two subsequent reports, one by Edgar S. Dunn of Resources for the Future, Inc., and the other by Carl Kaysen of the Institute for Advanced Study at Princeton, seconded and expanded on the Ruggles report.

While providing more complete and comprehensive information for policymaking, the Federal Data Center concept raised questions about the potential to intrude on the privacy of citizens. As articulated in hearings before the Senate, “The right to privacy is, therefore a positive claim to a status of personal dignity - a claim for freedom, if you will, but freedom of a very special kind. . . . The claim to privacy will always be embattled - its collision with the community’s need to know is classic and continuous. Man has always lived in a community, and the community has always required some forfeiture of freedom, including that of privacy.”<sup>209</sup> Those hearings were intended to explore guidelines for safeguarding existing records and the records in future computerized databases, hoping to draw a balance between individual privacy and computer efficiency.

As an issue, privacy is associated with the concern over security. Researcher Harry Katzan, exploring the linkage between privacy and security, noted a “seemingly universal tendency of individuals to invade the privacy of others and society to engage in surveillance to enforce its norms.” Individuals are curious, engage in gossip, desire explanations, and find vicarious experiences hard to resist. “At the societal level, socially approved methods of surveillance are used by authoritative agencies to protect the rules and customs of that society.”<sup>210</sup> The lack of control over the computerized dossier made privacy a concern, and security a necessity.

Meanwhile, in early 1966, against a backdrop of civil unrest and protest of the Administration’s military policies, the House Government Operations Committee created a Special Subcommittee on Invasion of Privacy to study the potential erosion of the citizen’s right to privacy resulting from the National Data Bank concept. Citing a

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<sup>209</sup> Ruebhausen, Oscar M., and Orville G. Grim, Jr. “Privacy and Behavioral Research.” Reprinted in Congress, Senate. *Computer Privacy*. Committee on Governmental Affairs, 90<sup>th</sup> Cong., 1<sup>st</sup> sess., 1967, pp. 204-213.

<sup>210</sup> Katzan, Harry, Jr. *Computer Data Security*. New York, NY: Van Nostrand Reinhold, 1973.

threat to constitutional guarantees, the committee recommended that in implementing any data center concept, the priority of privacy must be asserted. It also noted that such massive information collections might tip the balance of power in favor of the executive, and that to redress such an imbalance, Congress must also have counterbalancing data center access. The major argument posed against this concept was that such a centralized dossier-based databank might make Americans fearful that their spontaneous statements or acts could permanently ruin their records. To address this fear, individual citizens would require access to the material in their own files in order to know the content of those files and to correct errors, thus ensuring the Constitutional right to confront.<sup>211</sup> In arguing for the status quo position, Representative Frank Horton (D-NY) noted that the existing system served a pragmatic purpose. “One of the most practical of our present safeguards of privacy is the fragmented nature of the present system. It is scattered in little bits and pieces across the geography and years of our life. Retrieval is impractical and often impossible. A central data bank removes completely this safeguard.”<sup>212</sup>

These efforts resulted in establishing, as policy, the presumption that official records and information in the possession of Executive Branch agencies and departments are accessible to the public. The Freedom of Information Act (FOIA) of 1966<sup>213</sup> set standards for determining which records must be made available for public inspection or released to a party that requests access, and which records may be withheld. These accessibility requirements were a far cry from previous practices, whereby the agency originating the records could impose restrictions on their use or examination.<sup>214</sup> The Freedom of Information Act guaranteed the right of citizens to request and receive government information. Each Federal department and agency was required to establish a FOIA process for providing information responding to citizens' requests.

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<sup>211</sup> Congress, House. *Privacy and the National Data Bank Concept*. Committee on Government Operations, 90<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1968, pp. 1-19.

<sup>212</sup> Congress, House. *The Computer and Invasion of Privacy*. Committee on government Operations, 89<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1966.

<sup>213</sup> Public Law 89-487, 1966, codified as 5 U.S.C. 552.

<sup>214</sup> Congress, Senate. *Computer Privacy*. Committee on Governmental Affairs. 90<sup>th</sup> Cong., 1<sup>st</sup> sess., 1967, pp. 129-132.

Records and information as a policy concern is viewed in this study as encompassing both the form and the content of information. Past reforms, however, focused on the physical nature of records rather than their informational content. Under those circumstances, it is understandable that records and paperwork were considered as nearly synonymous challenges, and were frequently confused. As used here, the term “records and information” describes the information resulting from governance, including the decisions and actions of government, the efforts to inform the public by disseminating information, and the actions involved in preserving records of government activities. As one might imagine, there is a close relationship between the concern for records and information and concerns over paperwork and management reform, as well as a close associations with the concern over privacy and security.

In 1947 the first Commission on Organization of the Executive Branch of the Government,<sup>215</sup> the so-called First Hoover Commission, was established to examine key challenges of a rapidly expanding bureaucracy conducting vastly increased governmental functions. The Republicans had captured the Congress in 1946 -- their first majority since 1930 -- and despite a Democratic president, pushed their reform-oriented agenda to focus the Hoover Commission's work in five areas: "(1) find ways to cut government costs; (2) eliminate duplication and overlap; (3) consolidate similar functions; (4) abolish unnecessary functions; and (5) define and limit executive branch activities."<sup>216</sup> Paperwork reduction initiatives were a fundamental part of the Commission's study. Earlier paperwork reduction efforts notwithstanding, Congress passed the Federal Records Act of 1950 establishing a Federal records management system and creating the National Archives within the General Services Administration. This legislation was designed to reform and streamline management practices related to governmental records and information within agencies.

Meanwhile, a Second Hoover Commission was established in 1953 to deal with policy issues, issues that had been specifically avoided by the First Hoover

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<sup>215</sup> Public Law 80-162 created the first “Commission on Organization of the Executive Branch of the Government” in 1947.

<sup>216</sup> Chandler and Plano. *Public Administration Dictionary*, p. 193.

Commission as being too controversial to address at that time.<sup>217</sup> Unfortunately, neither the Hoover Commissions nor the provisions of the Federal Records Act of 1950 could provide an adequate policy base for managing information or stem the paperwork buildup. The Paperwork Management Task Force reported in 1955 that there were more than 24 million cubic feet of Federal agency records stored at an annual cost of more than \$4 billion.<sup>218</sup> Savings of more than \$100 million, the Task Force estimated, could easily be achieved simply by eliminating duplicate information collections.

Information technology acquisition, focusing on the means by which the federal government acquires computing and associated capabilities, was a well-documented policy concern dating back to the late 1950's. The process of acquiring computing capabilities, called 'automatic data processing' or ADP, was such a visible and expensive management challenge that between 1959 and 1965, the General Accounting Office issued approximately 100 audit reports revealing serious shortcomings in the acquisition and use of ADP. The GAO also submitted comprehensive ADP management studies to Congress in 1958, 1960, 1963, and 1964. Independently the Bureau of the Budget conducted two comprehensive ADP management studies.<sup>219</sup>

In contemplating a proposed legislative remedy, a 1965 hearing by the House Committee on Government Operations revealed that the U.S. Federal government was the largest user of ADP in the world, with an estimated 2000 computers and "with annual expenditures exceeding \$3 billion or approximately 3 percent of the Federal budget."<sup>220</sup> The resolution under scrutiny, H.R. 4845, sponsored by Representative Jack Brooks (D-TX), was intended to delineate responsibilities among the Bureau of

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<sup>217</sup> Ibid., p. 194.

<sup>218</sup> Commission on Organization of the Executive Branch of Government. *Paperwork Management: A Report to Congress, Part I*. Washington, DC: U.S. Government Printing Office, 1955. p. 2.

<sup>219</sup> Congress, House. "Report of Findings and Recommendations Resulting From the Automatic Data Processing (ADP) Responsibilities Study, September 1958 – June 1959." Bureau of the Budget, p. 20. Reprinted in *Hearings on H.R. 4845*. Committee on Government Operations, 89<sup>th</sup> Cong., 1<sup>st</sup> sess., 1965, p. 590.

<sup>220</sup> Congress, House. *Amending Title I of the Federal Property and Administrative Services Act of 1949 to Provide for the Economic and Efficient Purchase, Lease, Maintenance, Operation, and Utilization of Automatic Data Processing Equipment by Federal Departments and Agencies*. Committee on Government Operations, 89<sup>th</sup> Cong., 1<sup>st</sup> sess., 1965, p. 3.

the Budget (BoB), the General Services Administration (GSA), and the Department of Commerce for government-wide ADP management, effective utilization, and economic acquisition.

Under this bill, the BoB would retain its traditional fiscal and policy roles, GSA would be delegated operational responsibilities like coordinating ADP purchases through a 'revolving fund,' and Commerce's National Bureau of Standards would provide technical support and work toward ADP compatibility. Setting the stage for future interagency and congressional wrangling, this bill contained a provision extending GSA's authority over general purpose computer systems to include those used for unique scientific, cryptologic, or military applications, exempting only computing components in tactical weapons or space systems from GSA policies for acquisition, inventory, control, and possible secondary usage.

In 1965 the Federal Property and Administrative Services Act of 1949 was amended to "provide for the economic and efficient purchase, lease, maintenance, operation, and utilization of automatic data processing equipment by Federal departments and agencies."<sup>221</sup> This legislation, called the "Brooks Act" in honor of its sponsor and chief advocate, refocused attention on the costs of and processes for acquiring information handling technologies. Congress designated the General Services Administration as the Federal government's central organization to "coordinate and provide for economic and efficient purchase, lease and acquisition of ADP equipment"<sup>222</sup> on behalf of Federal agencies. This legislation outlined policies for acquiring and managing data processing equipment and assigned policy and oversight functions to various departments and bureaus.

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<sup>221</sup> Public Law 89-306, 1965. Section 111 of the Federal Property and Administrative Services Act of 1949, codified as 40 U.S.C. 759.

<sup>222</sup> Ibid.

#### 4.1.1 It's The Economy: External Environment 1975-1980

“The years 1975-76 gave America a significant respite from the high political temperature of the previous several years. With Richard Nixon gone and the Vietnam War over, the two great issues that had convulsed the country for so long were gone. President Ford, with his low-key personality and moderate political stance, had a calming effect on the nation as well.”<sup>223</sup> Internationally, U.S. and Soviet astronauts linked up in space for a 2-day international mission, and the US joined 33 other countries in affirming the importance of human rights by signing the Helsinki Accords.<sup>224</sup> But while reassuring the nation, President Ford was the target of two assassination attempts in California in 17 days. Back in Washington, the Senate detailed 238 illegal FBI burglaries against dissident groups, and the administration filed suit against six cigarette manufacturers for inadequate display of health warnings.

U.S. Political Leadership, 1975-1980								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep.	Ind.
1975-76	Gerald R. Ford	94 <sup>th</sup>	60	40		291	144	
1977-78	Jimmy Carter	95 <sup>th</sup>	61	39		292	143	
1979-80	Jimmy Carter	96 <sup>th</sup>	58	42		277	158	

Table 4.3 U.S. Political Leadership, 1975-1980<sup>225</sup>

“Public concern over national productivity was the wedge which brought information policy to the forefront of the public policy agenda.”<sup>226</sup> As can be seen from

<sup>223</sup> \_\_\_\_\_ . *Politics in America, 1960-1978*. Washington, DC: Congressional Quarterly, Inc., 1979, p. 51.

<sup>224</sup> Daniel, Clifton, ed. *20<sup>th</sup> Century Day By Day*. New York, NY: Dorling Kindersley, 2000. External events from January 1975 through December 1999 in this chronology, unless otherwise noted, are drawn from this compilation of key 20<sup>th</sup> century events. Only direct quotes will be further footnoted.

<sup>225</sup> Sources for the data in Table 4.3 can be found in note 202.

<sup>226</sup> Garson, *Computer Technology and Social Issues*, p. 292.

the data in Table 4.3, there was reason for that concern. Growth in the median family income flattened at the same time inflation sapped purchasing power. The rise in mortgage interest rates threatened the middle class dream of home ownership, and this disappointing economic picture played out, affecting individuals, businesses, and governments.

In 1975, as New York City faced bankruptcy, President Ford vowed to veto any bailout measure. And as the election year neared, Ronald Reagan announced his candidacy for president. The U.S. automobile industry was having one of the worst years of its existence, its slumping sales blamed on overproduction of smaller cars in the wake of the previous year’s gasoline shortages. By the end of January, 1975, over 200,000 auto workers had been laid off.

Against the economic backdrop portrayed in Table 4.4. an unending stream of events captured headlines and captivated the public’s attention. A new movie, “Jaws,” frightened and delighted moviegoers, the product of a largely unknown and untested director named Steven Spielberg. Saigon fell to the North Vietnamese and was immediately renamed Ho Chi Minh City. A “research ship,” the Glomar Explorer built by Howard Hughes (for the CIA), recovered about one-third of a Soviet ballistic

<b>Selected Socio-Economic Indicators, 1976-1980</b>					
	1976	1977	1978	1979	1980
US Gross Domestic Product (billions)	\$1,823.9	\$2,031.4	\$2,295.9	\$2,566.4	\$2,795.6
Median US Family Income	\$41,023	\$41,271	\$43,601	\$44,255	\$42,776
Annual Average Consumer Price Index	56.9	60.6	65.2	72.6	82.4
Annual Unemployment Rate	7.7%	7.1%	6.1%	5.8%	7.1%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	9.1 - 8.78% 9.10%	8.7 - 9.0% 9.00%	9.0 - 10.38% 10.38%	10.38 - 12.9% 12.90%	12.85-14.95% 15.40%

Table 4.4 Selected Socio-Economic Indicators, 1976-1980<sup>227</sup>

<sup>227</sup> Sources for data in Table 4.4 can be found in notes 203-207.

missile submarine from the Pacific Ocean floor. A Federal District Court judge ordered bussing in Boston's public schools to achieve racial balance, and Egypt reopened the Suez Canal.

"By the time Jimmy Carter took the oath as president in January 1977, America's confidence had been shaken by almost a decade and a half of violence and scandal. The country had in effect lost its first war; had gone through a series of political assassinations and its first case of presidential resignation; had been besieged by urban, campus and racial violence; and had experienced the strains of an energy crisis and rampant inflation."<sup>228</sup> America was changing in many ways. Between 1970 and 1977, "the number of adults under 35 living alone had more than doubled," a trend attributed to "a new wariness of marriage, easier credit, and more career opportunities for women."<sup>229</sup> While the Arab countries had ended their oil embargo, prices remained high, and President Carter declared war on Americans' "wasteful" use of fuels. Opening the Trans-Alaska pipeline signaled some relief, but the nation remained heavily dependent upon foreign oil and nuclear power. Meanwhile, farmers drove their tractors down the wintry streets of Washington D.C., Atlanta, Denver, Topeka and more than 30 other state capitals to protest grave economic conditions in agriculture.

The following spring (1978), President Carter bowed to Congressional pressure and proposed Federal aid to the nation's farmers, averting a promised strike. California's Proposition Thirteen signaled a "taxpayer's revolt." And while babies in the Love Canal region of Niagara Falls, New York suffered unusually high rates of birth defects, the first "test tube" baby was born to a British couple. Israel and Egypt signed the "Camp David Accords" while a radical Islamic fundamentalist, Ayatollah Khomeini, was expelled from Iraq.

In January 1979 the Shah was forced to leave Iran and Ayatollah Khomeini replaced the Iranian monarchy with a fundamentalist Islamic theocracy. Anti-nuclear fears were realized when a cooling system failure at the Three Mile Island nuclear generating plant in Pennsylvania threatened the possibility of a core meltdown. Despite this accident, President Carter defended both the industry and the country's

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<sup>228</sup> *Politics in America, 1960-1978*, p. 1.

<sup>229</sup> Daniel, *20<sup>th</sup> Century Day by Day*, p. 1222.

nuclear power program. Chrysler Corporation was also nearing meltdown, said Chrysler President Lee Iacocca, justifying his request for \$1 billion in Federal cash loans to keep the company afloat for the next 18 months. In late fall, Iranian students seized the US Embassy in Tehran and took 66 Americans hostage.

Reacting to the Soviet Union's late December invasion of Afghanistan, President Carter threatened to withdraw from the upcoming 1980 Summer Olympic Games scheduled to be held in Moscow. The attempted rescue of the American hostages in Tehran collapsed when two of the rescue aircraft collided, killing eight American servicemen. Mount Saint Helens, dormant since 1857, erupted, blowing out the side of the mountain and sending up a 60,000 foot ash plume. Ronald Reagan and President Carter won their respective parties' Presidential nominations, and the United States, joined by West Germany and Japan, boycotted the 1980 Summer Olympic games. That fall, the shipyards of Gdansk, Poland became the international flashpoint as union leaders gained substantial concessions and freedoms from the Polish government. And while Poland was liberalizing, Ronald Reagan was elected U.S. president; both events provided indications of the beginning global shift toward market-based reform policies in very different, and globally dispersed national governments.<sup>230</sup>

On the technology scene and far from Washington, researchers at Xerox's Palo Alto Research Center (PARC) were field-testing Gypsy. Not only was Gypsy one of the first "word processing" computer applications, it also pioneered the notion of WYSIWYG<sup>231</sup>, "what you see is what you get," a way to create computer files by literally viewing the content of the file as it is being created. And Gypsy ran on a PARC-developed Alto personal computer.<sup>232</sup>

During 1975, Bill Gates and Paul Allen founded Micro-Soft (the hyphen would be later dropped), and Gordon Moore revised his 1965 prediction, known as Moore's law,

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<sup>230</sup> Kettl, Donald. *The Global Public Management Revolution*. Washington, DC: Brookings Press, 2000, p. 1.

<sup>231</sup> The acronym is pronounced "whizzy-whig."

<sup>232</sup> Polsson, Kenneth. *A Chronology of Personal Computers*. Copyright by author, 1995-2003. Available online at <http://www.islandnet.com/~kpolsson/comphist/>. Downloaded May 10, 2003. Unless otherwise noted, Polsson's historical chronology is used to document the rise of personal computing and its associated technologies. His event-oriented view of key personalities, components, and technologies, drawn primarily from the trade press, provides insights unavailable in other literature sources.

to state that transistor density doubles every 18 months (vice every 12 months), accurately predicting the growth trajectory of computing power for more than three and one-half decades. Digital Equipment Corporation introduced the LSI-11, the first microcomputer to use a 16-bit architecture. Operational management of the fledgling “Internet” was transferred to the Department of Defense’s Defense Communications Agency. The Internet’s first “all-inclusive email program, with replying, forwarding, and filing capabilities” was developed by John Vittal.<sup>233</sup>

Computer specialists and managers of the late 1970s lived separate institutional lives. Each group was largely unconcerned with the events and advances in the other’s field, and frequently they were unaware of research advances in their own fields. Most computer specialists in 1976 were unaware of the decentralized computing, networking, and peer-to-peer communications technologies that were becoming available. In early 1976, while most computer specialists were still unaware of electronic mail, Queen Elizabeth II of England became the first head of state to use e-mail when she sent out an e-mail from the Royal Signals and Radar Establishment (RSRE) in Malvern. Likewise, business managers had little reason to be concerned with the new information technologies. Barely more than a completed circuit board, the Apple I computer debuted just weeks before Apple Computer was incorporated on April Fools Day, 1976. Intel introduced a 5MHZ processor with 6500 transistors and a 3 micron line width, and the term “personal computer” first appeared in the trade press in the May 1976 issue of *Byte* magazine. Xerox joined Hewlett-Packard in rejecting the personal computer, deeming it a non-viable product. At IBM, however, the future looked different; a senior staff planning exercise forecast the 1990s personal systems market at \$100 billion! Before the nation’s bicentennial year was over Microsoft became a registered trade-name and Bill Gates dropped out of Harvard to join Paul Allen full time at their new firm. Shugart Associates introduced the 5 ¼ inch “minifloppy” disk drive with 110 KB capacity disks, the disk size modeled after a cocktail napkin – at the customer’s request.

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<sup>233</sup> Zakon, Rbert H. *Hobbes’ Internet Timeline, v5.4*. Available online at <http://www.zakon.org/robert/internet/timeline/>. Zakon’s historical chronology is the primary source of information on the rise of the Internet, its technologies, personalities, and ideas. Downloaded May 10, 2003

The first West Coast Computer Faire, at San Francisco's Brooks Civic Auditorium, drew 12,750 attendees to the April 1977 weekend technology event. Here the Apple II computer was introduced, featuring a 6502 CPU, 4 kilobytes (KB) of random access memory (RAM), 16 KB of read only memory (ROM), a keyboard, an 8-slot motherboard, game paddles, a graphics and text interface to a color display, and built-in BASIC language. It was the first personal computer with color graphics, and the entire package was offered to the public for \$1300.00, an unheard-of low price.

Entrepreneur Dan Bricklin conceived the basic idea behind the spreadsheet, and began working to create an electronic spreadsheet for the personal computer. New York City, in August 1977, witnessed Radio Shack launch its wildly successful TRS-80 computer. The TRS-80 featured a Zilog Z80 processor with 4 KB of RAM, 4 KB of ROM, a keyboard, black and white video display, and a tape cassette for \$600.00. Tandy Corporation (the parent company of Radio Shack) had projected sales of only 3,000 units for the first year. But in September, the month following its rollout, 10,000 TRS-80 computers were sold. In the academic world with its tradition of sharing information and research results, Larry Landwebber of the University of Wisconsin, a computer science researcher, created TheoryNet, a community of interest network encompassing over 100 computer science researchers linked by a locally developed e-mail system operating over TELNET.

Industry insiders became increasingly aware of the technological and economic potential of personal computing during 1978. In January, Dan Bricklin demonstrated the first successful electronic spreadsheet for the microcomputer. (It should be noted that no counterpart capability was available or even contemplated for mainframe computers, the standard institutional computing solution.) The first major microcomputer bulletin board went online in Chicago in February. Intel Corporation began producing the 8086 microprocessor in May; that processor had been designed in just three weeks by two engineers. The following month Intel publicly introduced this 8086 microprocessor at a price of \$360 per unit. It had 29,000 transistors, ran at a clock speed of 4.77 MHz, and was capable of accessing 1 megabyte (MB) of memory. By the end of 1978, the young microcomputer industry had shipped 200,000 computers, valued at \$500 million. In the Internet world, researchers designed new

protocols to replace the original transmission control program; these two new protocols, the transmission control protocol (TCP) and internetworking protocol (IP), provided the basis for expanding Internet connectivity.

The growth and rapid development of computing technologies continued unabated throughout 1979. In April Microsoft's 8080 BASIC won the ICP Million Dollar Award, the first microprocessor product to generate more than a million dollars in sales.<sup>234</sup> On the Internet, Kevin McKenzie suggested adding emotion to the dry text of email. Although flamed by many at the time, his invention, emoticons, or ASCII glyphs (such as the smiley :-), the wink ;-), or the nerd with combed hair !8-), became widely used in text messages, and are now considered an art form.<sup>235</sup> At the 4<sup>th</sup> Annual West Coast Computer Faire, Dan Bricklin and Bob Frankston demonstrated VisiCalc, their revolutionary electronic spreadsheet application.

In June of 1979 Bob Metcalf founded 3Com Corporation, and Digital Equipment, Intel, and Xerox jointly announced Ethernet, a network protocol specification destined to become the Internet's standard. Motorola introduced the 68000 processor in September, and the following month the U.S. Federal Communications Commission established rules regulating the radio frequencies of personal computers. The first Computer Dealers' Exposition, now known as COMDEX, was held in Las Vegas with 50 companies and approximately 4,000 visitors. By the end of the year, over 2.5 million floppy disk drives had been manufactured, and the first Multi-User Dimension (or Dungeon), MUD 1, a text-based collaborative virtual environment, went on-line at the University of Essex. At the Advanced Research Projects Agency (ARPA), the Internet Configuration Control Board (ICCB) was established in an effort to maintain some control over the growing size and complexity of the Internet.

Technological progress moved to mainstream corporations. In July, 1980, IBM made the decision to develop its own version of the personal computer. IBM

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<sup>234</sup> Larry Welke notes that it was a widely held view, in 1970, that software was not and would never be a viable consumer product. Working within the banking industry, he initiated the ICP Million Dollar Award program to recognize software companies and products that generate various levels of sales. Once the million dollar award had been won, \$500 million became the next sales target. More information is available online at <http://www.softwarehistory.org/history/Welke2.htm>. Downloaded December 10, 2002.

<sup>235</sup> See, for example, the list of emoticons online at <http://www.cknow.com/ckinfo/emoticons.htm>. Downloaded May 10, 2003.

assembled an engineering team in Boca Raton, Florida, nicknamed the “Dirty Dozen,” to design and build the IBM Personal Computer. The following month IBM representatives met with Microsoft, asking Bill Gates and Steve Ballmer to develop the operating system for the IBM PC. Microsoft accepted the IBM contract on September 28; a few weeks later, however, Gates insisted on maintaining rights to the disk operating system, electing to receive royalty payments rather than a lump sum payment.

Events during the fall of 1980 were a harbinger of things to come. The Internet ground to a halt on October 27, 1980, due to an accidentally propagated status-message virus, the first known virus unleashed on the Internet. Apple Computer went public on December 12, 1980, selling 4.6 million shares at \$22.00 per share, and making instant millionaires of more than 40 Apple employees and investors. The economic impact of technology also became clearly visible. By the close of 1980, the U.S. produced 71.6% of the world’s integrated circuits, Japan produced 16.1%, with 5.9% produced in Europe, and the remaining 6.4% produced in the Soviet Union and the rest of the world. Sales of personal computers in the U.S. during the year totaled \$900 million.

#### 4.1.2 Fingering Paperwork As The Problem: Policy Environment 1975-1980

“The Paper Tide,” suggested the *Seattle Times* headline on October 7, 1975. “The Commission on Federal Paperwork met officially for the first time last week. No, that’s not a line from Art Buchwald or Mark Russell. There really is a Commission on Federal Paperwork. . . . The commission is charged by Congress to find ways to reduce the flow of paperwork in government. That’s a bit like asking the Columbia [River] to dry up in the spring. . . . All that, of course, will involve a lot of paperwork.”<sup>236</sup> Senator Bill Brock (R-TN), himself a member of the Federal Paperwork Commission, noted wryly that the Committee’s issued ‘briefing book’ outlining its goal of reducing bureaucratic paperwork was 3 inches thick.<sup>237</sup>

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<sup>236</sup> \_\_\_\_\_ . “The Paper Tide.” *Seattle Times*, October 7, 1975.

<sup>237</sup> \_\_\_\_\_ . “Federal Paperwork Commission.” *New York Times*, September 28, 1975, p. 29.

“Problem definition is never simply a matter of defining goals and measuring our distance from them. It is rather the strategic representation of situations. Problem definition is a matter of representation because every description of a situation is a portrayal from only one of many points of view.”<sup>238</sup> In the mid-70’s representation, the federal paperwork problem requiring investigation included the Federal government’s rules, regulations, procedures, and practices related to “information gathering, processing and dissemination, and the management and control of these responsibilities.”<sup>239</sup> Committees of Congress, primarily those dealing with government operations and administrative procedures, were actively involved in defining and trying to resolve the paperwork problem.

The Commission on Federal Paperwork, resulting from Public Law 93-556, was established as a two-year study commission, concluding nearly two years of Congressional hearings and investigations into the nature, extent, and cost of Federal paperwork, and the burden it imposed on the people of the United States.<sup>240</sup> In signing this legislation, President Ford noted that “For over 30 years, we have had a public policy of holding Government reporting and recordkeeping requirements to a minimum. These efforts have achieved substantial results, but have not stemmed the increasing tide of Government reporting requirements.”<sup>241</sup> The Congress was ready to try again, to come to grips with the tensions inherent in gathering information for governance.

The Congress hereby finds that the Federal information reporting requirements have placed an unprecedented paperwork burden upon private citizens, recipients of Federal assistance, businesses, governmental contractors, and State and local governments. The Congress hereby affirms that it is the policy of the Federal Government to minimize the information reporting burden, consistent with its needs for information to set policy and operate its lawful programs. The Congress hereby determines that a renewed effort is required to

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<sup>238</sup> Stone, *The Policy Paradox*, p. 133.

<sup>239</sup> Congress, House. *Commission on Federal Paperwork: Hearing on H.R. 16424 to Establish a Commission on Federal Paperwork*. Committee on Government Operations, 93<sup>rd</sup> Cong., 2<sup>nd</sup> sess., 1974, p. 14.

<sup>240</sup> Congress, Senate. *Commission on Federal Paperwork*. Committee on Governmental Affairs, 93<sup>rd</sup> Cong., 2<sup>nd</sup> sess., 1974.

<sup>241</sup> National Archives and Records Service. *Public Papers of the Presidents of the United States, Gerald R. Ford, 1974*. Washington, DC: Office of the Federal Register, 1975, pp. 777-778.

assure that this policy is fully implemented and that it is necessary to reexamine the policies and procedures of the Federal Government which have an impact on the paperwork burden for the purposes of ascertaining what changes are necessary and desirable in its information policies and practices.<sup>242</sup>

This Commission was intended to be atypical, providing a different focus: it was broader in scope, looking into the root causes as well as at managerial reforms to address the paperwork problem, and it was compositionally diverse, drawing on legislative, executive, state and local, and private sector talent to examine the paperwork problem from a variety of perspectives. This broadly constituted commission, it was hoped, would recommend “new ways to obtain more effectively the information the Government needs without unreasonably burdening the public.”<sup>243</sup>

In this setting, the Commission on Federal Paperwork began its investigations and deliberations. Propelled by the dual purposes of providing relief for small businesses from bureaucratic paperwork and promoting general government reform, the Commission explored these problem areas in the broader context of the role and function of information in governance, government information needs, existing information practices, and the increasing importance of computing capabilities in institutional life. It was charged with finding ways “to minimize the information-reporting burden within the public sector and yet ensure that the federal government would have the information necessary to fulfill its responsibilities.”<sup>244</sup> For businesses, the Commission estimated the cost of Federal paperwork to the business community at \$25-32 billion annually.<sup>245</sup> Little effort had been expended to quantify the paperwork burden on individuals.

“President Ford tried, with little success, to reduce the impact of government information requirements on the public. In spring 1976, for example, with great fanfare, he announced his government-wide program to reduce, by 10 percent by June 30, 1976, the total number of government forms at the federal level.” But while he was

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<sup>242</sup> Statutes at Large. An Act to Establish a Commission on Federal Paperwork, P.L. 93-556, December 27, 1974. 93<sup>rd</sup> Cong., 2<sup>nd</sup> sess., 1974.

<sup>243</sup> U.S. President, *Public Papers*, Gerald Ford, 1974, p. 778.

<sup>244</sup> Morss and Rich, *Government Information Management*, p. xiii.

<sup>245</sup> Commission on Federal Paperwork, *Staff Report on Federal Paperwork Impact on Small and Large Businesses*. Washington, DC, July 1977.

successful in eliminating 14 percent of the reports by the target date, two new forms were introduced. In terms of man-hours and cost to the public, these two forms not only wiped out the gains from the President's initiative, but generated a 4% increase in the total paperwork burden.<sup>246</sup>

This experience, in the view of the Federal Paperwork Commission, was not atypical. Rather, this result was indicative of the "quota limit" approach to controlling paperwork growth that delivers temporary savings and relief, but rarely if ever results in either lasting or permanent improvements. The answer, in the Commission's view, was to devise and recommend an approach to identify and measure the full costs of data and information in each stage of the information life cycle-requirements determination, collecting, processing, storage, use, and disposition.<sup>247</sup> While paperwork was acknowledged as important, the intent was to differentiate good paperwork from bad, and to make recommendations to get rid of the latter. The Commission was determined to go beyond the "how to" platitudes of previous commissions to investigate and answer the more difficult questions of "what" and "why" concerning government paperwork.<sup>248</sup> The key to this new approach toward paperwork involved shifting one's focus to information and away from paper. After all, it was the information content that was important, not the medium through which that content was conveyed.

"President Carter arrived on the scene in January 1977, having spent two years on the hustings promising to slice red tape. At his first Cabinet meeting he directed his department heads to deliver on those promises."<sup>249</sup> Taking its cue from the new administration, "the Commission on Federal Paperwork yesterday aimed its lance at three of the most despised government forms . . . income tax form 1040, environment impact statements and the Federal Trade Commission's line-of-business reports," noted the *Washington Post* on February 26<sup>th</sup>, 1977. "Their spirits rose when the commission's newest member, Office of Management and Budget Director Bert Lance,

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<sup>246</sup> Horton and Marchand, *Information Management in Public Administration*, pp. 48-49.

<sup>247</sup> Commission on Federal Paperwork, p. 43.

<sup>248</sup> *Ibid.*, pp. 10-11.

<sup>249</sup> Newstadt, Richard M. "Taming the Paperwork Tiger: An Experiment in Regulatory Management." *AEI Journal on Government and Society Regulation* (January/February 1981), pp. 28-32.

showed up for yesterday's meeting and pledged that the Carter administration 'will make very quick inroads into this problem of paperwork.'<sup>250</sup> But it would take more than rhetoric to deal with paperwork.

A new way of thinking about paperwork and information was required. The term "paperwork" had entered the management lexicon half a century earlier to describe the rapidly increasing number of reports, letters, forms, etc., required by government and businesses for their operations. The expression "red tape" portrayed the delay associated with processing and accumulating reports, letters, forms, etc. before an action could be taken. These terms had become synonymous with "non-productive overhead and wasted time."<sup>251</sup> Dealing with this problem in a positive manner would require a new way of thinking about, talking about, and framing the issue as a policy challenge and as a management concern. The concept of information resources management was invented to help conceptualize, describe, and address the problem.

Viewing information as a resource provided two immediate benefits. First it fingered "the real culprit of the paperwork burden as mismanagement of information resources. Government has tended to regard information as a relatively free and limitless commodity, like air and sunshine, simply ours for the asking."<sup>252</sup> Using the resource perspective requires one to acknowledge both the costs and value of information. Managers would have to acknowledge that gathering information via a survey or questionnaire, vice using other methods, is a resource decision. The resource perspective also served to fix responsibility for both the current state of affairs and for correcting the perceived information management problem.<sup>253</sup> Secondly, this definition provided the rationale for articulating a solution - a new management function devoted to managing the information resources of an agency.

The proposed new management function provided a reasonable resolution for those interested in management reforms, but it did little to address the concerns of

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<sup>250</sup> Reid, T.R. "Paper Tigers Start to Roar: With New Ally in white House, Panel Targets 3 Hated Forms." *The Washington Post*, February 27, 1977, p. A4.

<sup>251</sup> Commission on Federal Paperwork, p. 19.

<sup>252</sup> *Ibid.*, p. 12.

<sup>253</sup> See Stone, *The Policy Paradox*, p. 379. Stone calls this approach political reasoning, a mode of thought that "seeks to evoke values and emotions by presenting something as good or evil, innocent or guilty, responsible or not, possible or impossible, strong or weak, right or wrong. Ultimately, political reasoning is a process of creating, changing, and defending boundaries."

those focused on the problem of paperwork. Paperwork reduction advocates saw managers' attitudes as a key causal factor contributing to the problem. Putting these same managers in charge of solving the problem through a resource management function would put the fox in charge of the henhouse while changing his name to "Rooster." What must be changed, they contended, was the attitude and practices resulting from treating information as a free good. They prescribed an elaborate process, called the "Value/Burden Calculus,"<sup>254</sup> loosely modeled after the benefit/cost approach that they believed would improve information management practices.

Records managers also viewed the resource management solution with skepticism, as it did little to address their concerns. Records managers had long worked to provide an updated legislative foundation for their endeavors, one that would address both the challenges of paperwork (records origination and data collection) and the agency practices involving records scheduling, retention, and retirement or archiving.<sup>255</sup> Despite their efforts, most legislative proposals, hearings, and initiatives seemed skewed toward paperwork and data collection. In 1975, for example, the House of Representatives held hearings to assess eleven bills dealing with paperwork,<sup>256</sup> and the Senate considered at least three additional paperwork measures.<sup>257</sup> However, a key challenge as seen by the records management and archivist communities was the lack of clear authority for enforcing records management policies in federal agencies.<sup>258</sup> For records managers, a resource management approach provided little more than maintaining the organizational and practical status quo. Despite the importance of records management functions, including shielding organizations from liability and providing evidence of regulatory compliance, the resource management approach favored by the Commission would most likely

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<sup>254</sup> Morss and Rich, *Government Information Management*, pp. 63-75.

<sup>255</sup> Relyea, Harold C. and Stephanie Smith. *Records Management*. Issue Brief Number IB75018. Washington, DC: Library of congress, Congressional Research Service (March 13, 1975).

<sup>256</sup> Congress, House. *Records Management Legislation*. Committee on Government Operations, 94<sup>th</sup> Cong., 1<sup>st</sup> sess., 1975.

<sup>257</sup> Congress, Senate. *Efforts to Reduce Federal Paperwork*. Committee on Governmental Affairs, 94<sup>th</sup> Cong., 1<sup>st</sup> sess., 1975.

<sup>258</sup> Comptroller General of the United States. *Report to Congress: Ways to Improve Records Management Practices in the Federal Government*. Washington, DC: General Accounting Office, 1975.

perpetuate and institutionalize records managers as the administrative equivalent of “Rodney Dangerfield” - no respect, no resources, and no real clout.

Although acknowledging a role for information technology, proponents of the resource management approach downplayed the increasingly central role of computers and communications in managing information. Paperwork and government red-tape were the buzzwords of political currency. A resource management approach promised a white-collar solution far removed from the lab coats, glass rooms, technology, and jargon of computing and communications. Technologists for their part either ignored these proceedings as irrelevant or presumed that the management would come from the computing area, since no one else was technically qualified to make decisions about the use and usefulness of their prized and high-priced machines.

As Congress considered paperwork legislation in the fall of 1979, the Carter administration took executive actions to implement a “regulatory management program.”<sup>259</sup> Key paperwork-related provisions included 1) a paperwork budget, the “Information Collection Budget (ICB),” controlled by OMB and designed to work much like the spending budget; 2) oversight offices in each department focusing on paperwork control; 3) an OMB-based information locator for the U.S. Federal government; and 4) a sunset provision limiting each form’s lifespan to three years unless reauthorized by OMB. A tidal wave of protest arose from agencies in mid-1980, when they had to prepare their first paperwork budget submissions. However, when the President and OMB Director refused to relent, “most agencies tried in good faith to make it work.”<sup>260</sup> Paperwork legislation, which had initially made rapid progress, bogged down in the wake of agency objections to the ICB approach included in the legislation. Negotiations and compromises followed. “Then in late November [1980], just when the bill seemed dead for the year, [Representative Jack] Brooks and [Senator Lawton] Chiles arranged for it to be quietly revived and passed. Opponents, caught off guard, sought a presidential veto. The Defense Department was not satisfied with its amendment because some of its systems arguably are not ‘military.’

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<sup>259</sup> Congressional Quarterly. *CQ Almanac, Volume XXXV, 96<sup>th</sup> Congress, 1<sup>st</sup> Session, 1979.* Washington, DC: Congressional Quarterly, Inc., 1980, pp. 16E-17E.

<sup>260</sup> Newstadt, *Taming the Paperwork Tiger*, p. 30.

Treasury claimed that OMB clearance of IRS forms would disrupt and perhaps politicize the tax system. Labor and EPA said that OMB's new powers would hamper their ability to manage their programs."<sup>261</sup>

In late December, 1980, "a wan President Carter entered the Cabinet room to sign one of his final legislative achievements - the Paperwork Reduction Act of 1980." During the ceremony, President Carter remarked, "We have addressed the bureaucrats and we've won." Although the ceremony received as much attention as the "latest Bulgarian soccer scores," this was a bureaucratic milestone. "In fact, representatives of five cabinet departments had worked long into the previous night trying to get the President to veto the bill."<sup>262</sup>

"Paperwork reduction is what newspaper editors call a 'three bowler.' (It has so little sex appeal that a reader's face will plop into his cereal bowl three times before he finishes the story in the morning newspaper.)" Despite its lack of glitz, noted Newstadt, "a fascinating experiment in government management is underway."<sup>263</sup>

#### 4.1.3 Indications of Alignment: Issue Advocates 1975-1980

Advocacy coalitions are those "people from a variety of positions (elected and agency officials, interest group leaders, researchers, etc.) who share a particular belief system - that is, a set of basic values, causal assumptions, and problem perceptions - and who show a nontrivial degree of coordinated activity over time."<sup>264</sup> In most policy subsystems one typically finds between two and four coalitions, and the coalitions in recently formed subsystems are also more fragmented in their beliefs.<sup>265</sup> The evidence examined thus far suggests that the ACF norm of 2-4 advocacy groups most likely applies to the pre-policy subsystem phase.

Calling the issue advocates of 1975-1980 advocacy coalitions is premature; however it is not premature to note that at least four areas of prior policy concern continue to attract attention and energize policy discussions. Shown in the top half of

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<sup>261</sup> Ibid., p. 32.

<sup>262</sup> Ibid., p. 28.

<sup>263</sup> Ibid., p. 32.

<sup>264</sup> Sabatier and Jenkins-Smith, *Policy Change and Learning*, p. 25.

<sup>265</sup> Ibid., p. 26.

Congressional Hearings on Issues of Concern, 1975-1980						
	1975 Apr Jul Oct	1976 Apr Jul Oct	1977 Apr Jul Oct	1978 Apr Jul Oct	1979 Apr Jul Oct	1980 Apr Jul Oct
Privacy	A 1 ○		6 7 ○ ○		11 ○	
Paperwork		4 ○		8 ○	9 10 12 ○ ○ ○	13 ○ D ▲
Computer Security						
IT Acquisition	B	5 ○				
Records & Information	C 2 3 ○ ○					14 ○
Management Reform						
<b>Legend:</b>  Hearings (torus) are color coded by issue, numbered in temporal order, and listed below. - The "H401" in a CIS Number denoted the House Government Operations Committee. - The "S401" in a CIS Number denotes the Senate Governmental Affairs Committee.  Triangle indicates policy change; line indicates policy. Policies are indicated by letter, and listed as "Extant Policies" below.						
<b>Extant Policies:</b> <b>A</b> = Privacy Act of 1974 <b>B</b> = Brooks Act of 1965 <b>C</b> = Freedom of Information Act of 1966 <b>D</b> = Paperwork Reduction Act of 1980						
No	Year-Congress	CIS Number	Hearing Title and Date	Purpose		
1	1975 94 <sup>th</sup> - 1 <sup>st</sup>	76-H401-39	Implementation of the Privacy Act of 1974: Data Banks. June 3, 1975.	Oversight		
2		76-H401-35	Records Management Legislation. July 11, 1975.	Legislation		
3		75-S401-45	Information Management by Federal Regulatory Agencies, Part 1, July 22, 1975	Oversight		
4		76-S401-12	Efforts to Reduce Federal Paperwork. October. 10, 1975.	Legislation		

5	1976 94 <sup>th</sup> - 2 <sup>nd</sup>	77-H401-5	Review of Administration of P.L. 89-306. Procurement of ADP Resources by the Federal Government. June 28, 1976.	Oversight
6	1977 95 <sup>th</sup> - 1 <sup>st</sup>	77-S401-41	Final Report of the Privacy Protection Study Commission. July 12, 1977.	Legislation
7		78-H401-27	Privacy and Confidentiality Report and Final Recommendations of the Commission on Federal Paperwork. October 17, 1977.	Legislation
8	1978 95 <sup>th</sup> - 2 <sup>nd</sup>	79-S401-19	Efforts To Reduce Federal Paperwork Burdens. June 28, 1978.	Legislation
9	1979 96 <sup>th</sup> - 1 <sup>st</sup>	79-S401-61	Federal Paperwork Burdens, Part 1. April 17, 1979.	Complaint Field Hearing
10		79-S401-62	Federal Paperwork Burdens, Part 2. May 31, 1979.	Complaint Field Hearing
11		81-H401-7	Public Reaction to Privacy Issues. June 6, 1979.	Information
12		80-S401-64	Paperwork and Redtape Reduction Act of 1979. November 1, 1979.	Legislation
13	1980 96 <sup>th</sup> - 2 <sup>nd</sup>	80-H401-43	Paperwork Reduction Act of 1980. February 7, 1980.	Legislation
14		81-S401-22	Oversight of the Administration of the Federal Freedom of Information Act. August 19, 1980	Oversight

Figure 4.1 Congressional Hearings on Issues of Concern, 1975-1980

Figure 4.1 are the areas of policy concern addressed by the two committees, the Senate Governmental Affairs Committee and the House Government Operations Committee. Together these committees conducted fourteen hearings on the policy issues of interest in 1975 - 1980. As can be seen, there are “clumps” of policy concern: four hearings focused on privacy; six hearings concerned with paperwork reduction; three hearings dealt with records and information management concerns; and one hearing focused on information technology acquisition. The bottom portion of Figure 4.1 lists the issue-related hearings during the years of interest (complete list is at Appendix B). The first four columns are descriptive, contextually and temporally,<sup>266</sup>

<sup>266</sup> The first column lists the numerical sequence of the hearing, keyed to the top part of the figure. Column two lists the year and the Congress. Column three lists the Congressional Information Service (CIS) reference number. Be aware that CIS numbers are not necessarily sequential, and may not correspond to the year in which the hearing was held – they are used here for reference purposes. Column four lists the title and date of the hearing. Hearings are arranged chronologically. Where the hearing spanned more than one day, the first hearing date was used in constructing the chronology.

while the fifth column describes the intent of the hearing as reflected in the remarks of the committee chairperson upon opening the hearing. The characterization of each hearing's purpose in Column 5 was drawn from the typology offered by Davidson and Oleszek and discussed in the previous chapter.<sup>267</sup>

Paperwork reduction was clearly an issue with high visibility and high political currency, as evidenced by the hearings. From the efforts of the Ford administration aimed at reducing the paperwork burden in 1975-1976 to the highly visible paperwork reduction program of the Carter administration, the concern over government paperwork was expressed by a number of advocates.

On November 1, 1979, Senator Lawton Chiles (D-FL) opened the Committee's field-hearings on the Paperwork and Redtape Reduction Act of 1979 in Jacksonville, Florida. Clearly identifying himself as the advocate of individuals and small businesses, Senator Chiles noted in his opening statement that "We have taken testimony from educators, pharmacists, senior citizens, business counselors, veterinarians, small grocery store operators, State and local government officials and almost every story carries the same thing – that Americans are fed up and frustrated with paperwork."<sup>268</sup>

While there was agreement that paperwork was a problem, there was disagreement over the specifics of the problem. Advocates for businesses small and large viewed the problem as a regulatory and legal problem that affected their efficiency, an understandable position since federal paperwork imposed costs on them in the form of regulatory compliance and reporting. They believed that legislation to deal with the forms clearance problem would improve accountability and lessen paperwork. Alternatively, government executives tended to describe the paperwork problem in accountability terms. To them inadequate forms clearance authority, exemption from forms clearance, and lax oversight were the key challenges. Legislation establishing a strong government paperwork clearance function was viewed

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<sup>267</sup> Davidson and Oleszek. *Congress and Its Members*, pp. 226-227. Hearings are generally of the following types: exploratory – exploring the need for legislation; legislative – building a record in support of legislation; visibility – publicizing the role of the chairperson; oversight – reviewing executive branch implementation of laws; and complaint – hearing citizen grievances and frustrations. Sometimes "field hearings" are conducted around the country to generate and assess public support for measures.

<sup>268</sup> Congress, Senate. *Paperwork and Redtape Reduction Act of 1979*. Committee on Governmental

as necessary to deal with paperwork. Nearly all witnesses at these hearings, with the exception of those associated with information technology, viewed paperwork as a very important issue. Regardless of how the problem was framed, business and government leaders agreed that the effect of the paperwork problem was economic; costs were passed on to businesses by requiring information, and costs were borne by agencies that collected and processed the information. They also agreed that the status quo was unacceptable and that something must be done about the pervasive paperwork problem.

Privacy was still the citizens' hot button, despite paperwork getting the lion's share of attention. Agencies were struggling to comply with the Privacy Act, enacted in 1974. A June 1975 oversight hearing focused on trying to determine the extent to which privacy-related material was contained in Federal data banks. Testimony submitted prior to and during that hearing suggested that at least 2000 automated information collections, and likely considerably more, contained personally-identifiable information.<sup>269</sup> Privacy advocates, although not particularly visible during this time period, were able to keep their issue highly visible through the Privacy Protection Study Commission. That study effort noted a growing awareness in all branches of government about the capabilities and possible impact of computerized information storage and retrieval on individual citizens and on society in general. In the President's second annual report to Congress on Federal personal data systems subject to the Privacy Act, it was noted that in 1976, 97 Federal agencies maintained 6,753 data systems containing 3.85 billion records. Seventy four percent of the individual records were fully or partially computerized.<sup>270</sup> Two years later, a study on privacy conducted by Louis Harris and Associates documented "that privacy protection is [still] one of the most important issues on the national agenda and that it will become more rather than less so in the 1980's."<sup>271</sup>

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Affairs, 96<sup>th</sup> Cong., 1<sup>st</sup> sess., 1979, p. 1.

<sup>269</sup> Congress, House. *Implementation of the Privacy Act of 1974: Data Banks*. Committee on Government Operations, 94<sup>th</sup> Cong., 1<sup>st</sup> sess., 1975.

<sup>270</sup> Congress, House. *Final Report of the Privacy Protection Study Commission*. Committee on Government Operations, 95<sup>th</sup> Cong., 1<sup>st</sup> sess., 1977.

<sup>271</sup> Congress, House. *Public Reaction to Privacy Issues*. Committee on Government Operations, 96<sup>th</sup> Cong., 1<sup>st</sup> sess., 1979, p. 3.

Records and information management advocates, while continuing to press their key concern, were perhaps their own worst enemy. In their testimony, nearly all witnesses characterized the records and information problem as an administrative and managerial problem, noting as well that the problem was perceived in terms of accountability. The theme of managerial accountability lacked the robust and attention-getting framing needed for the legislative intervention sought by many records and management advocates. This concern by itself seemed unable to generate support unless and until associated with another issue or concern. Only a few witnesses (such as Wayne Grandquist, OMB's Associate Director for Management and Regulatory Policy, Fred P. Wacker, DoD's Comptroller, and Frank J. Carr, Commissioner of GSA's Automated Data and Telecommunications Service) seemed able to connect the notion of records and information management to the broader framing envisioned in the information resources management concept.<sup>272</sup>

The central figure in Federal IT acquisition was Congressman Jack Brooks; some might suggest that he constituted a one-man advocacy coalition. As the initiator and primary proponent of the 1965 Brooks Act, he was keenly attentive to the potential of computing technology while being painfully aware of agencies' costly, slow, and even haphazard adoption of information technology. Information technology proponents seemed tone deaf to political signals, and color blind to the danger flags of cost overruns and sole-source acquisitions. Technically inclined witnesses viewed the issues narrowly, or at best as managerial problems concerned with cost, control over computer acquisitions, and managerial accountability. In asking for new programs, advocates indicated a preference for risk-averse regulatory oversight.

#### 4.1.4 Surveying the Issues in 1980

At the end of 1980 the six issues identified for exploring issue transformation in this research had been combined under the information resources management concept by enactment of the Paperwork Reduction Act. When considered in light of the coalition discussion above, one begins to see in these issues the outlines of

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<sup>272</sup> Congress, House. *Paperwork Reduction Act of 1980*. Committee on Government Operations, 96<sup>th</sup> Cong., 1<sup>st</sup> sess., 1979.

normative, technological, and regulatory tensions to craft and control the information policies of the U.S. Federal government. The priority accorded the issues relative to one another at the end of 1980 is indicated by the order in which they are discussed.

#### 4.1.4.1 Paperwork

Paperwork is the burden imposed on individuals and businesses by government, as they comply with regulatory policies and mandates for providing information. Paperwork involves collecting information, and it focuses on the reasons for collecting and processes used to collect information as an input into policy, compliance, and regulatory activities. As one might imagine, the linkage between the concern over paperwork and the concern over records and information is complex; even today these concerns are frequently and mistakenly viewed as one and the same.

Central to the concern over paperwork is the notion of the clearance process. Obtaining paperwork clearance is the process of gaining approval to collect data and information from a target population. During the 1960s and 1970s the expectations as to the intent of this process varied significantly, with some believing that clearance should be the key management mechanism for reducing the paperwork burden on citizens, to those whose laissez-faire approach viewed the clearance process as just one more administrative hoop through which to jump.<sup>273</sup>

The notion that information could be collected once and shared among agencies, especially by computers, was, if considered at all, not a popular idea. Agency fealty, professional cultures, and functional insularity strongly discouraged extending managerial horizons beyond agency or functional boundaries. Each agency had its own programs, which in turn had their own professionals, their own information, their own computers, and their own funding. Each program was supported by legislation, annual appropriations, legislative and executive oversight, and a service or recipient constituency.

Paperwork was an important concern, but it needed a compelling argument, relief from burdensome reporting requirements for small businesses, to assert its immediacy as a policy issue. From government's perspective, this issue involves the

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<sup>273</sup> Commission on Federal Paperwork, p. 21.

paperwork clearance process, those internal rules and authority-granting mechanisms that authorize an agency to collect information from the public. But when viewed from outside Washington, paperwork is the burden imposed on individuals and businesses to provide information to government for purposes such as regulatory compliance assessment and policymaking. Interested parties agreed on the need to centralize the clearance process in OMB, but they disagreed on how to effectively reduce paperwork.<sup>274</sup>

#### 4.1.4.2 Privacy

Privacy had been the subject of debate since the early 1960's. As an issue, its roots were (and continue to be) the growing concern about the power of computers to store and aggregate increasing amounts of data that could identify individuals, and the expanding role of computers in every governmental agency. Westin defined privacy as "the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others."<sup>275</sup> He went on to outline four states of privacy: *solitude* is the state of physical separation from the group; *intimacy* suggests participation in a small interpersonal unit; *anonymity* implies freedom from identification or surveillance in public environments; and *reserve* denotes a psychological barrier protecting one from unwanted intrusion.<sup>276</sup>

During the 1974 election campaign, legislators had tried to convey to their constituents that they cared about privacy, and that they took citizen concerns seriously. The Privacy Act had been signed into law, based in part on the hearings conducted by both houses of Congress. And while the notion of a National Data Bank was dead for the time being, the potential benefit of matching computer files from different agencies was being discussed.

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<sup>274</sup> Congress, House. *Commission on Federal Paperwork: Hearing on H.R. 16424*, Committee on Government Operations.

<sup>275</sup> Westin, Alan F. *Privacy and Freedom*. New York, NY: Atheneum, 1967, p. 7.

<sup>276</sup> *Ibid.*, p. 31.

#### 4.1.4.3 Computer Security

Computer security as a policy concern focuses on “safeguarding hardware, software, data, personnel, and facilities against loss from accidental or intentional disclosure of data, modification of data, destruction of assets, or both. Physical security includes the protection of equipment, personnel, facilities, and data involved with computerized processing; and provides for recovery in case of damage or loss. Such protection is provided by various means, including restrictive access and administrative controls for data processing activities, as well as applying other measures required for protection of structures, equipment and data against accidents, fires, floods, bombings, and other hazards.”<sup>277</sup>

Security, applied to computers and information, was a relatively new concept, given the “glass house” care and feeding typical of the mainframe systems and computer centers of the 1960s and 1970s. Addressing these challenges, the Commerce Department’s National Bureau of Standards (NBS) developed Federal Information Processing Standards (FIPS) Publication #31, “Guidelines for Automatic Data Processing Physical Security and Risk Management.” This 1974 publication provided guidelines for ADP physical security and risk management.

In FIPS 31, the NBS outlined a normative management process of risk assessment, risk reduction, security training, and periodic security audits. The security threats against which these management processes were targeted included unauthorized access; hardware failures; utilities failures (such as power and cooling capacity); natural disasters; human errors; proximity hazards; tampering; intercepting electromagnetic emanations; physical destruction or theft of assets; loss of data or program files; theft of information; and delayed processing.<sup>278</sup> With FIPS 31, Federal managers had the wherewithal to create an “intelligent, cost-effective approach to

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<sup>277</sup> Congress, Senate. *Problems Associated with computer Technology in Federal Programs and Private Industry: Computer Abuses*. Committee on Government Operations, 94<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1976, pp. 97-98.

<sup>278</sup> Department of Commerce, National Bureau of Standards. *Federal Information Processing Standards Publication 31: Guidelines for automatic Data Processing Physical Security and Risk Management (June 1974)* by Robert V. Jacobson, SENTOR Security Group, Inc. Institute for Computer Sciences and Technology, 1974.

matching risk against severity of possible loss,” should they choose to strategically expend their system development resources.

Computer security was important. However, computer professionals as a group were reveling in their youth and vigor; security got lip-service and promises, not resources. When computer security was addressed, it focused on physical security of the computing equipment and data assets, and the administrative security practices for ensuring that only authorized users could gain access to information. Typically, computer system development programs focused heavily on providing user-validated capabilities. Computer security was typically treated as an afterthought.

#### 4.1.4.4 IT Acquisition

Information technology acquisition, focusing on the means by which the federal government acquires computing and associated capabilities, has been a well-documented, efficiency-based policy since the late 1950's.<sup>279</sup> Despite the attention given to this concern by GAO and OMB, agencies making purchases remained discontented with the process, and oversight efforts produced unsatisfactory results. Virtually all agreed that the acquisition process remained badly flawed.

Despite the Brooks Act of 1965 and the guidance provided by the Office of Management and Budget and the General Services Administration, ADP procurement by the government remained a lengthy and cumbersome process. Centralized policy direction, established by the Brooks Act, was not yielding the desired benefits; instead, the additional levels of oversight created additional paperwork, and the red-tape induced additional delays. The onerousness of the procurement process resulted in a high incidence of non-competitive procurements and the over-expenditure of millions of dollars. Regulatory requirements for multilevel approvals extended an already long procurement cycle. Agency managers noted that among the most frustrating experiences in government was acquiring a new large computer.<sup>280</sup>

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<sup>279</sup> Congress, House. *Hearings on H.R. 4845*. Committee on Government Operations, p. 590.

<sup>280</sup> Block, Victor. “Computer Wasteland U.S.A.” in *Infosystems*, Vol. 24, No. 11, November 1977.

#### 4.1.4.5 Management Reform

Management reform as a policy concern relates to changes in the ways in which government does what it does. And as such, management reform touches all the other issues. Reform discussions focused on the “means” portion of the “ends-means debate,” and were typically framed in terms of economic efficiency, effectiveness, or the normative language of accountability and oversight.<sup>281</sup> Generally speaking, scant attention was paid to information and related issues in formulating management policies. Information, like air and water, was considered a ubiquitous commodity to be demanded and used when and as needed. Little thought was given to the effort necessary to provide and maintain that information.

Much of management reform initially reflected the desire to apply scientific management theory to find the “one best way” of solving a problem, a solution that was also assumed to be the most efficient. Over time, management reforms gravitated toward a more explicitly efficiency-oriented model, a trend that began at least as early as the First Hoover Commission<sup>282</sup> and still continues. In practice, however, managers found only limited and short-term relief in the reforms recommended. Progress of reform initiatives was usually demonstrated by band-aiding the problem with the technological solution of the day.

Prior management reform efforts concentrated mainly on cost reduction and efficiency. Efficiency-based management reforms, applied to the management processes for acquiring computers, proved counter-productive, as agencies sometimes circumvented lengthy and duplicative approval processes. Management processes for computer security and security training remained deficient; because funds were short, these accounts were raided first, so that computer security improved only slightly.<sup>283</sup> Records management programs generally functioned without management attention; information was still viewed as a free good.

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<sup>281</sup> Light, Paul C. *The Tides of Reform*.

<sup>282</sup> Chandler and Plano, *Public Administration Dictionary*, 2 ed., p. 193.

<sup>283</sup> Congress, Senate. *Problems Associated with Computer Technology In Federal Programs and Private Industry*, Committee on Governmental Affairs.

#### 4.1.4.6 Records and Information

Records and information as a policy concern considers both the form and the content of what we commonly call information. Records and information are the by-products of governance, and they provide the authoritative documentation of governance activity. Within this area of concern reside four related topics: 1) maintaining adequate and complete records of the decisions and activities of government; 2) mandates and processes for disseminating government information; 3) requirements for maintaining, categorizing, and classifying systems of government records; and 4) the rules and processes for deleting, retiring, and archiving official government records. As noted earlier, there is a close relationship between the concern for records and information and the concern over management reform and paperwork; the former concern is also closely linked to the concerns of privacy and security.

Records and information was an issue that needed to be addressed, all parties agreed, but few wanted to tackle it. The hearings over the National Data Bank concept, the Freedom of Information Act, and the Privacy Act had highlighted the fractured nature of records and information; they also brought into sharp focus the privacy implications of information stored in records repositories and federal data banks. Few policymakers were thinking about the management consequences of maintaining adequate systems of records, especially in increasingly computerized agencies. And fewer if any policy-makers realized or understood the economic potential of information as a commodity.

#### 4.1.5 Policy Change: The Paperwork Reduction Act of 1980

The Paperwork Reduction Act (PRA) of 1980, notes Garson, “required each federal agency to submit a five-year information technology plan to the OMB, which in turn formulated a government-wide five-year information policy plan. Agency performance was to be reviewed triennially. That is, the Paperwork Reduction Act established the institutional framework for formal public policy-making reflected in long-range federal agency information plans covering information access, security, privacy,

and other public policy concerns.”<sup>284</sup> Hernon and McClure offer a somewhat different view of the PRA, seeing it as an initiative to “enhance the efficiency of the Federal government by improving information policy making and reducing the paperwork burden on the public. . . . The primary objectives of the bill were to: a) reduce the information processing burden on the public and private sectors; b) expand and strengthen Federal information management activities; and c) decrease the paperwork burden on individuals, businesses, state and local governments, and others outside the Federal government.”<sup>285</sup> These two scholarly précis of the same Act provide insight into the public policy challenge presented by the Paperwork Reduction Act. Each of the above definitions is correct, yet each depicts the point of view of a particular group of proponents, and each in its unique focus overlooks key portions of the other’s argument.

In its introduction, the Paperwork Reduction Act identified and articulated six different components of its purpose:

- 1) to minimize the Federal paperwork burden for individuals, small businesses, State and local governments, and other persons;
- 2) to minimize the cost to the Federal Government of collecting, maintaining, using and disseminating information;
- 3) to maximize the usefulness of information collected by the Federal Government;
- 4) to coordinate, integrate and, to the extent practicable and appropriate, make uniform Federal information policies and practices;
- 5) to ensure that automatic data processing and telecommunications technologies are acquired and used by the Federal Government in a manner which improves service delivery and program management, increases productivity, reduces waste and fraud, and, wherever practicable and appropriate, reduces the information processing burden for the Federal Government and for persons who provide information to the Federal Government; and
- 6) to ensure that the collection, maintenance, use and dissemination of information by the Federal Government is consistent with applicable laws relating to

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<sup>284</sup> Garson, *Computer Technology and Social Issues*, p. 293.

<sup>285</sup> Hernon and McClure, *Federal Information Policies in the 1980’s*, p. 112.

confidentiality, including section 552a of title 5, United States Code, known as the Privacy Act.<sup>286</sup>

The bill that became the Paperwork Reduction Act of 1980, H.R. 6410, had been crafted in a bipartisan and consultative manner with Senatorial colleagues. There had also been substantial collaboration with the Office of Management and Budget and the General Accounting Office, making this bill more broadly written and inclusive than previous initiatives. As offered and passed, it included the topical concerns of reports clearance and paperwork control, statistics, privacy, automatic data processing, telecommunications, and records management.

Effective and efficient management was the central theme of the PRA. Paperwork reduction was still considered a significant issue but was no longer the central legislative focus. Rather, paperwork was framed as one of the more visible symptoms of a larger management problem in federal agencies, a challenge narrowly characterized as information management by some, and more broadly characterized as management reform by others. Information technology acquisition was similarly treated in management terms, moving toward efficient and effective service delivery and away from existing dysfunctional management processes, executive inattentiveness, and lack of knowledge. The information content of records was separated from their physical manifestation and reconceptualized as a resource to be managed and shared, imposing the least possible impact on citizens and businesses.

Articulated in the PRA for the first time was a recognition that information technology played an enabling role within agency programs and activities. Previously lacking, however, was the structure and mandate for effectively linking information technology and policy development, management, and oversight. OMB's new Office of Information and Regulatory Affairs (OIRA) would fill that policy void and provide leadership for agency information resources management activities.

Information resources management, incorporating this expanded view of IT policy, was seen as the mechanism for simultaneously achieving multiple policy goals. Most actors in this materializing policy subsystem agreed that OMB must play a strong

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<sup>286</sup> Paperwork Reduction Act of 1980 (P.L. 96-511), codified as Chapter 35, title 44 U.S.C. 94. *Statutes at Large*, pp. 2812-2826.

central role in policy making and oversight. Many expected the incoming OIRA Administrator to approach the information policy task from a “public utility” point of view, the perspective that had energized the Commission on Federal Paperwork and the efforts to pass the Paperwork Reduction Act. These expectations were not to be realized, however, as the incoming Reagan administration intended to approach information policy and paperwork reduction from a market-oriented and regulatory reform point of view.

#### 4.2 Paperwork to CIO: A Nascent Policy Subsystem Matures 1981-1996

The evolution and maturation of the nascent IRM policy subsystem covers the time period from 1981-1996. This new policy subsystem came into being with a well-articulated legislative foundation, emerging coalitions and bipartisan congressional advocates, and fairly well-defined policy issue interests. The sixteen-year chronology presented in this section encompasses the full policy cycle, covering each of the three

<b>U.S. Political Leadership, 1981-1996</b>								
<b>YEARS</b>	<b>PRESIDENT</b>	<b>Cong.</b>	<b>Composition of the U.S. Congress</b>					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep.	Ind.
1981-2	Ronald W. Reagan	97 <sup>th</sup>	47	53	1	243	192	
1983-4	Ronald W. Reagan	98 <sup>th</sup>	46	54		268	167	
1985-6	Ronald W. Reagan	99 <sup>th</sup>	47	53		253	182	
1987-8	Ronald W. Reagan	100 <sup>th</sup>	55	45		258	177	
1989-90	George H.W. Bush	101 <sup>st</sup>	55	45		260	175	
1991-2	George H.W. Bush	102 <sup>nd</sup>	56	44		267	167	1
1993-4	William J. Clinton	103 <sup>rd</sup>	56	44		258	176	1
1995-6	William J. Clinton	104 <sup>th</sup>	48	52		204	230	1

Table 4.5 U.S. Political Leadership 1981-1996<sup>287</sup>

<sup>287</sup> Sources for information in Table 4.5 can be found in note 202.

stages, policy formulation, policy implementation, and policy reformulation, as this policy subsystem matures.

Table 4.5 introduces the political leadership during this period. The first Reagan administration spans the policy formulation stage of the IRM policy cycle, 1981-1984. Policy implementation encompasses the second Reagan administration and the Bush administration, 1985-1992. The reformulation stage of IRM policy occurs during the years of the first Clinton administration, 1993-1996.

Events in this chronology are told in 4-year segments corresponding to the cycle of the presidency. Therefore, the chronology of the nascent policy subsystem evolving through the policy cycle is portrayed across four sequential segments. Important events, as in the previous chronology, were selected for their fit with policy theory and explicative potential, and drawn from a few comprehensive sources.<sup>288</sup> Events outlining policy subsystem interactions were drawn from hearings of the U.S. House of Representatives and the U.S. Senate, and supplemented as appropriate by insights from the literature.

#### 4.2.1 Welcome to the Revolution: The Policy Environment 1981-1984

The Reagan revolution rolled into Washington, D.C. on January 20, 1981. In his inaugural address, President Reagan noted that “government is not the solution to our problem; government is the problem.” He began attacking this problem immediately, with the notion of paring down the size, scope, and cost of government, increasing reliance on market forces, and dismantling the regulatory machinery of government. “Just before the inaugural, the President had approved, in principle, a series of symbolic ‘first day’ directives to show that we would ‘hit the ground running’ and come out slugging the federal monster. Among these were an across-the-board hiring freeze, a 15 percent cutback in agency travel budgets, a 5 percent cutback in consulting fees, and a freeze on buying any more furniture, office machines, and other such equipment.”<sup>289</sup> On January 29<sup>th</sup>, the President ordered a 60-day freeze on

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<sup>288</sup> As in the previous section, external events between January 1981 and December 1999, unless otherwise noted, are drawn from Daniel’s *20<sup>th</sup> Century Day by Day*, Polsson’s *A Chronology of Personal Computers*, and Zakon’s *Hobbes’ Internet Timeline*.

<sup>289</sup> Stockman, David A. *The Triumph of Politics*. New York, NY: Avon Books, 1986, p. 111.

government regulations, only the first in a series of setbacks to those interested in speedily implementing the IRM concept. Government taxing and spending were to be reduced. Government programs, especially regulatory programs, were specifically targeted for elimination. The market could correct a problem more quickly than government intervention, it was believed. Table 4.6 below depicts the composition of Congress with which President Reagan would have to work.

<b>U.S. Political Leadership, 1981-1984</b>								
<b>YEARS</b>	<b>PRESIDENT</b>	<b>Cong.</b>	<b>Composition of the U.S. Congress</b>					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep	Ind.
1981-2	Ronald W. Reagan	97 <sup>th</sup>	47	53	1	243	192	
1983-4	Ronald W. Reagan	98 <sup>th</sup>	46	54		268	167	

Table 4.6 U.S. Political Leadership 1981-1984<sup>290</sup>

#### 4.2.1.1 Putting America Back to Work: The External Environment 1981-1984

It was known that the mainstream economy was stumbling badly, but just how badly was revealed in February, 1981, as GM reported its worst year since 1921 with a loss of \$763 million; Chrysler reported a record loss of \$1.7 billion. The individual family was also having a rough time economically. Inflation, as measured by the Consumer Price Index, would gradually abate over these four years but was still high. And when coupled with the slump in median family income and the still high mortgage interest rates, the average American family was experiencing and would continue to experience a very tough four years. The socio-economic indicators for this time period are outlined in Table 4.7.

Despite the bleakness of the economy, President Reagan was extremely popular. Then, on March 30, 1981, as the President was leaving the Washington Hilton Hotel after addressing a labor convention, he was shot by John W. Hinckley, Jr. Despite the seriousness of his wounds, virtually everyone “underestimated the resilience with

<sup>290</sup> Sources for information in Table 4.6 can be found in note 202.

<b>Selected Socio-Economic Indicators, 1981-1984</b>				
	1981	1982	1983	1984
US Gross Domestic Product (billions)	\$3,131.3	\$3,259.2	\$3,534.9	\$3,932.7
Median US Family Income	\$39,881	\$39,341	\$38,609	\$40,883
Annual Average Consumer Price Index	90.9	96.5	99.6	103.9
Average Unemployment Rate	7.6%	9.7%	9.6%	7.5%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	14.95 - 16.95% 18.63%	17.04 - 13.57% 17.66%	13.46 - 13.43% 13.89%	13.43 - 13.14% 14.68%

Table 4.7 Selected Socio-Economic Indicators, 1981-1984<sup>291</sup>

which the President bounced back from the assassination attempt. From his remark to the First Lady in the emergency room of George Washington Hospital, ‘Honey, I forgot to duck,’ to his triumphant speech to the Congress on April 28 . . . the President acquired a heroic aura - and the polls reflected it.” The administration’s budget and agenda, being hotly debated on Capital Hill, were now framed by the White House “in far more compelling and dramatic terms: *Are you with Ronald Reagan or against him?*”<sup>292</sup> Opposition folded, and the President got both his agenda and his budget.

By midsummer, the Reagan administration’s 25% tax cut plan over 3 years had been approved by Congress. Then on August 3, U.S. air traffic controllers and their union, PATCO, began a nationwide strike grounding 7,000 flights. Defying a “back-to-work” court order, the controllers demanded higher pay, a shorter work week, and guaranteed retirement after 20 years, betting - and alleging - that the air traffic control system could not work without them. Three days later, President Reagan fired 12,000 federal air traffic controllers. In September Sandra Day O’Connor was sworn in as the first female Supreme Court Justice. A story in the *Atlantic Monthly*, quoting OMB Director Stockman as lacking confidence in the President’s fiscal policies, precipitated the famed “woodshed” luncheon in November. However, President Reagan characterized Stockman as too valuable to his administration and refused to accept

<sup>291</sup> Table 4.7 data sources can be found in notes 203-207.

Stockman's tendered resignation. As 1981 drew to a close, medical researchers identified a disturbing and incurable disease they called Acquired Immune Deficiency Syndrome, or AIDS, that destroys the body's immune system.

The following year, 1982, brought changes that would have long-range consequences for IT acquisition and telecommunications policies and for the economy as a whole. On January 8, the U.S. Justice Department dropped its 13-year antitrust suit against IBM Corporation. That same day, and in response to an order by U.S. District Court Judge Harold Greene,<sup>293</sup> telecommunications giant AT&T announced it would end its virtual monopoly of telephone service and divest its 22 local Bell System companies. Competition in the computer industry, in mainframes, minicomputers, and microcomputers was about to get tough. The divestiture ordered by Judge Green was about to inject competition into the telecommunications market. But the mainstream economy remained in a slump, and the United Auto Workers traded concessions on wages and benefits for job security at Ford Motor Company. By late April, the Consumer Price Index registered a fall of 0.3%, the first decline in 17 years. But the Census Bureau reported in mid-year that the poverty rate was now at 14%, the highest it had been in 15 years, and up a staggering 7.4% since 1980. Autumn brought more bad news as the National Football League players staged a 57-day strike, their first in-season strike in the NFL's 63-year history; in early October Johnson & Johnson recalled all Tylenol capsules after eight Tylenol-related deaths were attributed to deliberate product tampering.

The events of 1983 seem to have been dominated by defense issues. In March, President Reagan announced "Star Wars," his defense plan to develop a shield against intercontinental ballistic missiles. Not announced was military aid to Nicaraguan rebels fighting the leftist Sandinista government. The U.S. Embassy in Beirut was bombed in April; in October the Marine barracks near the Beirut airport were bombed and 216 Marines were killed. On October 25 the Marines invaded the tiny island of Grenada to restore democratic institutions and stem Cuban and Soviet influence in the Caribbean.

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<sup>292</sup> Stockman, *Triumph of Politics*, p. 189.

<sup>293</sup> *United States v. American Telephone and Telegraph Co., et al.*, 552 F. Supp. 131 (1982).

President Reagan kicked off the 1984 election year with a late January announcement of his intention to seek a second term. While the President was still very popular, the sluggish economy and its human toll yielded a mixed and disquieting domestic picture. In early January a Presidential Commission denied, in its report, that hunger was rampant in the U.S. On January 24, U.S. consumer inflation was reported at the lowest level since 1972. Researchers announced in April that they had isolated the virus responsible for AIDS, hopeful news to the homosexual communities in which 4087 active cases and 1758 AIDS-related deaths had already been reported. The Department of Housing and Urban Development estimated, in May, that between 250,000 and 350,000 Americans were homeless, and a mid-year report of housing prices announced that the average price of a single family home had topped \$100,000. In their mid-July National Convention, the Democrats nominated Walter F. Mondale, who chose New York Representative Geraldine Ferraro as the first female Vice Presidential candidate. A month later the Republicans reaffirmed their conservative faith by re-nominating President Reagan and Vice President Bush as their party's candidates. By November the "great communicator" once again demonstrated his skill in connecting with the voters, and the Reagan-Bush ticket, with the slogan "You ain't seen nothing yet!" was reelected by a landslide.

The fledgling personal computer industry was beginning to take shape, far from the limelight of Washington's political struggles. In its June 8, 1981 edition, *InfoWorld* magazine ran an article detailing IBM's personal computer project. The first of IBM's PCs rolled off the assembly line before mid-year, and PCs were commercially available by October 1. In its New York debut, the IBM 5150 personal computer could be had for \$1565; however, a fully loaded version with color graphics cost \$6000. Of IBM's entry into the microcomputer field, competitor John Roach, president of Tandy Corporation, suggested, "I don't think it's that significant." Innovations were evident in data storage and communications technologies as well. Seagate Technology shipped its first 5 megabyte, 5 ¼ inch hard drive, costing \$1700, and Novell Data Systems, sensing a new market, hired SuperSet to write software to link computers together to share a single hard drive, something we now call "network attached storage."

On the West Coast the wizards were staying up late in 1982. Engineers at 3Com Corporation began investigating how one might apply Ethernet computer networking technology to the IBM PC. The Defense Communications Agency and Advanced Research Projects Agency formally endorsed the transmission control protocol (TCP) and Internet protocol (IP), commonly known as TCP/IP, as the Internet protocol suite. An "internet" was now officially defined as a connected set of networks, specifically those using TCP/IP, and the "Internet" was defined as connected TCP/IP internets. Entrepreneurs were starting the key hardware and software companies that would soon become household names in the personal computer industry: Compaq Computer (February); Lotus Development Corporation (April); Symantec Corporation (June); Adobe Systems (June); and Electronic Arts (July). Other notable firsts for this fledgling industry were the first "mouse" for a PC (June), the first IBM clone (June), and version 1.0 of WordPerfect for PC-DOS. By the end of the 3<sup>rd</sup> quarter, IBM had shipped 200,000 PCs. Time magazine named the microcomputer as Time's "Man of the Year" for 1982.

Throughout 1983, information technology became increasingly characterized by global competition. Information technology entered the mainstream. In January 1983, the Microfloppy Industry Committee reached a compromise agreement with Sony Corporation and 12 other floppy drive manufactures for industry-wide 3 ½-inch floppy media standards; Sony agreed to change its media to conform to the new standard. Meanwhile the startup Lotus Development Corporation shipped the first spreadsheet for the personal computer, Lotus 1-2-3 Release 1.0 for MS-DOS. During June, Novell introduced the NetWare network operating system for the IBM PC. By August, Government Computer News noted that half-dozen civilian agencies were using the Air Force Civilian Personal Data System, hosted on Burroughs mainframes.<sup>294</sup> By the opening of the fall semester, Stevens Institute of Technology in Hoboken, New Jersey, required all freshmen in science and systems planning to purchase a DEC Pro 350 computer - still pricey at \$1950, despite the 80% discount off the list price. The

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<sup>294</sup> \_\_\_\_\_, "Timeline of GCN 20 Years." *Government Computer News*, Vol. 21, No. 20 (September 7, 2002). Available online at [http://www.gcn.com/21\\_30/20anniversary/20165-1.htm](http://www.gcn.com/21_30/20anniversary/20165-1.htm). Downloaded July 12, 2003.

Helmsley Palace Hotel in New York City hosted the IT announcement of the year on November 10, as Microsoft formally announced Windows, with a promised release in April 1984. Windows had already been demonstrated twice at IBM and both times IBM executives expressed their lack of interest in the interface. In addition to Windows, Microsoft extended its software reach, releasing Microsoft Word version 1.0, even as the industry leader, Satellite Software, released WordPerfect 3.0. As the year closed, the International Trade Commission issued an exclusion order, preventing Apple look-alike computers, made in Taiwan, from entering the US. One-year records were set in two industries; Compaq Computer set a U.S. business record by selling 50,000 computers, worth \$111 million, and the publishing industry set a record with the introduction of 55 new personal computer magazines.

The technology pace quickened in 1984, as Hitachi Corporation announced, in Tokyo, that it had developed the world's first memory chip with a 1 megabit capacity. The Internet now encompassed more than 1000 hosts, and the Internet Domain Name System (DNS) was introduced. Apple Computer ran its "1984" 60 second TV commercial during the Super Bowl, introducing the Macintosh computer. The advertisement ran only once, but dozens of news and talk shows replayed it, making it one of the most memorable ads in TV and advertising history. The ad cost \$400,000 to produce and \$800,000 for TV air time. Industry pioneer and insider Alan Kay was quoted as saying that the Macintosh is "the first personal computer good enough to criticize." In the first 74 days after its introduction, 50,000 Apple Macintosh computers were sold. A month later, Microsoft's Bill Gates and Steve Ballmer crafted an internal applications strategy memo outlining the company's commitment to the graphical user interface (GUI) on the Macintosh and Windows platforms. That summer's COMDEX show featured a Hewlett-Packard LaserJet printer with 300 dots-per-inch (dpi) resolution and 8 pages-per-minute capacity, selling for \$3600. By mid-year Philips Corporation announced the compact-disk read-only-memory (CD-ROM) player for personal computers for just under \$1,000. That fall IBM announced its newest PC, the IBM PC/AT, with a 5.25-inch, 1.2-MB floppy drive, and either 256 or 512-KB RAM. Also announced was IBM's PC Network for local area networking. Several months

later Microsoft demonstrated its final version of Windows for IBM executives, and for the third time, IBM was not interested. During 1984, the publishing industry set another record as 55 personal computer magazines failed.

#### 4.2.1.2 Government is the Problem: The Policy Subsystem 1981-1984

Individuals interested in seeing the Reagan administration deal with information policy were becoming impatient. Despite, or maybe because of the administration's successes, strains were also showing in the administration's dealings with agencies and policy advocates. All were interested in the policies being formulated by the administration, and all were equally concerned at the direction the administration's policies were taking. For example, agencies were directed by OMB Bulletin 81-16<sup>295</sup> to reduce planned or proposed publications, and to curtail future spending on periodicals, pamphlets, and audiovisual materials in the interest of eliminating wasteful spending. These policies alarmed the American Library Association, which saw the encroaching market forces as a serious threat to their public service ethos and their prized depository library program. OMB Bulletin 81-21,<sup>296</sup> issued in June, addressed a number of the Paperwork Reduction Act requirements by requiring agencies to designate a single individual responsible for information resources management, thereby identifying agency stakeholders and policy implementers. This bulletin also required agencies to detail their information activities by September 1, thus allowing OMB to "influence decisions on how they process, maintain, and disseminate information." These policies, however, had been formulated by a tightly knit group within OMB with little outside input.

The hearings and the purposes listed for the hearings in Figure 4.2 provide compelling evidence of the power of political change over a policy subsystem. The first seven hearings listed in the second half of Figure 4.2 are oversight hearings examining administration policies and giving voice to the frustrations of policy advocates excluded from meaningful policy discourse. In this environment, as discussed below, the

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<sup>295</sup> Cited in Appendix F, *Less Access to Less Information By and About the U.S. Government*. American Library Association, December 1984. Reprinted in Herson and McClure, *Federal Information Policies in the 1980's*, p. 366. OMB Bulletin 81-16 was issued in April 1981.

<sup>296</sup> *Ibid.*, p. 366.

Congressional Hearings on Policy Issues, 1981-1984												
	1981 Apr Jun Oct			1982 Apr Jun Oct			1983 Apr Jun Oct			1984 Apr Jun Oct		
Privacy	A						7 			10  13 		
Paperwork	1  3  4 						5  6 			11 		
Computer Security							8 					
IT Acquisition	C									9  E 		
Records & Information	2  D									12 		
Management Reform												
<b>Legend:</b>  Hearings (torus) are color coded by issue, numbered in temporal order, and listed below. - The "H401" in a CIS Number denoted the House Government Operations Committee. - The "S401" in a CIS Number denotes the Senate Governmental Affairs Committee.   Triangle indicates policy change; line indicates policy. Policies are indicated by letter, and listed as "Extant Policies" below.												
<b>Extant Policies:</b> <b>A</b> = Privacy Act of 1974 <b>B</b> = Paperwork Reduction Act of 1980 <b>C</b> = Brooks Act of 1965 <b>D</b> = Freedom of Information Act (as amended) <b>E</b> = Competition in Contracting Act of 1984												
No	Year-Congress	CIS No	HEARING TITLE AND DATE	PURPOSE								
1	1981 97 <sup>th</sup> - 1 <sup>st</sup>	81-S401-55	Federal Paperwork Burden: Identifying the Major Problems. March 18, 1981.	Oversight								
2		81-H401-70	Freedom Of Information Act Oversight. July 16, 1981.	Oversight								
3		82-H401-74	Implementation of the Paperwork Reduction Act of 1980 (Public Law 96-511). October 21, 1981.	Oversight								

4	1982 97 <sup>th</sup> - 2 <sup>nd</sup>	82-S401-56	Implementation of the Paperwork Reduction Act of 1980. April 14, 1982.	Oversight
5	1983 98 <sup>th</sup> - 1 <sup>st</sup>	84-H401-12	Paperwork Reduction Act Amendments of 1983 (H.R. 2718). April 27, 1983	Oversight Legislative
6		83-S401-62	Oversight of the Paperwork Reduction Act of 1980. May 6, 1983.	Oversight
7		83-H401-59	Oversight of the Privacy Act of 1974. June 7, 1983.	Oversight
8		84-S401-1	Computer Security in the Federal Government and Private Sector. October 26, 1983	Exploratory
9	1984 98 <sup>th</sup> - 2 <sup>nd</sup>	85-H401-55	Competition in Contracting Act of 1984 (H.R. 5148). March 27, 1984	Legislative
10		85-H401-7	Privacy and 1984: Public Opinions on Privacy Issues. April 4, 1984.	Exploratory
11		84-S401-45	Paperwork Reduction Act Amendments of 1984. April 4, 1984.	Oversight Legislative
12		85-H401-36	Freedom of Information Reform Act. May 24, 1984.	Legislative
13		85-S401-2	Computer Matching: Taxpayer Records. June 6, 1984.	Exploratory

Figure 4.2 Congressional Hearings on Policy Issues, 1981-1984

fledgling policy subsystem provided a forum in which potential policy advocates served as an audience for a main event; insular OMB officials establishing authoritative policies while congressional committees critiqued their performance via oversight hearings. It had become apparent that oversight alone would not alter the policy course of the administration. The gap between the Congress and the Reagan administration had steadily widened and the mood changed. "By the time the Reagan administration entered its third year in office, the Reagan era in Congress had been over for a long time."<sup>297</sup> In 1984 moderate and pragmatic political forces, both Democratic and Republican, were controlling the agenda in the second session of the 98<sup>th</sup> Congress. "House Republicans, so ebullient in the spring of 1981, entered the next Congress two years later listless and dispirited, talking bravely of economic recovery but keeping a low profile most of the time."<sup>298</sup>

<sup>297</sup> Ehrenhalt, Alan, ed. *Politics in America: Members of Congress in Washington and At Home*. Washington, DC: Congressional Quarterly, Inc., 1983, p. 3.

<sup>298</sup> *Ibid.*, p. 4.

Where the Paperwork Reduction Act was concerned, relations between Congress and the Reagan administration were strained. OMB had established the required Office of Information and Regulatory Affairs (OIRA), however the office was used by the administration primarily to review government regulations for the purpose of eliminating them. Formulating policies for realizing goals of the Paperwork Reduction Act was painfully slow. In testimony before the House, Comptroller General Charles Bowsher was pointedly blunt. “First I have to record, as you indicated, our work has not proceeded smoothly. The Office of Management and Budget has denied us access to documents and information essential to reaching a full understanding of its processes and an assessment of its efforts.”<sup>299</sup> Bowsher further stated that of the 37 key requirements of the act, only three had been completed and five additional requirements showed signs of progress; GAO could find little or no progress on the other 29 key requirements of the Paperwork Reduction Act.<sup>300</sup> This lack of progress, in Bowsher’s opinion, was due to OMB pursuing case-by-case regulatory review directed by the President’s Executive Order No. 12291, most of which was unrelated to the Paperwork Reduction Act. Agencies were late in appointing senior officials to be responsible for information management activities. OMB had yet to provide guidance and leadership to the General Services Administration and the Department of Commerce, the two central management agencies with statutory responsibilities for portions of the PRA. Indeed OMB had proposed budget cuts that could negatively affect the offices charged with achieving the act’s objectives.<sup>301</sup> It was apparent that an “us versus them” mentality existed between the Reagan administration and supporters of the Paperwork Reduction Act’s goals, and the distance between the two groups was widening.

On Wednesday, April 27, 1983, House Government Operations Committee Chairman Jack Brooks gaveled into session hearings on a bill, H.R. 2718, to amend

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<sup>299</sup> Congress, House. *Implementation of the Paperwork Reduction Act of 1980 (Public Law 96-511)*. Committee on Government Operations, 97<sup>th</sup> Cong., 1<sup>st</sup> sess., 1981., p. 4.

<sup>300</sup> *Ibid.*, p. 27. Bowsher noted that of the 2000 reviews of regulations completed by OMB, only 23 reviews were related to the Paperwork Reduction Act requirements.

<sup>301</sup> *Ibid.*, p. 5. GSA’s Automated Data and Telecommunications Service (ADTS) and National Archives and Records Service (NARS) as well as Commerce’s National Bureau of Standards (NBS) had significant responsibilities in areas of IT acquisition and management, records management, and computer security.

the Paperwork Reduction Act of 1980. Referring to OIRA in his opening remarks, Congressman Brooks noted that “While the office has made some progress in reducing the paperwork burden, it has virtually ignored all other major aspects of the law. According to the GAO, this office has failed to meet most of its statutory deadlines, and progress on the other mandates has been woefully inadequate.”<sup>302</sup> Congressman Brooks charged that OMB had consciously diverted OIRA resources to activities outside the PRA; the amendment under consideration “restricts use of the funds appropriated under this act to carry out provisions of the Paperwork Act only.”<sup>303</sup> Brooks’ legislative remedy would establish a separate line item account for PRA-mandated functions, combine existing ADP and Federal telecommunications funds into a new information technology fund managed by GSA, and require the Director of OMB to appoint a Chief Statistician within OIRA.

The hearing’s leadoff witness, Congressman John D. Dingell, Chairman of the Committee on Energy and Commerce, already sharply critical of administration efforts to alter energy regulation, alleged a pattern of value-driven policy behavior that would significantly alter extant policies. He described how the OMB was using “regulatory reform” as outlined in President Reagan’s E.O. No. 12291, *Federal Regulation*, to “influence or control the regulatory decisions or policies of the agency decision-makers charged by law with making such decisions and policies,”<sup>304</sup> and described the administration’s “regulatory czars” in OIRA as posing enormous peril to “fair process.”

Comptroller General Bowsher followed Congressman Dingell, but while providing a more focused perspective, was no less critical of OMB’s implementation of the Paperwork Reduction Act’s requirements. Approximately 18 months earlier, Bowsher had testified that OMB had implemented only 3 of 37 PRA requirements; at this hearing he revealed, under questioning, that OMB had implemented only 9 of the 37 PRA requirements, mostly related to paperwork reduction targets. Especially lacking was policy leadership and a focus on “information management, ADP, and

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<sup>302</sup> Congress, House. *Hearings on the Paperwork Reduction Act Amendments of 1982 (H.R. 2718)*. Committee on Government Operations, 98<sup>th</sup> Cong., 1<sup>st</sup> sess., 1983, p. 1.

<sup>303</sup> *Ibid.*, p. 2.

<sup>304</sup> *Ibid.*, p. 17.

telecommunication areas. . . .”<sup>305</sup> The GAO had already warned OMB Director Stockman that “there is a near-total lack of centralized small-computer [microcomputer] management in the government.”<sup>306</sup> OMB’s response, provided by the OMB Deputy Director Joseph Wright and echoed by OIRA Administrator Christopher DeMuth, was to emphasize the administration’s regulatory reform accomplishments in paperwork control and reducing regulatory reporting burdens. But instead of directly addressing PRA implementation, Wright focused on wrapping many of the remaining PRA implementation activities into a newly defined Presidential initiative titled Reform 88.<sup>307</sup> The 5-year implementation horizon of Reform 88 created the impression that many of the initiatives, now two years behind the PRA’s implementation schedule, were actually ahead of schedule using the Reform 88 timeline. Indeed, many projects were addressed in terms of ongoing planning for future implementation.

That oversight of IRM policy implementation was a contentious topic is unquestioned. Yet despite the differences noted above, and the growing distrust noted in the chronology, witness selection for Paperwork Reduction Act oversight hearings followed the typical pattern of oversight hearings seen since paperwork became a policy issue, at least insofar as can be determined from the hearing record and witness testimony. First, a witness from the General Accounting Office reviewed the PRA’s statutory requirements and presented GAO’s assessment of the administration’s policy implementation efforts. Next an OMB official, either the Administrator of the OIRA, or accompanied by the Administrator of the OIRA, testified to the administration’s actions to implement the law and the success achieved up to that point. Third, spokespersons for interest groups or advocates for various policy approaches or policy issues presented their perceptions of the administration’s record and their recommendations to improve extant policies.

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<sup>305</sup> Ibid., p. 37.

<sup>306</sup> \_\_\_\_\_ . “Timeline of GCN,” *Government Computer News*, September 7, 2002.

<sup>307</sup> Congress, House. *Paperwork Reduction Act Amendments of 1983*. Committee on Government Operations, 98<sup>th</sup> Cong., 1<sup>st</sup> sess., 1983, pp. 71-73. According to information provided by Mr. Wright and inserted into the record, Reform 88 resulted from a presentation to the President and Cabinet in May 1982, focusing on efforts to reduce costs, and eliminate fraud, waste, and abuse. Reform 88, a comprehensive overhaul of management initiatives, would be implemented in 1982-1988, thus the title – Reform 88.

#### 4.2.1.3 Finding a Voice: Coalitions 1981-1984

Issue advocates became progressively more evident as the Reagan administration's deregulatory approach to implementing the Paperwork Reduction Act clashed time and time again with the expectations of the PRA's supporters. As portrayed in Figure 4.2, both House and Senate committees conducted oversight hearings into the administration's efforts to realize the PRA goals. As the anticipated progress in implementing the IRM concept failed to materialize, the House and Senate committees held combined oversight and legislative hearings in 1983 and 1984, seeking additional leverage to achieve the PRA's goals. Through 1983 and 1984, it became increasingly apparent from the hearings that the administration's strategy, reducing paperwork through regulatory reform, was also being applied to both the Privacy Act and the Freedom of Information Act. Rather than enforcing these mandates, the Reagan administration was systematically dismantling regulatory programs and information dissemination initiatives, and substituting cost-based processes for the equity-based processes envisioned in these statutes. In the terms of the advocacy coalition framework, the Reagan administration was changing the policy core by substituting its value priorities for those of the previous administration – replacing a concern for equity with cost and market-based reforms.

Advocates addressing paperwork and PRA implementation issues were foremost in confronting the Reagan administration's agenda. Figure 4.2 indicates that all six of the paperwork hearings focused on oversight, and in addition to oversight, two of the hearings (# 5 & 11) considered legislative adjustments to the Paperwork Reduction Act to correct deficiencies in PRA implementation. Table 4.8, Values of Witnesses Testifying on IRM Issues 1981-1984, provides insight into the values orientation of the thirty-one witnesses that testified at these hearings. While coalitions cannot yet be identified, several patterns emerge. As shown in Table 4.8, thirteen witnesses focused on accountability as being the problem; ten other witnesses, OMB and business interests among them, believed that the problem was one of efficiency. This clear divergence on core values pitted those wanting to hold the agencies accountable – the possible beginnings of a coalition – against the administration's desire to streamline government for efficiency's sake – a point of view supported by

another possible coalition encompassing the business community. Despite these values differences, most of witnesses agreed that OMB and Federal agencies had been given adequate authority and responsibility by the PRA to fix the paperwork problem. As to who was responsible for the lack of progress, Congressional Democrats chairing the hearings were quick to blame both the lack of leadership on OMB's part and the higher priority accorded the President's regulatory reform agenda. OMB officials cited their paperwork reduction accomplishments, urged patience, and cautioned Congress that changes, such as envisioned in the information resources management concept, require lengthy implementation periods.

<b>Values of Witnesses Testifying on IRM Issues 1981-1984</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	10	1	5	1	0	0
effectiveness	3	2	0	1	0	0
responsiveness	5	0	0	0	0	2
accountability	13	3	11	1	0	7
equality	0	9	2	6	0	0
<b>Witnesses (total)</b>	<b>31</b>	<b>15</b>	<b>18</b>	<b>9</b>	<b>0</b>	<b>9</b>
<b>Hearings (total)</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>

Table 4.8 Values of Witnesses Testifying on IRM Issues 1981-1984

Privacy advocates were also clearly split along lines of core values. Two of the three hearings featured expert witnesses who explored individuals' privacy perceptions and concerns associated with computer matching. Of the 15 witnesses at these privacy-related hearings, nine witnesses framed the problem as related to equality – a nexus of values that could lead to a coalition. An additional three witnesses viewed the problem as one of accountability, with the remaining three witnesses characterizing privacy as a problem of institutional efficiency or effectiveness.

Records and information advocates testified on the effectiveness of the Freedom of Information Act and its 1974 amendments, focusing especially on the effectiveness of information access processes and guarantees. Media representatives

supported the extant processes, while several business advocates sought to curtail these processes, citing possible harm should their proprietary information and trade secrets be revealed to competitors seeking information under the Freedom of Information Act. Such harm, although alleged, was unsubstantiated by information presented to the committee, and the committee chair specifically ruled out changes to the FOIA based on alleged or possible unforeseen consequences.<sup>308</sup> Records and information concerns were also voiced by 20 witnesses who had testified primarily on paperwork issues. These individuals saw efficiency and accountability linkages between the two issues; their attentiveness to multiple issues suggested the realization that a coalition with more broadly based interests could possibly be more effective, especially if their interests could encompass the entire information resources management concept.

A small but active group of IT acquisition advocates testified at the hearing for H.R. 5148, the Competition in Contracting Act of 1984.<sup>309</sup> Against a backdrop of sole-source IT acquisitions, industry advocates supported the bill's equality provisions that would make government contracting more competitive by mandating full and open competition. Government witnesses focused on the efficiencies to be gained by increased competition. With the guidance of committee chairman Brooks, this powerful combination of interests – desired government efficiency and perceived equality for businesses – successfully propelled the bill through Congress, making it the first instance of policy change within the IRM policy subsystem.

The last two issues were just beginning to gain momentum. Management reform was scarcely mentioned; few considered IRM a management reform issue. The newness of the information resources management concept coupled with the administration's slowness at providing policy guidance made this a non-issue. In the hearings between 1981 and 1984, only a handful of individuals seemed to understand the potential of information resources management. Frank J. Carr, the newly appointed Administrator of GSA's Office of Information Resources Management, was

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<sup>308</sup> Congress, House. *Freedom of Information Reform Act*. Committee on Government Operations, 98<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1984, p. 280.

<sup>309</sup> Congress, House. *Competition in Contracting Act of 1984 (H.R. 5148)*. Committee on Government Operations, 98<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1984.

one such individual. While he clearly understood technology, he also understood the confluence of technology, the politics of organizations, and the politics of policy making.<sup>310</sup> Computer security was still viewed as combating crime, and the lone hearing focused on informing committee members of contemporary computer crime-fighting practices.

#### 4.2.1.4 Seeking Connections: Issues 1981-1984

Paperwork continued to be the dominant issue, due more to the regulatory reforms of the Reagan administration and their paperwork consequences than to citizen concern for paperwork burdens or to Congressional interest in the PRA's implementation. Paperwork was being reduced, but in ways that fostered direct confrontation between Congress and the Reagan administration. Toward the end of this time period, attention shifted from paperwork burdens to the role of statistical information in policy-making. It was noted that approximately 30% of government expenditures were automatically indexed to the Consumer Price Index or another budgetary index, and therefore that a large part of the Federal budget was determined and allocated according to statistical data.<sup>311</sup> Government statistical data should be viewed, it was asserted, as having significant impacts on both policy accomplishments and on budgets. And since the Reagan administration had de-emphasized statistical policy in favor of deregulation, legislation was being considered to strengthen statistical policies and programs under OMB's auspices.

Privacy was being reconsidered, but this time in the context of computing and the capability of information systems to cross-match data. An exploratory hearing provided the results of a survey on privacy; the survey showed that privacy was now a very real citizen concern, especially in relation to commercial business practices. A second privacy-related hearing explored the increasing tendency of Federal agencies to request computer matching with the tax records held by the Internal Revenue

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<sup>310</sup> Congress, House. *Paperwork Reduction Act Amendments of 1983 (H.R. 2718, Committee on Government Operations.*

<sup>311</sup> Congress, Senate. *Paperwork Reduction Act Amendments of 1984.* Committee on Governmental Affairs. 98<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1984, p. 7.

Service.<sup>312</sup> While the underlying concern of privacy remained, new technologies were beginning to redefine and broaden perspectives on privacy.

Records and information management advocates refocused their attention from the classic concerns of forms clearance and records retention schedules to the interpretations of the Freedom of Information Act by the Reagan Justice Department. Of concern were the processes and procedures used by executive branch agencies to deny access to and withhold information from the public. In dismantling the regulatory infrastructure, it was alleged, the administration was using a variety of approaches to limit access to public information: dissemination programs were cancelled, information was classified, and additional exemptions to the FOIA were sought. These administration actions pushed the Freedom of Information Act into the forefront of the battle over information policy.<sup>313</sup>

IT acquisition, as a policy issue, exhibited signs of change. Initially viewed as a mechanism for selecting the lowest cost provider, business groups representing vendors argued that the marketplace value of competition provided not only the best price but a more equitable environment for acquiring goods and services. This position, of course, was used to counter agency tendencies to award non-competitive sole-source acquisitions for IT products and services. Vendors supported the Competition in Contracting Act of 1984, and embraced the notion of equity in creating an open and competitive environment as the means to achieve the administration's efficiency goals.

Computer security was discussed in an exploratory fashion with expert witnesses talking about the state of the art, computer crimes, and the state of contemporary practice. As a policy issue, "the increasing prominence of computers in both the private sector and the Government raised serious ethical, legal, and administrative questions regarding their use and abuse."<sup>314</sup> Computer security remained a latent issue primarily for two reasons: first, no major incident or focusing

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<sup>312</sup> Congress, Senate. *Computer Matching: Taxpayer Records*. Committee on Governmental Affairs, 98<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1984.

<sup>313</sup> Congress, House. *Freedom of Information Act Reform*. Committee on Government Operations, 98<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1984.

<sup>314</sup> Congress, Senate. *Computer Security in the Federal Government and in the Private Sector*. Committee on Governmental Affairs, 98<sup>th</sup> Cong., 1<sup>st</sup> sess., 1983, p. 1.

event had occurred to bring the issue to the forefront of public attention; secondly, information technology was being integrated into agency programs and processes more quickly than most members of Congress realized, and they were only beginning to contemplate the effects of information technology and digital information on government.

Management reform had received scant attention up to this point. However, the remarks by a small number of well-placed individuals, such as Frank Carr, GSA's Administrator for the Office of Information Resources Management, Christopher deMuth, OMB's Administrator for the Office of Information and Regulatory Affairs, and Senator David Durenberger, demonstrated that they viewed information as the common thread uniting all these issues. With the computer increasingly being viewed as a tool for manipulating information, framing the challenges in terms of management reform provided a new way of approaching and addressing old problems and processes with new tools and insights.

#### 4.2.1.5 Competition as Equity: Policy Change 1981-1984

Effecting "major policy change" was the goal of the Reagan administration during this period. As discussed in Chapter 3 in relation to Table 3.1, Structure of Belief Systems of Policy Elites, major policy change alters the "policy core," defined by Sabatier as "fundamental policy positions concerning the basic strategies for achieving core values within the subsystem." He further described major policy change as change in either the "normative precepts" or change in "precepts with a substantial empirical component" of policy – or both. The administration worked on both the normative and the substantive level, and applied external as well as internal pressure to ensure major policy change.

Exerting influence as an "external event" on the policy subsystem, administration officials worked to normatively reorient value priorities through deregulation (as already described in the chronology). Using OIRA's policy role within the policy subsystem, the administration tried to reframe the discussion of the "causes of the problem" and attempted to alter the "distribution of authority between

government and the market”<sup>315</sup> by replacing the “public utility” model of information policymaking with the “competitive” model – in which the marketplace assumed the role of policymaking organizations.<sup>316</sup> The administration’s normative values (or policy core) called for a smaller, deregulated, market-oriented government; its policy actions clashed with the values (policy core) of the Democratically-controlled House of Representatives and with the stated purposes of the Paperwork Reduction Act.<sup>317</sup> Additionally, administration officials had repeatedly been at odds with members of both the House and the Senate in what the lawmakers viewed as one of their key prerogatives – getting timely information from the executive branch on policy implementation.

In this contentious policy implementation and oversight environment, policy change in the IT acquisition issue area resulted from an unusual confluence of values and concerns. Both the Reagan administration and IT business interests were working to achieve process reform in IT acquisition - but for different reasons. The administration and Congress were intent on reforming acquisition processes that led to IT project cost overruns, schedule delays, and what seemed like ineffective agency decision-making. Efficiency in achieving IT capabilities in programs and institutions was their goal. Business interests on the other hand, represented by the Computer and Business Equipment Manufacturers Association (CBEMA) and the Information Industry Association (IIA), were embracing efficiency but were focused on achieving process reforms to curtail agencies’ sole-source IT acquisition practices. Their goal was to change agency behavior; their strategy was to eliminate or significantly reduce sole-source acquisitions by fostering a climate of increased competition in the name of equity. They called for establishing a level playing field, by requiring more competition in the acquisition process. This call to equity and openness - and using the force of law and policy to achieve a more competitive marketplace - resonated with both the administration and Congress.

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<sup>315</sup> Sabatier, *Theories of the Policy Process*, pp. 130-135. Quotes are from the description of the policy core in Table 6.2, p. 133.

<sup>316</sup> Salvaggio, “Social Problems of Information Societies.”

<sup>317</sup> Paperwork Reduction Act of 1980.

The Competition in Contracting Act (CICA) of 1984, Public Law 98-369,<sup>318</sup> established “full and open” as the competition standard in federal contracting. The CICA’s enactment, on July 18, 1984, marked the culmination of concerns that competition had become the exception, rather than the rule, in acquiring goods and services - including IT hardware, software, services, and telecommunications. This legislation established a “Competition Advocate” in every agency and outlined a limited number of exclusions to “full and open” competition.

While the Competition in Contracting Act resulted in improving competition in acquiring goods and services, the additional layer of reviews and approvals required by the CICA did little to speed up an already lengthy and paperwork-intensive acquisition process. Further, the appeals process established by the Act provided the business community an avenue to appeal, to the General Accounting Office, those agency decisions deemed to be non-competitive contracting practices. The overall policy goals of administrative efficiency and increased competition in IT acquisitions, however, were at least partially achieved.

#### 4.2.2 You Ain’t Seen Nothing Yet: The Policy Environment 1985-1988

The Reagan revolution had been unstoppable at the polls, but it bowed before the icy onslaught of Mother Nature. On a subzero January day in Washington, and in competition with televised Super Bowl activities, President Reagan was sworn in for a second term. The Inaugural Parade was canceled due to the bitterly cold weather. Many of the Inaugural festivities were postponed until Monday, January 21<sup>st</sup>. Relations with Congress, so cordial four years earlier, were now combative at every turn. And although President Reagan enjoyed majority support in the Senate as shown in Table 4.9, he faced a Democratic majority in the House led by his principal antagonist and Speaker of the House, Thomas P. “Tip” O’Neill, Jr.<sup>319</sup> The Speaker, it seemed, was one of the few on Capitol Hill completely immune to the President’s charm.

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<sup>318</sup> The Competition in Contracting Act of 1984, July 18, 1984, was passed as Title VII of the Deficit Reduction Act of 1984, and codified as 98 Stat. 494.

<sup>319</sup> Ehrenhalt, Alan, ed. *Politics in America: The 100<sup>th</sup> Congress*. Washington, DC: CQ Press, 1987, pp. 1-4.

U.S. Political Leadership, 1985-1988								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep.	Ind.
1985-6	Ronald W. Reagan	99 <sup>th</sup>	47	53		253	182	
1987-8	Ronald W. Reagan	100 <sup>th</sup>	55	45		258	177	

Table 4.9 U.S. Political Leadership 1985-1988<sup>320</sup>

4.2.2.1 The Demise of Reaganomics: The External Environment 1985-1988

Like the weather, and Tip O’Neill, the economy refused to be moved by President Reagan’s personality and style. Despite many attempts, the US economy continued to stubbornly defy efforts to stimulate economic growth. The supply-side economic doctrine commonly known as “Reaganomics,” failed to stimulate the hoped-for growth in the economy and did not live up to the expectations of its advocates. And while the nation’s economy slowly improved over pre-1981 levels, it still had ample room for improvement.

“Through the prism of the right, Ronald Reagan’s economic policies in the 1980s were a rainbow, a vision that was largely responsible for the nation’s remarkable economy in the 1990s. Through the prism of the left, Reaganomics was a storm that devastated the poor and left huge budget deficits in its wake. That debate may only be settled by historians not yet born, but this much is clear: Economic policymaking today must still contend with the rhetorical markers laid down by Ronald Wilson Reagan when he took office more than two decades ago. Smaller government. Lower taxes. Less regulation. Low inflation. . . . While Reagan only slowed the growth of non-defense spending, his deficits piled up and sent government interest costs soaring, thereby making it difficult for future Congresses and presidents to increase spending without making even bigger holes in the budget. . . . From 1980 to 1986, spending on annually funded domestic programs (besides defense), as a share of the overall economy, fell 29 percent, but in the same period defense spending rose 27 percent.

<sup>320</sup> Sources for information in Table 4.9 can be found in note 202.

Tax revenue plunged 17 percent while the interest on the national debt soared 61 percent. The net result: The budget deficit rose to 5 percent of the overall economy, an 86 percent increase.<sup>321</sup> Selected socio-economic indicators for President Reagan's second term are shown in Table 4.10.

The year 1985, especially the second half, brought a number of bellwether events. In July, seven teenage computer hackers were arrested in New Jersey, and charged with invading a Pentagon computer, joyriding AT&T's long-distance network, and making purchases on a stranger's credit card. In November a new and rapidly addictive form of cocaine, called crack cocaine, began spreading from the streets of New York into its suburbs and neighboring cities. And on December 5, the Dow-Jones Industrial Average topped 1500, setting a new stock market record.

<b>Selected Socio-Economic Indicators, 1985-1988</b>				
	1985	1986	1987	1988
US Gross Domestic Product (billions)	\$4,213.0	\$4,452.9	\$4,742.5	\$5,108.3
Median US Family Income	\$43,518	\$45,393	\$46,151	\$46,285
Annual Average Consumer Price Index	107.6	109.6	113.6	118.3
Average Unemployment Rate	7.2%	7.0%	6.2%	5.5%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	13.10 - 11.09% 13.29%	10.81 - 9.29% 10.99%	9.37 - 10.64% 11.58%	10.61 - 10.77% 10.77%

Table 4.10 Selected Socio-Economic Indicators, 1985-1988<sup>322</sup>

Nineteen eighty six began as a combination bad news-good news year, but went rapidly downhill; bad news seemed to be the order of the day. On January 28, national tragedy struck when the Space shuttle Challenger exploded on liftoff killing the entire crew. The good news, announced by OPEC on February 15, was that the price

<sup>321</sup> Kessler, Glenn. "Right-Leaning Policy Won a Nickname: Reaganomics." Washington Post, June 6, 2004, p. A27. Available online at <http://www.washingtonpost.com/ac2/wp-dyn/A19171-2004Jun5>. Downloaded July 21, 2004.

<sup>322</sup> Data sources for Table 4.10 can be found in notes 203-207.

of oil was at a recent low of \$15 a barrel. The fully refurbished Statue of Liberty celebrated its 100<sup>th</sup> anniversary, while a disgruntled hammer-wielding man smashed the display case containing the Declaration of Independence, the Constitution, and the Bill of Rights at the National Archives. For the administration, the news was all bad. In the mid-year elections, Democrats won a majority in the Senate and made substantial gains in the House, even as the Iran-Contra scandal was breaking. In November the Justice Department began probing the activities of several National Security Council members, including Marine Lieutenant Colonel Oliver North and Navy Admiral John Poindexter. By December 1986, 47% of Americans believed that concerning the Iran-Contra scandal, President Reagan was lying about what he knew, and when he knew it.

To all appearances, 1987 was poised to be the year of the stock market. On January 8 the Dow Jones Industrial Average topped the 2000 mark for the first time. The computer industry in Silicon Valley was beginning a comeback after two dismal years and a major shakeout. Sales of personal computers were booming, and so were markets for associated products such as software. Other technology sectors that made use of computers, such as bioengineering, were about to show their potential; in April the U.S. Patent Office began allowing patent applications for new animals created through genetic engineering. President Reagan named Alan Greenspan to be Chairman of the Federal Reserve in early June, and on August 24, the Dow Jones closed just over 2722. In the previous five years, the Dow Jones had risen 244 percent. This good news provided a suitable backdrop to the celebration of the 200<sup>th</sup> birthday of the U.S. Constitution on September 17; ten days later the 50 millionth VCR was shipped to market. But what goes up must come down, and on October 16, the Dow Jones ended the week with a 235.48 point decline. The following Monday it plunged 508 points. Two days later the Dow Jones soared a record 186 points. The year of the stock market, in retrospect, seemed to have been the unrecognized harbinger of a new but highly volatile and dynamic information-oriented economy.

As the country entered yet another election year, 1988, the sluggish economy and the Iran-Contra and WedTech scandals that refused to die hung over the administration like a black cloud. From time to time events would drive the scandals

from the public's attention, only to have the scandal reappear as indictments or resignations were announced. The stock market slide of 1987, a fresh memory, was one of those scandal-trumping events. In early January 1988, a presidential task force issued its report blaming the October 1987 stock market crash on computerized trading. The conclusions of that task force were echoed a month later, as the directors of the New York Stock Exchange voted to ban the electronic order system used for a form of computerized trading. In March, scandal news reappeared, as four former National Security Council members were indicted by a federal grand jury. In July, Attorney General Meese resigned amid accusations of misconduct. Promising a return to "responsibility, accountability, and respect for truth," Democrats selected Massachusetts Governor Michael Dukakis and Senator Lloyd Bentsen as their standard bearers. A month later the Republicans selected Vice President Bush and Senator Dan Quayle as their candidates.

One evening, a mere four days before the 1988 presidential election, Internet traffic suddenly began slowing. In a few hours, a "worm program" infected 6,000 of the approximately 60,000 Internet host computers, consuming computing resources and bringing communications on the network to a virtual halt. In the aftermath of this attack, it was learned that Robert Morris, a first year graduate student in computer science at Cornell University had unleashed a "worm" on the Internet.<sup>323</sup> And while the Internet worm made national and international news headlines, the Internet was still a technological and academic curiosity, not yet an integral part of American economic and cultural life. The November 8 election went on as scheduled, elevating George H.W. Bush to the Presidency, the first sitting vice president to be so elected since 1836.

Technology industries defied national economic trends during the second Reagan administration. During 1985, technology products, such as CD-ROM drives and computer networking software, became commercially available. At the 1985 Spring COMDEX, Microsoft demonstrated Microsoft Windows and announced an

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<sup>323</sup> Morris was subsequently prosecuted under The Computer Fraud and Abuse Act of 1986, and this incident prompted Defense Advanced Research Projects Agency (DARPA) to establish a Computer Emergency Response Team, or CERT, at Carnegie Mellon University, to act as a coordinator and central switchboard for future computer emergencies. See the "Special Section on the Internet Worm,"

official release date of June. Epitomizing the all-too-common trend toward early promise followed by late software product delivery, Windows finally became available for \$100 a copy, two years after the initial product announcement. And despite the dismal national economic picture, Microsoft reported its year-end profit as \$31.2 million on revenues of \$140 million. In September, another computer manufacturer – Gateway 2000 located in Sioux City, Iowa – started business. This was the year that the Internet went commercial, as Symbolics.com became the first registered Internet domain. During 1985, IBM sold 1.4 million IBM personal computers. By the end of the year it was estimated that 13.6% of households in the U.S. owned a personal computer.

As it had done earlier, the information technology sector continued to defy national economic trends in 1986. In January, Compaq Computer reported annual revenues of \$503.9 million, a U.S. business record for a company in only its third year. By April, Compaq joined the Fortune 500 - faster than any other company in history - and shipped its 500,000<sup>th</sup> personal computer. Microsoft joined the New York Stock Exchange on March 13; its initial public offering of \$25.75 a share raised \$61 million. Satellite Software capitalized on the recognition afforded its core product and changed its name to WordPerfect Corporation. In June, Software Publishing introduced Harvard Graphics, software for creating presentation graphics, the first such product in its field. Software entrepreneur Phil Katz created the PKZip and PKUNZip programs for compressing PC files. By the end of the year NSFNET had been created (with a backbone speed of 56 Kbps), and it was estimated that 16.6% of U.S. homes had a personal computer.

Software innovation, and advances in software capabilities, were key features of 1987. At the Winter Consumer Electronics Show in Las Vegas, Aldus Corporation, then the third largest software company in the U.S., introduced PageMaker, the first of a new generation of software used for what was called desktop publishing. Lotus Development Corporation, claiming infringement of copyright over the so-called “look and feel” components of Lotus 1-2-3, filed suit against Paperback Software (maker of VP-Planner) and Mosaic Software (maker of The Twin), both lower-cost spreadsheet

products. In March, Bill Gates became the nation's youngest billionaire at the ripe age of 31, as Microsoft stock hit \$90.75 per share. In April, Microsoft announced Windows 2.0 and Operating System/2, the latter a joint product with IBM Corporation. Lotus Development announced that it would provide versions of Lotus 1-2-3 for all of the major PC operating systems, and revealed that it was were developing a version of Lotus 1-2-3 for mainframe computers. Microsoft began rounding out its office software suite by acquiring Forethought, maker of the PowerPoint presentation graphics program for the Macintosh. HyperCard, a new kind of software application that provided the capability to link disparate pieces of information using a novel approach called hyper-text, was introduced by Apple Computer in August. In October Microsoft unveiled its spreadsheet, Microsoft Excel, the first major application for Windows; another new software company, Borland International, shipped its spreadsheet program, Quattro, emulating the commands used in Lotus 1-2-3. By the end of 1987, Microsoft had shipped its one millionth copy of Windows, Apple Computer had made its one millionth Macintosh computer, and 3M Corporation had introduced the 2 megabyte high-density 3½ inch diskette. It was estimated that 19.4% of US homes contained personal computers, that Lotus 1-2-3 had 62% of the spreadsheet market, and that the Internet had more than 10,000 host computers.

As 1987 came to a close, the Office of Science and Technology delivered to its requestor, Senator Al Gore, a concept and plan for a National Research and Education Network (NREN), developed under the guidance of Gordon Bell. This plan called for using the Internet to develop a national "Information Superhighway." The metaphor referred to the Interstate highway system, and the highway system's enabling legislation authored by the Tennessee Senator's father, Albert Gore, Sr., in 1956.<sup>324</sup>

The world of technology in 1988 was awash in "firsts." The first entertainment software imported from the Soviet Union, a game called Tetris, was introduced by Spectrum Holobyte Corporation. Compaq Computer set a new record as the fastest company to reach annual sales of \$1.2 billion. The Open Software Foundation was founded, and WordPerfect Corporation shipped its latest version, WordPerfect 5.0, for

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<sup>324</sup> Weingroff, Richard F. "Federal-Aid Highway Act of 1956: Creating the Interstate System." *Public Roads*, Vol. 60, No. 1, summer 1996.

a retail price of \$500 a copy. Lotus Development shipped its four millionth copy of Lotus 1-2-3 in May, 1988. The following month a new company, Creative Labs, was founded; its product, SoundBlaster, would be the first to bring sound to the personal computer. The same month Hewlett-Packard introduced the DeskJet ink jet printer for \$1000. NEC Technologies introduced a 4.2 pound UltraLite PC, the first “subnotebook,” featuring stylus input and handwriting recognition. The first issue of *PC Computing* magazine hit the newsstands in August. In the Internet world, the National Science Foundation upgraded its NSFNET to the new “T-1” speed of 1.54 Mbps, Internet Relay Chat (IRC) was developed, and the number of hosts attached to the Internet reached 60,000. It was estimated that by the end of 1988, approximately 22.4% of US homes had a computer. The big three computer companies for 1988, Apple Computer, IBM, and Commodore Computer, shipped 1.271 million, 1.229 million, and 665,000 computers, respectively. The spreadsheet market for 1988 was 2,040,000 units, with Lotus Development Corporation holding a 68% market share.

#### 4.2.2.2 Managing Federal Information Resources: The Policy Subsystem 1985-1988

The number of hearings conducted on IRM-related issues during the time period of 1985-1988 suggests a slowdown in policy activity (see depiction in Figure 4.3). But while Congress had shifted its focus somewhat, from the physical challenges of paperwork to the management challenges of electronic information, many policy implementation activities directly affecting IRM were occurring within the administration and throughout executive branch agencies. As early as September 1983 OMB had signaled its intent to develop a circular on the topic of information policy with a notice in the Federal Register. “In response, OMB received comments from 14 government agencies, 18 libraries and universities, and 21 other members of the public.”<sup>325</sup> On March 15, 1985, OMB published the draft circular *Management of Federal Information Resources* in the Federal Register, inviting public comment. Over the next five months OMB received 350 letters commenting on provisions of the draft circular affecting “the administration and management of automated data processing activities, records management, the costing and interagency sharing of data processing facilities, privacy,

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<sup>325</sup> Hernon and McClure, *Federal Information Policies in the 1980's*, p. 241.

security of information systems, and public access to government information.”<sup>326</sup>

Reactions to the draft policies varied widely, with proponents of the circular supporting its efficiency and economic orientation while its opponents argued the need for more focus on the public good, equity, and public service perspectives.<sup>327</sup> This cleavage in the underlying policy justification, pitting efficiency and effectiveness against equity and a public service ethos, highlighted the challenge of the policy environment surrounding information resources management. Computerization held the promise of providing desired efficiencies, but information systems in 1985 were rudimentary, costly, difficult to develop, and still more art than science. And while computerized information systems could surely be developed to ensure equitable public access to information, the cost-benefit tradeoffs were difficult to justify in the face of aggressive lobbying efforts from the market-oriented information industry.

Over a six month period in 1985 the House Committee on Government Operations held hearings on information dissemination. The committee sought to reexamine the role of Federal agencies in disseminating information, especially public information, and information in electronic form. Within this context, and the trend toward increasing capabilities and costs of computerized information systems, the policies proposed by the OMB draft circular on information resources management would also be reviewed.<sup>328</sup> Three systems provided a focus for testimony; the prototype Electronic Data Gathering and Retrieval (EDGAR) system undergoing limited operational testing by the Securities and Exchange Commission; a more rudimentary yet highly effective system, the Medical Literature Analysis and Retrieval System (MEDLARS) sponsored by the National Library of Medicine; and a Department of Agriculture initiative, the Electronic Data Interchange (EDI), an information dissemination system in early development. These three systems also provided a typology for viewing information dissemination initiatives in Federal agencies. The

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<sup>326</sup> Ibid., p. 214.

<sup>327</sup> Relyea, Harold C., Jane Bortnick, Richard C. Ehlke, and Nancy R. Miller. *Management of Federal Information Resources: A General Critique of the March 1985 OMB Draft Circular – Matters for Possible Congressional Consideration*. Washington, DC: Congressional Research Service, July 1985.

<sup>328</sup> Congress, House. *Electronic Collection and Dissemination of Information by Federal Agencies*. Committee on Government Operations, 99<sup>th</sup> Cong., 1<sup>st</sup> sess., 1985. Hearings were conducted on April 18, June 26, and October 18, 1985.

MEDLARS system had been operating successfully for several years using a combination of public and fee-based funding; EDGAR was conducting a limited operational test using real corporate information and was primarily financed by filing fees; and EDI was in advanced development planning using only appropriated funding. Most importantly, examining these information systems revealed several information-related challenges.

At least three insights with policy consequences resulted from these hearings. First, public information in electronic form could be much more easily commoditized and tailored than could information in paper form. This condition enabled the creation of an information market made possible, and likely, by reselling government information. Second, testimony from the Information Industry Association asserted that a fledgling information market already existed in 1985, but raised the nagging question of the propriety of an information marketplace for public information. Presumably public information was generated at taxpayer expense; was it proper to give or sell public information to a business for resale to the government and the public? Third, the two previous insights provided cause for reflection on possible tensions between agencies' public service charters, goals, and program processes, and the dynamics of the market. To what extent were the administration's proposed market-oriented information policies compatible with democratic governance? What impact might these policies have on government's information-intensive institutions?

Appearing before Representative Barney Frank's Employment and Housing Subcommittee in July 1985, Douglas Ginsburg, the Administrator of OMB's Office of Information and Regulatory Affairs, presented the administration's position on the draft circular. While acknowledging that some opponents had posed legitimate questions that he was quite willing to discuss, Ginsburg outlined the content of the circular in forthright terms. The circular offered policy guidance for agencies, not regulations as some opponents had alleged in media stories. The core of the circular brought together policies from five previously separate documents and policy areas, including "automatic data processing, computer security, the sharing of computer resources with State and local governments, the Privacy Act implementation, and the allocation of

Congressional Hearings and Policy Issues, 1985-1988												
	1985 Apr Jun Oct			1986 Apr Jun Oct			1987 Apr Jun Oct			1988 Apr Jun Oct		
Privacy	A						5			I		
Paperwork	B			F								
Computer Security							4 H					
IT Acquisition	C & D											
Records & Information	E 1 2			3			G					
Management Reform	E											

**Legend:**

 The triangle indicates policy change; the lines indicates policies. Policies are listed below as "Extant Policies."

 Hearings (torus) are color coded by issue, numbered in temporal order, and listed below.

- The "H401" in a CIS Number denoted the House Government Operations Committee.
- The "S401" in a CIS Number denotes the Senate Governmental Affairs Committee.

**Extant Policies:**

- A = Privacy Act of 1974
- B = Paperwork Reduction Act of 1980
- C = Brooks Act of 1965
- D = Competition in Contracting Act of 1984
- E = OMB Circular A-130, Management of Federal Information Resources
- F = Paperwork Reduction Reauthorization Act of 1986
- G = Freedom of Information Act (as amended)
- H = Computer Security Act of 1987
- I = Computer Matching and Privacy Protection Act of 1988

No	Year-Congress	CIS No	HEARING TITLE AND DATE	PURPOSE
1	1985 99 <sup>th</sup> - 1 <sup>st</sup>	86-H401-15	Electronic Collection and Dissemination of Information by Federal Agencies. April 29, 1985.	Information
2		86-H401-2	OMB's Proposed Restrictions on Information Gathering and Dissemination by Agencies. July 17, 1985.	Oversight
3	1986 99 <sup>th</sup> - 2 <sup>nd</sup>	87-H401-10	Freedom of Information Act Amendments of 1986. June 5, 1986.	Legislative P.L. 99-570
4	1987 100 <sup>th</sup> - 1 <sup>st</sup>	88-H401-1	Computer Security Act of 1987. February 25, 1987.	Legislative P.L. 100-235
5		88-H401-4	Computer Matching and Privacy Protection Act of 1987. June 23, 1987.	Legislative P.L. 100-503

Figure 4.3 Congressional Hearings and Policy Issues, 1985-1988

costs for multi-use data processing facilities.<sup>329</sup> Further, the circular was divided into two parts, the first focusing on information policy and the second on information management and technology.

Most of the controversy surrounding the draft circular had focused on the information policy portion of the circular, and Ginsburg carefully defined the terminology at the heart of the respondents' questions. Access to information, from an agency perspective, was a passive activity until someone requested the information. Access provisions were already established, and guaranteed through the Freedom of Information Act. Information dissemination, on the other hand, was an active endeavor, in which agencies established processes to provide information to the public. But information dissemination, Ginsburg cautioned, must be carried out in accordance with the law and the agency mission. In the past, some agencies were disseminating information outside their charters and had duplicated information available elsewhere. Information collection processes, established by the Paperwork Reduction Act, were an ongoing activity that had resulted in clearance of approximately 17,500 individual agency requests to collect information from the public in the past 4 ½

<sup>329</sup> Congress, House. *OMB's Proposed Restrictions on Information Gathering and Dissemination by Agencies*. Committee on Government Operations, 99<sup>th</sup> Cong., 1<sup>st</sup> sess., 1985, p. 74.

years. Some individual and group concerns, he noted, stemmed from a failure to understand the differences between these information activities.<sup>330</sup>

The second part of the circular focused on information systems and technology management. Under these policies, agencies were required to establish planning processes and management controls for information technology. Program officials would be held accountable for information systems developed for and used by their programs; the policies would “require acquisition of off-the-shelf rather than customized, home grown hardware; require appropriate security for information systems; . . . require full cost accounting for technology facilities such as computers and telecommunications systems that are used by multiple users; and realize savings wherever possible through updating technology.”<sup>331</sup> In short, this circular required agencies to establish and conduct information resources management. When OMB Circular A-130, Management of Federal Information Resources, was finally published for agency implementation on December 12, 1985, it had taken nearly five years for the Reagan administration to implement this part of the Paperwork Reduction Act; it had taken almost eight years for the management reform concept first outlined by the Commission on Federal Paperwork to become the cornerstone of Federal information policy.

As implementation of OMB Circular A-130 finally got underway in departments and agencies, earlier information challenges continued to reassert themselves. In mid-1986 an attempt by business interests was made to amend the Freedom of Information Act. This amendment would create new procedures for processing FOIA requests involving business records that had been submitted to government agencies, and preclude businesses and individuals from using the FOIA to discover their competitor’s confidential business matters. Business interests had lobbied consistently to either exclude business documents from FOIA purview or to provide them with additional disclosure protections. While the attempt to rewrite FOIA access seemed to have lost its footing, it was resuscitated in the House Judiciary Committee at the close of the legislative session. The measure was reframed with new provisions broadening law

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<sup>330</sup> *Ibid.*, p. 76.

<sup>331</sup> *Ibid.*, pp. 75-76.

enforcement exemptions for withholding sensitive investigative documents, and the FOIA Reform Act of 1986 was offered as a floor amendment to the Anti-Drug Abuse Act of 1986. It passed, and was signed by President Reagan as Public Law 99-570 on October 27, 1986.<sup>332</sup>

Computer security also surfaced as an information challenge, but in a new guise - using the national security classification system and classification authority to restrict access to information. Set against the Iran-Contra scandal and the subsequent investigation, Admiral Poindexter, the President's National Security Advisor, issued a directive on October 29, 1986, restricting access to a wide variety of unclassified scientific, economic, and cultural information. An earlier National Security Decision Directive signed by President Reagan in 1984, NSDD-145, "gave NSA [the National Security Agency] control over all government computer systems containing 'sensitive but unclassified' information. This was followed by a second directive issued by National Security Advisor John Poindexter that extended NSA authority over non-government computer systems."<sup>333</sup> Poindexter's directive, in the words of Committee Chairman Brooks, "reflects an unprecedented expansion of the military's influence into our society, which is unhealthy politically, and potentially very dangerous."<sup>334</sup> In response to this challenge, a bill was drafted and introduced, H.R. 145, to authorize the National Bureau of Standards (NBS) to establish a program to improve computer security practices throughout the Federal government. This bill sought to put computer security for civilian agencies under the NBS program, while computer security for defense and intelligence activities would remain under DoD policy control. With the Iran-Contra scandal as a backdrop, the Computer Security Act of 1987 passed in each chamber by voice vote and was signed into law on June 11, 1987.

Privacy surfaced again as an issue of concern, this time in relation to computer data bases and data matching in agencies. Computer matching, an ongoing practice,

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<sup>332</sup> U.S. Department of Justice. *Attorney General's Memorandum on the 1986 Amendments to the Freedom of Information Act*. Washington, D.C., December 1987. Available online at <http://www.usdoj.gov/04foia/86agmemo.htm>

<sup>333</sup> Electronic Privacy Information Center. *The Computer Security Act of 1987*. Available online at <http://www.epic.org/crypto/csa/>. Downloaded October 20, 2003.

<sup>334</sup> Congress, House. *The Computer Security Act of 1987*. Committee on Government Operations, 100<sup>th</sup> Cong., 1<sup>st</sup> sess., 1987, p. 2.

was being used by agencies for eligibility determinations, screening for fraudulent claims, and a variety of routine business practices. Many program processes already relied on computer matches for their performance. In pushing matching practices to their logical conclusion - such as Federal-state matching - it became increasingly difficult to conduct computer matching and still satisfy Privacy Act requirements. Non-consensual use of the data and past use of databases quite removed from the desired match, such as income tax, census, political, or religious data bases, increased pressure for a legislated system of general and procedural requirements. One mandatory requirement in the bill under consideration subjected proposed computer matches to passing a favorable cost-benefit analysis, a provision not supported by the Reagan administration. Despite the administration's objections, the bill passed by a voice vote in the Senate and by a vote of 393 to 8 in the House; it was signed by President Reagan on October 18, 1988.

#### 4.2.2.3 Traditionalists and Information Producers: Coalitions 1985-1988

By the end of 1988 one could distinguish the interest groups that were emerging in the IRM policy subsystem. Whether or not one could call any of them coalitions is debatable. The forceful stance taken by the Reagan administration left little room to discuss policy alternatives. In many hearings only two sides of an issue surfaced; a witness from OMB would outline administration policies, and witnesses opposed to the administration's policies would outline their opposition. Few administration witnesses strayed from presenting the administration's views to discuss alternative approaches - there seemed to be little room for discussion or negotiation. If any theme existed across the interest groups testifying at these hearings, it was a deep and abiding distrust of the Reagan administration and its information policies.

Partisanship aside, two "clusters" of hearing witnesses showed alignment in their values and perception of the information challenges discussed at these hearings as shown in Table 4.11. The first of these clusters could be called the "Information Producers." *Information Producers* were represented by firms such as Dunn and Bradstreet and the Information Industry of America (IIA), a professional association helping member businesses in the information industry achieve their business and

political goals. The IIA represented businesses that commoditize information, that contract with agencies to provide information-intensive services and products, and businesses that resell business and government information. While clearly a market-oriented group, these businesses disagreed with the administration's market-oriented policies. They believed that the market should decide both what information is collected and what is disseminated, rather than having those choices be a matter of policy, legislation, or administrative discretion.<sup>335</sup> These firms were joined by representatives of three Federal agencies implementing information intensive projects, the Federal Maritime Commission, the Bureau of the Census, and the Securities and Exchange Commission, in framing the information activities in efficiency, effectiveness, and responsiveness terms, and as being stable technical, managerial, or regulatory problems rather than dynamic political problems.

The second cluster of interests could be called the "Traditionalists." Not quite as well organized as the *Information Producers*, the *Traditionalists* were librarians and information professionals fiercely proud of their history and tradition of public service. Linking their heritage to Benjamin Franklin, they live the public service ethic in their libraries, information centers, and archives across the country. The largest formal group within the *Traditionalists* is the American Library Association, but the *Traditionalists* also drew support from State archivists, university librarians, the Association of Research Librarians, university library science professors, and the National Commission on Libraries and Information Sciences to make their case. They framed the topics of the hearings as policy and oversight problems that surfaced issues of Federal agency accountability concerning access to public information. This framing highlighted and provided backing for the crown jewel of the *Traditionalists*, the Depository Library Program, a legislated information dissemination program to distribute government documents to participating libraries. The *Traditionalists* depended on a powerful and active information network that included many influential members of Congress.

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<sup>335</sup> Congress, House. *Electronic Collection and Dissemination of Information by Federal Agencies*. Committee on Government Operations, 99<sup>th</sup> Cong., 1<sup>st</sup> sess., 1985, pp. 65, 153.

<b>Values of Witnesses Testifying on IRM Issues 1985-1988</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	0	2	4	0	0	0
effectiveness	0	0	5	0	0	4
responsiveness	0	0	3	0	0	1
accountability	0	2	6	0	0	10
equality	0	0	2	0	0	0
<b>Witnesses (total)</b>	0	4	20	0	0	15
<b>Hearings (total)</b>	0	1	3	0	0	1

Table 4.11 Values of Witnesses Testifying on IRM Issues 1985-1988

Advocates of privacy and freedom of information have the potential to become a significant coalition however each organization remains bore-sighted on its own agenda. Led by the American Civil Liberties Union (ACLU), some of these advocates may be broadening their perspective, realizing that limits on privacy and information access may lead to curbs on other civil liberties. The ACLU is clearly the best organized of these diverse groups, and while dispersed, FOIA activists are perhaps the strongest and most determined advocates; they include members of the press, public interest groups, and many members of Congress.<sup>336</sup>

No spokesperson or group has yet to emerge in the issue areas of computer security and management reform. Given that computer security is a relatively new area and one with a high technical content, this is understandable. On the other hand, management reform, in the form of the information resources management concept, was clearly articulated, as OMB's Ginsburg outlined the provisions of the new Circular, A-130, *Management of Federal Information Resources*.<sup>337</sup>

#### 4.2.2.4 Visibility and Importance: Issues 1985-1988

This time period demonstrates an aspect of policy that never ceases to interest,

<sup>336</sup> Congress, House. *Freedom of Information Act Amendments of 1986*. Committee on Government Operations, 99<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1986, p. 11.

<sup>337</sup> Congress, House, *OMB's Proposed Restrictions on Information Gathering and Dissemination by Agencies*, Committee on Government Operations, pp. 75-76.

amaze, and frequently frustrate policymakers, practitioners, and students of public policy; that is, the difference between the importance of policy issues and their visibility in policy circles. Often an issue is quite important, but for various reasons the issue does not receive the kind of visibility and scrutiny it deserves. The inverse can also occur; an issue may have visibility, perhaps because of its sponsor or because of some form of notoriety, but in the overall scheme of things, it is relatively unimportant.

While each of the six issues of interest in this study retained its importance, only four of the original six issues retained their visibility. The other two issues drew relatively little attention. Paperwork as an issue dropped dramatically in importance, probably because of the Reagan administration's aggressive program to reduce Federal regulations. Despite all its faults, the regulatory reform focus had helped the administration achieve its paperwork reduction goals and therefore silence the critics. Somewhat differently, IT acquisition received little notice. Passage of the 1984 Competition in Contracting Act silenced some critics. Furthermore, the implementation of the act was monitored by the business community, and its due process provision allowed dissatisfied bidders to lodge a protest with the General Accounting Office. The remaining four issues were quite visible and are reviewed below in the order of relative policy priority accorded them during this time period.

Records and information was the most visible issue, because of the realization that information was important, whatever its form. Public interest advocates pushed for greater information access and information dissemination; relying on newly legislated exemptions for certain types of law enforcement and confidential business information, departments and agencies – with the assent of the administration – slowed or denied access to information, restricted information dissemination programs, and subjected many information-related activities to cost-benefit scrutiny. The prevalence of computers, in both homes and agencies, focused attention on information in electronic form, raising additional concerns about access to and dissemination of digital information.

Second in visibility, privacy remained a very important issue. Privacy advocates began to understand and acknowledge that the notion of privacy and its manifestation in society was changing. The advent of computer matching irreversibly linked the issue

of privacy with issues of computing, computer security, and information access. Computer matches across governmental boundaries also linked this issue with issues of federalism, and eventually to international trade as individually identifiable data in digital form began crossing international borders.

The third issue, computer security, was recognized in two key ways. Interestingly, computer security became an important issue not because of its intrinsic qualities but because of its enabling qualities - it enabled computer matching and set in motion the legislative procedures that were a precondition to computerized matching. But perhaps more importantly in this time period, computer security became a symbol of a larger contest, a contest over who controls information policy, and the constitutional principle of civilian control over the national security establishment. This discussion of computer security is explored in more depth in the section on policy change below.

The fourth issue, management reform, was finally recognized as an issue of importance. As noted in the 1985 testimony of OIRA Administrator Douglas Ginsburg, the information resources management concept, as a management reform, was critical to implementation of the Paperwork Reduction Act. Discovered by OMB during the development and promulgation of Circular A-130, *Management of Federal Information Resources*, the management function that this issue describes was institutionalized in all Federal agencies by an administration committed to reducing the size of government.

#### 4.2.2.5 Reactive Policymaking: Policy Change 1985-1988

Two instances of policy change affected the IRM policy subsystem during the years 1985 through 1988. While both policy changes involved computers or computer-based capabilities, the essence of each policy change was focused on an issue unrelated to computers. Computing, or more accurately, the capability provided by information technology, thrust each issue into the "policy spotlight," making each highly visible. As noted above, the two most highly visible issues during this time period were records and information, and privacy - the issues affected by these policy changes. Neither of these instances of policy change can be attributed to coalition actions; no

coalitions dealing with computing existed at this time, and the interests coalescing around the issues of privacy and records were only beginning to understand the relationships and consequences of the issue's association with computers and computing. Rather than an affirmative legislative act, each of these policy changes appears to be a direct Congressional reaction to Reagan administration policy actions (or governing regime policies in ACF terminology), as Congress sought to legislatively readjust the policy environment.

On its face, the Computer Security Act of 1987 established a computer security program within the National Bureau of Standards for all non-defense departments and agencies. At another level, however, this legislation reasserted civilian authority over the defense and national security establishment, and reinforced the principle of civilian leadership in information policy by putting the NBS in charge of computer security (later termed information security, and now information assurance) for civilian agencies. Intelligence and defense-related information policy would still be the province of the national security community. Operationally, NSA was to provide advice and technical support, but policy and standards functions were clearly intended to reside within the Department of Commerce and the NBS, as outlined in the earlier Paperwork Reduction Act. The Computer Security Act established a requirement for mandatory security planning in Federal agencies, and for mandatory and periodic training in computer security for all employees involved with the management, use, or operation of computer systems.<sup>338</sup>

The Computer Matching and Privacy Protection Act of 1988 focused on processes to ensure privacy during computer matching, and reasserted the primacy of privacy as the preeminent value, not to be surrendered for the sake of efficiency. Computer matching was defined as the computerized comparison of information about individuals, primarily for the purpose of determining eligibility for Federal benefit programs. The act stipulated that matching programs involving Federal records be conducted under a matching agreement between the source and recipient agencies, describing the purpose and procedures of the matching and establishing protections for

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<sup>338</sup> Bill Summary and Status, H.R. 145, Public Law 100-235 (1/08/1988), 100<sup>th</sup> Congress. Available online at <http://thomas.loc.gov>

matched records. Matching agreements were subject to review and approval by a Data Integrity Board, an entity required of each Federal agency involved in computer matching. This act also amended the Privacy Act by adding new provisions regulating the use of computer matching, and specified that records used during a computer match were subject to this additional set of privacy requirements.<sup>339</sup>

This time period witnessed policy change as the result of arguably the first major intersection of policy issues, the capabilities of information technology, and political dynamics. The policy issues at stake, computer security and privacy, were clearly integral to the IRM policy subsystem, but the implications of the policy changes reached much further afield – eventually to the constitutional issue of civilian control over national security affairs in the case of the Computer Security Act, and to reasserting privacy as one of a citizen’s preeminent rights through the Computer Matching and Privacy Protection Act. In each of these instances of policy change, information technology or the technological capabilities of information systems became the foil for addressing broader and more contentious issues. Yet one is left with the nagging question of how did these policy changes come about in this formative stage of the policy subsystem, especially in the absence of able coalitions and with only a moderate level of interest group support?

In summarizing the literature on policy subsystems, McCool notes that “perhaps the most significant question, at least from a theoretical perspective, concerns the impact that the president has on subsystems. The traditional assumption was that subsystems operated largely beyond the control of the president . . .”<sup>340</sup> Perhaps it would be more precise, and may be more productive, to focus on the impact that the administration, and especially the Executive Office of the President (which includes the Office of Management and Budget) has on policy subsystems. In the case of information resources management for example, the Paperwork Reduction Act of 1980 established the Office of Information and Regulatory Affairs in OMB, and assigned it

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<sup>339</sup> Congress, House. *A Citizen’s Guide On Using the Freedom of Information Act and the Privacy Act of 1974 to Request Government Records*. Report No. 108-72. Committee on Government Reform, 108<sup>th</sup> Cong., 1<sup>st</sup> sess., 2003. Available online at <http://www.estrategy.gov/documents/CitGuideFOIA10817292303.doc>. Downloaded March 23, 2004.

<sup>340</sup> McCool, Daniel C. *Public Policy Theories, Models, and Concepts: An Anthology*. Englewood Cliffs, NJ: Prentice Hall, 1995, p. 382.

the preeminent role in crafting policy guidance for implementation, management, and oversight of agency IRM activities. Without coalitions to advance contending viewpoints and pursue a resolution to policy conflicts at the subsystem level, the political dynamics of this period pitted an uncompromising administration against an increasingly inhospitable Congress.

#### 4.2.3 A Kinder and Gentler America: The Policy Environment 1989-1992

Signaling a change from the previous eight years, President George H. W. Bush repeatedly used the phrase “A new breeze is blowing” in his inaugural address to call for an end to inter-party hostility, and for the formation of a bipartisan coalition to fight social ills. Yet despite the rhetoric and good intentions, the ill will and distrust generated by eight years of the Reagan administration’s single-minded pursuit of regulatory reform and its uncompromising stance on a myriad of issues would haunt

<b>U.S. Political Leadership, 1989-1992</b>								
<b>YEARS</b>	<b>PRESIDENT</b>	<b>Cong.</b>	<b>Composition of the U.S. Congress</b>					
			<b>Composition of Senate</b>			<b>Composition of the House of Representatives</b>		
			<b>Dem.</b>	<b>Rep.</b>	<b>Ind.</b>	<b>Dem.</b>	<b>Rep</b>	<b>Ind.</b>
1989-90	George H.W. Bush	101 <sup>st</sup>	55	45		260	175	
1991-92	George H.W. Bush	102 <sup>nd</sup>	56	44		267	167	1

Table 4.12 U.S. Political Leadership 1989-1992<sup>341</sup>

the Bush administration at nearly every turn (see Table 4.12 for the Congressional composition ). In the final year of the 1980’s, international events provided a tumultuous backdrop to domestic and political events. The last Soviet troops left Afghanistan; nearly two million Chinese students staged a pro-democracy protest in Beijing’s Tiananmen Square; Soviet citizens rejected the status quo in their freest elections since 1917 and elected reformer Boris Yeltsin; Polish voters rebuked the Communist party by giving Solidarity candidates a huge victory in their first competitive election in four decades; East Germans began an exodus to West Germany and

<sup>341</sup> Sources for information in Table 4.12 can be found in note 202.

automatic citizenship there; the Berlin Wall fell and the Brandenburg Gate was open to both vehicular and pedestrian traffic before Christmas; U.S. troops invaded Panama to oust dictator Manuel Noriega; and a two-week-old Rumanian revolution overthrew Communist dictator Nicolae Ceausescu.

Changes such as these, as well as many more, were part of an ongoing global transformation affecting the political, social, economic, and institutional fabric of many countries across the globe during the 1980's. As described by Donald Kettl, the public management effects of this transformation were expressed by six themes: productivity - how can government do more with less?; marketization - how can markets help reduce the pathologies of bureaucracy?; service orientation - how can government make better connections with citizens?; decentralization - how can government programs be moved closer to the citizens they serve?; policy - how can government effectively separate policy from service delivery?; and accountability for results - how can government better live up to its promise to citizens?<sup>342</sup> These themes echoed through the policy environment during this time period, stimulating the beginnings of a search for answers. Although the domestic economy and international challenges from illegal drugs and threats to the Mideast oil supply would dominate the news, below the

<b>Selected Socio-Economic Indicators, 1989-1992</b>				
	1989	1990	1991	1992
US Gross Domestic Product (billions)	\$5,489.1	\$5,803.2	\$5,986.2	\$6,318.9
Median US Family Income	\$47,166	\$46,429	\$45,551	\$45,221
Annual Average Consumer Price Index	124.0	130.7	136.2	140.3
Average Unemployment Rate	5.3%	5.6%	6.8%	7.5%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	10.80 - 9.78% 11.19%	9.83 - 9.68% 10.67%	9.56 - 8.35% 9.67%	8.24 - 8.13% 9.03%

Table 4.13 Selected Socio-Economic Indicators, 1989-1992<sup>343</sup>

<sup>342</sup> Kettl, Donald. *The Global Public Management Revolution*, pp. 1-3.

<sup>343</sup> Sources for the data in Table 4.13 can be found in notes 203-207.

surface of “government-as-usual” a strong and bipartisan desire was building to shake up government and make it more responsive. Increasingly, advocates of government reforms were looking to the business community for ideas, especially at its experiences with using information technology as an enabler of reform.

But change typically costs money and takes time. The U.S. national economy was still struggling; the socio-economic indicators of Table 4.13 tell the story of a not-quite-stagnant domestic economy that nevertheless offered few reasons for optimism about recovery, especially given the international events noted above. And while the information technology sector provided one bright ray of economic hope, most of the nation and its leaders remained focused on the traditional economy.

#### 4.2.3.1 Read My Lips - No New Taxes: External Environment 1989-1992

The first months of the new Bush administration were filled with many challenges. Environmentalists estimated the cost of nuclear waste cleanup at \$92 billion; government deregulation was blamed for the savings and loan crisis; and the president requested \$1.4 billion for AIDS research. Sensing the public mood, the members of Congress voted against giving themselves a pay raise; meanwhile, President Bush proposed a \$90 billion bailout for the savings and loan industry that would shift the risk and the cost from the depositors to the taxpayers by issuing \$50 billion in government bonds. In March, the Exxon Valdez ran aground, spilling 240,000 barrels of crude oil into Alaska’s Prince William Sound, creating the biggest tanker spill and launching the largest and most costly environmental cleanup in U.S. history. On April 20, scientists in Princeton, New Jersey, announced the successful testing of high-definition TV. The Speaker of the House, Congressman Jim Wright, resigned his leadership post at the end of May in the wake of an ethics investigation. In September, hurricane Hugo hit the Carolina coast, becoming the most destructive storm in 20 years. A month later, during the third game of baseball’s World Series at Candlestick Park, a massive earthquake measuring 6.9 on the Richter scale shook the San Francisco Bay area.

American technological prowess was again on display throughout 1990. In January the crew of NASA’s space shuttle *Columbia* successfully captured a

malfunctioning satellite and returned it to earth. The \$1.5 billion Hubble Space Telescope was successfully launched on April 25, but on June 25 NASA reported that the telescope had serious defects. Despite these defects, scientists demonstrated remarkable results in photographing astronomical phenomena that had never before been observed. Then on August 2, Iraqi forces seized control of oil-rich Kuwait, driving up crude oil prices and setting the stage for a show of the American military's technological prowess. The occupation of Kuwait and the U.S.-led coalition's lengthy build-up dominated the headlines.

Operation Desert Storm, a U.S.-led coalition effort to liberate Kuwait, began during the early morning hours of January 17, 1991. American military technology, in the form of stealthy fighter-bombers, cruise missiles, and precision munitions were used in the first round of attacks on Iraqi forces. Later, mixes of old and new technologies such as the Patriot anti-missile missile and the USS Missouri's 16-inch conventional naval guns would be used to drive Iraqi forces from Kuwait. In September a former French secret service chief revealed a spying operation aimed at gathering information on computer and fiber optic technologies by spying on American companies in France. On December 4<sup>th</sup>, Pan American World Airways ceased flying operations, a victim of airline deregulation and the deep recession in the airline industry.

As the presidential election year of 1992 dawned, IBM Corporation began the year by announcing its first ever annual loss of \$564 million in the preceding year. The Michelangelo computer virus went into action on March 6<sup>th</sup>, infecting more than a million IBM and IBM-compatible computers during the year. Programmed to activate on the 517<sup>th</sup> anniversary of the birth of the artist by the same name, the virus traveled by floppy disk, hid in software, and overwrote a computer's hard disk with nonsensical information. On May 14, NASA astronauts scored another first, when three astronauts, working from the space shuttle Endeavor, retrieved and repaired the Intel-6 satellite.

In the 1992 presidential race, Arkansas Governor Bill Clinton was nominated to be the Democratic presidential candidate with Senator Al Gore as his vice presidential running mate, to run against the incumbent, President George Bush. During the campaign Independent candidate Ross Perot dropped out, and then re-entered the

presidential race. On November 4, the Clinton-Gore team was elected by a 43% to 38% margin. In their campaign, the Clinton-Gore team had successfully combined traditional Democratic social themes with calls for greater fiscal responsibility and closer cooperation with business. On December 15, the president-elect hosted business and labor leaders in a nationally televised two-night “teach-in” on the economy.

The technology sector, seemingly immune from international events, continued its unprecedented expansion during 1989. Every computer manufacturer seemed to offer several models, flooding the marketplace with a bewildering variety of configurations at a dizzying array of prices. Desktop computers were offered with at least 3 Intel CPU chips: the “aging” 80286; the current 80386 and 80386SX varieties; and the newly announced 80486 microprocessor. The 80486 was a 25 MHz processor with 1.2 million transistors, and a processing capacity of 20 MIPS; meanwhile, competitor Motorola announced a 50 MHz version of its 68030 microprocessor. In June Creative Labs brought sound to the PC with Sound Blaster, the first PC sound card. During July, the US Department of Commerce announced a relaxation of its export restrictions on computers, allowing export of most 80286-based desktop computers to Soviet-bloc countries. At the fall COMDEX in Las Vegas, IBM strongly endorsed Windows for low end PCs while Microsoft endorsed IBM’s OS-2 as the future of high-end PCs. IBM and Microsoft issued a joint statement saying that Microsoft would hold back features for Windows to help industry acceptance of OS-2. This action caused the Federal Trade Commission to begin an investigation of Microsoft for anticompetitive collusion. At the October Microprocessor Forum, several conference speakers predicted that processor clock speeds would not exceed about 50 MHz. By year’s end 1989, 24% of U.S. homes contained personal computers, and more than 100,000 host computers were connected to the Internet.

Despite the frantic pace and insularity of the personal computer industry, the government began exerting its influence in a number of ways during 1990. In March, the Federal Communications Commission (FCC) promulgated a rule, issued as Part 15, Subpart B of its radio frequency rules, establishing regulation of personal computers that create and emanate radio signals, an action in addition to the existing

regulation of radio frequency signals of cathode ray tubes - computer monitors. In June a U.S. District Court ruled that Paperback Software's menu interface violated the copyright held by Lotus Development Corporation on Lotus 1-2-3, resolving the "look and feel" suit filed twelve years earlier, in 1978. The same month the FTC began investigating Microsoft for alleged monopolistic practices in the PC software market. In July Microsoft reported that sales revenue for the past year hit \$1 billion, the first personal computer software company to generate that level of revenue. Perhaps in reaction to this success, or possibly as the result of business associations, Paul Grayson, co-founder of Micrografx noted wryly that "... there is only one person with fewer friends than Saddam Hussein. And that's Bill Gates." In October, Lotus Development Corporation introduced two new marketing products: MarketPlace-Business was a business database application containing information on 7.5 million businesses; MarketPlace-Households contained information on 80 million households and 120 million consumers. Concern over the privacy implications of these products generated an immediate and negative public reaction, hastening their almost immediate withdrawal from the market. During 1990, the first commercial provider of Internet dial-up access, *The World*, became available on-line with an Internet address of "world.std.com." By December 31, 1990, an estimated 25.4% of US homes had a personal computer.

The silicon-based economy continued to counter national economic trends, and innovation was showing itself to be a global phenomenon. Compaq Computer announced its first billion dollar quarter in January 1991. And as scientists and engineers questioned how far the technology could be pushed, Intel demonstrated a 100 MHz 486 processor at the International Solid-State Conference. In March the National Science Foundation lifted its restrictions on the commercial use of the Internet and upgraded the NSFNET backbone to T3, or 44.736Mbps. Three new corporations, General Atomics, Performance Systems International, Inc., and UUNET Technologies, Inc., formed the Commercial Internet eXchange (CIX) Association, Inc. to offer Internet access to businesses, universities, governments, and individuals. Software for a new information exchange capability, named the World Wide Web, was developed by Tim Berners-Lee at the European research institute, CERN. Linus Torvalds, a Finnish

university student, developed LINUX, a freely distributable variant of the UNIX operating system, beginning serious open-source software competition.

Business strategies and rivalries emerged. Philippe Kahn, chairman of Borland International noted, "No one wants to work with Microsoft any more. We sure won't. They don't have any friends left." As for Microsoft, their pursuit of business was single-minded. According to Mike Maples, Microsoft's Vice President of Operating Systems and Applications, "My job is to get a fair share of the software applications market, and to me that's 100 percent." As an indication of the robustness of the silicon-based economy, a report from June 1991 estimated that 60 million personal computers worldwide were running Microsoft's MS-DOS, a 75% market share. Intel introduced its new sub-micron technology, debuting the 0.8 micron line-widths in the new 50 MHz 80486 processor.

The CD-Recordable (CD-R) was introduced for computer use, and Creative Labs introduced stereo sound in its Sound Blaster line. During the last quarter of 1991, Intuit Corporation introduced Quicken personal accounting software for Windows; Eizo Corporation of Japan introduced the F340i energy-saving monitor, which reduces its power consumption when it is not receiving a signal (a feature forming the basis for the Department of Energy's EnergyStar technology certification program); and Intel began the design process for "P6," its sixth-generation processor. Year-end statistics for 1991 included 900,000 CD-ROM drives shipped worldwide; 8 million Intel-based personal computers worth \$25 billion shipped during the year; and personal computers in 26.6% of US homes.

By 1992 the new economics of information and the digital world was becoming increasingly apparent. The cost of producing software or an information-based digital product was tied up in the cost of the first copy; subsequent copies cost mere pennies to produce. This was not the economic model of physical products such as automobiles or books; in the digital economy money was made through sales volume, intellectual effort, and incremental upgrades. As Microsoft stock reached \$113 a share in January, Bill Gates became the richest man in the U.S. worth \$6.4 billion.

The digital world was not without hazards. However, for every digital problem such as viruses there was a digital solution; Symantec Corporation introduced Norton

Antivirus 2.0 software to protect computers from software viruses. WordPerfect Corporation released WordPerfect 5.1 for Windows, feeling very secure with its 71% market share of the word processing software market. A number of the key figures in the digital revolution received national honors. President Bush awarded Microsoft Chairman Bill Gates a National Medal of Technology for Technical Achievement in June; *Fortune* magazine inducted Apple Corporation's Steve Jobs into its National Business Hall of Fame. Digital technology became increasingly internationalized, and the International Standards Organization, ISO, released its standard (ISO 10646) for a 32-bit character set of all known characters and symbols.

Business models continued to evolve with Apple Computer beginning direct mail order sales. Intel announced that it decided not to call its 486 CPU successor the 586, but instead to choose a name that could be registered as a trademark. Names were becoming important business symbols, and Intel chose the name "Pentium" as the name for its "P5" processor. Jerry Sanders, chairman of Intel competitor Advanced Micro Devices, called Pentium "a name for toothpaste." John Dvorak, columnist and industry pundit scoffed, "nobody is going to call it the Pentium." In November when the Fall COMDEX was held in Las Vegas, Nevada, about 2,000 companies bought display booths to show their wares to the 145,000 people attending. The following month Novell Corporation bought UNIX Systems Laboratories from AT&T, gaining all rights to the UNIX source code. By the end of 1992, the number of Internet hosts broke the 1,000,000 mark; the World Bank could be found online; and the term "surfing the Internet" was coined by Jean Armour Polly. Business shipments of personal computers totaled 5.76 million units, and the percent of U.S. homes with a personal computer rose to 29.6%.

#### 4.2.3.2 More of the Same Old Stuff?: The Policy Subsystem 1989-1992

Despite all the "fresh breezes blowing" and the calls for a kinder and gentler America, the policy environment surrounding information resources management and implementation of the Paperwork Reduction Act looked and sounded more like the Reagan administration's business-as-usual approach to regulatory reform. Hoping to prompt a change in administration attitude, Representative Robert Wise (D-WV)

convened hearings on information dissemination policies and practices that spanned several days (Figure 4.4, hearing #1). A key purpose of the hearing was understanding changes in information technologies and how those technological innovations were affecting information dissemination laws, policies, and practices. Lawmakers, advocates, public interest organizers, and the press shared a common concern that existing information dissemination statutes, written in and for the age of paper-based documents and information dissemination, might be inadequate to the challenges posed by electronic information dissemination. Reflecting upon past agency practice, members of the press expressed their concern that in some agencies, where information in electronic formats was concerned, FOIA requests were being treated as if the Freedom of Information Act did not apply to electronic information.<sup>344</sup> Looking to the future, however, the Committee received updates on several contemporary information dissemination efforts, the SEC's EDGAR, EPA's Toxic Release Inventory (TRI), and a CD-ROM based information dissemination approach pioneered by the U.S. Geological Survey for disseminating geographic data. It was clear from the testimony that new information technologies posed opportunities and challenges in nearly equal numbers, and that any future policies should address information and its dissemination and availability, rather than the medium by which the information was conveyed.

Implementation of the Computer Security Act (CSA) of 1987 was revisited in May 1989 (Figure 4.4, hearing #2), following numerous reports that the recently signed Memorandum of Understanding (MOU) between the National Institute for Standards and Technology (NIST - the successor to the National Bureau of Standards) and the National Security Agency was "inconsistent with both the statute's [CSA's] intent and its direction."<sup>345</sup> Concern was expressed that the MOU encroached on the central policy and standards role assigned the Department of Commerce by the Computer Security Act. The original intent of the legislation, as summarized by Jerry Berman, Director of the Information Technology Project at the American Civil Liberties Union,

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<sup>344</sup> Congress, House. *Federal Information Dissemination Policies and Practices*. Committee on Government Operations, 101<sup>st</sup> Cong., 1<sup>st</sup> sess., 1989, pp. 33-36.

<sup>345</sup> Congress, House. *Military and Civilian Control of Computer Security Issues*. Committee on Government Operations, 101<sup>st</sup> Cong., 1<sup>st</sup> sess., 1989, p. 3.

was to “incorporate into computer security management a bedrock concept of democracy, civilian control over unclassified information systems. The act [CSA] directly countermanded the Reagan administration’s policy assumption that information security, regardless of the nature of the information, was a matter best handled by our Federal security agencies, DOD and NSA.”<sup>346</sup> The Reagan administration policies to which Berman referred were spelled out in a classified National Security Decision Directive, NSDD 145, September 1984. Marc Rotenberg, representing the Computer Professionals for Social Responsibility, put an even finer point on the dispute. “When Congress passed the Computer Security Act in 1987 it tried to resolve the central computer security question of the last 4 years - whether the responsibility for the security and privacy of information stored in Government computer systems should be entrusted to a civilian agency or an intelligence agency.”<sup>347</sup> Kenneth Allen, representing the Information Industry Association (IIA), expressed support for the CSA, saying that the MOU was too ambiguous and its impact unclear. In a delicate position, the IIA did not want to express opposition to the administration’s policy, yet it did not want the MOU implemented, fearing the effect the MOU might have on the information market and IIA member companies. Companies represented by the IIA would most likely experience greater difficulty procuring, repackaging, and reselling government information under the MOU concept. Despite the assurances of the newly-appointed Director of NSA and the acting Director of NIST, a number of witnesses, including several congressmen, remained of the opinion that the MOU between NIST and NSA was an attempt to invalidate the Computer Security Act of 1987 and turn back the clock to 1984. For their part members of the Committee on Government Operations were divided, some wanting to invalidate the interagency MOU, while others put their distrust aside and requested NIST and NSA to revise the contentious language, implement the MOU, and appear at a future hearing.

The following month (June, 1989, Figure 4.4 hearing #3) the Senate began hearings to reauthorize the Paperwork Reduction Act. Last reauthorized in 1986, the PRA’s authorization was due to expire on September 30, 1989. Senator Jeff

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<sup>346</sup> Ibid., p. 54.

<sup>347</sup> Ibid., p. 80.

Bingaman (D-NM) opened the hearing by noting that the Committee had before it the “opportunity to address the many issues of Federal information resource management at the outset of a new presidential administration, a new Congress, and the arrival of a new OMB Director.”<sup>348</sup> As its first witness, John Diebold, Chairman of The Diebold Group an international consulting firm, was asked to comment on the nature of the ongoing information revolution. He recounted a construct from his graduate studies with John von Neumann at Princeton and Norbert Weiner at MIT, regarding technology and information. “The first thing that will change is how we do a job; secondly, the job that we are doing; and third, the society and environment in which we are doing the job. All three of those are now beginning to happen.”<sup>349</sup>

Federal agencies were having a great deal of difficulty in dealing with the ongoing changes that Diebold outlined. Ralph Carlone, GAO’s Assistant Comptroller for Information Management and Technology, testified that “Federal agencies are experiencing massive problems in acquiring and developing the systems necessary to manage Government operations. . . . Invariably, these systems do not work as planned, have cost overruns in the millions, and even hundreds of millions of dollars, and are not developed on time. This condition is pervasive throughout the Government.”<sup>350</sup> The blame for these conditions, according to the IIA spokesman Kenneth Allen, stemmed in part from weaknesses “in implementation by the agencies themselves. We believe that a great deal more attention needs to be placed at the doorstep of the agencies to encourage them to step forward to their responsibilities.”<sup>351</sup> This critique echoed a National Academy of Public Administration assessment made nearly two years earlier that the concept of information resources management had not penetrated very far into the agencies and bureaus of the Federal government.<sup>352</sup> While the term “information resources management” was being used, little had changed but the name, and senior managers remained uninterested or unaware of the computing challenges that GAO had identified. Providing an agency perspective, Cynthia Kendall,

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<sup>348</sup> Congress, Senate. *Reauthorization of the Paperwork Reduction Act: Management and Technology Issues*. Committee on Governmental Affairs, 101<sup>st</sup> Cong., 1<sup>st</sup> sess., 1989, p. 3.

<sup>349</sup> *Ibid.*, p. 5.

<sup>350</sup> *Ibid.*, p. 8.

<sup>351</sup> *Ibid.*, p. 18.

<sup>352</sup> Caudle, Sharon. *Federal Information Resources Management: Bridging Vision and Action*.

Congressional Hearings and Policy Issues, 1989-1992				
	1989 Apr Jun Oct	1990 Apr Jun Oct	1991 Apr Jun Oct	1992 Apr Jun Oct
Privacy	A & B	6 	B <sub>1</sub> 	
Paperwork	C 	4 		
Computer Security	D 			
IT Acquisition	E & F			
Records & Information	G 	5 	7 	
Management Reform	H			

**Legend:**

The triangle indicates policy change; the lines indicates policies. Policies are listed below as "Extant Policies."  
 Hearings (torus) are color coded by issue, numbered in temporal order, and listed below.  
- The "H401" in a CIS Number denoted the House Government Operations Committee.  
- The "S401" in a CIS Number denotes the Senate Governmental Affairs Committee.

**Extant Policies:**  
**A** = Privacy Act of 1974  
**B** = Computer Matching and Privacy Protection Act of 1988 and Amendments of 1990 (B<sub>1</sub>)  
**C** = Paperwork Reduction Act of 1980  
**D** = Computer Security Act of 1987  
**E** = Brooks Act of 1965  
**F** = Competition in Contracting Act of 1984  
**G** = Freedom of Information Act (as amended)  
**H** = OMB Circular A-130, Management of Federal Information Resources

No	Year-Congress	CIS No	HEARING TITLE AND DATE	PURPOSE
1	1989 101 <sup>st</sup> - 1 <sup>st</sup>	90-H401-16	Federal Information Dissemination Policies and Practices. April 18, 1989.	Oversight
2		90-H401-1	Military and Civilian Control of Computer Security Issues. May 4, 1989.	Oversight
3		89-S401-46	Reauthorization of the Paperwork Reduction Act. June 12, 1989.	Oversight Legislative
4	1990 101 <sup>st</sup> - 2 <sup>nd</sup>	90-S401-31	Reauthorization of OMB's Office of Information and Regulatory Affairs. February 21, 1990.	Oversight Legislative
5		91-H401-28	Data Protection, Computers, and Changing Information Practices. May 16, 1990.	Exploratory
6		91-H401-45	Computer Matching and Privacy Protection Amendments of 1990. September 11, 1990.	Legislation PL 101-508
7	1991 102 <sup>nd</sup> - 1 <sup>st</sup>	92-H401-58	Creative Ways of Using and Disseminating Federal Information. June 19, 1991.	Exploratory

Figure 4.4 Policy Issues and Congressional Hearings 1989-1992

DoD's Deputy Comptroller for Information Resources Management, described the IRM structure within DoD and the Department's strategy to deal with the implementation problems noted by GAO. Besides creating management and oversight structures, the DoD was developing an information resources management career series and classification standard, and further was upgrading "the education and training curriculum at the National Defense University [to] emphasize automated information system program management."<sup>353</sup>

For his part, the new Administrator of OMB's Office of Information and Regulatory Affairs, S. Jay Plager, painted a forward-looking and optimistic picture. "Some will say we are doing too little. Some will say we are doing too much. And still others will say, we are doing the wrong things. . . . Ultimately, the Paperwork Reduction Act is about making Government work more responsively, efficiently, and effectively in

<sup>353</sup> Congress, Senate. *Reauthorization of the Paperwork Reduction Act: Management and Technology Issues*. Committee on Governmental Affairs, 101<sup>st</sup> Cong., 1<sup>st</sup> sess., 1989, p. 36. Kendall was referring to reorganizing and repurposing DoD's Computer Institute. It was renamed the Information Resources Management College in March 1990.

a manner that does not unduly intrude upon or impose needless burden on the public.”<sup>354</sup>

By early 1990, the “fresh breezes” promised by the President seemed to have stopped blowing. The attempt nearly nine months earlier to reauthorize the Paperwork Reduction Act had failed. Senator Glenn convened hearings on a new bill, S. 1742, that would reauthorize and fund the Office of Information and Regulatory Affairs for a two-year period, streamline the paperwork clearance process, and add an information dissemination policy function to OIRA (Figure 4.4, hearing #4). The pace of technological change, it was reasoned, required more frequent oversight and additional tools to achieve the information resources management goals of the Paperwork Reduction Act. But witnesses repeated the claims often heard in the past eight years, “OIRA has imposed an ideological agenda on agencies, circumventing the will of Congress and, in general, micro-managed the affairs of other agencies.”<sup>355</sup> And again, the OIRA Administrator, this time a new face, James B. McRae, Jr., repainted the rosy scenario for the Committee, a version of events that was then contradicted by the GAO and public interest groups.

Privacy concerns were being voiced again in the House. The new challenge, commercial information gathering and its relation to privacy, was framed by Committee Chairman Wise. “First, Americans find that their right to privacy is threatened by the increasingly detailed maintenance of personal information by Government and private sector record keepers. A recent poll found that nearly two-thirds of Americans felt their privacy is threatened by computerized records. . . . There is no agency of the Federal government with the responsibility to consider the privacy consequences of modern life.”<sup>356</sup> Adding commercial data gathering practices to the list of perceived privacy threats presented Congress with a new twist on privacy, and one that was further complicated by globalization. Other countries were talking about imposing restrictions on the transfer of personal information to countries, such as the U.S., that had

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<sup>354</sup> Ibid., p. 48.

<sup>355</sup> Congress, Senate. *Reauthorization of OMB’s Office of Information and Regulatory Affairs*. Committee on Governmental Affairs, 101<sup>st</sup> Cong., 2<sup>nd</sup> sess., 1990, p. 2.

<sup>356</sup> Congress, House. *Data Protection, Computers, and Changing Information Practices*. Committee on Government Operations, 101<sup>st</sup> Cong., 2<sup>nd</sup> sess., 1990., pp. 2-3.

inadequate privacy laws. Marc Rotenberg, a public interest advocate representing the Computer Professionals for Social Responsibility, discussed contemporary information gathering practices, illustrating his testimony with a recent product availability announcement from Lotus Development Corporation. A new product, called Lotus Marketplace, was a CD-ROM containing “the buying preferences of 120 million American consumers. Let me tell you briefly what categories of information are contained on this disk: the name of the consumer; the address; the age; the gender; the marital status; the estimated household income; lifestyle information; dwelling type; and actual buying habits as measured across 100 different product categories.”<sup>357</sup>

Meanwhile, actual practice with the Computer Matching and Privacy Protection Act passed in 1988 had drawn complaints from state and local authorities charged with implementing entitlement programs. Committee Chairman Wise proposed, and all witnesses applauded, an amendment with two purposes: first, Federal agencies would be able to share benefit information without case-by case verification, and second, benefit programs with existing due process procedures could substitute their procedures for those in the Computer Matching and Privacy Protection Act.

As technological innovations and the demand for electronic dissemination of government information continued unabated, Congressman Wise and his Committee took another look at some creative and innovative approaches Federal agencies were using to disseminate Federal information to the public.<sup>358</sup> Compact disk-read only memory or CD-ROM, a relatively new, high-capacity storage technology, was being used to disseminate, and provide unparalleled access to very large data sets. For example, the U.S. Geological Service, in cooperation with teachers in the Joint Educational Innovation (JEdI) program demonstrated a novel earth sciences application for primary and secondary schools, with the large geographic data set residing on the same disk as the educational application. Gary Bass, a public interest advocate representing OMB Watch, lauded the work of an environmental activist group in establishing the “right-to-know network,” RTK-NET, a network for distributing

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<sup>357</sup> Ibid., p. 106.

<sup>358</sup> Congress, House. *Creative Ways of Using and Disseminating Federal Information*. Committee on Government Operations, 102<sup>nd</sup> Cong., 1<sup>st</sup> and 2<sup>nd</sup> sess., 1991-1992.

environmental information. GAO demonstrated several information dissemination applications: a Commerce Department initiative used a CD-ROM for disseminating the large volume of information in the Commerce Department's National Trade Data Bank; another project used a computer bulletin board to disseminated the Commerce Department's economic indicators; and a third project provided 24-hour-a-day dial-in facsimile access to the Agriculture Department's AgNewsFAX service, where interested persons could call in, select the desired information from a menu, and have that information transmitted to them via facsimile machines.<sup>359</sup> The lesson to draw from this hearing, Chairman Wise concluded, is that people use information in vastly different ways, and to presume the adequacy of a single or even a few alternative approaches for disseminating Federal information would be foolhardy.

In the policy arena, the "fresh new breezes" promised by the administration had failed to materialize. The actions of the Bush administration, in terms of implementing the information resources management concept outlined by the Paperwork Commission and the Paperwork Reduction Act, might best be described as "business as usual," but lacking the sharp confrontational edge that characterized both of the Reagan administrations. While some progress was made in implementing the Paperwork Reduction Act most of the IRM policy and management action involved organizational and structural alignments in departments and agencies to accommodate IRM. One of the most notable accomplishments, though, as seen through the public record, was that the relationship between OMB and the Congress was at least civil and was sometimes accommodating – a sharp contrast with the relationship in the Reagan administration. Given the level of distrust at the beginning of this administration, few policy players entertained expectations for anything more substantial.

#### 4.2.3.3 Expressing The Public Interest: Coalitions 1989-1992

The addition of a new coalition representing the public interest in IRM policies appeared during discussions of privacy and information access. Joining the two coalitions identified during the 1985-1988 period, this new coalition melded political activism and legal skills with computer knowledge and skills to create, at least in its

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<sup>359</sup> Ibid.

potential, a formidable coalition. As can be seen in Table 4-14, the values of this new coalition emphasize accountability and equality, and their issues of interest include privacy, records and information, and management reform.

A “Public Interest” coalition became apparent for the first time during this time period. Three organizations brought out the core of public interest perspectives in testimony. First, the American Civil Liberties Union continued to focus on privacy and

<b>Values of Witnesses Testifying on IRM Issues 1989-1992</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	0	1	2	0	1	1
effectiveness	0	0	2	0	10	1
responsiveness	0	0	1	0	0	0
accountability	0	3	6	0	11	9
equality	0	3	4	0	0	0
<b>Witnesses (total)</b>	0	7	15	0	22	11
<b>Hearings (total)</b>	0	2	2	0	2	1

Table 4.14 Values of Witnesses Testifying on IRM Issues 1989-1992

information access as favored themes. While the ACLU had been involved in privacy advocacy well before the 1974 Privacy Act, its involvement at this point highlighted the realization that computing capabilities were fundamentally altering prior approaches to both privacy and information access, while simultaneously increasing the means with which to invade or deny privacy and block access to information. The events of this period demonstrated that commercial interests were aggressively amassing and exploiting data on individuals for financial gain. Where information access was concerned, agency policies for disseminating information and the application of FOIA principles to electronic information were becoming increasingly important.

The second organization in the public interest coalition, OMB Watch, conducted public interest oversight of OMB activities, including those of the Paperwork Reduction Act. Focusing on policy and policy implementation, OMB Watch had extensive professional connections within government, within Congress, and within Washington’s extensive community of lobbyists. This wide-ranging network of contacts

helped OMB Watch create a more comprehensive mosaic of administration action or inaction on policy implementation, a perspective it shared via its testimony at hearings.

The third organization in this new public interest coalition, Computer Professionals for Social Responsibility (CPSR) provided a key ingredient the other two organizations lacked: extensive and inside knowledge of computing and computer capabilities. However, computer professionals had tended to eschew the “messiness” of politics in favor of the orderliness of computers. By blending a detailed knowledge of computers with political activism – in the name of “social responsibility” – CPSR’s network was effectively extended to self-styled geeks wherever they worked. A key challenge for CPSR leaders was defining an operative concept of “social responsibility,” given the tendency toward techno-libertarianism, and the uneasy coexistence of libertarian principles with the principles of democratic governance.<sup>360</sup>

The coalition of *Information Producers* became increasingly prominent during this period. The Information Industry Association remained the primary force within this coalition, and the coherence of the IIA’s testimony indicated it was becoming better organized and more influential in information policy matters. The consistent appearance of a single, well-informed spokesperson, Kenneth Allen, helped provide a “face” for the coalition. In terms of advocacy, the IIA was first and foremost business oriented, but it remained keenly aware that notions of “open government” and an “informed public” rely on information policies that encourage active information dissemination. The IIA successfully walked a political tightrope by simultaneously supporting its membership, projecting a pro-administration image, while encouraging policies not supported by the Bush administration.

Members of the *Traditionalists* coalition were still evident providing their point of view, but the American Library Association witnesses demonstrated neither the leadership nor the energy of the *Public Interest* or the *Information Producers* coalitions. Testimony from their representatives indicated they were struggling with understanding

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<sup>360</sup> Much of the value premise of the early hacking community, as well as that of the contemporary high-tech community, tends toward libertarianism, sometimes in the extreme. Yet, where computers and programming were concerned, there existed a strong respect for the work of others, a spirit of community-sharing of software, and an aversion to the destructiveness that now characterizes hacking. For an introduction to this culture, see Borsook, Paulina. *Cyberselfish: A Critical Romp Through the Terribly Libertarian Culture of High Tech*. New York, NY: Public Affairs, 2000.

the implications of electronic information for their institutions, professions, and individual careers. Although many *Traditionalists* were becoming well versed in technology, the myriad of choices and formats presented by rapidly evolving information technologies raised serious questions about how to realize their stated policy preferences given the resource limitations facing most public and university libraries. While their focus was beginning to shift from physical books and publications to “information,” that mental adjustment also brought into focus biases and preferences, and the need for revalidating policies such as the Depository Library Program in an era of digital information and electronic dissemination.<sup>361</sup>

The first instance of State officials testifying within the IRM policy subsystem occurred during this time period. Witnesses from several states expressed their views on and experiences in implementing provisions of the Computer Matching and Privacy Protection Act. Their policy implementation experiences, described for lawmakers, provided invaluable feedback leading to policy adjustments. Interestingly, these State officials were service delivery professionals, not IRM professionals, suggesting the possibility of federalism playing a role in future IRM policymaking.

Representatives from Federal agencies played a lesser role than one might expect, especially considering the ongoing implementation of the IRM concept in agencies. The few instances of agency officials presenting testimony did not evidence the cohesion or coordination typical of a coalition, however representation of agency IRM views could occur through professional associations such as the Association of Federal Information Resources Managers (AFFIRM). That such a voice has failed to materialize suggests the extent as well as the effectiveness of control exercised by OMB over agencies and their testimony before Congress. As a former OMB official of the Reagan administration noted, “The Government works using three things: money, people, and regulations; the agency must get all three from OMB.”<sup>362</sup>

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<sup>361</sup> Herson, McClure, and Relyea, *Federal Information Policies in the 1990s*, pp. 272-273.

<sup>362</sup> Congress, Senate. *Reauthorization of OMB's Office of Information and Regulatory Affairs*, p. 45.

#### 4.2.3.4 Management Reform Comes of Age: Issues 1989-1992

Of the six issues tracked in this study, four received significant attention during the 1989-1992 period, management reform, records and information, computer security, and privacy. Management reform was the focal issue, as it became increasingly clear to Congress and the administration that the intended management focus, and therefore the benefits of the PRA and IRM had yet to materialize. Caudle's 1987 study of IRM implementation for the National Academy of Public Administration, referenced earlier, was validated by GAO's more recent findings.<sup>363</sup> Garson noted that "Information *technology* management, rooted in traditional data processing units, was found to dominate at the expense of information *resource* management."<sup>364</sup>

To help in dealing with the management challenge, GSA's Information Resources Management Service developed and published several management pamphlets for senior IRM officials. *Welcome to Information Resources Management in the Federal Government*,<sup>365</sup> aimed at newly appointed Federal executives with responsibility for IRM activities, focused on the resource nature of information and outlined the statutory basis for IRM activities. Targeting senior career executives, *The Senior Federal IRM Manager: Major Roles and Responsibilities As We Move Into The 1990's*<sup>366</sup> discussed the leadership and management credentials desired of agency senior IRM officials. Reviews of agency IRM programs by GSA's Information Resources Management Service provided the basis for developing *A Model IRM Program*,<sup>367</sup> an experientially-based look at the components of an ideal IRM program.

As this time period came to a close, the GAO summarized the IRM challenge for the House's Government Operations Committee. Reviewing its audit reports of the past four years, it found that 132 reports dealt with information technology and management issues. Grouping these reports into ten categories with topics ranging

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<sup>363</sup> Ibid., pp. 35-36.

<sup>364</sup> Garson, *Computer Technology and Social Issues*, p. 297.

<sup>365</sup> General Services Administration. *Welcome to Information Resources Management in the Federal Government*. Washington, DC: Information Resources Management Service, June 1989.

<sup>366</sup> General Services Administration. *The Senior Federal IRM Manager: Major Roles and Responsibilities As We Move Into The 1990's*. Washington, DC: Information Resources Management Service, March 1989.

<sup>367</sup> General Services Administration. *A Model IRM Program*. Washington, DC: Information Resources Management Service, August 1990.

from inadequate management to data accuracy, it found that 66 of the reports dealt with the issue of inadequate management of information systems.<sup>368</sup> Clearly management reform had come of age as an IRM policy issue.

The issue of records and information focused on Federal information dissemination policies and practices, and examined barriers affecting public availability of Government information. Policymakers expressed concern that changes in information technology were making information dissemination policies obsolete; extant statutes, written for an era in which all information was paper-based, such as the Freedom of Information Act needed to be reconsidered in light of electronic dissemination and lessons learned from the “Reporters Committee” case.<sup>369</sup>

Computer security received renewed attention as oversight concerns surfaced in the negotiated relationship between the National Institute of Standards and Technology and the National Security Agency. While both NIST and NSA proclaimed their satisfaction with their Memorandum of Understanding, public interest advocates asserted that this memorandum effectively undercut civilian control over computerized information in civilian agencies. Who controls policy for computer security in civilian agencies? That was the question of the hour. In reaffirming its intent to have NIST as the partner-in-charge of civilian agency computer security, the Congress promised to exercise continued oversight of this issue.

Once again privacy as an issue came to the fore, and as before, in relation to computer security. As outlined above, the privacy due process guarantees contained in the Computer Matching and Privacy Protection Act of 1988 were found to conflict with privacy processes already established in some entitlement programs. When brought to Congressional attention by State benefits providers, a compromise was quickly crafted and passed. But surfacing for the first time in the privacy debate was

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<sup>368</sup> General Accounting Office, *Summary of Federal Agencies' Information Resource Management Problems*, GAO/IMTEC-92-13FS. Washington, DC: Superintendent of Documents, 1992.

<sup>369</sup> U.S. Dep't of Justice v. Reporters Committee for Freedom of the Press, 489 U.S. 773 (1989). In this opinion the Supreme Court refined its definition of the statutory right of access provisions of the Freedom of Information Act, stating “Official information that sheds light on an agency's performance of its statutory duties falls squarely within that statutory purpose.” A useful discussion of FOIA from a media point of view can be found in Ramsey, Michael L.. “Chapter 7: The Federal Freedom of Information Act.” *Missouri Media Law Handbook*, 1997. Available online at <http://www.mobar.org/press/medhnbk7.htm>. Downloaded July 23, 2004.

the acknowledgement that there was a complete lack of citizen privacy protections where commercial data collection activities were concerned. Computing power and refined data collection techniques were combining to provide more opportunities to encroach on citizens' privacy.

#### 4.2.3.5 Considering Computing in Policymaking: Policy Change 1989-1992

A single instance of policy change was recorded during this time period, as the existing computer matching statute was altered by the Computer Matching and Privacy Protection Amendments of 1990. While this rather small policy change was made to accommodate State-based providers of entitlement services, it brought into focus concerns raised by computing across jurisdictional boundaries – in short, federalism. On the one hand, sending a data file from a Federal agency to a State agency may represent a simple transfer of data. Technologically the process is quite simple. But on the other hand, the jurisdictional boundaries crossed represent more than a simple line on some chart or map; the authority and responsibility agreements worked out painstakingly over years cannot be arbitrarily superseded by a simple file transfer. The difficult challenge for IRM professionals was to learn that in policy endeavors, technological simplicity does not yield equivalent political or policy simplicity.

This time period might be better remembered for the policy changes that did not occur. Garson provides a brief overview of this time period and adds significant details that did not surface in the hearing record. By his account, the 1989 attempt to reauthorize OIRA failed, and even though the office was kept in existence through continuing resolutions, the OIRA Administrator resigned and “the agency went leaderless for four years.” Further, the Bush administration favored abolishing OIRA and folding its functions into Vice President Quayle’s Council on Competitiveness. This plan resembled the regulatory reforms of the Reagan administration, and was blocked by Senator Glenn. The deadlock over OIRA continued until the incoming Clinton administration appointed a new Administrator in May 1993.<sup>370</sup>

This section began with a brief mention of the ongoing public management transformation outlined by Donald Kettl, and the six themes through which it has

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<sup>370</sup> Garson, *Computer Technology and Social Issues*, p. 299.

manifested itself: productivity; marketization; service orientation; decentralization; policy; and accountability for results. Two of these themes, marketization and decentralization, were apparent during this time period, having begun during the Reagan administration. In the time period that immediately follows, the additional themes of service orientation and accountability for results will become increasingly apparent. The following section also describes this nascent policy subsystem's policy reformulation phase. Considering the confluence of the public management transformation themes and this period of policy reformulation, it is worthwhile reflecting on John Diebold's remarks regarding technology and information (quoted earlier in this section). "The first thing that will change is how we do a job; secondly, the job that we are doing; and third, the society and environment in which we are doing the job. All three of those are now beginning to happen."<sup>371</sup>

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<sup>371</sup> Senate. *Reauthorization of the Paperwork Reduction Act: Management and Technology Issues*, p. 5.

#### 4.2.4 Don't Stop Thinking About Tomorrow: The Policy Environment 1993-1996

The new Clinton administration that arrived in Washington during January 1993 outlined domestic priorities that included creating new jobs, reducing the deficit, and reforming the healthcare system, a shift from the regulatory reform and market-focused policies of the previous administrations. As a beginning, the first bill signed into law by President Clinton guaranteed workers up to 12 weeks of unpaid leave a year to deal with family medical emergencies. But before these priorities could be addressed, another priority was unceremoniously forced onto the President's list: dealing with domestic emergencies.

On February 26, 1993, a noontime explosion shook the twin towers of New York's 110-story World Trade Center. The blast, caused by a bomb in a parking garage below the towers, was the worst terrorist attack in U.S. history. Two days later a bloody shootout erupted in Waco, Texas, as federal agents attempted to raid the compound of an armed religious cult. After 51 days, FBI agents hoped to force an end to the standoff by assaulting the compound, but cult members set fire to the building; the ensuing inferno killed all but nine members of their group. In June eight members of a radical Islamic group were arrested, preempting a planned car bombing of the United Nations headquarters and other targets in New York. In August the Midwest and the Mississippi River experienced the worst flooding in recorded history. At the height of this disaster 20 million acres of prime farmland were flooded; the homes of approximately 38,000 families were damaged or destroyed; at least 50 people lost their lives in the flood that was estimated to cost \$12 billion.

Disasters, both natural and manmade, also marked each of the next three years. On January 18, 1994, a major earthquake hit the Northridge suburb of Los Angeles, the strongest quake to hit that area this century, killing 34 and causing in excess of \$7 billion in damage. In March and April 1994, a British hacker known as "DataStream Cowboy" and another hacker called "Kuji" attacked the computers at the U.S. Air Force's Rome Laboratory, a command and control research facility, more than 150 times.<sup>372</sup> Over 2 million people in 14 Western states lost electric power, and at

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<sup>372</sup> United States General Accounting Office. *Information Security: Computer Attacks at Department of Defense Pose Increasing Risks*. GAO/T-AIMD-96-92, May 22, 1996.

least one nuclear power plant had to be shut down on December 14<sup>th</sup> because of a power surge.<sup>373</sup> The nation was shocked on April 21, 1995, when the Murrah Federal Building in Oklahoma City was gutted by a huge truck bomb – the work of a disgruntled citizen – killing 167 people. On July 2, and again on August 6, 1996, Western states suffered cascading power failures over 14 states during times of peak electricity demand.<sup>374</sup> And the harmony of the Atlanta Olympic Games was devastated by a bomb blast in the Centennial Olympic Park at 1:25 am, July 27, 1996, that killed two individuals and injured 111 others. These events made it abundantly clear that a new priority, protection from and response to emergencies and disasters, in so far as possible, was becoming a necessary and important function of government. Table 4.15 summarizes the political leadership environment President Clinton faced in dealing with the new domestic priorities.

U.S. Political Leadership, 1993-1996								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep	Ind.
1993-4	William J. Clinton	103 <sup>rd</sup>	56	44		258	176	1
1995-6	William J. Clinton	104 <sup>th</sup>	48	52		204	230	1

Table 4.15 U.S. Political Leadership 1993-1996<sup>375</sup>

#### 4.2.4.1 It's the Economy Stupid: The External Environment 1992-1996

“Because of [Vice President] Gore’s close association with technology, most observers in 1993 expected the incoming Clinton/Gore administration to take an activist role on information resource management issues.”<sup>376</sup> Indeed, as governor, Clinton had positioned Arkansas as a leader in the use of information technology for education, economic development, and government. Senator Gore had introduced and championed the High Performance Computing Act of 1991 that funded

<sup>373</sup> Emergency & Disaster Management, Inc. *Power/Utility Failure*. Available online at [http://www.emergency-management.net/power\\_acc.htm](http://www.emergency-management.net/power_acc.htm). Downloaded February 10, 2004.

<sup>374</sup> Ibid.

<sup>375</sup> Sources for information in Table 4.15 can be found in note 202.

<sup>376</sup> Garson, *Computer Technology and Social Issues*, p. 302.

development of the National Research and Education Network (NREN) and promoted research and development of fiber optic technologies and network protocols.<sup>377</sup>

Presidential candidate Clinton’s IT plan, titled “Technology: The Engine of Economic Growth” presented six initiatives including creation of high-tech “information superhighways.”<sup>378</sup> In these initiatives the technology community saw primarily technology and technological opportunities; it failed to grasp the larger truth that these initiatives and the technology they advocated were but a means toward a larger and more important end – restarting the national economic engine in order to be able to address more pressing issues. Garson notes that “Clinton’s belief in technology as the engine of growth was blunted by the higher priority he attached to reducing the deficit and finding solutions to the health care crisis.”<sup>379</sup>

There was more than a grain of truth in the famous informal motto of the Clinton presidential campaign, “it’s the economy, stupid.” In January 1993, IBM reported a year-end loss of \$4.96 billion. On February 11, 1993, General Motors Corporation announced a \$23.5 billion loss for 1992, the largest annual loss in U.S. corporate

<b>Selected Socio-Economic Indicators, 1993-1996</b>				
	1993	1994	1995	1996
US Gross Domestic Product (billions)	\$6,642.3	\$7,054.3	\$7,400.5	\$7,813.2
Median US Family Income	\$44,586	\$45,820	\$46,843	\$47,516
Annual Average Consumer Price Index	144.5	148.2	152.4	156.9
Average Unemployment Rate	6.9%	6.1%	5.6%	5.4%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	8.14 - 7.13% 8.14%	7.23 - 9.18% 9.25%	9.22 - 7.11% 9.22%	7.02 - 7.64% 8.39%

Table 4.16 Selected Socio-Economic Indicators, 1993-1996<sup>380</sup>

<sup>377</sup> Congress. Congressional Research Service. *Bill Summary and Status: High-Performance Computing Act of 1991*, 102<sup>nd</sup> Cong., 2<sup>nd</sup> sess., 1991. Available online at <http://thomas.loc.gov>. Search for 102<sup>nd</sup> Congress, S.272, or for P.L. 102-194.

<sup>378</sup> Clinton, Bill. *Technology: The Engine of Economic Growth, A National Technology Policy for America*. Presidential Campaign Document, September 18, 1992. Available online at <http://www.ibiblio.org/nii/tech-posit.html>. Downloaded February 10, 2004.

<sup>379</sup> Garson, *Computer Technology and Social Issues*, p. 303.

<sup>380</sup> Sources for the data in Table 4.16 can be found in notes 203-207.

history. The following month the U.S. government announced that the number of food stamp recipients reached a record of 26.6 million. Government agencies were not immune to the effects of the prolonged economic slump. The Department of Defense announced the creation of a Base Realignment and Closing Commission (BRAC) to implement its stated intention to close 31 major military facilities. The administration also reevaluated existing defense initiatives, and in May officially dropped President Reagan's signature "Star Wars" program. As can be seen in the selected socio-economic indicators of Table 4.16, the 1993 figures show a national economic engine that was not yet showing signs of recovery.

Nineteen ninety four was perhaps most notable for its mid-year congressional elections, and the stinging political message sent by voters. On September 27, 1994, more than 300 Republican candidates for the U.S. House of Representatives took their places on the steps of the Capitol's West Front. There they unveiled what they called "The Contract With America," a manifesto calling for change "after four decades of one-party control, to bring the House a new majority that will transform the way Congress works."<sup>381</sup> They delivered on Election Day November 9, as President Clinton and his political party were humiliated in the mid-year congressional elections. "The Republicans won control of both houses for the first time in 40 years. In the Senate, 53 of the 100 seats are now Republican, and in the House there are now 230 Republicans against 204 Democrats. The victors say the results are a rebuke by the voters to Bill Clinton, who said today, 'They sent us a clear message – I got it.'"<sup>382</sup> President Clinton now faced the challenging prospect of dealing with a Republican-led Congress, and the combative Newt Gingrich, expected to be the next Speaker of the House.

As the 104<sup>th</sup> Congress convened for the first time on January 4, 1995, the House of Representatives' new leaders initiated their plan, outlined in *The Contract With America*, for their first 100 days in power. But competing for attention during those 100 days were the following natural and man-made disasters:

- Jan. 17 - A devastating earthquake in Kobe, Japan, with 4000 feared dead.
- Jan. 24 – Russian troops assault Chechen fighters in Grozny.
- Jan. 31 – President Clinton pledges \$20 billion to rescue Mexico's economy.

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<sup>381</sup> Gillespie, Ed., and Bob Schellhas. *Contract With America*. New York, NY: Time Books, 1994, p. 7.

<sup>382</sup> Daniel, *20<sup>th</sup> Century Day by Day*, p. 1412.

- Mar. 20 – Sarin nerve gas released on a Tokyo subway train kills eight.

As the 100 days came to a close, the Murrah Federal Building in Oklahoma City was demolished by a massive truck bomb. The hunt for the perpetrator, and the capture of Timothy McVeigh, dominated the news cycle until the O.J. Simpson murder trial claimed the spotlight. On September 19 it was announced that House Speaker Newt Gingrich would be investigated for accepting a \$4.5 million book advance from Rupert Murdoch. In late November, Gingrich announced he would not be a presidential candidate in 1996 – he was chastened but unbowed.

The waning days of 1995 witnessed political brinksmanship taken to new levels. Disagreement over three appropriations bills vetoed by President Clinton and another three stuck on Capital Hill led to a six day shutdown of the Federal government on November 14. “Nationwide, more than 800,000 federal employees were deemed nonessential and sent home at a cost of \$120 million a day, while the White House and Congress stood toe-to-toe in their budget standoff. With the new continuing resolution, the administration and lawmakers have until December 15 to resolve their budget disagreements.”<sup>383</sup> But on December 15, Republican House leaders, angered by what they considered Clinton’s intransigence in budget talks, left Washington for the holidays without passing a continuing resolution to replace the one that expired. The U.S. Federal government shut down the following day. “VA kept all its data centers running and maintained its mainframe-based benefits delivery system as well. But no new claims were accepted during the shutdown. Fortunately for FEMA, the shutdown came after the close of the annual hurricane season and before winter storms set in, and there were no earthquakes, floods or major wildfires. . . . As time wore on, however, it became more likely that agencies would have to shut down their mainframe systems and their networks . . . protecting federal data soon would become a major issue. . . . The House’s legislative World Wide Web page, Thomas, operated by the Library of Congress, was closed. Though uniformed personnel were exempted from

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<sup>383</sup> \_\_\_\_\_. “In Shutdown, Some Fed IT Pros Show Just Why They’re Essential.” *Government Computer News*, November 27, 1995, p. 1.

the shutdown, tens of thousands of civilian Defense Department employees were not. The Defense Information Systems Agency furloughed 1,879 of its 7,350 civilian employees.”<sup>384</sup>

It was Senator Bob Dole who declared, “Enough is enough!” and unveiled a plan to “restore federal workers’ jobs and salaries through January 12; it passed unanimously. Some House GOP leaders grumbled that Dole had ‘caved’ to Clinton and was trying to enhance his image as a statesman as he campaigned for the presidency.”<sup>385</sup> The measure was signed on the evening of January 5, 1996, and the following day the government reopened. The budget showdown finally ended on April 25. President Clinton and Congress reached a budget deal seven months late; the House leadership had blinked. “The unprecedented shutdown . . . provided something unexpected and unintended: a glimpse of the human face of the federal bureaucracy. Furloughed workers missing mortgage payments. Breadwinners struggling to feed their families. . . . ‘There is a possibility that this shutdown will help people rediscover government,’ argues Thomas Mann, a political analyst at the Brookings Institution in Washington. ‘They’ll discover that those awful federal bureaucrats are flesh and blood with kids and mortgages, and that the services they provide end up being pretty crucial.”<sup>386</sup>

On August 15, Senator Bob Dole was nominated as the Republican candidate for November’s U.S. Presidential election at the party’s San Diego convention. But with the economy booming, and Dole anywhere between 20 and 30 points behind, President Clinton was reelected in a landslide. Clinton, in calling for “humble” government, became the first Democratic President to secure a second successive term in the White House since Franklin Delano Roosevelt in 1936. As in the past two years, Republicans continued their hold on both the Senate and House of Representatives in an election day that saw the lowest voter turnout since 1924.

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<sup>384</sup> Ibid., p. 1.

<sup>385</sup> Ibid., p. 1.

<sup>386</sup> Eddings, Jerelyn. “The Human Face of Bureaucrats.” *U.S. News and World Report*, January 15, 1996, p. 6.

In 1993 a new government presence was felt in the technology sector. Information technology companies were already quite familiar with the judicial branch; suits over intellectual property (such as copyrights and patents) and breach of contract were already common. Regulatory actions were not. In February, the Federal Trade Commission met to consider a charge of unfair trade practices leveled against Microsoft. The vote ended in a tie; a July meeting to consider the same issue led to the same result. Finally in August, FTC's Commissioners voted to cease investigating Microsoft. In their place, European Community regulators initiated an antitrust investigation of Microsoft's licensing practices.

During this year the computer became an information appliance. The White House was connected to the Internet, and the President and Vice President got their own e-mail addresses; the United Nations also came online. An "Alpha" test version of the Mosaic browser became available on the Internet in February, and by the end of April 1993, the World Wide Web (WWW) was proliferating with a growth rate of 341,634%. The first multimedia encyclopedia for a computer was developed by Microsoft; Compton's New Media Incorporated received a patent on multimedia search and retrieval technology, and promptly claimed that anyone wishing to sell information in a multimedia format must now pay them a license fee. Most importantly, however, the National Center for Supercomputing Applications (NCSA) released Mosaic v1.0 – the first "browser" for the World Wide Web – as a downloadable software product in September. By time the NCSA released Mosaic, WWW traffic had already grown 10-fold, to 1% of the NSF backbone traffic through Port 80 (the usual port for hypertext-related content).

The year 1993 provided a few additional "firsts." The first Oscar for Scientific and Technical Achievement was given to seven computer scientists at Pixar Animation Studios for their RenderMan 3D computer graphics technology. The first prison sentence for software counterfeiting in the U.S., of one year in prison, was given to Benny S. Lee, of Everex Systems, Inc. for manufacturing and selling counterfeit MS-DOS software. By the end of the year an estimated 38.8 million personal computers had been shipped world-wide, of which only 1.2 million went to the Middle East and

Africa. In the U.S., the White House was on the Web at [www.whitehouse.gov](http://www.whitehouse.gov), and an estimated 32.7% of homes now had a personal computer.

Information and information technologies became increasingly valuable commodities, and organizations expended increasing amounts of effort to identify, document, and protect their physical and intellectual property. As 1994 opened, Microsoft offered \$1 million to license the Mosaic Web browser code developed by Marc Andreessen at NCSA. Andreessen and James Clark, who later co-founded Mosaic Communications, declined the offer. In April they released Netscape Navigator 1.0, and in November changed the company name to Netscape Communications. As a result of questions raised, the U.S. Patent and Trademark Office (PTO) re-examined the patent application it had granted to Compton's New Media for multimedia search and retrieval technology in August 1993, and reversed its decision. The PTO decided to reject all 41 of the application's claims as being overly broad. Microsoft determined to protect its property, releasing Windows 3.11, a minor software update with new packaging containing a Microsoft "certificate of authenticity" hologram sticker on the packaging, making illegal copying more difficult. But elsewhere, a U.S. District Court ruled that Microsoft had violated patents held by Stac Electronics for data compression, by using them in the DoubleSpace feature of MS-DOS 6.0. The court directed Microsoft to remove or replace the technology; the companies settled their differences with Microsoft buying \$40 million of stock in Stac Electronics and paying an additional \$43 million in royalties. Microsoft then released MS-DOS 6.22, bringing back disk compression under the name DriveSpace. The Internet celebrated its 25th anniversary.

The World Wide Web opened new information frontiers. However the electronic environment of information differed from the physical environment of information and a new etiquette of the Net became increasingly important to information transactions. In 1993 the U.S. Senate and U.S. House of Representatives established a Web presence, and a member's Website was seen as an important status symbol. Unfortunately, the standard political approach of a prominent and large portrait of the member on the opening page of the Website backfired. The large graphic downloaded slowly; on a typical dial-up modem the full-page graphic could take up to 10 minutes to

download, doing little to endear the member to his or her constituents. Similarly, the Arizona law firm of Canter & Siegel “spammed”<sup>387</sup> the Internet, although they thought they were being bold and innovative by using email to advertise their green card lottery services; Net citizens flamed<sup>388</sup> back.

Not only naïve newbies learned the hard way; Intel Corporation lost an enormous amount of good will by trying to protect its intellectual property and its profit margin. In June 1993 Dr. Thomas R. Nicely of Lynchburg College noticed that his new computer, with a Intel Pentium processor, sometimes produced flawed floating-point results, yielding only 4-8 decimals of precision. About the same time, Intel also discovered the flaw in the Pentium processor's floating-point operations but decided to neither publicize nor correct the flaw. In October Dr. Nicely reported his discovery of the Pentium floating point bug to Intel, and also posted his report on CompuServe, an online information service. After an initial denial, Intel finally confirmed in November that about 2 million Pentium chips had been shipped with a defective floating-point unit. Due to the computing public's outrage, Intel finally agreed in December to replace the defective processors. Although Intel President Andy Grove admitted the company mishandled the Pentium processor division problem and apologized for the resulting situation, the company's credibility in the marketplace had been seriously tarnished. That same month the Federal Trade Commission began investigating Intel Corporation for alleged competitive practices of illegally withholding CPU sales from PC makers who bought competitors' products.

By the end of 1994, the software industry estimated it had lost \$12 billion to software piracy worldwide. Worldwide, the year's shipments of personal computers were estimated at 46.5 million units, only 1.3 million of them to the Middle East and Africa. Personal computer penetration into households was estimated at 37% for the U.S; 28% for Germany; 24% for the UK; 15% for France; and less than 10% for Japan.

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<sup>387</sup> The Wikipedia defines spamming as “unsolicited electronic messages, such as spam (e-mail).” Available online at <http://en.wikipedia.org/wiki/Spam>. Downloaded July 23, 2004.

<sup>388</sup> The Wikipedia defines flaming: “**Flaming** is the practice of posting messages that are deliberately hostile and insulting to a discussion board (usually on the Internet). Such messages are called flames, and are often posted in response to flamebait. Available online at <http://en.wikipedia.org/wiki/Flaming>. Downloaded July 23, 2004.

During the year, 30% of all retail software sold was distributed on CD-ROM, making CDs the new favorite media for distributing intellectual property.

“Acting under the directive of the leadership of the 104<sup>th</sup> Congress to make Federal legislative information freely available to the Internet public, a Library of Congress team brought the THOMAS World Wide Web system online in January 1995, at the inception of the 104<sup>th</sup> Congress.”<sup>389</sup> These technological facts obscured a much broader and fundamental split of political philosophy between Congress and the administration. “When Newt Gingrich’s House of Representatives recently set up its first outpost on the Internet, it chose to name it ‘Thomas’ in honor of Mr. Jefferson – a small but telling symbol of the ascendancy of the ‘Jeffersonian vision’ not only in the realm of politics, but in the realm of high technology as well.”<sup>390</sup> All branches of government were about to discover the politics of technology and their interaction with what management researcher Thomas Davenport had discovered a few years earlier in corporate environments – the politics of information. “Information technology was supposed to stimulate information flow and eliminate hierarchy. It has had just the opposite effect. As information has become the organizational ‘currency,’ it has become too valuable for most managers to just give away. In order to make information-based organizations successful, companies need to harness the power of politics – that is, allow people to negotiate the use and definition of information, just as we negotiate the exchange of other currencies.”<sup>391</sup> The power and politics of technology had been coupled with the power and politics of information, and this potent combination was now being infused with the power and politics of ideas.

In February, Intel destroyed an estimated 1.5 million flawed Pentium chips. At market prices, this amounted to a cost of approximately \$475 million; in addition Intel replaced the Pentium chips in those systems that had already been sold. In March, the Universal Serial Bus (USB), the single interface for input/output devices, was formally debuted. The “browser wars” were about to begin as Netscape Communications

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<sup>389</sup> [http://thomas.loc.gov/home/abt\\_thom.html](http://thomas.loc.gov/home/abt_thom.html).

<sup>390</sup> Post, David G. “Jefferson Ascendant.” Electronic Freedom Foundation, 1995. This article provides a look at the warring Jeffersonian & Hamiltonian political philosophies behind the battle between civil libertarians and authoritarian regulators over the fate of the Internet.

<sup>391</sup> Davenport, Thomas H., Robert G. Eccles, and Laurence Prusak. “Information Politics,” *Sloan Management Review*, Fall 1992, pp. 53-65.

released version 1.1 of Netscape Navigator in April; shortly thereafter Microsoft asked Netscape Communications to agree to not develop a version of this browser for Windows 95 and successor operating systems. Netscape refused Microsoft's request, of course, and the following month released version 1.2 of their web browser. In this environment, Microsoft's stock hit \$100 a share; a few months later *Forbes* magazine hailed Bill Gates as the wealthiest man in the world, with a net worth estimated at \$15 billion.

As technological progress continued unabated throughout the year, human actions helped reveal the fragility and the cost of progress. Thousands in the Minneapolis-St. Paul area lost Internet access on July 30, after transients started a bonfire under a bridge close to the University of Minnesota campus. Heat from the fire caused fiber-optic cables strung beneath the bridge to melt. On August 24 Microsoft released Windows 95 with a splashy \$200 million publicity campaign and product launch; the campaign included \$12 million for the rights to the song "Start Me Up" by the Rolling Stones. In its first four days after the product launch, a million copies of Windows 95 were sold, and Microsoft reported selling 7 million copies in the two months following product release. Spectacular hardware advances were also being made; Intel began shipping its Pentium Pro processor, its two versions operating at clock speeds of 150 and 200 MHz. Two major industry groups agreed on a proposed high density compact disc format, called DVD, designed to store 18.8 gigabytes of information on a single, double-sided disc. By the year's end, the number of US homes with a personal computer was estimated at 33.9 million, or 37 percent. Software companies estimated their losses due to software piracy as \$2.9 billion in the U.S., and \$13.1 billion worldwide. Software piracy rates were estimated as follows: Vietnam 99%; El Salvador 97%; China 96%; Eastern Europe 83%; and USA 26%. Sixty percent of retail software sold during the year was distributed on CD-ROM.

In 1996 graphic capabilities came into their own on personal computers. Powered by a combination of ever-increasing processor speed and advanced graphic capabilities, the personal computer could display graphics and video, play sound, and simultaneously communicate; multimedia was born, and a short distance away on the horizon was multimedia via the Internet. In January Microsoft acquired Vermeer

Technologies, including its key product FrontPage, an editing program for creating web content. Intel, already shipping a new 200 MHz version of its Pentium processor, announced details of MMX, its 57 new processor instructions designed to accelerate calculations by up to eight times in audio, graphics, speech, and data communications. At the annual Windows Hardware Engineering Conference in April, Intel announced a new CPU interface for graphics accelerators called the Accelerated Graphics Port (AGP). With these capabilities, computer-based gaming and interactive graphic applications entered a new era.

The “browser wars” between Netscape Communications and Microsoft continued unabated. This intense form of competition ushered in a new age of software development, whereby new software releases were made quarterly to Internet users eager to test, find, and report any flaws (bug reports). The definition of a software “product” was also changing, perhaps unintentionally at first, as software companies began to view their customers as Internet-based participants in software testing.

Enhanced capabilities in each successive browser release led to new opportunities; pornographers had already invested in Internet technology, and they now pioneered the first profitable electronic commerce applications. Congress reacted by passing the controversial Communications Decency Act (CDA), an attempt to prohibit distribution of indecent materials over the Internet. A few months after passage of the CDA, a three-judge panel imposed an injunction against its enforcement, on grounds that the CDA infringed on First Amendment rights.

By the end of 1996, worldwide shipments of personal computers totaled nearly 71 million units. Microsoft had an 86% share of the operating system market and a 66% share of the office applications suite market. WordPerfect, the product claiming a 71% market share in 1992, now held a mere 7% of the application suite market. Scott McNealy, chairman and CEO of Sun Microsystems, and a frequent Microsoft biter, noted that “When the anthropologists dust off the 1980s and 1990s and look at the productivity dip, they’re going to blame [Microsoft] Office.”

The Influence of other policy endeavors began to exert pressure on activities within the IRM subsystem. The first of these influences came in the form of a

performance-based approach to viewing and managing the work of government. The Government Performance and Results Act of 1993 and the Clinton administration's National Performance Review provided the first source of stimulus. The second source of external influence was the President's Critical Infrastructure Protection (CIP) initiative. The CIP grew out of the combined effects of the World Trade Center bombing in 1993; the Oklahoma City bombing in 1995; the trend toward increasingly successful hacking attacks on government computers; and cascading power failures in the western U.S. in the summer of 1996 – all fueling the realization that the infrastructure components supporting the U.S. economy and society were interconnected, automated, and vulnerable.

Management policy subsystems, particularly those influenced by performance-based approaches to reforming government, began to exert influence on IRM policies and activities. During the 1992 presidential campaign, political concern was increasingly expressed over citizen disengagement and the lack of public confidence in government. Campaign statements reflected the perception that government, especially the Federal government, was increasingly inefficient and ineffective, and that it was not providing services commensurate with its cost. As the performance-based revolution discussed by Kettl<sup>392</sup> spread during the early 1990s, it manifested itself in two important ways. First, the concept of performance-based management had attracted the attention of a number of influential members of Congress; the growing awareness of performance-based approaches had been building for several years, especially within members and staff of the Senate Governmental Affairs Committee and the General Accounting Office. This interest culminated in Senator William Roth (R-DE) introducing the Government Performance and Results Act (GPRA) of 1993 on January 21, 1993. Introduced originally in the 101<sup>st</sup> Congress, and again in the 102<sup>nd</sup> Congress, S. 20 was intended “to provide for the establishment, testing, and evaluation of strategic planning and performance measurement in the federal government.”<sup>393</sup> The goals of this bill already had substantial support; in November 1991, the National

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<sup>392</sup> Kettl, *The Global Public Management Revolution*.

<sup>393</sup> Congress, Senate. *Government Performance and Results Act of 1993, Report 103-58*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 1<sup>st</sup> sess, 1993, p. 3.

Academy of Public Administration adopted a supporting resolution at its annual meeting, and the American Society for Public Administration adopted a resolution of support for performance-based management at its 1992 annual meeting. A phased implementation approach was built into S. 20, creating 10 pilot studies in fiscal years 1994, 1995, and 1996, followed by assessments by both OMB and GAO, and full implementation beginning in fiscal year 1997. Implementing the GPRA required agencies to develop strategic plans supported by annual performance plans, with the results validated in annual performance reports.<sup>394</sup> This approach provided a good fit with the new administration's plans and gained its wholehearted support. Upon passage it was signed by President Clinton on August 8, 1993, as Public Law 103-62.<sup>395</sup>

The Clinton administration unveiled its own performance-related initiative on March 3, 1993, called the National Performance Review (NPR). In contrast to the long-range horizon of the Congressional initiative, the NPR's 6-month intensive study generated recommendations for longer-term implementation actions. Staffed by government employees, the NPR generated approximately 800 recommendations for change focused around four key principles: cutting red tape; putting customers first; empowering employees to get results; and cutting back to basics. The problem, according to officials of the National Performance Review, was not the bureaucrats as the Carterites had insisted; neither was it the government as the Reaganites had insisted. Rather, the situation was likened to that of Gulliver, who was bound and held motionless by the many ropes of the diminutive Lilliputians. "The federal government is filled with good people trapped in bad systems: budget systems, personnel systems, procurement systems, financial management systems, information systems. When we blame the people and impose more controls, we make the system worse."<sup>396</sup> As recounted by Robert Tobias, then president of the National Treasury Employees Union, "The regulations and statutes that bind federal employees from exercising

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<sup>394</sup> Ibid.

<sup>395</sup> Congress, Library of Congress. *Bill Summary and Status, S. 20, Government Performance and Results Act*. Library of Congress, 103<sup>rd</sup> Cong., 1<sup>st</sup> sess., 1993. Available online at <http://thomas.loc.gov>.

<sup>396</sup> Gore, *From Red Tape to Results: Creating a Government That Works Better and Costs Less*, p. xxxiii.

discretion available in the private sector all come about as a response to the humiliations, mistakes, [and] embarrassments of the past.”<sup>397</sup> The solution proposed by the NPR was to “shift from systems that hold people accountable for process to systems that hold them accountable for results. . . . As we pare down the systems of over-control and micromanagement in government, we must also pare down the structures that go with them: the oversized headquarters, multiple layers of supervisors and auditors, and offices specializing in the arcane rules of budgeting, personnel, procurement, and finance.”<sup>398</sup> Terms like delayering, reinventing, reengineering, and entrepreneurial government entered the vocabulary. Underlying all of these discussions was the desire to achieve more from government at less cost with fewer people. To President Clinton’s commitment to reduce the federal workforce by 100,000 was added the NPR’s proposed workforce reductions of an additional 152,000 persons.

Productivity could be enhanced, and costs could be cut; “businesses had found that the only way to break the mold was to reengineer – to forget how they were organized, decide what they needed to do, and design the best structure to do it.”<sup>399</sup> While the insight may seem obvious, many great ideas follow this path; it seems intuitively obvious – after its discovery. Operationalizing the intent of the NPR would involve reengineering the work performed by government agencies. “First, we will expand the use of new technologies. With computers and telecommunications, we need not do things as we have in the past. . . . Second, we will speed up the adoption of new ways to improve federal operations.”<sup>400</sup> It was anticipated that “reforming and reengineering the processes of government” would be tasks performed by the agencies themselves. Again, the assumption was that outside individuals or organizations would be unable to learn enough about internal agency work processes to redesign them intelligently. Any redesign of agency processes would, of course,

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<sup>397</sup> Ibid., p. 3.

<sup>398</sup> Ibid., pp. 5-6.

<sup>399</sup> Ibid., p. 177.

<sup>400</sup> Ibid., p. 178.

involve embedding information technology firmly at the core of the redesigned processes of governance. The concept of “electronic government”<sup>401</sup> was launched.

But “electronic government,” as well as physical government, had some vulnerabilities requiring protection. On July 17, 1996, President Clinton issued Executive Order 13010, establishing the President’s Commission on Critical Infrastructure Protection (PCCIP) to investigate the “scope and nature of vulnerabilities” and to “recommend a comprehensive national policy and implementation strategy for protecting critical infrastructures from physical and cyber threats and assuring their continued operation.”<sup>402</sup> Noting that certain national infrastructures are essential to the defense and economic security of the country, and that these infrastructures are increasingly connected by computers, the Executive Order identified eight critical infrastructures: telecommunications; electrical power systems; gas and oil storage and transportation; banking and finance; transportation; water supply systems; emergency services (including medical, police, fire, and rescue); and continuity of government. These infrastructures faced physical threats to “tangible property” as well as threats “of electronic, radio-frequency, or computer-based attacks on the information or communications components that control critical infrastructures (‘cyber threats’).”<sup>403</sup>

As the PCCIP began its work, it became increasingly evident that protecting information and its manipulation by computers was a central component of infrastructure protection. Within Federal agencies, information resources managers had been assigned the responsibility for information, communications, and computing assets by the Paperwork Reduction Act of 1980, as amended in 1986. Physical and virtual protection of these key assets would soon be added to this portfolio.

#### 4.2.4.2 Reformulating IRM: The Policy Subsystem 1993-1996

“You have expressed the deeply held concern that OIRA has not been sufficiently aggressive in the area of information resources management, and has been

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<sup>401</sup> Ibid., pp. 178-186. The term “electronic government,” as far as can be determined in this study, was first used here in Vice President Gore’s report on the work of the National Performance Review.

<sup>402</sup> Federal Register. *Executive Order 13010 – Critical Infrastructure Protection*. Vol. 61, No. 138, Wednesday, July 17, 1996, p. 37348.

too aggressive in the area of regulatory review,” noted Sally Katzen in remarks at her confirmation hearing before the Senate Governmental Affairs Committee. “And the challenge now, indeed it is an opportunity, is to learn from the past and to build better relations with the agencies, the Congress, and the public, so that OIRA can fulfill all its responsibilities and do so in a fair and balanced way, and in a way that affords greater openness and accountability.”<sup>404</sup> Katzen’s challenge in leading OIRA would entail all of that, rebuilding relations with agencies and Congress, and changing its public image, as well as integrating the statutory duties of OIRA with the ambitious programs the administration was unveiling: the National Performance Review and the National Information Infrastructure. Information technology and policies governing its use in Federal agencies were now clearly seen as the handmaiden of governance. The challenge, in Katzen’s words, was one of “exploiting the use of information technology to improve the delivery of Government services to the public.”<sup>405</sup>

The last part of the ACF’s nascent phase of a policy subsystem is one of policy reformulation; by 1993 the information resources management policy subsystem was entering a time of policy reformulation. In contrast with past administrations, the Clinton administration strongly supported the original vision of the Paperwork Reduction Act, especially the information resources management notion. The administration’s initiatives, the National Information Infrastructure and the National Performance Review, observed Katzen, leveraged the vision of the PRA in two ways. “First, Government’s role is to serve the public, both individually and collectively in a responsive manner. And second, information technology, with its potential to transform work processes, is key to achieving substantially improved Government services.”<sup>406</sup> Federal information policies were seriously outdated; they were about to be reformulated, to revitalize information resources management, and to leverage information and information technology to transform government work processes.

“I am not the only one who arrived with this new President to find that the state

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<sup>403</sup> Ibid., p. 37347

<sup>404</sup> Congress, Senate. *Nomination of Sally Katzen*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 1<sup>st</sup> sess., 1993, p. 10.

<sup>405</sup> Congress, Senate. *Reinventing Government: Using New Technology To Improve Service and Cut Costs*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 1<sup>st</sup> sess., 1993, p. 5.

<sup>406</sup> Ibid.

of technology was appalling compared to what I had experienced in the private sector.”<sup>407</sup> Katzen’s assessment to the Senate Governmental Affairs Committee underscored the need for action (Figure 4.5, hearing #1). By early July the first policy update had been issued, a revision to the information policy provisions of OMB Circular A-130, *Management of Federal Information Resources* (Figure 4.5, policy change #H<sub>1</sub>). This update became the first of three that modernized all portions of the Circular. It adjusted the Circular’s focus from information technology to information management, clarified information dissemination policies and responsibilities for agencies, and updated the definition of IRM to “the planning, budgeting, organizing, directing, training, and administrative control associated with government information resources.”<sup>408</sup> As the relationship between IRM and the National Performance Review evolved, the NPR’s focus on reinventing government was leveraged to accelerate change in government. “Reinventing government is an enormously complex undertaking. It begins with leadership, not technology. But technology, because it can break down bureau and agency boundaries and can offer new ways of serving the public, it can, and we believe will, be a very powerful tool for reinvention.”<sup>409</sup>

The NPR’s recommendations on the use of information technology were of two varieties: those dealing with leadership, and those dealing with information management capabilities. Katzen, through participation in the National Infrastructure Initiative and the National Performance Review working groups, and direction of the ongoing modernization of IRM policy for Federal agencies, already had several leadership initiatives underway. On the capabilities side, two NPR initiatives had been started under the title, “Electronic Government,” one exploring electronic benefits transfers, and the other providing e-mail capability across Federal, state, and local governments. Supporting these initiatives required internal improvements. “As we develop Electronic Government, we need to assure that the mandate of the Computer Security Act – to protect information commensurate with the risk and magnitude of loss

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<sup>407</sup> Ibid., p. 9.

<sup>408</sup> Executive Office of the President. Office of Management and Budget. *Circular No. A-130, “Management of Federal Information Resources, Transmittal 1.” Federal Register*, 58 (July 2, 1993), pp. 36068-36086.

<sup>409</sup> Senate, *Reinventing Government*, p. 6.

or harm that could result – is fulfilled. . . . [The] purpose is to ensure that the citizen can trust that the information they provide for transport on the information infrastructure will be sent where and when they want it and nowhere else. . . . [Another area requiring work] is the area of privacy. Americans are becoming increasingly concerned about threats to their privacy resulting from wider use of information technologies to collect, maintain, manipulate, and share information. The perception is that existing statutory and regulatory protection may be lagging behind the development and use of new technologies.”<sup>410</sup>

The National Performance Review had also “recommended substantial legislative and regulatory changes in the procurement area,” noted Senator Levin as he opened the confirmation hearing for Steven Kelman to be Administrator of the Office of Federal Procurement Policy. “On the legislative front we intend to enact the Federal Acquisitions Streamlining Act. . . . On the regulatory front, the administration has expressed its intent to undertake a comprehensive re-examination of the Federal Acquisition Regulation, the FAR, this year.”<sup>411</sup> Kelman’s two highest priorities, as expressed in a pre-hearing discussion with Chairman Levin, were to streamline the procurement system by “encouraging acquisition of commercial products, and encouraging excellence in supplier performance by making consideration of past performance a crucial feature of contract award decisions.”<sup>412</sup> Knitting together the strands of the Government Performance and Results Act of 1993 and the National Performance Review, Kelman addressed the human side of these reforms. “We must cease organizing the procurement system around the assumption that Federal workers will steal anything not bolted to the floor, and begin to regard our workforce as our most important asset. We must expect and demand world-class performance from Government suppliers, and affirm that we intend to deliver repeat business to supplier partners who treat the taxpayer right, while denying our contracting dollars to any who do not.”<sup>413</sup>

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<sup>410</sup> Ibid., pp. 7-8.

<sup>411</sup> Congress, Senate. *Nomination of Steven J. Kelman*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 1<sup>st</sup> sess., 1993, p. 1.

<sup>412</sup> Ibid., p. 2.

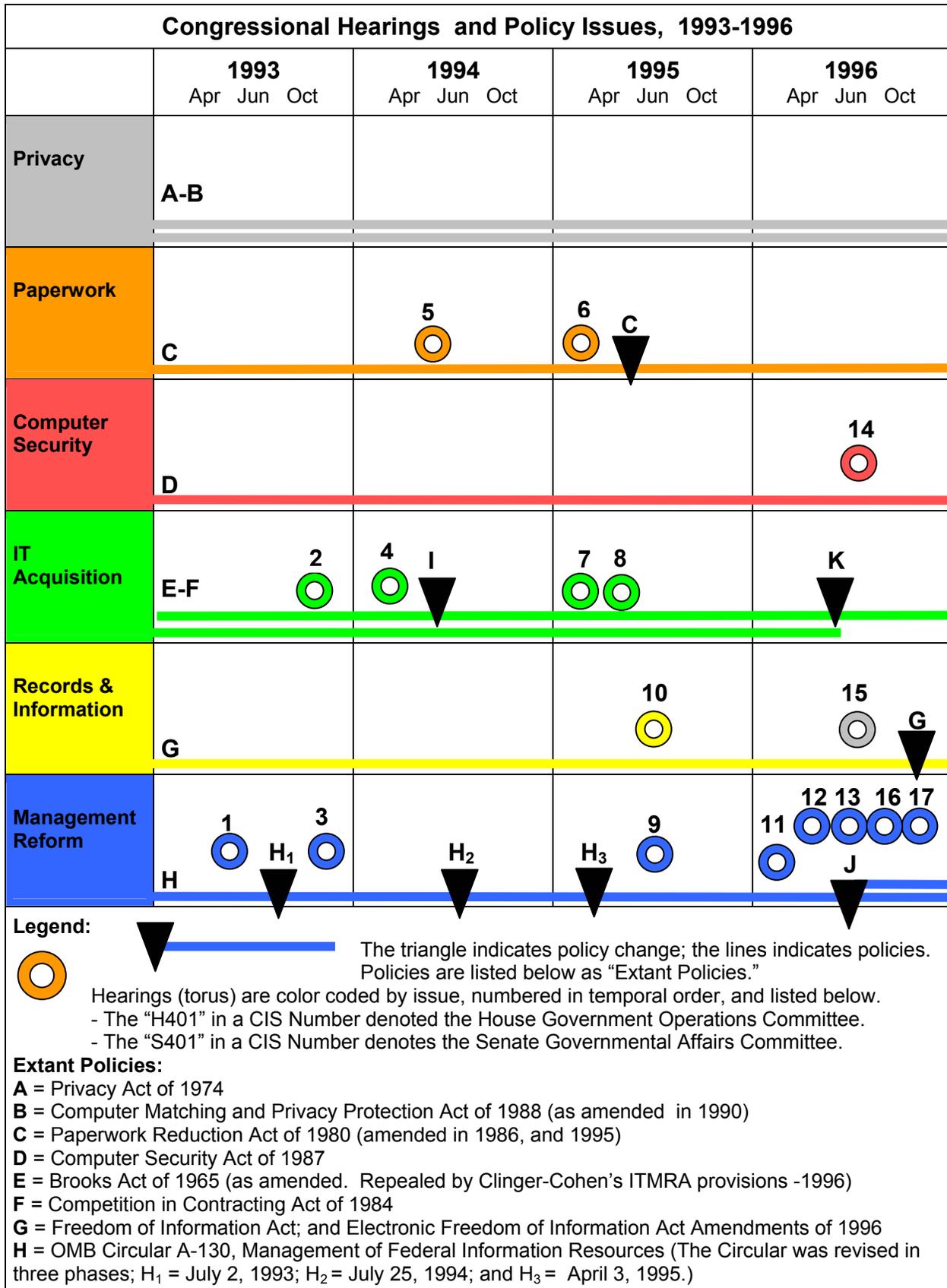
<sup>413</sup> Ibid., p. 6.

Acquisition was the first reform initiative to see legislative action. In October 1993, Senator Glenn and nine cosponsors had introduced S. 1587, the Federal Acquisition Streamlining Act. The bill, noted Senator Glenn in opening this Joint Hearing with the Senate Armed Services Committee (Figure 4.4, hearing #4), addressed the acquisition reform concerns of numerous parties, and brought together inputs from the “Governmental Affairs Committee, the 800 Panel [the Acquisition Law Advisory Panel authorized under section 800 of the FY 1990 Defense Authorization Act] and from the Senate Armed Services Committee, as well as the Vice President’s National Performance Review.”<sup>414</sup> The bill had three primary goals: first it sought to promote and improve acquisition for commercial items (otherwise known as commercial-off-the-shelf or COTS products); second, it sought to streamline processes for purchasing items valued at \$2500 or less; and third, it sought to streamline the bid protest and procurement oversight processes. While some small differences of opinion were voiced on minor items, all participants in this hearing agreed on the key goals, on the necessity for reform, and on the need to pass this bill and implement acquisition reforms as soon as practicable. The bill was signed and became Public Law 103-355 on October 13, 1994. When implemented, these reforms had an immediate impact on the IRM policy subsystem in updating and simplifying cumbersome IT acquisition policies. They also spurred new product development initiatives in the commercial IT industry because of the preferential shift from custom-designed IT systems to systems created from commercial products.

The next challenge addressed was the issue of reauthorizing the Paperwork Reduction Act and providing oversight of OMB’s Office of Information and Regulatory Affairs (Figure 4.5, hearing #6). In the year Katzen had led the OIRA, the policy and regulatory environment had changed dramatically. OMB was now working collaboratively and constructively with GAO on identifying industry’s best practices for leveraging IT to more effectively and efficiently achieve desired organizational outcomes. OMB was working with congressional staffs in crafting the language to reauthorize the PRA, and OMB was working with agency personnel to make

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<sup>414</sup> Congress, Senate. *S. 1587, Federal Acquisition Streamlining Act of 1993*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 2<sup>nd</sup> sess., 1994, p. 2.



I = Federal Acquisition Streamlining Act of 1994  
 J = Information Technology Management Reform Act of 1996  
 K = Federal Acquisition Reform Act of 1996

<b>No</b>	<b>Year-Congress</b>	<b>CIS No</b>	<b>HEARING TITLE AND DATE</b>	<b>PURPOSE</b>
1	1993 103 <sup>rd</sup> - 1 <sup>st</sup>	94-S401-18	Nomination of Sally Katzen. May 19, 1993.	Confirmation
2		94-S401-14	Nomination of Steven J. Kelman. November 18, 1993.	Confirmation
3		94-S401-20	Reinventing Government: Using New Technology to Improve Service and Cut Costs. December 2, 1993.	Exploratory
4	1994 103 <sup>rd</sup> - 2 <sup>nd</sup>	95-S401-4	S. 1587, Federal Acquisition Streamlining Act of 1993. February 24, 1994.	Legislation
5		95-S401-42	OMB's Office of Information and Regulatory Affairs Information Management, Paperwork, and Regulatory Review. May 19, 1994.	Oversight
6	1995 104 <sup>th</sup> - 1 <sup>st</sup>	96-H401-6	H.R. 830, Paperwork Reduction Act and Risk Assessment and Cost/Benefit Analysis For New Regulations. February 7, 1995.	Oversight Legislation
7		96-H401-76	Oversight of Implementation of Federal Acquisition Streamlining Act of 1994. February 21, 1995.	Oversight
8		96-H401-45	H.R. 1670, The Federal Acquisition Reform Act of 1995. May 25, 1995.	Oversight Legislation
9		96-S401-6	S. 946, The Information Technology Management Reform Act of 1995. July 25, 1995.	Oversight Legislation
10		97-H401-13	Electronic Reporting Streamlining Act of 1995. July 25, 1995.	Legislation
11	1996 104 <sup>th</sup> -2 <sup>nd</sup>	97-H401-84	Using the Best Practices of Information Technology in Government. February 26, 1996.	Exploratory
12		96-H401-19	Performance-Based Government: Examining the Government Performance and Results Act of 1993. March 6, 1996.	Oversight
13		97-H401-99	Is January 1, 2000, the Date for Computer Disaster? April 16, 1996.	Exploratory
14		96-S401-9	Security in Cyberspace. May 22, 1996.	Exploratory

15		98-H401-28	S. 1090, Electronic Freedom of Information Improvement Act of 1995. June 14, 1996.	Legislative P.L. 104-231
16		96-S401-41	Implementation of the Information Technology Management Reform Act of 1996. July 17, 1996.	Oversight
17		97-H401-16	Solving the Year 2000 Computer Problem. September 10, 1996.	Exploratory

Figure 4.5 Policy Issues and Congressional Hearings 1993-1996

information collections more effective, reduce the burden hours imposed on the public, and implementing more balanced and open approaches to regulations and their review. Legislatively, two proposals faced the Senators; one would strengthen OMB's review authority and agency responsibilities for information collection from the public, while the other focused on improving information resources management by detailing agency and OMB responsibilities.<sup>415</sup> Senate staff members, collaborating with OMB and GAO were able to reconcile the differences, but not before the end of the legislative session. The bill was reintroduced by Senator Nunn at the beginning of the 104<sup>th</sup> Congress and quickly passed. In considering the House's version of the bill, Congresswoman Collins praised Katzen's leadership of OIRA in areas of regulatory review and paperwork burden reduction. Katzen, Collins observed, had also led the way in bringing innovation to information collection through the use of technology, and brought reasonableness to information dissemination policies by prohibiting agencies from charging more than the dissemination costs for information.<sup>416</sup> The Paperwork Reduction Act of 1995 became Public Law 104-13 on May 22, 1995. This new Paperwork Reduction Act, suggested David Plocher, moved the information resources management concept into the forefront of agency management practices. "The legislation transforms the term IRM from a simple listing [of duties] to an information-oriented policy that links management with program outcomes: the term 'information resources management' means the process of

<sup>415</sup> Congress, Senate. *OMB's Office of Information and Regulatory Affairs Information Management, Paperwork, and Regulatory Review*. Committee on Governmental Affairs, 103<sup>rd</sup> Cong., 2<sup>nd</sup> sess., 1994, pp. 18-19. These bills, S. 560 and S. 681 respectively, were discussed in Sally Katzen's testimony.

<sup>416</sup> Congress, House. *H.R. 830, Paperwork Reduction Act and Risk Assessment and Cost/Benefit Analysis for New Regulations*. Committee on Government Reform and Oversight, 104<sup>th</sup> cong., 1<sup>st</sup> sess.,

managing information resources to accomplish agency missions and to improve agency performance, including the reduction of the information collection burden on the public.”<sup>417</sup> Holden and Herson assessed the PRA of 1995 as updating the 1970s concept to match the information age realities of the 1990s.<sup>418</sup>

Success was also evident in the reforms enacted by the Federal Acquisition Streamlining Act (FASA) of 1994. In his testimony, Steven Kelman, Administrator of the Office of Federal Procurement Policy described the intent and some of the outcomes of this legislation. Three goals guided the procurement reinvention strategies: first, streamline the process wherever possible; second, achieve quality and good prices for the government; and third, improve the partnership between government and its suppliers. These approaches had been successful; Walter Reed Army Hospital in Washington switched to “just-in-time” delivery for foods and was able to cut its food inventory in half, close a storage facility and get rid of two refrigerator trucks. In Los Angeles, the time required to rebuild the Santa Monica Freeway, collapsed during the 1994 Los Angeles earthquake, was shortened from the initial estimate of 104 weeks to a mere 10 weeks because contractors competed on both price and time to complete the project.<sup>419</sup>

Other aspects of acquisition reform were still the subject of ongoing bipartisan discussions. Comments made during the FASA oversight hearing brought additional acquisition reform concerns to the attention of Congress. Codified in legislative language, H.R. 1670, the Federal Acquisition Reform Act (FARA) of 1995 proposed to address these problems. The FARA proposed to change the notion of “full and open competition” to maximum practicable competition, that is, limit the potential bidders to only those that could realistically perform the requested services. It anticipated using commercial audit procedures to replace unique and time-consuming government audit processes. It consolidated all the executive branch dispute resolution mechanisms and

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1995, pp. 4-5.

<sup>417</sup> Plocher, David. “The Paperwork Reduction Act of 1995: A Second Chance for Information Resources Management.” *Government Information Quarterly*, 13, 1996, p. 39.

<sup>418</sup> Holden, Stephen H., and Peter Herson. “An Executive Branch Perspective on Managing Information Resources.” In Herson, Peter, Charles R. McClure, and Harold C. Relyea, eds., *Federal Information Policies in the 1990s: Views and Perspectives*. Norwood, NJ: Ablex Publishing Corporation, pp. 83-104.

<sup>419</sup> Congress, House. *Oversight of Implementation of Federal Acquisition Streamlining Act of 1994*. Committee on Government Reform, 104<sup>th</sup> Cong., 1<sup>st</sup> sess., 1995, pp. 7-10.

the GAO's bid protest section into a single dispute resolution forum with a single set of streamlined dispute processes, and replaced or updated the patchwork of laws that had prohibited establishing long-term relationships with quality suppliers – again, a commercial best practice.<sup>420</sup> As the election year approached, the sponsors of acquisition reform looked for suitable legislation to which they could attach this resolution.

Another reform, this one focusing on agency performance and the role of information technology in program and service delivery, was gaining momentum. “When the Brooks Act was written back in 1965, the Federal Government was the dominant computer buyer in the world, and it purchased over 60 percent of the industry’s entire output,” declared Senator William Cohen in opening the hearing on his bill to reform information technology management practices. “Today, the Federal market comprises only 3 percent of industry sales. While Government is still the largest single buyer, it no longer moves the market.”<sup>421</sup> The process put in place by the Brooks Act had, over time, grown into a bureaucratic and cumbersome approach to acquisition with hundreds of pages of regulations focused on conformity – all the while ignoring results.

The Information Technology Management Reform Act, Senator Cohen’s bill, addressed both the existing process and the desired end state (Figure 4.5, hearing #9). First, the bill called for repealing the Brooks Act of 1965, and eliminating the oversight role of GSA in agency information technology programs. In its place, Cohen’s bill called for a Chief Information Officer at OMB, and Chief Information Officers at major Federal agencies. The CIO’s job was to “emphasize up-front planning, monitor risk management, and work with the contractors to achieve workable solutions to the Government’s information needs.”<sup>422</sup> This bill also addressed system development risk, urging use of private sector approaches to incremental development, vice the existing mega-system model. Decisions on whether to invest in information systems

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<sup>420</sup> Congress, House. *H.R. 1670, The Federal Acquisition Reform Act of 1995*. Joint Hearing Before the Committee on Government Reform and Oversight and the Committee on National Security, 104<sup>th</sup> Cong., 1<sup>st</sup> sess., 1995, pp. 2-28.

<sup>421</sup> Congress, Senate. *S. 946, The Information Technology Management Reform Act of 1995*. 104<sup>th</sup> Cong., 1<sup>st</sup> sess., 1995, p. 2.

<sup>422</sup> *Ibid.*, p. 3.

were to be made on the basis of potential return on investment; decisions to terminate existing systems or to increase their functionality were to be made on the basis of performance. In addition to these changes, agency management cultures also needed changing. Top agency officials were expected to understand how information technology could improve their agencies and the performance of their agencies' programs. In GAO's opinion, this bill contained three critical elements needed to ensure successful results: "focused, dedicated leadership; disciplined investment control processes; and innovative re-engineering of Government operations."<sup>423</sup> John Koskinen, OMB's Deputy Director for Management, agreed, and added that their last budget review revealed the need to initiate program reviews earlier. "[T]he place to start is with an analysis of the operating processes to be improved with information technology. Before we consider which systems to acquire, we need to focus on reengineering how the work is done, even asking whether the work needs to be done at all or can be done better by someone else."<sup>424</sup>

Senator Cohen's bill built upon the management reforms included in the Paperwork Reduction Act of 1995 and the acquisition reforms contained in the Federal Acquisition Streamlining Act of 1994. It also dovetailed with the performance-oriented reforms of the Government Performance and Results Act of 1993, by requiring IRM plans to: be aligned with agency strategic plans; show their contribution to achieving program outcomes; and show a return on information technology investments. Despite the significant level of agreement around this bill, one sticking point remained; the parties disagreed significantly over the notion of a Federal, or National Chief Information Officer.

Through the remainder of summer, and into the fall budget season, negotiations continued over the issue of whether or not a Federal CIO was needed. The administration believed that a Federal CIO was unnecessary, and would create a competing power center within OMB, diluting the position of OMB's Deputy Director for Management. Proponents of a Federal CIO countered that OMB's DDM already had a full slate of concerns, and the Federal CIO position was one that demanded full time

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<sup>423</sup> Ibid., p. 12.

<sup>424</sup> Ibid., p. 29.

attention. As the end of the legislative session loomed, the Federal CIO provision was dropped from the bill, and the Information Technology Management Reform Act, along with Federal Acquisition Reform Act were appended to the Department of Defense Authorization Act for Fiscal Year 1996 and passed. President Clinton signed the measure on February 10, 1996 as Public Law 104-106.<sup>425</sup>

The era of the Chief Information Officer had arrived for Federal agencies. An executive order was prepared and coordinated, with appropriate Congressional committees and affected executive departments, establishing a Federal CIO Council to serve as a coordinating and collaborating body for agency Chief Information Officers. The final Executive Order, No. 13011, *Federal Information Technology*, July 16, 1996, established the CIO Council “as the principal interagency forum to improve agency practices on such matters as the design, modernization, use, sharing, and performance of agency information resources.”<sup>426</sup> This council provided the forum for addressing interagency and government-wide challenges and served as a clearinghouse for agency best practices and sharing lessons learned. In the coming months, the CIO Council would figure prominently in coordinating responses to two new major challenges that guaranteed to consume the attention of CIOs and their staffs for some time to come. One of the challenges, an aspect of computer security, gained the spotlight because of external threats to agencies’ computer systems and networks from hackers and possible cyber-terrorists. Dealing with these threats was called infrastructure assurance. The other challenge was also related to computing, but was a challenge internal to the computers themselves, a problem with the hardware and software in dealing with dates beyond December 31, 1999. This challenge was the Year 2000 computer date problem, or simply termed Y2K.

As a technology challenge and a policy issue, computer security was beginning to change from primarily a “physical” security issue – protecting the hardware, software, and data from physical threats – to a virtual, or “cyber” security issue. While

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<sup>425</sup> Congress, Library of Congress. *Bill Summary and Status, 104<sup>th</sup> Congress, S. 1124. Department of Defense Authorization Act for Fiscal Year 1996.* These two measures were later re-titled together as the Clinger-Cohen Act of 1996 by Public Law 104-208. Available online at <http://thomas.loc.gov>; search by 104<sup>th</sup> Congress and S. 1124.

<sup>426</sup> Executive Office of the President. “Executive Order 13011 of July 16, 1996: *Federal Information Technology.*” *Federal Register*, Vol. 61, No. 140, (July 17, 1996), pp. 37657-37662.

the original physical dimensions of computer security still remained, they were becoming overshadowed by the new, and seemingly more threatening “cyber security” challenges. “The ‘cyber’ threat,” testified Deputy Attorney General Jamie Gorelick, “consists of electronic, radio-frequency, or computer-based attacks on the information or communications components that control critical infrastructures. Logic bombs, viruses and other computer-based attacks may disrupt, manipulate, or destroy the information upon which our defense, security, economic, and societal fabric depends.”<sup>427</sup> This new threat was particularly difficult to identify and defend against, because “the potential sources are more varied. An electronic intrusion could be a purely malicious hacking; the work of a negligent or disgruntled insider; part of an extortion or other criminal effort; a terrorist act; part of a clandestine espionage program; or in a time of international crisis, part of an attack by a hostile foreign power.”<sup>428</sup> Securing the information infrastructure was becoming both ever more difficult and ever more important. Computing systems and networks were becoming “massively interconnected,” testified Peter Neumann, principal scientist at SRI International. “Security will always be a major problem, because it is difficult to assure for technological, operational, and managerial reasons.” Moving beyond technology to the policy challenges surrounding this new view of computer security only increased the degree of complexity. Values, on which policies for security were based, were often in tension with one another. “Desires for privacy and anonymity are generally incompatible with the desire for accountability – that is, the ability to know the identity of participants and what they are doing.”<sup>429</sup> As a first attempt to deal with this new security environment and its complexity, President Clinton created the Commission on Critical Infrastructure by executive order on July 16, 1996.<sup>430</sup>

CIOs were also concerned with the challenge of Y2K, making their agencies’ computer system capable of handling the transition from 1999 to 2000. Some months

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<sup>427</sup> Congress, Senate. *Security in Cyberspace*. Committee on Governmental Affairs, 104<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1996. Statement of Hon. Jamie S. Gorelick, Deputy Attorney General. Available online via Lexus-Nexis Congressional as CIS 97-S401-9, document 4.

<sup>428</sup> Ibid.

<sup>429</sup> Ibid. Testimony of Peter G. Neumann, Principal Scientist, SRI International. Available online via Lexus-Nexis Congressional as CIS 97-S401-9, document 6.

<sup>430</sup> Executive Office of the President. Executive Order. “*Critical Infrastructure Protection, Executive Order 13010 of July 15, 1996.*” *Federal Register* (July 17, 1996), vol. 61, no. 138, pp. 37347-37350.

earlier, in the fall of 1995, OMB had asked the Social Security Administration to be the Champion for the Year 2000 issue, recognizing their leadership among Federal agencies actively addressing the issue.<sup>431</sup> Then on April 16, 1996, Chairman Horn of the House Subcommittee on Government, Management, Information and Technology convened the first Congressional hearing to determine the extent of the Year 2000 date problem in the Federal Government (Figure 4.5, hearing #13). Horn was interested in better understanding the problem and its dimensions. He expressed concern that awareness of this challenge was generally lacking throughout the Federal government, that agency leaders were unaware of the gravity of the situation, and that little thought had been given to the level of resources needed to remediate the problem. This challenge originated from a computer programming convention that represented the year as two digits; for example, in representing 'year' the digits '65' represent 1965, and '96' represents 1996. The convention grew out of the need to conserve space on expensive computer storage media, and the need to write code that could be quickly processed by the computer. While this technique presented no problem through 1999, the transition to the year 2000 promised to be problematic; the value '0' is less than '9' and therefore the date '00' would be logically viewed as representing 1900, not 2000. All date-based calculations would be adversely affected; these might include calculation of age for social security recipients; eligibility date for benefits recipients; age for driver's license qualifications, and many more. Estimates of the cost to remediate the Y2K problem varied considerably, but tended to support the Gartner Group's estimate of \$30 billion for the U.S. Federal government and \$600 billion internationally.<sup>432</sup>

Following this hearing a survey was sent to 24 major federal departments to ascertain their level of progress in addressing the Year 2000 issue. The results of this survey were less than reassuring, and when reported by Horn's subcommittee, showed that most federal departments were only in the planning phases of their Year 2000

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<sup>431</sup> Adams, Kathleen. *Testimony of Kathleen Adams, Assistant Deputy Commissioner for Systems, Social Security Administration*. U.S. House of Representatives, Committee on Science. Available online at [http://www.house.gov/science/adams\\_7-10.html](http://www.house.gov/science/adams_7-10.html). The Social Security Administration had recognized this problem as early as 1989 and was actively working to remedy its effects in their computer systems.

<sup>432</sup> Congress, House. *Is January 1, 2000, The Date For Computer Disaster?* Committee on Government Reform and Oversight, 104<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1996.

activities. Of the 24 agencies, in only six had planning advanced to the cost estimate stage. Many agencies were even less prepared: the Department of Energy did not begin their Year 2000 assessment until a week after they received the survey; the Department of Transportation did not respond to the survey; the National Aeronautics and Space Administration had not yet prepared their plan; and the Department of Defense had not yet completed its inventory of computer code needing to be converted.<sup>433</sup> The Subcommittee issued its soon-to-be-signature report card, grading Federal agencies: four agencies got A; three agencies got B; three agencies got C; ten agencies got D; and four agencies got F.<sup>434</sup> The message was received. The August meeting of the Federal CIO Council discussed the year 2000 problem, Congressman Horn's scorecard, and agency responses as one of its first agenda items.<sup>435</sup> It was becoming clear that the job of a Federal CIO would require, in addition to technological knowledge, policy skills and political awareness.

Despite the new challenges and the political dimensions of CIOs' jobs, they still had to deal with the old challenges; legislators also revisited policies as extant issues resurfaced in new guises. In the waning days of the 104<sup>th</sup> Congress' second legislative session, a proposal amending the Freedom of Information Act was advanced that would require agencies to release information maintained in electronic form in response to FOIA requests. Numerous complaints had surfaced that agencies either viewed records in electronic form as somehow different and therefore exempt from FOIA, or agencies complained that applying the FOIA to records in electronic form could dramatically increase costs since specialized software may be needed to isolate, retrieve, and provide the records requested. Chairman Horn of the Subcommittee on Government Management, Information, and Technology Committee convened a hearing on the E-FOIA bill in June,<sup>436</sup> and the measure passed both the House and the Senate in mid-September. Signed by President Clinton on October 2, the Electronic

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<sup>433</sup> Nunno, Richard M. *The Year 2000 Computer Challenge*. The Library of Congress, Congressional Research Service Report 96-533 SPR, August 30, 1996.

<sup>434</sup> Media Advisory Report from Representative Stephen Horn, July 30, 1996.

<sup>435</sup> Congress, House. *Solving the Year 2000 Problem*. Committee on Government Reform and Oversight, 104<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1996. Testimony of Sally Katzen, Administrator, OIRA, Sept 10, 1996.

<sup>436</sup> Congress, House. *H.R. 1281, War Crimes Disclosure Act, Health Information Privacy Protection Act, and S. 1090, Electronic Freedom of Information Act of 1995*. Committee on Government Reform and Oversight, 104<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1996.

Freedom of Information Act Amendments<sup>437</sup> established that government records, without regard to their form, were now subject to the Freedom of Information Act.

4.2.4.3 From Opponents to Collaborators: Coalitions 1993-1996

It is far more challenging, and difficult, to recommend and craft a policy course of action than it is to criticize policy actions and initiatives with which you disagree. In the previous time periods, coalitions played noteworthy roles in critiquing administration policies and suggesting alternatives more in keeping with their beliefs. The narrow interests and perspectives of each coalition, however, tended to circumscribe both the critique and the contribution; policies affecting actions beyond the range of a coalition’s interests had simply been ignored. In essence, each coalition functioned effectively as a watchdog for its own interests, but the coalitions neither provided broad policy advice nor contributed substantively to policymaking in the policy subsystem. Such is the situation regarding the three existing coalitions and their policy interactions in this time period. Two of the three coalitions identified previously, the *Public Interest Coalition* and the *Information Producers Coalition*, participated in IRM policy subsystem activities

<b>Values of Witnesses Testifying on IRM Issues 1993-1996</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	4	0	1	12	5	0
effectiveness	1	0	0	5	13	0
responsiveness	0	0	0	2	1	0
accountability	2	0	2	3	5	6
equality	0	0	0	0	1	0
<b>Witnesses (total)</b>	7	0	3	22	25	6
<b>Hearings (total)</b>	1	0	1	4	7	1

Table 4.17 Values of Witnesses Testifying on IRM Issues 1993-1996

<sup>437</sup> Congress, Library of Congress. *Bill Summary and Status, 104<sup>th</sup> Congress, H.R. 3802, Electronic Freedom of Information Act Amendments of 1996*. Available online at <http://thomas.loc.gov>; search by 104<sup>th</sup> Congress and H.R. 3802.

during the time period 1993-1996, albeit in limited roles. During this period, 63 witnesses' testimony was coded across 14 hearings; eight witnesses identified with the *Public Interest Coalition* testified, while only a single witness identified with the *Information Producers Coalition* testified. There was no participation by any individual or organization associated with the *Traditionalists Coalition*.

The evidence in Table 4.17 helps explain the low level of involvement by the previously identified coalitions. Those "single issue" coalitions were concerned primarily with privacy and records and information, issues that got little attention during this period. Three possibilities contributed to this result. First, many of the policy interests of these coalitions were satisfied by the policy directions taken by the Clinton administration. In her confirmation testimony and subsequent Congressional appearances, Katzen clearly affirmed the administration's commitment to the Paperwork Reduction Act goals and the implementation of information resources management as the agency management approach. She reiterated OIRA's central policy and paperwork clearance functions and detailed the administration's commitment to a transparent approach to regulatory reform. She emphasized the administration's support for increased access to government information through active dissemination and support for FOIA, and to privacy of individual information and security for information systems.<sup>438</sup> Such pronouncements did much to gain the support of the existing coalitions.

Second, the 1994 mid-term elections changed the majority party in both the House and the Senate from Democrat to Republican and adjusted the thematic focus of hearings.<sup>439</sup> New committee chairpersons, committee membership, and committee staff composition crafted a significantly different agenda with different witnesses to emphasize the new themes. Topics of the hearings, as well as witness statements addressed the challenges outlined in the *Contract With America*. Many committees, and especially the House Government Reform and Oversight Committee, focused on the priorities of the new House leadership.

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<sup>438</sup> See, for example, the following hearings in Figure 4.5: No. 1 (Katzen's confirmation hearing); No. 3 (focused on reinventing government); No. 5 (reviewing OIRA functions and activities); and No. 6 (oversight of Paperwork Reduction Act provisions).

<sup>439</sup> See Table 4.15, reflecting a net Republican gain of 54 House seats and 8 Senate seats.

Third, the impact of information technology on traditional policy issues increased as the Clinton administration's reengineering efforts progressed, challenging Congress to revisit traditional issues reified by new technologies. The House Committee on Government Reform and Oversight conducted eight IRM policy subsystem-related hearings during the 104<sup>th</sup> Congress; three of the hearings were exploratory in nature and addressed either the application of information technology or the impact of information technology on extant policies. In the Senate, six hearings focused on policies for managing technologies and the impact of technology on extant policies. Beside administration actions, a change in Congressional leadership, and new technology-infused challenges, this period gave rise to a new coalition, helping to account for the other 54 witnesses that participated in IRM policy subsystem deliberations. The three themes outlined above frame this discussion of coalitions.

The vision and the concept of the National Information Infrastructure set a tone of participative involvement in shaping policy goals and implementation strategies. The appearance, if not the reality, was one of collaborative policy development in service of the public interest. Schools, libraries, and communities would be served by the information superhighway, an information rich medium constructed and maintained by the private sector. Each of the coalitions signed up to this vision; there was something for each. The devil, as always, is in the implementation details, and it was not until these details became the subjects of discussion that the unique interests of each coalition were again discernable. Public interest advocates focused on their traditional priorities, such as privacy (the ACLU), freedom (the CPSSR), and the commons (OMB Watch). The information producers began focusing on the potential of the information superhighway, and defining strategies for information-related commerce. Here the discussion turned to funding strategies such as electronic commerce and pay-as-you-go subscriptions for digital content. Traditionalists in the library and information sciences community had by now become more accepting of technology, viewing it as inevitable, yet coexisting with traditional physical media. The chief aim of the *Traditionalists* appears to have been creation of a new track for digital media, parallel

to the existing track of physical media;<sup>440</sup> digital and hardcopy collections could be integrated. This goal required gaining access to digital media from the government, and acquiring reasonably priced digital media from private sector suppliers.

The political revolution of the 104<sup>th</sup> Congress changed the tone of hearings in the House of Representatives, but had little noticeable effect on the Senate. Business as usual continued in the Senate, where a more collegial attitude had typically prevailed, and where these issues had already been worked for many years in a bipartisan fashion. The Senate Governmental Affairs Committee worked very collaboratively with the Clinton administration's spokespersons, Sally Katzen on IRM issues, Steven Kelman on acquisition issues, and John Koskinen on Y2K issues. Many of the reforms that were enacted were not due to the revolution in the House, but rather were the culmination of long-standing bipartisan efforts in the Senate, years in which the ideas of existing coalitions had already been voiced and considered. In this collegial venue, the Federal Acquisition Streamlining Act (1994) was introduced and passed; the Office of Information and Regulatory Affairs was reauthorized (1995); the Paperwork Reduction Act was updated (1995); the Information Technology Management Reform Act (1996) was introduced and passed; the Federal Acquisition Reform Act was passed (1996); and the Electronic Freedom of Information Act was amended (1996). A greater than average number of exploratory hearings were held by both Houses of Congress as new challenges resulting from technology and the newly identified Y2K problem emerged.

Where technology-related reforms of the National Performance Review and the National Information Infrastructure were concerned, a new focus was emerging. The *Public Interest*, *Information Producers*, and *Traditionalist* coalitions were effectively watching from the stands, lacking the deep technological skills and management expertise to effectively employ the new technologies. For example, where the NII was concerned, the narrow range of interests of the ACLU and OMB Watch (with the

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<sup>440</sup>Given that no member of the *Traditionalist Coalition* testified, this position was taken from the literature. See Hernon, Peter, and John. A. Shuler, "The Depository Library Program: Another Component of the Access Puzzle Shifting to Electronic Formats," Hernon, Peter, Charles R. McClure, and Harold C. Relyea, eds., *Federal Information Policies in the 1990s: Views and Perspectives*. Norwood, NJ: Ablex Publishing Corporation, 1996. pp. 259-278.

notable exception of the Computer Professionals for Social Responsibility (CPSR)), significantly limited the contributions of the *Public Interest Coalition*; members of the *Traditionalist Coalition* were becoming sophisticated users – but information technology was neither their forte nor their *raison d’etre*. *Information Producers*, such as the members of the Information Industry Association, were modifying their business strategies to take advantage of coming electronic commerce opportunities.

A new coalition, focusing on information technology and its management was forming, a coalition called the *Information Technologists Coalition*. Professional associations such as the Information Technology Association of America (ITAA)<sup>441</sup>, the Information Technology Industry Council (ITI)<sup>442</sup>, and the Computer and Communications Industry Association (CCIA)<sup>443</sup> provided the core of the coalition and many of its visible spokespersons. Around the core of this coalition one can find an impressive array of niche businesses and consulting firms. Members of the *Information Technologists Coalition* testified 16 times during this period, and played an expanded role in both recommending and in implementing the reforms of the NPR, and in initiating business process reengineering initiatives. Of particular interest to the IRM policy subsystem were key leaders within the *Information Technologists Coalition* who were willing and able to contribute to policy discussions as well as to policy

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<sup>441</sup> The Information Technology Association of America (ITAA), established in 1961, is an association of 26,000 direct and affiliate members, providing strong public policy advocacy from its Washington, D.C. and Silicone Valley offices. Current ITAA President Harris Miller frequently testifies before Congress on information technology related policies and issues. Information about ITAA can be found online at <http://www.ita.org>. Downloaded March 10, 2004.

<sup>442</sup> “The Information Technology Industry (ITI) Council is a Washington, D.C. based trade association representing the leading U.S. providers of information technology products and services. ITI is the voice of the high tech community, advocating policies that advance industry leadership in technology and innovation; open access to new and emerging markets; promote e-commerce expansion; protect consumer choice; and enhance the global competitiveness of its member companies.” Information about ITI can be found online at <http://www.itic.org/howweare/who.html>. The ITI was formed in 1994 from the Computer and Business Equipment Manufacturers Association (CBEMA). Member organizations include: Accenture; Apple; Cisco Systems; Dell; eBay; Hewlett-Packard; IBM; Intel; Microsoft; Oracle; SAP; Sun Microsystems, etc. Downloaded March 10, 2004.

<sup>443</sup> “The Computer & Communications Industry Association (CCIA) is a nonprofit membership organization for companies and senior executives from diverse sectors of the computer and communications industry. CCIA was established nearly three decades ago to represent our members’ vital interests, especially the need to promote competitive and fair open markets, open systems, and open networks. Our member companies employ almost one million workers and generate over \$300 billion in annual revenue.” Information about the CCIA can be found online at [http://www.ccianet.org/ccia\\_in\\_brief.php3](http://www.ccianet.org/ccia_in_brief.php3). Downloaded March 10, 2004.

implementation. Simultaneously, these technology and management leaders were aware of the benefits of performance-based reforms, were familiar with the reforms needed to modernize IT acquisition policies, and were capable of applying the best practices of their industry to the challenges facing government.

Agency Chief Information Officers were introduced into Federal agencies and began taking a key role in IRM activities, but were too new on the policy scene to be characterized as an advocacy coalition. However, the Clinton administration's collaborative attitude and participative approach to policy making provided the surroundings in which agency CIOs could finally find a voice within the IRM policy subsystem. The capable, long-term leadership provided by Sally Katzen in OIRA, Steven Kelman in OPFF, and John Koskinen dealing with Y2K provided a rich environment in which to mentor CIOs in the skills and executive perspectives needed of policy subsystem participants.

#### 4.2.4.4 Linkages and Relationships Among Policy Issues: Issues 1993-1996

Numerous linkages and increasingly complex relationships among the six policy issues are the most noticeable characteristics of this time frame. While this suggests an increasing level of maturity and sophistication within the policy subsystem, it also suggests an increasingly dynamic and complex condition, in which proposed changes to an issue could affect another or several other issues. In turn, such effects could stimulate adjustments, including policy change, in the original issue, or in related issues. In discussing these six issues during this time frame, these linkages and relationships are explored in more detail. As before, the order of discussion indicates the degree of importance accorded each issue in this time period. The issues are examined in the following order: management reform; IT acquisition; paperwork; computer security; records and information; and finally privacy.

Management reform became a distinct, powerful, and well defined policy issue during this time period. As management reform began to receive policy attention in the early 1990s, political leaders tried to deal with the growing disengagement of the governed from their government. Early in 1993 the Clinton administration and the Congress embarked on parallel management reform paths toward the goal of making

government more effective, responsive, and accountable. The administration's approach was embodied in the National Performance Review, and the Congress considered and passed the Government Performance and Results Act (GPRA) of 1993. These two approaches to management reform dovetailed rather well, with the NPR providing short-term political capital for the administration, and the GPRA providing longer-term continuity of legislated reforms. These initiatives also dovetailed in a more pragmatic and advantageous way; the National Performance Review provided a test bed for a number of the concepts and techniques needed to make the GPRA a success. Simultaneously, the GPRA signaled, to those who were listening, that management reform and its techniques, such as the NPR's business process reengineering, were not one-term fads but in fact represented techniques needed to implement the statutory changes of the GPRA. Unique to this management reform was the firm belief that information technology could be leveraged to transform the processes of government, and by embedding information technology into management processes, those processes could be made more effective, more efficient, more citizen focused, and less bureaucratic.

Leadership, however, was needed within agencies to make these initiatives a reality; Chief Information Officers were added to departments and agencies by the Information Technology Management Reform Act of 1996. CIOs were assigned leadership tasks such as aligning agency IT investments with agency strategic plans to reinforce GPRA mandates, and developing investment-driven views of agency information resources and their contribution to achieving program outcomes. Additionally, the Federal CIO Council provided a forum for CIOs to provide policy advice and collaborate on government-wide technology, and address the newly emerging set of policy challenges that indiscriminately crossed agency boundaries.

Early management reform efforts soon discovered, however, that many linkages also existed in the old bureaucratic processes; reengineering and embedding information technology into the core of governance processes could significantly improve the processes, but at the cost of increased complexity and interconnectedness. Successful management reform required an understanding of the extant relationships of the old processes (the "as-is" state) as well as a clearly

articulated model of the desired linkages and relationships in the newly reengineered process (the “to-be” state). Depending upon the process in question, it might involve linkages or relationships with several other issue areas. For example, reengineering an IT acquisition process (which itself is a management process) revealed linkages to records and information issues, as each acquisition generated a trail of official records, either on paper or in electronic form, that must be maintained. Linkages also existed to the issue of computer security, as each transaction across the computing and communications networks required security commensurate with the risk of loss or disruption of that information. Should the acquisition be conducted via electronic commerce, linkages with the private sector were involved – e-commerce, invoicing, and billing linkages come to mind, and for larger projects, some means of providing contract accountability. Instituting management reforms meant dealing with linkages to each of the issue areas. The hearings and testimony during this time period revealed that management reform would very likely induce changes in each of the other five issue areas.

Acquisition was viewed as a key element of management reform. Consisting of the processes and rules by which the government procures its goods and services, acquisition policies affected approximately \$200 billion in Federal spending in 1993.<sup>444</sup> As noted by the NPR, and elaborated during Congressional hearings, the acquisition system relied “on rigid rules and procedures, extensive paperwork, detailed design specifications, and multiple inspections and audits.”<sup>445</sup> Information technology acquisition, the issue of interest here and a subset of the broader acquisition policies, accounted for approximately \$25 billion in 1993 Federal spending.<sup>446</sup> Acquisition policy had been used to advance various social and economic agendas, in addition to acquiring goods and services. For example, the Competition in Contracting Act of 1986, discussed earlier, sought increased economic benefit by stimulating competition among a wider group of businesses. In like manner the “8a set aside” program sought to advance both economic and social interests by “setting aside” certain procurements for small, disadvantaged, minority, or women-owned businesses. Both of these were

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<sup>444</sup> Gore, *From Red Tape to Results*, p. 27.

<sup>445</sup> *Ibid.*, p. 28.

changes to the efficiency criterion of “low bidder,” or “lowest responsive, responsible bidder” of earlier acquisition policies.

The acquisition problems and challenges identified by the National Performance Review provided the basis for the reforms envisioned by Senator Levin and by Steven Kelman, Administrator of the Office of Federal Procurement Policy. Chief among the acquisition policy changes was an expressed preference for procuring commercial items, or COTS (commercial-off-the-shelf). This change simplified the acquisition process, encouraged business innovation and new product designs, and substantially altered the information systems development paradigm, from one of grand design for special-purpose systems (a specification-driven approach), to a modular system design in which commercial products were integrated to deliver functional capabilities (a commodity and standards-driven approach). Secondly, acquisition reform encouraged supplier excellence, by making past supplier performance a factor in awarding future contracts, and awarding longer-term contracts to suppliers with sustained superior performance. For smaller purchases, which comprised the greatest number of procurements, simplified procedures, use of government credit cards, and reduced oversight injected flexibility, responsiveness, and satisfaction into the procurement process. Viewed in terms of linkages and relationships, IT acquisition began to reflect the dynamism and complexity of the commercial marketplace.

Concern for the key policy and management notions embedded in the Paperwork Reduction Act overshadowed concern over the burden of paperwork during this period. The position of Administrator, Office of Information and Regulatory Affairs, had been vacant for nearly three years, relations with Congress were in shambles, and the policy vacuum left agencies to pursue their own agendas. In Sally Katzen, the Clinton administration found an energetic, thoughtful, articulate, and knowledgeable candidate to refocus and reenergize OIRA. Quickly confirmed by the Senate, she gave visibility and leadership to information resources management policies and activities, and helped establish the policy environment for developing and evolving the National Information Infrastructure. She worked to promote and implement the NPR’s “reengineering through information technology” reforms, revised policies, established

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<sup>446</sup> Congress, House. *Reinventing Government*, p. 6.

inter-agency working groups to address common problems, and worked to further management reforms in IRM activities. The key challenge, as she framed it, was one of leadership, not one of technology,<sup>447</sup> defining the newly emerging challenge of management reform as a policy issue.

Two years of bipartisan legislative work led to passage of the Paperwork Reduction Act of 1995. The Act focused primarily on productivity, efficiency and effectiveness, and strengthened accountability through leadership involvement. For example, agencies were now required to develop a strategic information resources management plan, describing how information resources management activities help accomplish agency missions. Information dissemination provisions were clarified; agencies were required to provide a public accounting of and access to their information holdings; and OMB's oversight role in paperwork control was strengthened. When coupled with the Information Technology Management Reform Act of 1996 and the two acquisition reform laws, these initiatives acknowledged the criticality of information systems to effective governmental performance. Through the newly designated Chief information Officers, agency IRM activities were focused on internal agency management and effectiveness issues. OMB's policies for acquiring information technology were updated, and the Brooks Act's 30-year-old processes, policies, and rules were repealed. Finally, the confluence of these pieces of legislation effectively linked information resources management activities to the Government Performance and Results Act, requiring CIOs to treat technology as an investment used to achieve program outcomes. CIOs and agency leaders were now viewed as accountable not only for results, but for efficiently and effectively using information technology to run programs that produced results of value to citizens. In addition to the linkages with management reform issues, the paperwork issue, in its new IRM leadership clothing, was now closely linked with IT acquisition policies and to computer security. By the end of 1996 this signature issue had been reframed in terms of leadership, specifically leadership of information resources management activities.

Computer security loomed in the background for most of these four years, finally gaining recognition because events that emphasized the lack of computer security

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<sup>447</sup> Ibid.

generated media and congressional attention. As computing and communications capabilities increased, the Internet truly became an interconnected system of networks. Contrary to the assertion of techno-utopians, the nascent on-line society exhibited all the dysfunctional characteristics of any new society, including youthful disregard for common courtesies, disrespect for authority, and little concern for private property. Less utopian assessments likened this new online environment, cyberspace they called it, to the Wild West portrayed in novels and movies.

The importance of computer security was recognized about the same time that national leaders began to appreciate the interconnectedness of the nation's critical infrastructure components, and the role of computing and communications in the nation's society, economy, and defense. This awakening may also have been prompted by the realization that hacking, at the level of the individual, could be raised to terrorism, at the level of the non-state actor, and to cyber warfare, at the level of the nation state. Computer security had become linked to each of the other issues within the IRM policy subsystem, and had strong linkages to other existing and, newly forming policy subsystems.

Records and information was a low profile issue that, despite its lack of glamour, remained a serious issue. Much of the contention with the previous administration, where records and information was concerned, focused on policies for information dissemination. Information dissemination concerns, including access, availability, and cost, were quickly assuaged, as OMB revised the information management guidance in its Circular A-130 by mid-year 1993. During this time period, however, increasing concern was voiced over handling of information in digital formats. Since guidance for digital information was scarce or non-existent, some agencies treated all information similarly, regardless of its form or format. Other agencies treated paper records and digital information as distinctly different, applying different policies. Key questions, such as "what constitutes a record in digital format," caught the National Archives and Records Administration unprepared to assist agencies in defining and dealing with electronic records. The question, at least in relation to information access via Freedom of Information Act requests, was settled as legislators extended the FIOA provisions of physical records to digital information. Unanswered questions about digital records

and digital information uncovered the linkages and relationships to privacy, to the leadership needed for management reform, to paperwork and IRM leadership, and to computer security.

Privacy got little overt attention during policy discussions during this time period, but clearly privacy concerns were a consideration in discussing most of the other issues. Clearly any management reforms would have to stipulate adherence to privacy legislation and policies, and appropriate privacy concerns had been required in IT acquisition and paperwork matters for quite some time. Privacy was clearly linked with the issue of computer security, and as problems of dealing with hackers or cyber-terrorists became more plausible, privacy in relation to law enforcement and intelligence activities had to be considered. Of course privacy was a key concern in addressing the challenges of digital records and digital information. The ease with which information could be shared and disseminated made privacy a concern, and dealing with privacy in databases represented a new frontier.

These six policy issues were clearly becoming much more closely related to each other, and to additional issues outside this policy subsystem. One might even use the term “networked” to describe this increasingly linked set of issues – a web of issues. In addition to the linkages, this period showed that the issues were exhibiting attributes that increase their complexity and dynamism. Issues were increasingly exhibiting characteristics that made them of interest to other policy subsystems. This was suggested by the appearance of joint hearings to discuss the multifaceted nature of certain issues that crossed policy subsystem boundaries.

New issues, such as critical infrastructures, infrastructure assurance, information assurance, hackers, and Y2K also surfaced; individual experts were sought to provide clarity and advice on these new and unique issues. These specialists played key roles in helping to define and characterize the newly emerging issues and their distinctive attributes. The expertise provided by specialists helped advance the realization that the challenges being addressed were stretching the boundaries of existing policy subsystems, creating new areas of policy interest, and demanding increased cooperation across policy subsystem boundaries. For example, the Y2K challenge was uniquely technical within the IRM policy subsystem, but in its manifestation it

affected every Federal program, from Social Security and Medicare to the air traffic control system. While technical skill was needed to fix the computer code, leadership was needed to outline the challenge, commit the resources, and define success. Other challenges, such as critical infrastructure protection, given the private ownership of 80% of the nation's critical infrastructure, were so unique as to not fit comfortably in any existing policy subsystem. Protecting computer networks from hackers and cyber attacks was certainly an IRM responsibility, but it increasingly involved coordination and collaboration with the private sector, and with the justice system, in both its law enforcement and in its criminal justice capacities.

#### 4.2.4.5 Strategy or Serendipity? Policy Change 1993-1996

The policy changes that occurred from 1993 through 1996 have already been discussed in terms of activities within the IRM policy subsystem, and again in terms of the affected issues. Here the intent is to focus on the magnitude of the policy changes, and how, through a combination of planning and perseverance, as well as some good timing and the leadership of key individuals, these policy changes were realized.

The time period of 1993 to 1996 saw a number of truly significant policy changes. In terms of raw numbers of policy changes, this period of four years duration produced as many changes as the entire previous history of the IRM policy subsystem. In terms of substance, the policy changes eclipsed those of the original Paperwork Reduction Act in terms of scope and vision; additionally the processes and policies for IT acquisition were completely overhauled, and management of information technology became an agency leadership responsibility. The changes of these four years provided the basis for implementing a modernized vision of information resources management that was beyond imagining in the mid to late 1970s – a time of true policy reformulation.

In contrast with the title above, these policy changes resulted neither from strategy alone, nor from pure serendipity. Rather, these changes came about because the change agents were responding to a shared perception of complex intersecting problems that needed to be solved – because of poor performance, citizens were disengaging from, and becoming increasingly disaffected with their government. Many

of the key individuals involved in these policy changes had worked together on these problems for a number of years, agreed on the basics of the problem, and approached the search for solutions in a bipartisan manner. Administration officials contributed to finding solutions and worked to leverage synergies between the parallel initiatives of the administration and the Congress. The key members of Congress had very able assistance as well. A careful reading of the hearing transcripts frequently reveals the names of key committee staff attending the hearing. One of these individuals later returned to Congress as an elected member (Senator Susan Collins, a staffer for Senator William Cohen), another served a later administration (Mark Forman was appointed the first Administrator of the Office of E-Government in 2003), one served as an agency CIO (Paul Brubaker, as Deputy CIO, DoD), one is serving in another legislative branch organization (David Plocher, GAO), and one became a consultant with widely recognized expertise (John Mercer, performance management and performance budgeting). All of these individuals, and more than a few others not named, played key roles in realizing the policy changes outlined here.

The foundational policy change, passage of the Government Performance and Results Act of 1993, occurred in another policy context. Its focus was improving the performance of government to increase its effectiveness, efficiency, and accountability. Its tools were plans, measures, and reports; budgets, if desired, could be linked to the plans, measures linked to programs and resources, and reports provided accountability. Its focus was improving program performance, not IRM. The immediate task of revitalizing IRM, involved executive branch policy change, as OMB's policy circular, written for the mainframe environment of the early 1980s was updated to emphasize managing information resources, highlight service delivery, and secure information and systems in an increasingly networked environment.

The Federal acquisition system was also a trouble spot, and to improve program performance, the acquisition system needed significant change. Perhaps the most serendipitous aspect of these reforms is that the same handful of key individuals was active in each of the reforms. Acquisition reform gained momentum with passage of the Federal Acquisition Streamlining Act of 1994. Administration and Congressional Committee principals meanwhile had agreed on regulatory reform issues, on

reauthorizing the Office of Information and Regulatory Affairs, and on changes to revitalize information technology and information management by amending the Paperwork Reduction Act. Again the happy confluence of talent and interest created an intersection of IT acquisition and IT performance in the Information Technology and Management Reform Act of 1996. Thirty-year-old processes and policies were replaced with policies and processes designed to incentivize performance. The Federal Acquisition Reform Act of 1996 added much needed acquisition policy changes, including performance-based contracting. The last policy change, the E-FOIA Act of 1996, initiated a policy of treating information as information, without regard to its medium. In the final analysis, all these policy changes were the result of talented and committed individuals working together to make ideas a reality.

#### 4.3 The CIO as Executive: IRM as a Mature Policy Subsystem 1997-2002

By 1997 information resources management could be considered a mature policy subsystem. In the characterization of Sabatier and Jenkins-Smith's advocacy coalition framework, it exhibited four maturity characteristics. IRM specialists in agencies were accepted as peers of the traditional management specializations of finance, human resources, and program management, meeting the first criterion of a semiautonomous community with domain expertise. Many CIOs had become influential in formally organized policy circles, such as the Federal CIO Council and its working groups, satisfying the second criterion of influencing policy over a considerable period of time. Information resources management organizational entities, or their equivalent functions, were an integral part of nearly all Federal departments and agencies, and many of their subunits, satisfying criterion three for specialized subunits dealing with this topic at relevant levels of government. Numerous interest groups regarded information resources management and information technology in government as legitimate policy topics, the fourth characteristic of a mature policy subsystem. The events and activities of the years 1997 through 2002, described in this section, confirm the designation of IRM as a mature policy subsystem.

<b>U.S. Political Leadership, 1997-2002</b>								
<b>YEARS</b>	<b>PRESIDENT</b>	<b>Cong.</b>	<b>Composition of the U.S. Congress</b>					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep.	Ind.
1997-98	William J. Clinton	105 <sup>th</sup>	45	55		206	228	1
1999-00	William J. Clinton	106 <sup>th</sup>	45	55		211	223	1
2001-02	George W. Bush	107 <sup>th</sup>	50	50		212	221	2

Table 4.18 U.S. Political Leadership, 1997-2002<sup>448</sup>

Examining the mature IRM policy subsystem involves examining events and activities spanning the years 1997 through the end of 2002. The first four years of this

<sup>448</sup> Sources for information in Table 4.18 can be found in note 202.

period witnessed a continuation of the IRM policies advanced during the first Clinton administration, including a significant expansion in use of the Internet and the World Wide Web as integral parts of the overall Federal information infrastructure. A significant number of the key policy participants who had helped realize the policy changes of the previous four years left to pursue other endeavors. Following the election and change of administration in January 2001, the Bush administration announced the President's Management Agenda (PMA), a management reform strategy comprised of five government-wide initiatives: strategic management of human resources; competitive sourcing; improved financial performance; expanded electronic government; and budget and performance integration. At its core, and enabling the other initiatives of the PMA, was a vision of IT-enhanced, citizen-centric, market-oriented, and performance-based governance, made possible by expanded electronic government. The prominent features of U.S. political leadership in this six year period are contained in Table 4.18.

#### 4.3.1 National Partnership for Reinventing Government: The Policy Environment 1997-2000

In the inaugural address for his second term President Clinton called for a "new spirit of community." He spoke out against racism, describing it as America's "constant curse," and pledged to use new technology to build a "land of new promise." He also promised a government strong enough to "give us the tools to solve our problems for ourselves," imploring the Republican-controlled U.S. Congress (see Table 4.19) to work with him rather than "waste the precious gift of time on acrimony and division." The reality of working with Congress, as a result of the "Lewinsky Affair," was quite different. On August 17, 1998 President Clinton became the first president in power to sit before a criminal grand jury. On December 19, the House of Representatives voted that President Bill Clinton should stand trial on two of the four impeachment articles brought against him by the House Judiciary Committee. But on February 12, 1999, President Clinton was acquitted of perjury and obstruction of justice in a Senate vote of 55 to 45 – against removing the president from office.

U.S. Political Leadership, 1997-2000								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep	Ind.
1997-98	William J. Clinton	105 <sup>th</sup>	45	55		206	228	1
1999-00	William J. Clinton	106 <sup>th</sup>	45	55		211	223	1

Table 4.19 U.S. Political Leadership, 1997-2000<sup>449</sup>

The four years between 1997 and 2000 saw the maturation and renaming of National Performance Review, this administration's signature initiative, as the National Partnership for Reinventing Government. While the effort to reengineer executive branch processes and organizations continued to be emphasized, National Information Infrastructure advances also received significant attention. On April 19, 1997, "parents, teachers, business people, and volunteers from all walks of life will answer our call and hold NetDays in all 50 states, connecting tens of thousands of schools, classrooms, and libraries to the Internet."<sup>450</sup> In May the Vice President announced the award of \$12.3 million in National Science Foundation grants to 35 research institutions, allowing them to connect to the "very high speed Backbone Network Service," a "network fast enough to transmit all 30 volumes of the encyclopedia Britannica in under a second," and a stepping stone to realizing the Next Generation Internet (NGI).<sup>451</sup>

For citizens, the institutional view of government was beginning to give way to a new, informational view of government. Recommendations for integrating information technology into the fabric of governance were contained in *Access America: Reengineering Through Information Technology*, and coordinated and implemented under the aegis of several work groups, among them the Federal Chief Information Officers Council and the Government Information Technology Services Board. The

<sup>449</sup> Sources for information in Table 4.19 can be found in note 202.

<sup>450</sup> The White House, Office of the Press Secretary. *Radio Address of the President and Vice President to the Nation, February 8, 1997*. Archives of the National Performance Review. Available online at <http://govinfo.library.unt.edu/npr/library/news/020897.html>. Downloaded February 5, 2004.

<sup>451</sup> The White House, Office of the Press Secretary. *Vice President Gore Announces New Connections to High-Speed Network, May 20, 1997*. Archives of the National Performance Review. Available online at <http://govinfo.library.unt.edu/npr/library/news/netwcon.html>. Downloaded February 5, 2004.

*Access America* report and the actions of these groups were responsible for statutory changes in electronic benefits transfer and electronic signatures, and in implementation of government-wide electronic mail capabilities.<sup>452</sup> By late 1999, the “Holy Grail” of information dissemination, thought to be found in government web sites, was again proving illusive. “While government agencies have created ‘one-stop shopping’ access to information on their agency websites, these efforts have not uniformly been as helpful as they could be to the average citizen . . . there has not been sufficient effort to provide government information . . . in a way that meets people’s needs.”<sup>453</sup> The President tasked the General Services Administration, the National Partnership for Reinventing Government, and the Federal CIO Council to work with agencies, promoting access to information “organized not by agency, but by the type of service or information that people may be seeking . . . organized in a way that makes it easier for the public to find the information it seeks.”<sup>454</sup> Then on June 24, 2000, in a webcast address to the nation, “President Clinton announced a plan to create *FirstGov*, a single Internet portal connecting users to all government sites. . . . a site that allows citizens to find every on-line resource offered by the federal government at one easy-to-use location . . . [and] challenged government and industry to finish it within 90 days. The site launched on schedule in September 2000.”<sup>455</sup>

The second Clinton administration saw both continuity and change in key individuals responsible for the National Performance Review and information resources management policies. In Congress, Senator William Cohen, whose legislation established Federal agency CIOs, retired at the end of the 104<sup>th</sup> Congress, but was selected by President Clinton as Secretary of Defense.<sup>456</sup> At the Pentagon Cohen instituted organizational reforms, reductions in management overhead and streamlined

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<sup>452</sup> \_\_\_\_\_. *Reinvention in the Second Clinton-Gore Administration: Changing The Culture of Government Agencies – 1997 – 2001*. Archives of the National Performance Review. Available online at <http://govinfo.library.unt.edu/npr/whowere/historypart4.html>. Downloaded February 5, 2004.

<sup>453</sup> The White House, Office of the Press Secretary. *Memorandum for the Heads of Executive Departments and Agencies, Subject: Electronic Government, December 17, 1999*. Archives of the National Performance Review. Available online at <http://govinfo.library.unt.edu/npr/library/direct/memos/elegovnmnt.html>. Downloaded February 5, 2004.

<sup>454</sup> Ibid.

<sup>455</sup> \_\_\_\_\_. *Reinvention in the Second Clinton-Gore Administration*.

<sup>456</sup> Department of Defense. *SecDef Histories – William Cohen*. Available online at [http://www.defenselink.mil/specials/secdef\\_histories/bios/cohen.htm](http://www.defenselink.mil/specials/secdef_histories/bios/cohen.htm). Downloaded February 5, 2004.

business practices in the Department, the Defense Agencies and field activities, and the military departments. The streamlining was in line with Vice President Gore's efforts to reinvent government, enhanced the stature of the Chief Information Officer in the Department, and accelerated implementation of the Information Technology Management Reform Act throughout the Department. Senator John Glenn, longtime chair of the Senate Governmental Affairs Committee retired at the end of the 105<sup>th</sup> Congress, but returned to space one last time to study the effects of spaceflight on aging as a crewmember of the Shuttle Discovery on Mission STS-95.<sup>457</sup> Elaine Kamarck, who served as Director of the National Performance Review from 1993 to 1997, left the NPR for Harvard University; Morley Winograd, nationally recognized for his work on quality and empowerment in the workplace became the NPR's new director.<sup>458</sup> In the Office of Management and Budget John Koskinen remained as Deputy Director for Management, and in 1998 became Chair of the President's Council on Year 2000 Preparedness, coordinating national and international responses to the Y2K challenge. Sally Katzen remained at OIRA until mid 1998 when she became deputy Director of the National Economic Council, and subsequently returned to OMB in 1999 as OMB's Deputy Director for Management.

#### 4.3.1.1 It's Still the Economy: Socio-Economic Conditions 1997-2000

"In the *Roaring Nineties*, growth soared to levels not seen in a generation. Newspaper articles and experts proclaimed that there was a New Economy, that recessions were a thing of the past and that globalization was going to bring prosperity to the whole world. . . . Four months into the millennium, symptoms began to show that something was also wrong at home, with the crash of the technology stocks. As the new millennium began, the stock market, that ultimate barometer of the economy, was at an all-time high. The NASDAQ Composite Index, containing mostly technology

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<sup>457</sup> \_\_\_\_\_. *Chronology of John Herschel Glenn*. The Ohio State University Archives. Available online at <http://www.lib.ohio-state.edu/arvweb/glenn/glennchron.htm>. Downloaded February 5, 2004.

<sup>458</sup> The White House, Office of the Vice President. *Gore Names Morley Winograd to Head National Performance Review, September 11, 1997*. Archives of the National Performance Review. Available online at <http://govinfo.library.unt.edu/npr/library/news/091197.html>.

shares, soared from 500 in April 1991 to 1,000 in July 1995, surpassing 2,000 in July 1998, and finally peaking at 5,132 in March 2000.”<sup>459</sup>

It was the “New Economy.” Everyone was talking about it, and those who weren’t, just didn’t get it. “In the U.S. a strange contagion is spreading: the belief that technology and globalization promise unbounded prosperity and render old economic rules redundant. . . . Over the past 18 months, GDP has grown at an average annual rate of 3.6%, and unemployment has fallen to 4.9%. At the same time, inflation is falling. The idea of a New Economy is not entirely far-fetched. But proof that the business cycle has been put on hold is still to come.”<sup>460</sup> Skeptics and doubters aside, something very interesting was going on in the U.S. economy, as can be seen in the selected socio-economic statistics presented in Table 4.20.

<b>Selected Socio-Economic Statistics, 1997-2000</b>				
	1997	1998	1999	2000
US Gross Domestic Product (billions)	\$8,318.4	\$8,781.5	\$9,274.3	\$9,824.6
Median US Family Income	\$49,017	\$50,689	\$51,996	\$52,310
Annual Average Consumer Price Index	160.5	163.0	166.6	172.2
Average Unemployment Rate	4.9%	4.5%	4.2%	4.0%
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	7.67 – 6.99% 8.18%	7.03 – 6.77% 7.19%	6.83 – 8.06% 8.15%	8.15 – 7.13% 8.64%

Table 4.20 Selected Socio-Economic Statistics 1997-2000<sup>461</sup>

The changes in the U.S. economy were frequently overshadowed other events that captured wide attention. On May 11, 1997 the World Chess champion, Gary Kasparov, suffered defeat at the “hands” of the IBM super computer Deep Blue over a

<sup>459</sup> Stiglitz, Joseph E. *The Roaring Nineties: A New History of the World's Most Prosperous Decade*. New York, NY: W.W. Norton & Company, 2003, pp. 3-5.

<sup>460</sup> The Economist. “Assembling the New Economy.” *The Economist*, Vol. 334, September 13, 1997, p. 71.

<sup>461</sup> Sources for the data in Table 4.20 can be found in notes 203-207.

series of matches. In May, Microsoft chief Bill Gates announced his intention to fund a major computer research center at England's Cambridge University. In June a landmark settlement was reached as U.S. tobacco companies agree to pay out almost \$370 billion to settle state Medicare bills for the treatment of smoking-related diseases. On July 4<sup>th</sup> the Mars Pathfinder rover vehicle touched down on the Red Planet, after a seven-month journey from Earth. The entire world was stunned by the death of Princess Diana of Wales in a Paris car crash on August 31.

Whether one discussed the weather, business news, space exploration, national politics, or the economy, events somehow seemed different, and a bit larger than usual. El Nino, a weather phenomenon triggered by a shift in warm ocean currents, ushered in 1998 with unusually warm weather, triggering a late February string of tornadoes that killed 40 people in Florida. On May 19, the Department of Justice and the attorney generals for 20 states filed two antitrust lawsuits against Microsoft, accusing the corporation of illegal marketing, anti-trust, and trade practices. In August at the CIO Congress sponsored by Forbes and Gartner Group, economist and Stanford Professor Paul Romer and business strategist Gary Hamel explained that an Information Age was emerging, that value was migrating away from traditional Industrial Age assets such as land, labor, and capital, and migrating toward software. The new inputs necessary for wealth creation were predicted to be hardware (seen as the sum of tangible and physical assets); "wetware" (defined as human creativity and brainpower); and software, "the language, math, art, culture, recipes, [and] code. Without software, the world's supply of hard assets and brains can't combine fast enough to produce wealth that outpaces population growth. Software is the vital catalyst. Software's magic is that it replicates knowledge; it transmits the code of value creation to anyone who wants it."<sup>462</sup> October witnessed critics calling his voyage a "publicity stunt" for NASA, but Senator John Glenn, aged 77 and a test subject for studies on aging, blasted off into space 36 years after becoming the first American to orbit earth. November's mid-term election yielded a result that went against all predictions; the Democratic Party made significant gains across the U.S. Many

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<sup>462</sup> Karlgaard, Rich. "It's the Software, Stupid: Technology and the New Economy." *Forbes*, Vol. 162, No. 3 (August 10, 1998), p. 37.

observers believed that the president's party would suffer because of his impending impeachment, however it was the speaker of the House of Representatives, Newt Gingrich, who had failed in his attempt to win votes by openly condemning the morality of the president. On November 6 Gingrich announced his resignation from Congress.

Corporations and individuals involved in the new economy exhibited behavior that suggested the need for policy vigilance, if not policy action. On January 25, Intel Corporation announced that its newest microprocessor, the Pentium III, incorporated a feature to protect user privacy. According to Intel, their processor serial number, or PSN, was intended to "allow administrators to track PCs across vast networks and to provide online merchants and shoppers with an extra layer of security."<sup>463</sup> In a supplemental brief filed along with their complaint to the Federal Trade Commission, the Center for Democracy and Technology argued that the PSN "has the potential to transform the World Wide Web from a largely anonymous environment into one where individuals are expected, or even required, to identify themselves in order to participate in online activities, communication, and make purchases. This is a far cry from the world we live in today – either offline or online – and would represent a grave erosion of consumers' online privacy."<sup>464</sup> On March 29 the FBI launched an investigation into a fast spreading e-mail virus that had been launched just two days earlier. The "Melissa Macro Virus" was triggered when a user opened an e-mail attachment, causing a macro in the virus to activate, and mail itself to the first 50 individuals listed in that user's Microsoft Outlook address book.<sup>465</sup> That same day the Dow-Jones Industrial Average closed above the 10,000 mark, at 10,006.78, for the first time. This new record, however, was just the latest milestone in the continuing growth of the New Economy. According to *BusinessWeek*, "Each day during 1999's first quarter saw the launch of some 10,000 new Web sites. And a stunning 3.5 billion E-mail messages now shoot across the Net daily."<sup>466</sup> The U.S. Senate website was closed down on May 27, after it was defaced by hackers who also replaced the web site's opening page with

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<sup>463</sup> Goodin, Dan. "More Support for Pentium III Complaint." C/Net News.com, April 8, 1999. Available online at <http://news.com.com/2100-1001-224108.htm>. Downloaded February 10, 2004.

<sup>464</sup> Ibid.

<sup>465</sup> Computer Emergency Response Team. "CERT Advisory CA-1999-04 Melissa Macro Virus." CERT Coordination Center, Software Engineering Institute, Carnegie Mellon University. March 27, 1999. Available online at <http://www.cert.org/advisories/CA-1999-04.html>. Downloaded February 10, 2004.

an obscene message. U.S. District Court Judge Thomas Penfield Jackson issued a finding of fact on November 5, in which he accepted all major contentions of wrongdoing alleged in the Justice Department's anti-trust suit against the Microsoft Corporation. A few weeks later a new computer animated movie called *Toy Story 2* opened. Over Thanksgiving Day weekend it grossed \$57.4 million for its owners and creators, Disney and Pixar Studio.

The benefits of the New Economy, although they continued to amass, were not distributed evenly. "The growth in this expansion is still concentrated in the high-tech and information sector. Over the past three years, growth in the gross domestic product has averaged a stellar 3.8%. Take out the high tech, however, and the rest of the economy is growing at a moderate 3% rate, just slightly above the pace of the 1980s."<sup>467</sup> Economic growth continued into 2000, as the efforts to deal with the Y2K problem paid off, and the computer date change problem happily became a non-event. In a speech at the University of Pennsylvania on February 25, 2000, President Clinton presented some comparative economic and fiscal statistics. "Between 1980 and 1992, the debt quadrupled. In 1992 the budget deficit was a record \$290 billion and projected to rise. . . . In early 1993, CBO projected that the deficit would grow to \$455 billion in 2000. Instead, the budget surplus is projected to be \$167 billion – the largest surplus in history and the third consecutive surplus. . . . Information technology accounts for only 8 percent of total jobs but has been responsible for nearly one-third of U.S. economic growth. Wages in the IT industry are 77 percent higher than the private-sector average. . . . Adjusted for inflation, American companies invested three times more in IT in 1999 than in 1992."<sup>468</sup>

As the dot com bubble began to deflate in the second quarter of 2000, some of the more reflective voices began to tally up the changes that had been made, and tried to assess the impact of these changes. While almost all agreed that the Internet was a good thing, that online shopping was quick, convenient and sales tax free, some began

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<sup>466</sup> Business Week. "Builders of the New Economy." *Business Week*, June 21, 1999, p. 118.

<sup>467</sup> Business Week. "The Spoils of the New Economy Belong to High Tech." *Business Week*, August 16, 1999, p. 37.

<sup>468</sup> White House, Office of the Press Secretary. "President Clinton and Vice President Gore – Helping to Build the New Economy." *M2 Presswire*, February 25, 2000. Available online, InfoTrac OneFile, Article A59614245.

to ask: what replaces the lost sales tax revenues that formerly funded government services, and what kind of government do we want? What values should inform the choices that must be made about governance and information technology? Steven Thomma seemed to sum up the emerging assessment when he wrote:

If the industrial revolution gave rise to the Progressive Era and the Great Depression produced the modern welfare state, today's technological revolution is giving rise to a Technocracy. What that will be is not clear, but the nature of this evolving form of government is likely to be determined by two struggles. The first is between the institutions that America's Founding Fathers created to restrain and channel public passions and the Internet's power to bypass those institutions and wire citizens directly to politicians and bureaucrats. The second is between the libertarian spirit of the new economy and the progressive impulse to use the power of government to shield workers, consumers, and citizens from robber barons. Yet while candidates such as Al Gore and George W. Bush pay homage to the new economy, the fact is that both men, their parties and their government remain largely unchanged by the ways and issues of the new age. They preside over a system grounded in old methods, and are taking only the first, sometimes stumbling steps toward new solutions.<sup>469</sup>

Information technology developments between 1997 and 2000 epitomized the struggle between competitors, with the new economy as the environment and context within which these struggles took place. There were ongoing market share struggles in various product categories, the most notable in Web browsers, between Netscape Communications and Microsoft (the browser wars), and in processors between Intel and Advanced Micro Devices (the processor speed wars). More important, however, was the ongoing policy and regulatory struggle between the libertarian-oriented computer hardware, software, and communications community and the Federal government regarding regulation of these industries, and especially their business and competition practices. Significant developments in information technology and their application over these four years follow.

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<sup>469</sup> Thomma, Steven. "Looking for a New Government to Match the New Economy." Knight Ridder/Tribune News Service, April 7, 2000. Available online, InfoTrac OneFile, Article CJ61385556. Downloaded February 11, 2004.

In February 1997, Creative Labs introduced the first combination digital video disk (DVD) player for the personal computer, adding video to the compact-disk family of data and music information storage devices. Netscape Communications released its latest browser in June; on July 17 human error at Network Solutions, the Internet registrar, corrupted the Domain Name Server (DNS)<sup>470</sup> tables for the “dot com” and “dot net” domains, making millions of Internet systems unreachable for a short period of time. In August, Sematech, the research consortium for chip makers, announced the successful fabrication of copper-based chips. Previous computer chips used aluminum as the electrical conductor; copper would allow future processor chips to be smaller, faster, and cheaper. In September the Federal Trade Commission announced it was investigating Intel Corporation for alleged practices of illegally restricting computer processor chip sales to PC makers who also buy products from Intel’s competitors. In October the Department of Justice asked the U.S. District Court to hold Microsoft in contempt, alleging that Microsoft was forcing PC makers to distribute Internet Explorer as a condition of selling the Windows 95 operating system. If proven, these charges would be a violation of Microsoft’s 1995 Consent Decree. On December 11, U.S. District Court Judge Thomas Penfield Jackson issued a preliminary injunction against Microsoft, allowing PC makers who license Windows 95 to provide consumers the Web browser of their choice. Later that month, engineers at IBM’s Austin Research Lab demonstrated the first 1-Gigahertz microprocessor, providing a preview of even more processor speed wars. By the end of the year Netscape had a 54.6% share of the browser market to Microsoft’s 29.5% share.

On January 30, 1998 the Department of Commerce requested comments on a proposal to privatize management of Internet names and addresses.<sup>471</sup> Intended to

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<sup>470</sup> Short for *Domain Name System* (or *Service*), an Internet service that translates *domain names* into IP addresses. Because domain names are alphabetic, they’re easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name *www.example.com* might translate to *198.105.232.4*. The DNS system is, in fact, its own network. If one DNS server doesn’t know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned. See <http://www.webopedia.com/TERM/D/DNS.html>. Downloaded February 12, 2004.

<sup>471</sup> U.S. Department of Commerce, National Telecommunications and Information Administration. “Management of Internet Names and Numbers.” Docket Number: 980212-36-8146-02. Available online at [http://www.ntia.doc.gov/ntiahome/domainname/6\\_5\\_98dns.htm](http://www.ntia.doc.gov/ntiahome/domainname/6_5_98dns.htm). Downloaded February 15, 2004.

develop competition and facilitate global participation, this effort recognized the increasingly international composition of the Internet, and responded to calls for international participation in Internet governance. As an indication of Internet growth, Network Solutions registered its 2 millionth domain name on May 4, 1998. On May 21 the Department of Justice, joined by the Attorneys General of 20 states, filed an anti-trust suit against Microsoft, regarding its marketing of Internet Explorer as part of the Windows operating system. As the trial began in October, Microsoft was the world's most valuable company, valued at over \$260 billion. Later in the month the Communications Decency Act II and a ban on taxing sales conducted over the Internet were signed into law. In November, American Online bought Netscape Communications for \$4.2 billion in stock, and the Department of Commerce began transferring governance of the Internet to the newly formed Internet Corporation for Assigned Names and Numbers (ICANN). By year's end, 41.6% of U.S. households had a personal computer. Electronic commerce and Web portal technologies were being implemented and Extensible Markup Language (XML) and intrusion detection software were newly emerging technologies.

The First Internet Bank of Indiana, the first full service bank available on the Net opened for business on February 22, 1999. America Online completed its acquisition of Netscape Communications; Communications giants, MCI and WorldCom, began upgrading the Internet backbone within the U.S. to 2.5 GBps under a contract from the National Science Foundation; and Intel settled its Federal Trade Commission suit. In April, a new type of Internet hoax appeared: a forged Web page, made to look like a Bloomberg Financial News story, caused the price of shares of a small technology company to rise by 31%. In May the Web became the focal point of British politics as a list of MI-6 agents was released on a UK Web site, and though the original list was soon removed, it had already been replicated across the Internet. Eight months of testimony in the Microsoft antitrust trial concluded in June, and on November 5, Judge Jackson issued his findings, ruling that Microsoft has monopoly power over personal computer operating systems, and it uses that power to harm American consumers. Free computers were all the rage – as long as you signed a long term contract for Internet service! By the end of 1999, 53% of U.S. homes had a personal computer.

The U.S. timekeeper, the U.S. Naval Observatory, and a few other time services around the world reported the new year as 19100 on January 1, 2000. However, for most, Y2K was a non-event as the remediation efforts of the past several years provided a smooth millennium transition. Processor wars heated up: Advanced Micro Devices (AMD) shipped a 1-GHz processor on March 6; two days later Intel began shipping a 1-GHz processor in limited quantities. In early April, Judge Thomas Penfield Jackson issued his Conclusions of Law, affirming the government's charges that Microsoft used illegal practices to maintain its monopoly position, and ordered, in June, that Microsoft be broken into two companies, one producing operating systems and the other producing applications programs. A Visual Basic script worm appeared in May, named the "Love Letter" worm, containing a destructive file attachment titled "LOVE-LETTER-FOR-YOU."<sup>472</sup> Many could not resist opening the attachment. In June Intel announced its Pentium 4 line of processors; AMD began shipping its 1.1 GHz processor in August, and at COMDEX in November Intel demonstrated systems with 1.4 and 1.5 GHz Pentium 4 processors. Napster, later to become infamous for unauthorized music file sharing, was a technology of the year because of its peer-to-peer file sharing capabilities, while two key emerging technologies were wireless devices, and IPv6, an improved version of the Internet Protocol intended to permit a significantly greater number of Internet addresses.<sup>473</sup>

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<sup>472</sup> Computer Emergency Response Team. "CERT Advisory CA-2000-04 Love Letter Worm." CERT Coordination Center, Software Engineering Institute, Carnegie Mellon University. May 4, 2000. Available online at <http://www.cert.org/advisories/CA-2000-04.html>. Downloaded February 15, 2004.

<sup>473</sup> For more information on Internet Protocol version 6 see the IP Version 6 Working Group (ipv6) at <http://www.ietf.org/html.charters/ipv6-charter.html>. Downloaded February 18, 2004.

#### 4.3.1.2 FUD: The Policy Subsystem Environment 1997-2000

The environment of the IRM policy subsystem, for most of these four years, was characterized by FUD<sup>474</sup> – fear, uncertainty, and doubt. One only has to look at the titles of the following hearings, all held during the 106<sup>th</sup> and 107<sup>th</sup> Congresses, to see expressions of FUD: Year 2000 Risks: What Are the Consequences of Information Technology Failure? Weak Computer Security in Government: Is the Public at Risk? Y2K and Contingency and Day 1 Plans: If Computers Fail, What Will You Do? Computer Security: Are We Prepared for Cyberwar? Computer Security: Cyber Attacks -- War Without Borders. There was genuine fear; many computer experts, both inside and outside government, were fearful that necessary Y2K changes were so numerous and so pervasive that they could not be made and tested in time. Initial predictions of remediation costs ranged wildly, as noted earlier. Uncertainty was everywhere; most Federal IRM professionals were uncertain, at least initially, how much work was needed to make their agency systems Y2K ready. Some agencies lacked usable inventories of computer systems, software, and other components from which to assess Y2K vulnerabilities. Doubt seemed to be all encompassing. Most members of Congress dealing with this problem in 1997 doubted that their Congressional colleagues, key Federal executives, business executives, and foreign governments understood the nature of the Y2K crisis. Further, few good estimates of the resource commitment necessary to deal with this challenge were available. As to the consequences of a Y2K disaster, there was more speculation than careful analysis, and the Cold War habit of “worst case analysis” coupled Y2K disasters with cyber attacks on critical infrastructure components. These hearings had the desired effect; they generated attention, awareness, and finally action. Media attention helped. For

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<sup>474</sup> FUD /fuhd/ n. Defined by Gene Amdahl after he left IBM to found his own company: "FUD is the fear, uncertainty, and doubt that IBM sales people instill in the minds of potential customers who might be considering [Amdahl] products." The idea, of course, was to persuade them to go with safe IBM gear rather than with competitors' equipment. This implicit coercion was traditionally accomplished by promising that Good Things would happen to people who stuck with IBM, but Dark Shadows loomed over the future of competitors' equipment or software. After 1990 the term FUD was associated increasingly frequently with Microsoft, and has become generalized to refer to any kind of disinformation used as a competitive weapon. The Jargon Dictionary is available online at <http://info.astrian.net/jargon/terms/f/FUD.html>. Comment: The acronym FUD, an integral part of computing lore and now common in IT management, is used to characterize risk adverse behavior of decision-makers. Downloaded February 18, 2004.

example, the Public Broadcasting System's Newshour segment, "@ the Capitol" for April 28, 1997<sup>475</sup> featured the topic of Y2K and Representative Constance Morella, Chairwoman of the Science Committee's Technology Subcommittee, discussing the hearings being held to understand the scope of the Y2K problem and approaches to mitigate it. Many Web sites chronicled the origin of the Y2K or "Millennium bug" and tracked efforts to deal with the problem; some excellent examples of the media's role in Y2K remain, such as CNN's "Looking at the Y2K Bug" site.<sup>476</sup>

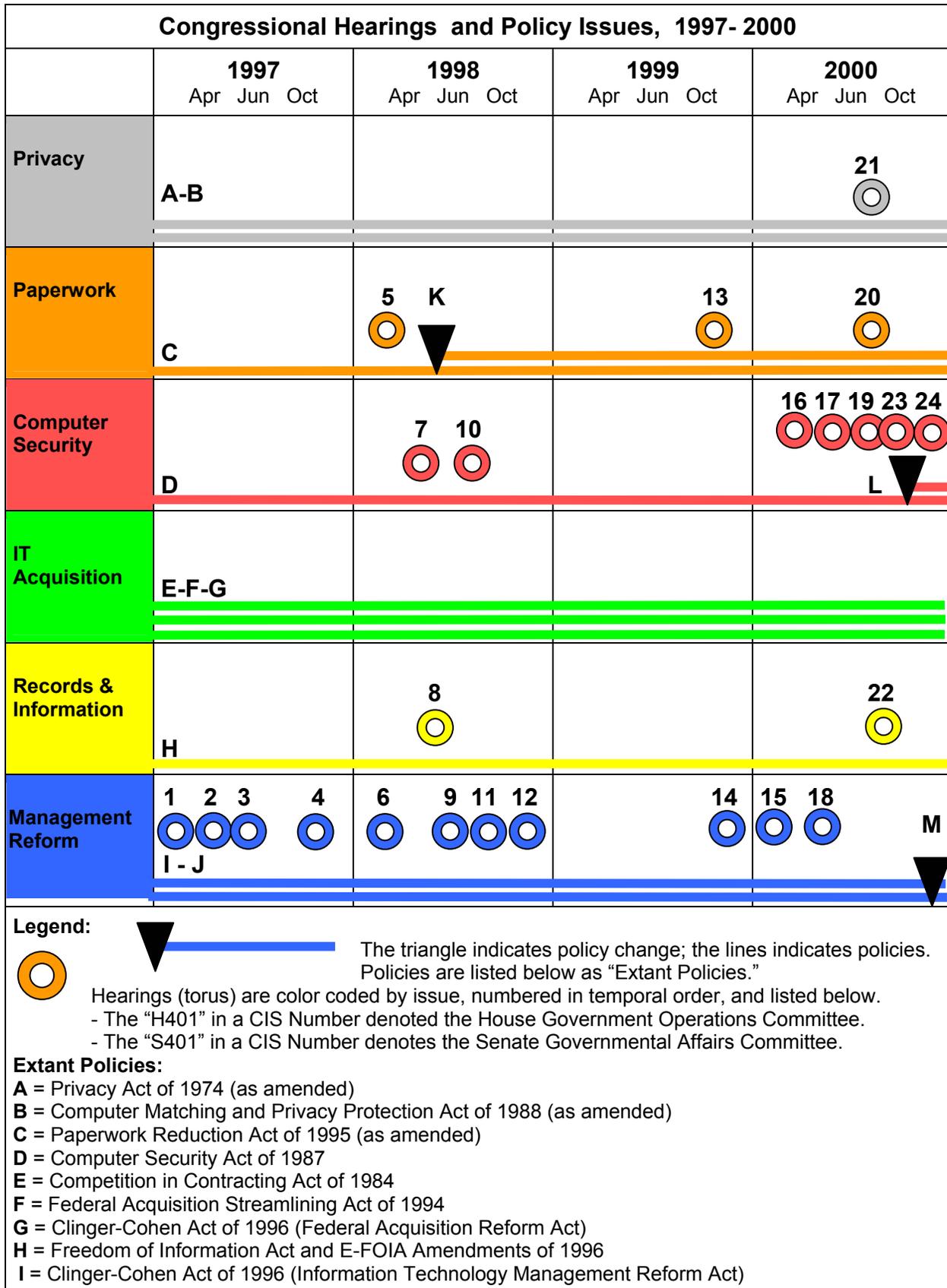
Twenty four hearings were held that directly affected the IRM policy subsystem and the six issues being studied (another two hearings on topics of Internet fraud and online government were not coded). Nine of the 24 hearings focused on the Year 2000 challenge and its ramifications; an additional seven hearings were devoted to computer security and cyber security, evidencing a high level of concern for these topics. Hearings addressed concerns of: paperwork issues (3); implementing the CIO concept in Federal agencies (2); implementing the Electronic Freedom of Information or E-FOIA Act provisions (2); and privacy (1). The two tangentially related hearings noted above addressed a) identity theft and phony ID cards and credentials available on the Internet, and b) an exploratory hearing on strategies and challenges for government online.

Chairman Horn convened the first Y2K hearing of the 105<sup>th</sup> Congress in February 1997, probing the status of Y2K remediation efforts in Federal agencies. This hearing provided one of the first appearances by CIOs before Congress; the CIOs of six departments outlined their Y2K readiness planning and the status of their efforts. The detail provided by Department of State CIO Eliza McClenaghan was indicative of the size, scope, and complexity of the Y2K challenge.

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<sup>475</sup> Available online at [http://www.pbs.org/newshour/@capitol/forum/april97/2000\\_4-28.html](http://www.pbs.org/newshour/@capitol/forum/april97/2000_4-28.html). Downloaded February 18, 2004.

<sup>476</sup> Available online at <http://www.cnn.com/TECH/specials/y2k/>. Downloaded February 18, 2004.



**J** = OMB Circular A-130, Management of Federal Information Resources  
**K** = Government Paperwork Elimination Act  
**L** = Government Information Security Reform Act  
**M** = OMB Circular A-130, Management of Federal Information Resources (Revised November 28, 2000)

<b>No</b>	<b>Year-Congress</b>	<b>CIS No</b>	<b>HEARING TITLE AND DATE</b>	<b>PURPOSE</b>
1	1997 105 <sup>th</sup> – 1 <sup>st</sup>	97-H401-117	Will Federal Computers Be Ready for the Year 2000? February 24, 1997.	Oversight
2		97-H401-90 97-H701-24	Year 2000 Risks: What Are the Consequences of Information Technology Failure? March 20, 1997. (Hearing text in CIS #97-H701-24)	Exploratory
3		98-H401-80	Will Federal Government Computers Be Ready for the Year 2000? July 10, 1997.	Oversight
4		98-H401-118	Oversight of the Implementation of the Clinger-Cohen Act. October 27, 1997.	Oversight
5	1998 105 <sup>th</sup> – 2 <sup>nd</sup>	98-H401-151	H.R. 3310, Small Business Paperwork Reduction Act Amendments of 1998. March 5, 17, 1998.	Legislation
6		98-S401-49	Crashing into the Millennium: Federal Agency Year 2000 Conversion Efforts. April 1, 1998.	Oversight
7		99-S401-3	Weak Computer Security in Government: Is the Public at Risk. May 19, 1998.	Exploratory
8		99-H401-46	Implementation of the Electronic Freedom of Information Amendments of 1996: Is Access to Government Information Improving? June 9, 1998.	Oversight
9		99-H401-41	Status Update on the Year 2000 Problem. June 10, 1998.	Oversight
10		99-S401-1	Cyber Attack: Is the Nation at Risk? June 24, 1998.	Exploratory
11		99-H401-48	Year 2000: Biggest Problems and Proposed Solutions. June 22, 1998.	Exploratory
12		99-H401-94	Y2K: Will We Get There on Time? September 29, 1998.	Exploratory
13	1999 106 <sup>th</sup> – 1 <sup>st</sup>	2000-S401-13	H.R. 391 and S. 1378: The Small Business Paperwork Reduction Act Amendments of 1999. October 19, 1999.	Legislation
14		2000-H401-11	Y2K and Contingency and Day 1 Plans: If Computers Fail, What Will You Do? October 29, 1999.	Oversight

15	2000 106 <sup>th</sup> – 2 <sup>nd</sup>	2001-H401- 17	Year 2000 Computer Problem: Did the World Overreact, and What Did We Learn. January 27, 2000.	Exploratory
16		2000-S401- 20	Cyber Attack: Is the Government Safe. March 2, 2000.	Legislation
17		2001-H401-6	Computer Security: Are We Prepared for Cyberwar? March 9, 2000.	Exploratory
18		2001-H401- 31	Performance of Federal CIOs: How Do They Compare to CIOs in the Private Sector? March 24, 2000.	Exploratory
19		2001-H401- 35	Enhancing Computer Security: What Tools Work Best? March 29, 2000.	Exploratory
20		2001-H401- 93	Reinventing Paperwork: The Clinton-Gore Administration's Record on Paperwork Reduction. April 12, 2000.	Oversight
21		2001-H401- 53	Privacy Commission: A Complete Examination of Privacy Protection. April 12, 2000.	Legislative
22		2001-H401- 90	Agency Response to the Electronic Freedom of Information Act. June 14, 2000.	Oversight
23		2001-H401- 115	Computer Security: Cyber Attacks -- War Without Borders. July 26, 2000.	Exploratory
24		2001-H401- 131	Computer Security Report Card. September 11, 2000.	Oversight

Figure 4.6 Policy Issues and Congressional Hearings 1997-2000

Within the State Department, work began on the Y2K problem in 1996. In its embassies and consulates worldwide the Department used over 220 software applications, comprising 35.3 million lines of code. These applications were written in 17 different programming languages. One hundred forty one of the 220 applications, with 27.7 million lines of code, needed to be corrected. Eighty five of the 141 applications were defined as mission critical, and of these, 57 applications containing 9.8 million lines of code, were not Y2K compliant. Forty of the 57 applications were scheduled to be corrected; the remaining 17 applications were to be replaced. The

estimated cost to make these changes was \$135.2 million spread across fiscal years 1996 through 2000.<sup>477</sup>

Department of Defense CIO, Lieutenant General Emmitt Paige, noted that DoD's Y2K remediation efforts began in 1995, and that the five-phase approach now being used in DoD and Government-wide was initially developed by the Air Force, and then shared with the Federal CIO Council's Year 2000 Interagency Committee.<sup>478</sup> As each CIO presented testimony it was clear that progress was being made, but each agency was at a different phase in the Y2K remediation process, and no agency approached the Department of State in understanding and costing its Y2K challenge.

Four weeks later, the second joint Y2K hearing continued the initiative Horn and Congresswoman Morella had started at the end of the 104<sup>th</sup> Congress. In her opening remarks Morella noted, "When Chairman Horn and I began investigating this problem at the beginning of last year, our focus was to ensure timely and effective action by our nation to meet the tremendous challenge of solving the year 2000 problem, both in the public and the private sector. It now it appears we must re-categorize our thinking, embrace the risks of failure, and discuss its consequences. . . . Despite our best efforts in Congress to educate the private sector on the potential for great operational and fiscal disaster . . . some companies have yet to address the problem. The deadline we face is unforgiving. Time is running out. Even though there are just 144 weeks or 33 months from today to get the job done, it appears as if these companies are not acting expeditiously enough to be fully year 2000 compliant by the close of the decade."<sup>479</sup> The testimony that followed provided insights from representatives of international IT consultant organizations, the Gartner Group, and Giga Information Group. First, businesses in general were not aggressively pursuing Y2K remediation efforts. Second, the problem was more pervasive than just computers; embedded microchips and microcontrollers in a wide range of manufactured products were all potential Y2K

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<sup>477</sup> Congress, House. *Will Federal Computers be Ready for the Year 2000?* Committee on Government Reform and Oversight, 105<sup>th</sup> Cong., 1<sup>st</sup> sess., 1997, pp. 29-31.

<sup>478</sup> *Ibid.*, pp. 8-10. The five phases are: 1) Awareness; 2) Assessment; 3) Renovation; 4) Validation; and 5) Integration and Acceptance Testing. See also GAO/AIMD-10.1.14, *Year 2000 Computing Crisis: An Assessment Guide*.

<sup>479</sup> Congress, House. *Year 2000 Risks: What are the Consequences of Information Technology Failure?* Committee on Government Reform and Oversight, 105<sup>th</sup> Cong., 1<sup>st</sup> sess., 1997. Lexis-Nexis Congressional, CIS #97-H401- 90 and #97-H701-24.

problems. Many of these products had yet to be publicly identified, but ranged from elevator controllers; microcontrollers in automobiles and commercial aircraft; and microchips in weapons systems; to consumer products that use microchips such as washers, dryers, and microwave ovens. Third, these conditions provided the environment for catastrophe litigation. In the words of Vito Peraino, a trial lawyer from Hancock, Rotherth, and Bunshoft, a California law firm specializing in catastrophe litigation, “The year 2000 problem is a litigation catastrophe waiting to happen. Leaving aside the social and political ramifications of that statement, a threat to the integrity of financial data presents significant and, I believe, staggering liability exposures for companies.” He recommended that Congress establish an “independent body to assure that critical sectors of the industry are responding to the year 2000 challenge.”<sup>480</sup> There were some encouraging signs, however. In his testimony, ITAA President Harris Miller noted that the ITAA had initiated “a program to certify member businesses as Y2K compliant. . . . This concept of reviewing processes and methods is similar to the International Standards Organization 9000 process, ISO 9000, which is widely used in our industry. . . . In total, 189 companies have requested the questionnaire necessary to become certified; eleven have been certified and 18 are currently undergoing technical evaluation.”<sup>481</sup>

In July the third joint hearing on Y2K by the Science and Government Reform and Oversight Committees returned to the topic of Federal agency readiness. In February OMB had outlined to Congress its strategy for addressing the Y2K problem in “*Getting Federal Computers Ready for 2000*,”<sup>482</sup> and in May OMB tasked agencies to report quarterly on their Y2K progress. The first of agencies’ quarterly reports, due on May 15, was provided to Congressional Committees on June 23, setting the focus for the July 10<sup>th</sup> joint hearing. In her testimony, OIRA Administrator Sally Katzen summarized the magnitude of the challenge, as it was known on May 15, 1997. “The summary shows that most agencies are in the assessment phase, as you have noted,

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<sup>480</sup> Ibid.

<sup>481</sup> Ibid.

<sup>482</sup> Executive Office of the President, Office of Management and Budget. *Getting Federal Computers Ready for 2000*, February 6, 1997. Available online at <http://www.whitehouse.gov/omb/inforeg/2000report.html>. Downloaded February 22, 2004.

[and] that they estimate that they will now spend \$2.8 billion fixing this problem. Of the 7,649 mission-critical systems identified, [not including the Social Security Administration] – 59 percent are being repaired, 9 percent are being replaced, 8 percent are being retired, and 21 percent are already Year 2000-compliant.”<sup>483</sup> The cost, while high at \$2.8 billion, was much less than earlier estimates. “Placing this in context, when we met here approximately a year ago, I was asked, did I think it would cost \$60 billion, which was the figure that was floating at the time? And I said, no, I thought it was closer to \$1-5 billion. And the numbers that we see here are more in line with that range than with the other numbers that are being used. And that’s just to provide some context. But the numbers are going to be changing as the agencies do more of their work.”<sup>484</sup> The General Accounting Office’s Joel Willemsen was less upbeat about agencies’ status, noting that many agencies left little time to test and implement their remediation solutions, and no time to regroup should their first efforts be unsuccessful. GAO’s recommendation called for more emphasis by the Executive Branch and close oversight scrutiny by Congress.

A related challenge of ensuring that only Year 2000 certified IT products were being used in agencies’ remediation efforts had also been identified. As Chairwoman Morella noted, new IT products and services also had to handle the 2000 date change properly. “We want to send a strong message to the information technology community that their products also have to be Year 2000-compliant. And to achieve it, we are now working on statutory language for this year’s appropriation bills – Treasury and Postal would be the ones – that would prohibit the Federal Government from purchasing any information technology which is not Year 2000-compliant pursuant to Part 39[106] of the Federal Acquisition Regulations.”<sup>485</sup> The Federal CIO Council, formed to deal with such cross-cutting problems, was already working on several approaches to this problem. In his testimony, Alvin Pesachowitz, Vice Chair of the CIO Council and CIO of the Environmental Protection Agency reported that “in June, the CIO Council agreed to fund the operation and maintenance of a new database

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<sup>483</sup> Congress, House. *Will Federal Government Computers Be Ready for the Year 2000?* Committee on Science, 105<sup>th</sup> Cong., 1<sup>st</sup> sess., 1997, p.14.

<sup>484</sup> *Ibid.*

<sup>485</sup> *Ibid.*, p. 34.

designed and developed by the Year 2000 Committee. This database will provide the federal IT community with access to high quality data on commercial products that claim to be Year 2000-compliant. . . . [and a] single authoritative source for Year 2000 product information in the Federal Government.”<sup>486</sup> Industry associations and their member firms were also actively participating in the Y2K efforts – even as they updated their corporate information systems. “We have worked very closely with the Information Technology Association of America and the Industry Advisory Council on issues such as standard contract language, contractor support services, and commercial off-the-shelf packages of software,” noted Kathleen Adams, Chair of the Interagency Year 2000 Subcommittee and Assistant Deputy Commissioner for Systems at the Social Security Administration.<sup>487</sup> There were now less than 1000 days remaining to effect the Year 2000 changes and upgrades. Despite the immutable deadline, Committee members now had a sense of the direction, momentum, and interim accomplishments, and had had an opportunity to size up some of the CIOs providing leadership of this important endeavor.

The first anniversary of the Clinger-Cohen Act provided an opportunity to assess the impact and effectiveness of the CIO concept and its implementation. This hearing, commented Chairman Horn, was focused on “the chief information officers and their Council. We are interested in hearing about the Chief Information Officers themselves -- their backgrounds, their roles, authorities and responsibilities within their agencies.”<sup>488</sup> This interest stemmed from a concern, articulated by OMB and GAO, about the placement and the assigned duties of CIOs in many agencies. Particularly troublesome to Committee member Representative Tom Davis (R-VA), was the practice of assigning multiple responsibilities to CIOs, especially responsibilities unrelated to information management, and assigning CIOs at too low of a level in the organization to be effective. GAO testimony noted that less than half of the CIOs [13 of 27] were assigned the CIO duties as their primary responsibility; especially troubling

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<sup>486</sup> Ibid., p. 66.

<sup>487</sup> Ibid., p. 69.

<sup>488</sup> Congress, House. *Oversight of the Implementation of the Clinger-Cohen Act*. Committee on Government Reform and Oversight, 105<sup>th</sup> Cong., 1<sup>st</sup> sess., 1997. Lexis-Nexis Congressional, CIS #98-H401-118.

were cases in which the existing Chief Financial Officer (CFO) was also designated as the Chief Information Officer. The GAO, and Committee members, citing earlier OMB concerns, agreed that both CFO and CIO positions were of such importance as to warrant full time attention by the individuals filling those positions. Full time CIOs were required, it was asserted, if agencies were going to make progress in establishing performance measures and in linking information technology to achieving business goals. Although OMB did not testify at this hearing, it was noted that OMB was in the process of reevaluating CIO appointments and the placement of CIOs in agencies.

Agency CIOs Alan Balutis (Department of Commerce), Eliza McClenaghan (Department of State), and Anne Reed (Department of Agriculture) each testified they had enough authority to do the job expected of the CIO. However, only Reed reported directly to the agency head, Secretary of Agriculture Dan Glickman, as required by the Paperwork Reduction Act of 1995. McClenaghan reported to the Under Secretary for Management, but felt she had adequate control over CIO functions because she chaired the IT investment process for the entire agency. Balutis noted an ongoing evolution in organizational structure within the Department of Commerce, and while he presently reported to the CFO who also held the CIO designation, a deputy assistant secretary position with the CIO title and access to the Secretary of Commerce was being developed for the new organizational structure.<sup>489</sup>

The policy environment of 1998 focused primarily on Year 2000 issues and secondarily on computer and cyber security issues. During the year four hearings were held to assess agencies progress on Year 2000 remediation, and another two hearings focused on new awareness of the necessity for adequate security in an increasingly networked environment. While the fearful tone had abated in discussing the Year 2000 problem, policymakers were still doubtful that agencies would be able to successfully complete the changes necessary to avert a crisis. Fear, however was more apparent where computer security and cyber security were concerned.

On February 1, 1998, and lasting until February 26, [Department of Defense] “unclassified networked computer networks were attacked using a well-known operating system vulnerability. The attackers followed the same attack profile: (a)

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<sup>489</sup> Ibid.

probing to determine if the vulnerability exists; (b) exploiting the vulnerability; (c) implanting a program (sniffer) to gather data; and (d) returning later to retrieve the collected data. At least eleven attacks followed the same profile on Air Force, Navy, and Marine Corps computers worldwide. Attacks were widespread and appeared to come from sites such as: Israel, the United Arab Emirates (UAE), France, Taiwan, and Germany.<sup>490</sup> These attacks, given the codename “Solar Sunrise,” came at a time of elevated tensions between Iraq and the United Nations Special Commission on Iraq (UNSCOM) inspection teams. “The United States was threatening to bomb Iraq. The President had sent additional aircraft and ships to the Persian Gulf and was preparing to send more. While these events were taking place, unknown parties were hacking into the logistics control computers at military bases throughout the country. Root access, or systems administrator status, was achieved. Lists of passwords were downloaded, computer trapdoors were inserted, and for several days it was believed that Iraq was engaging in information warfare against the United States to cripple its logistics buildup.”<sup>491</sup> A massive and coordinated effort by experts from many agencies tracked the hackers every move and collected evidence; the overall team drew specialists from the FBI, the Justice Department’s Computer Crimes Section, the Air Force Office of Special Investigations, NASA, the Defense Information Systems Agency, the National Security Agency, the CIA, and various computer emergency response teams. “In the end, it was found that two young [14-year-old] hackers in California had carried out the attacks under the direction of a hacker in Israel, himself a teenager [a 17-year-old]. They gained privileged access to computers using tools available from a university web site and installed sniffer programs to collect user passwords. They created a backdoor to get into the system, and then used a patch available from another university web site to fix the vulnerability and prevent others

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<sup>490</sup> Pike, John. *Solar Sunrise*. Available online at <http://www.globalsecurity.org/military/ops/solar-sunrise.htm>. Downloaded March 17, 2004. Solar Sunrise is the code name given to this investigation by the Justice Department and the Federal Bureau of Investigation.

<sup>491</sup> Clarke, Richard. Speech before the “Policy Conference at Lansdowne Conference Center,” sponsored by the Washington Institute for Near East Policy, October, 16, 1998. Available online at <http://washingtoninstitute.org/pubs/lansdowne/clark.htm>. Downloaded March 17, 2004. At the time of this speech, Clark was the National Coordinator for Security, Infrastructure Protection, and Counterterrorism, National Security Council.

from repeating their exploit. Unlike most hackers, they did not explore the contents of the victim computers.”<sup>492</sup>

Presidential Decision Directive 63, *Protecting America’s Critical Infrastructure*, was announced on May 22, 1998. Building upon the work of the President’s Commission on Critical Infrastructure Protection that had convened in mid-1996 and issued its report in October 1997, this directive defined the notion of “critical infrastructures” and provided a framework to reduce the vulnerability of critical infrastructures to those who wish military or economic harm on the United States. “Critical infrastructures are those physical and cyber-based systems essential to the minimum operations of the economy and the government. They include, but are not limited to telecommunications, energy, banking and finance, transportation, water systems and emergency services, both governmental and private.”<sup>493</sup> Agency CIOs were seen as a key contributor to critical infrastructure protection, adding another key responsibility to the list of CIO duties. “Every department and agency of the Federal Government shall be responsible for protecting its own critical infrastructure, especially its cyber-based systems. Every department and agency Chief Information Officer shall be responsible for information assurance. Every department and agency shall appoint a Chief Infrastructure Assurance Officer (CIAO) who shall be responsible for protection of all of the other aspects of that department’s critical infrastructure. The CIO may be double-hatted as the CIAO at the discretion of the individual department.”<sup>494</sup>

The level of concern over the Year 2000 problem remained high; Senator Fred Thompson, chair of the Governmental Affairs Committee, voiced his concern. “Within the federal government, the problem is not a technical challenge, but a challenge of management. And in this case, the deadline is not negotiable. In 1997 we held hearings to address the areas of government which presented the highest risks. The

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<sup>492</sup> Serabian, John, A., Jr. “Statement for the Record before the Joint Economic Committee on Cyber Threats and the U.S. Economy.” Washington, D.C., February 23, 2000. Available online at [http://www.cia.gov/cia/public\\_affairs/speeches/2000/cyberthreats\\_022300.html](http://www.cia.gov/cia/public_affairs/speeches/2000/cyberthreats_022300.html). Downloaded March 17, 2004. At the time of this testimony, Serabian was the Information Operations Issue Manager, Central Intelligence Agency.

<sup>493</sup> Executive Office of the President. *The Clinton Administration’s Policy on Critical Infrastructure Protection: Presidential Decision Directive 63*. May 22, 1998. Available online at <http://www.fas.org/irp/offdocs/paper598.htm>. Downloaded March 27, 2004. This site, sponsored by the Federation of American Scientists, includes a large collection of key policy documents.

<sup>494</sup> Ibid.

Year 2000 problem was one of the two most serious problems presenting the greatest risk for all agencies. Now there are fewer than 450 federal workdays remaining to complete the computer conversion, and I have reached the troubling conclusion that many agencies will not be able to fix their systems in time and will face major disruptions.<sup>495</sup> Responding to Thompson, John Koskinen noted that President Clinton had issued Executive Order 13073, *Year 2000 Conversion*,<sup>496</sup> establishing the President's Council on Year 2000 Conversion, of which he, Koskinen, was now the chairman. Koskinen reported that the President "also made it clear recently at a meeting of his Cabinet that agency heads bear the full responsibility for the successful preparation of their agencies' mission-critical systems for the transition to the year 2000. . . . We need to adopt a global perspective, and I think the Council's real contribution will be in encouraging the agencies to expand their year 2000 outreach efforts to include those outside the Federal government -- whether they be Tribal, State and local governments, private sector organizations, or international institutions - and in coordinating those efforts at a government-wide level. [Additionally] the Council will work with Federal agencies to leverage the influence of international organizations like the United Nations, the World Bank, and the International Monetary Fund to increase awareness and facilitate the exchange of information among nations."<sup>497</sup>

Three other Year 2000 hearings were held in 1998. The first of these, chaired by Congressman Horn in June, focused on the Year 2000 status of the Departments of Health and Human Services, Education, Defense, and Energy. Citing his recently released "report card," only four agencies got an "A" and 16 agencies got a "C" or less. "Overall, the administration earned an 'F.' That's simply not acceptable. We cannot allow Defense, Energy, Education, Health and Human Services -- our witnesses today -- to fail."<sup>498</sup> Less than two weeks later Horn presided over another Year 2000 hearing, this one soliciting the opinions of leading experts as to their top Year 2000 priorities

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<sup>495</sup> Congress, Senate. *Crashing into the Millennium: Federal Agency Year 2000 Conversion Efforts*. Governmental Affairs Committee, 105<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #98-S401-49.

<sup>496</sup> Executive Office of the President. Executive Order. "Year 2000 Conversion, Executive Order 13073 of February 4, 1998." *Federal Register* (6 February 1998), vol. 63, no. 25, pp. 6467-6468.

<sup>497</sup> Congress, Senate, *Crashing into the Millennium*.

<sup>498</sup> Congress, House. *Status Update on the Year 2000 Problem*. Committee on Government Reform and Oversight, 105<sup>th</sup> Cong. 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #99-H401-41.

and solutions. Underlying this hearing was the realization that time was finite, and resources should be directed toward ensuring the highest priority systems were fixed. The administration's top priorities, testified Edward Deseve, OMB Deputy Director for Management, were "first, dealing with mission-critical systems; second, data exchanges; third, embedded chips; fourth, continuity of business planning; and fifth, international and national readiness"<sup>499</sup> The last Year 2000 hearing of 1998 occurred in October and focused Year 2000 oversight attention on non-IRM areas within the Committee's jurisdiction. Testimony detailed the status of Year 2000 efforts: in the District of Columbia; within the National Highway Traffic Safety Administration and the traffic safety services under their regulatory purview; within the National Wholesale Druggists' Association, pharmaceutical companies with 215 distribution centers and electronic ordering and fulfillment systems providing distribution services to 130,000 pharmacy outlets; within the small businesses of the United States; and within the drinking water purification and distribution industry.<sup>500</sup> While the Year 2000 problem was a computing problem, there was a growing appreciation of the extensive penetration of computing in virtually every facet of modern society. Given that realization, computer and cyber security demanded new levels of attention.

Computer and cyber security were explored in two hearings chaired by Senator Fred Thompson. The first hearing, focusing on computer security, provided GAO's assessments of security difficulties at the State Department and the Federal Aviation Administration; an assessment of the state of computer security in business and industry and thoughts about the culture legitimizing lax computer security; and an assessment of information technologies by the L0pht Heavy Industries, the top hacker collective in the United States. The testimony pointed out a myriad of technological weaknesses in information technology systems, and criticized policy makers' preference for addressing the effects of lax computer security – which get ample press

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<sup>499</sup> Congress, House. *Year 2000: Biggest Problems and proposed Solutions*. Committee on Government Reform and Oversight, 105<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #99-H401-48.

<sup>500</sup> Congress, House. *Y2K: Will we Get There on Time?* Committee on Government Reform and Oversight, 105<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #99-H401-94.

coverage – rather than addressing the causes of security weaknesses.<sup>501</sup> The second hearing focused on the broader context of computer and information security, and assessed threats to national information and critical infrastructures that ranged from rogue individuals such as hackers, to non-state actors such as terrorist groups, and state-sponsored information warfare. The frank and forthright testimony of Central Intelligence Agency Director George Tenet and National Security Agency Director Lieutenant General Ken Minnihan allowed the committee a broader appreciation of the wide range of computer security challenges and their origins.<sup>502</sup>

Traditional issues, such as records and information, also received attention, despite the “deer-in-the-headlights” effect of Year 2000 conversion efforts. Congressman Horn’s Subcommittee on Government Management, Information, and Technology held an oversight hearing to examine implementation of the Electronic Freedom of Information Amendments of 1996. Public interest organizations discussed their experiences using the new E-FOIA procedures, while agency representatives discussed E-FOIA implementation and operations. All witnesses agreed that progress was being made; they differed, however, as to their satisfaction with agencies’ progress and the rate of progress toward full E-FOIA implementation. Patrice McDermott of OMB Watch noted that as of January 1, 1998, nearly three-quarters, or 73 percent of the 57 Federal agencies surveyed had various levels of compliance, although none had fully complied with all legislated provisions. Only 13 agencies had no E-FOIA presence on the World Wide Web.<sup>503</sup> Witnesses all believed that agencies were making significant progress in providing online access to information, yet challenges remained: the information was not always well organized or well indexed; no funding for E-FOIA implementation had been provided by Congress; agencies had yet to make public access to information a priority; and agencies needed better approaches to managing and preserving their electronic records. Agency representatives acknowledged these challenges, and stressed that they were

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<sup>501</sup> Congress, Senate. *Weak Computer Security in Government: Is the Public at Risk?* Committee on Governmental Affairs, 105<sup>th</sup> Cong. 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #99-S401-3.

<sup>502</sup> Congress, Senate. *Cyber Attack: Is the Government Safe?* Committee on Governmental Affairs, 105<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1998. Lexis-Nexis Congressional, CIS #99-S401-1.

<sup>503</sup> Congress, House. *Implementation of the Electronic Freedom of Information Amendments of 1996: Is Access to Government Information Improving?* 105<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1998, p. 6.

committed to eliminating the backlog of FOIA requests. Although the Web was a useful vehicle for E-FOIA implementation, many administrative elements responsible for E-FOIA implementation lacked the skills for efficient website development and maintenance.<sup>504</sup>

The tempo of Year 2000 remediation efforts quickened throughout 1999. “You know, this is the 23rd hearing of the year on the year 2000 computer problem that this subcommittee's held during the first session of the 106th Congress. . . . But now, with only 63 days remaining until the January 1 deadline, it's time to talk about the contingencies, the what-ifs.” Congressman Tom Davis then went on to frame the key questions of this late October 1999 hearing: “What if, despite the best efforts, some computers fail?” “What are their [Federal agencies'] plans for day one, the critical days leading up to midnight, January 1, and the days immediately afterwards?”<sup>505</sup> The lingering doubt expressed by Davis stood in stark contrast to the confident testimony of agency representatives.

The Social Security Administration, reported Principal Deputy John Dyer, is ready. “As a recognized leader in Y2K readiness, we are confident that our monthly payments to 50 million people and the earnings records of 145 million workers will not be affected. To begin with, all of our mission-critical systems are certified as year 2000 compliant, along with all of the state disability determination systems, referred to as DDSs. Additionally, joint testing of payment files and direct deposit procedures have been successfully completed, and the Federal Reserve Board testing with financial institutions includes Social Security transactions. Lastly, as far as trading partners, Treasury and the Postal Service are also on board to handle outgoing and incoming exchanges.”<sup>506</sup> Despite all the Year 2000 remediation work that had already been accomplished, the “day one process” at the Social Security Administration, as at other agencies, was a complex undertaking, as noted in Dyer’s statement.

At this point, I would like to review step by step our plans for the last days of 1999 and the first days of 2000. For December 30 to January 3,

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<sup>504</sup> Ibid., p. 74.

<sup>505</sup> Congress, House. *Y2K and Contingency and Day 1 Plans: If Computers Fail, What Will You Do?* Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 1<sup>st</sup> sess., 1999. Nexis-Lexis Congressional, CIS #2000-H401-11.

<sup>506</sup> Ibid., Testimony of John Dyer, Social Security Administration.

designated personnel will inspect, evaluate, and report on virtually every office. Social Security headquarters will stop receiving online transactions from field offices at 5 P.M. Eastern Standard Time on December 30. . . . On December 31, our computer systems will finish updating SSA's master files. Just before midnight, the Social Security's main data center in Baltimore will switch to jet-fuel generators until the power company notifies us that the agency -- notifies the agency that everything is fine. Immediately after midnight, December 31, 1999, teams will begin assessing our systems' capability to process transactions for the year 2000. Later that day, staff in selected offices across the country will enter data. We will also test the 800 number. Throughout New Year's Day, a group of programmers will run checks on the computer systems for our 1,400 facilities. . . . Besides assessing Social Security's infrastructure, our command center will communicate with several non-SSA sites, such as the Treasury command center, to be alerted to any problems that banks may have in posting electronic fund transfers. Moreover, we will advise the White House Information Coordination Center, the media, and the Congress of SSA's status. Then on January 3, Social Security will open for business as usual.<sup>507</sup>

The Department of Defense was similarly ready, testified Deputy CIO, Dr. Marvin Langston. “[W]e are tracking and repairing over 7,500 systems. Over 2,000 of those are mission-critical systems, the rest are non-mission-critical systems. And in addition, we have 600 installations and 350 domains among our main mega-center mainframe computers that we have worked to repair. Of those systems, we are confident that all of them will be prepared -- repaired and ready to go for this event, and currently we are over 98 percent complete of our mission-critical systems.”<sup>508</sup> John Gilligan, Chief Information Officer of the Department of Energy reported, “I am pleased to report to you today that 100 percent of the department's 420 mission-critical systems are year 2000 compliant and have approved contingency plans, and that the department is more than 99.8 percent complete in remediating over 200,000 non-mission-critical systems, embedded chips, telecommunications systems, data exchanges, and workstations.”<sup>509</sup> Internal Revenue Service CIO Paul Cosgrove reported the IRS's status. “As for our day one or endgame plannin . . . we are backing up and then quiescing the systems beginning at 10 P.M. on December 29, 1999. This

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<sup>507</sup> Ibid.

<sup>508</sup> Ibid., Testimony of Marvin J. Langston, Department of Defense.

<sup>509</sup> Ibid., Testimony of John Gilligan, Department of Energy.

means the systems will be turned on but will not be running business applications. On January 1, 2000, the systems will be brought back up to their normal operating status, this time updated with our filing season 2000 programs and validated against quality control checklists prior to the first day of business on January 3, 2000.”<sup>510</sup> The US Postal Service was also ready, testified CIO Normal Lorenz.

I'm pleased to report this morning that we have completed all the technical work on our mission-critical systems, including independent verification, testing, and implementation of a system freeze. We began testing our mail processing equipment in 1998 and extended it to other sites last year. In August, at our Merrifield, Northern Virginia site, we started a six-week test of critical mail-processing equipment. This equipment ran continuously in a year 2000 calendar mode in live processing equipment testing, all equipment types and all mail streams. This facility manages 5 million pieces of mail a day, and we have experienced no problems. We have also created plans to protect against potential disruptions of other systems and processes. We do this every day. In the last two weeks, we've dealt with Hurricane Irene in Florida and the Hector Mine earthquake in Los Angeles. Locally, [during] last year's storm in Montgomery County, [MD], we had 48 of 60 Montgomery County delivery units that were without power, and we delivered mail. I know at my home in Bethesda, [MD] all three days that we were without power, I got normal mail delivery, even though I had to walk outside to read it.<sup>511</sup>

The planning and preparation had paid off. In a 2:00 am briefing on January 1, 2000, John Koskinen, Assistant to the President and Chair of the President's Council on Year 2000 Conversion provided a status report.

Nuclear power plants in the Eastern and Central Time Zones have reported to the Nuclear Regulatory Commission that safety and operating systems at all 95 plants were functioning normally. . . . The Postal Service has reported that it is operating in normal circumstances. . . . Countries in Europe, including Russia, Africa, the Middle East, Asia, and now South America have made the transition to the Year 2000 with no report of significant Y2K issues in key infrastructure areas. . . . The Defense Department reports no date-related Y2K failures and no negative impacts on base infrastructure either domestically or overseas, and no unusual hacking or computer virus activity. International telecommunications are operating at normal capacity now. International

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<sup>510</sup> Ibid., Testimony of Paul Cosgrove, Internal Revenue Service.

<sup>511</sup> Ibid., Testimony of Norman Lorenz, U.S. Postal Service.

wire line carriers have not reported any Y2K outages. The Satellite Industry Association reports that satellite communications are functioning normally and there are no reports of Y2K outages. . . . The United Kingdom's National Coordinator reported that they had no problems to report. Two million people successfully came to London for the millennium celebrations and left without incident. . . . Asian energy sector – one of the initiatives for the International Y2K Cooperation Center – reported that they had received no reports of problems throughout Asia in terms of energy at all. . . . On the embedded chip side, at least in the United States, there are no indications here or in developed countries that there are going to be problems. . . . I would stress that at this point we literally have not been able to find any significant Y2K-related incident as the world has gone into the Year 2000.<sup>512</sup>

Congressman Horn was upbeat in opening the first “post-Y2K” hearing. Although the East Coast of the U.S. was struggling, that was due to a major snowstorm, not a Year 2000 computer crisis. “When we began this process in April 1996, two cabinet secretaries had never heard of Y2K, much less begun preparing for it. That ultimately changed, but not without congressional prodding through 43 hearings and 10 report cards, grading agencies on their progress. In addition to fixing all of the Government's 6,400 mission-critical computer systems, the subcommittees expected agencies to develop viable contingency plans, in case those computer fixes did not work. We prodded. We questioned. We hoped for the best. And the best happened. The Federal Government experienced a successful transition into the new millennium.”<sup>513</sup> The executive branch was estimated to have spent \$8 billion on the Y2K problem, and according to the Secretary of Commerce, the U.S. as a whole had spent approximately \$100 billion in Year 2000 remediation efforts. The banking industry reported spending \$10 billion and the telecommunications industry reported spending \$3.6 billion to make the public switched telephone networks compliant. In their testimony, witnesses outlined their lessons learned. John Koskinen, who chaired the President’s Council on Year 2000 Compliance suggested this was the greatest management challenge of the last 50 years. Joel Willemsen of the General

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<sup>512</sup> Press Briefing by John Koskinen - Saturday, January 1, 2000 2:00 AM. Available online at <http://www.y2k.gov/docs/tr010200.html>. Downloaded May 5, 2004.

<sup>513</sup> Congress, House. *Year 2000 Computer Problem: Did the World Overreact, and What Did We Learn?* Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexis-Nexus

Accounting Office credited the leadership of the legislative and executive branches, and the partnerships formed by numerous organizations, as keys to Y2K success. Charles Rossotti, Commissioner of Internal Revenue, credited end-to-end testing as critical to discovering the last few problems. Fernando Burbano, Department of State CIO noted that Y2K preparations provided the foundation for implementing Presidential Decision Directive 63, Critical Infrastructure Protection, as well as the provisions of Clinger-Cohen and the Government Performance and Results Acts. Harris Miller, President of the Information Technology Association of America believed the Y2K efforts brought companies more modern and more efficient computer systems that will eventually pay off in increased productivity. Cathy Hotka, of the National Retail Federation, observed that most companies underestimated their reliance on information technology, and that government played a very key role in helping the private sector prepare for the Year 2000 rollover through awareness, and best practices. And lastly, Gary Beach, Publisher of CIO Magazine, noted that because of the Y2K upgrades, companies were better positioned to roll out their e-commerce applications, a business model that would be prevalent in 2001.<sup>514</sup>

"Y2K underscored the need for a disciplined management approach to problem solving. Teamwork and determination in both the public and private sectors helped meet the Y2K challenge. That type of commitment will be equally important as we turn to the second technological challenge of the New Year -- computer security."<sup>515</sup> Congressional interest underscored the notion of computer security being the second technological challenge of 2000. Five hearings were held on computer security during the year, one in the Senate and four in the House. In March Senators Thompson and Lieberman addressed computer security by exploring a hacker's motivation and methods. Less than two months after his release from federal prison, notorious hacker Kevin Mitnick testified before the Senate Governmental Affairs Committee, discussed security vulnerabilities, and emphasized that in his experience, humans and their lack of awareness of basic security practices constituted the greatest threat to security of

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Congressional, CIS #2001-H401-17.

<sup>514</sup> Ibid.

<sup>515</sup> Congress, House. *Computer Security: Are We Prepared for Cyberwar?* Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexis-Nexus Congressional, CIS #2001-H401-6.

Federal information systems. Using social engineering<sup>516</sup> techniques, Mitnick described how he had been given computerized information about third parties by employees in both the Internal Revenue Service and the Social Security Administration – without using a computer – by using only a telephone.<sup>517</sup> Mitnick’s testimony strongly supported the goals of S.1993, Thompson and Lieberman’s new bill that “would put every government agency on notice that it must implement a computer security plan which will be subject to annual independent audits, report unauthorized intrusions, and provide security awareness training for all its workers.”<sup>518</sup>

Security of the government’s computer systems was only one part of the shared public-private security challenge. The reality of Y2K and its linkage to Federal IT acquisition policies was beginning to dawn; Federal IT acquisition policies giving preference to commercial-off-the-shelf (COTS) products resulted in shared security vulnerabilities. All networked computer systems, public and private, since they were built from commercially available components shared the same vulnerabilities. These networked systems comprised the nation’s infrastructure, and that infrastructure must be protected, regardless of its public or private nature. As businesses integrated the Internet and the World Wide Web into their business strategies through e-commerce, the relationship between computer security and the nation’s economy became increasingly clear. John Tritak, Director of the Critical Infrastructure Assurance Office for the Department of Commerce characterized the post-Y2K challenge. “The threats posed to our critical infrastructures by hackers, terrorists, criminal organizations and foreign Governments are real and growing. The need to assure delivery of critical services over our infrastructures is not only a concern for the national security and

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Opening Remarks by Chairman Horn.

<sup>516</sup> “Social engineering” is used here in a security or information assurance context. The *Wikipedia* offers two definitions, the traditional social science definition, and this usage from computer security or information assurance: “Social engineering has been used in the information technology field to mean the art of conning a naive person into revealing sensitive data on a computer system, often the Internet. . . . social engineering attacks remain extremely common and are a way to attack systems protected against other methods - for instance, computers which are not connected to the Internet. . . . Training users about security policies and ensuring that they are followed is the primary defense against social engineering. One of the most famous social engineers in recent history is Kevin Mitnick.” Available online at [http://en.wikipedia.org/wiki/Social\\_engineering](http://en.wikipedia.org/wiki/Social_engineering). Downloaded April 8, 2004.

<sup>517</sup> Congress, Senate. *Cyber Attack: Is the Government Safe?* Committee on Governmental Affairs, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexis-Nexis Congressional, CIS #2000-S401-20. Testimony of Kevin Mitnick.

federal law enforcement communities; it is also a growing concern for the business community, since the security of information infrastructure is a vital element of E-commerce. Drawing on the full breadth of expertise of the federal government and the private sector is therefore essential to addressing this matter effectively.”<sup>519</sup> “The primary challenge,” noted Department of Energy CIO John Gilligan, “is educating and convincing line management that the computers and networks, as well as the information that they process, should be treated and managed as mission essential and strategic organization resources.”<sup>520</sup>

Crafting and implementing an effective computer security program in the face of increasing and increasingly sophisticated attacks, however, was not an easy task. “From the ‘ILOVEYOU’ virus to attempts to enter the space shuttle’s communications system, cyber attacks are on the rise. Every day, new viruses and attempted intrusions bombard vital computer systems and networks within U.S. Government agencies and private industries. Sometimes the attackers are simply seeking the thrill of breaking into a supposedly secure system. Other times, however, the motive is far more sinister -- vandalism, industrial espionage, intelligence collection, or creating a doorway for a future attack.”<sup>521</sup> Congress was reminded, however, that legislating a “one-size-fits-all” security solution was not a panacea, and would likely not have the desired effect. “First of all, computer security programs have to support the organizational mission and goals of the agency. They can’t be divorced from what the agency does or they’re not relevant. Secondly, you have to make sure that the controls you have work. . . . Third is implementing software patches. The Carnegie Mellon CERT/CC has said that most of the intrusions they get, most of the incidents that are reported to that organization, exploit known vulnerabilities.”<sup>522</sup>

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<sup>518</sup> Ibid., Opening remarks of Committee Chairman Thompson.

<sup>519</sup> Congress, House. *Computer Security: Are We Prepared for Cyberwar?* Testimony of John S. Tritak.

<sup>520</sup> Ibid., Testimony of John Gilligan.

<sup>521</sup> Congress, House. *Computer Security: Cyber Attacks – War Without Borders*. Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexus-Nexus Congressional, CIS #2001-H401-115. Opening remarks of Committee Chairman Horn.

<sup>522</sup> Congress, House. *Enhancing Computer Security: What Tools Work Best?* Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexus-Nexus Congressional, CIS #2001-H401-35. Testimony of Jack Brock, GAO. The “CERT/CC” referred to here is the Computer Emergency Response Team/Coordination Center at Carnegie Mellon University, Pittsburgh, PA.

It was known and acknowledged that security of government information systems was inadequate. The extent of the problem was revealed by Congressman Horn. "Today, the subcommittee is releasing its first report card on the status of computer security at executive branch departments and agencies. These grades are based on self-reported agency information in addition to the results of audits conducted by the General Accounting Office and agency Inspectors General. This is the first time such government-wide information has ever been compiled.

- Although auditors found some significant weaknesses at the Social Security Administration and National Science Foundation, both agencies received 'B's' -- the highest grade awarded.
- The rest of the picture, however, is extremely dismal. Overall, the government earned an average grade of 'D-.' More than one-quarter of the 24 major federal agencies received a failing 'F.'
- The Department of Labor, charged with maintaining vital employment statistics - an 'F.' The Department of the Interior, which manages the Nation's public lands -- an 'F.' The Department of Health and Human Services that holds personal information on every citizen who receives Medicare -- another 'F.' Agriculture and Justice, the Small Business Administration and the Office of Personnel Management, the personnel office for the entire federal government -- all 'F's.'
- Six other vital government agencies nearly failed. The Department of Defense, whose computers carry some of the Nation's most sensitive secrets, earned only a 'D-plus' for its computer security program. Veterans Affairs, and Treasury, along with the Environmental Protection Agency, General Services Administration and National Aeronautics and Space Administration -- more 'D's.'
- Four government agencies received grades of 'Incomplete.' These vital agencies oversee key elements of the Nation's infrastructure and emergency services -- the departments of Energy and Transportation, the Nuclear Regulatory Commission and the Federal Emergency Management Agency. These agencies could not receive a grade because there has been insufficient auditor scrutiny to validate their self-evaluations.<sup>523</sup>

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<sup>523</sup> Congress, House. *Computer Security Report Card*. Committee on Government Reform and Oversight, 106<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2000. Lexis-Nexus Congressional, CIS #2001-H401-131. Opening remarks of Committee Chairman Horn.

Witnesses had testified in earlier hearings that support from top managers and executives was required, such as the emphasis provided to remediate the Y2K problems. The comparison was not lost on OMB, and as John Spotilla, OIRA Administrator testified, “The President and his Chief of Staff have taken a personal interest in enhancing security for our interconnected systems. This has gone a long way to establish senior management support at the agencies. . . . We believe agencies must meet the following three goals to ensure successful security policy implementation: they must establish and maintain senior management support; they must achieve consensus and get user buy-in when initially setting policy so that the product will be better; and they must tie security to their capital planning and investment control process and to their budgets. . . . We recognize that security, or information assurance as it is sometimes called, consists of a number of separate components:

- Confidentiality -- assuring that information will be kept secret, with access limited to appropriate persons for authorized purposes;
- Integrity -- assuring that information is not accidentally or maliciously altered or destroyed, that systems are resistant to tampering, and that they operate as intended;
- Availability -- assuring that information and systems will be ready for use when needed;
- Reliability -- assuring that systems will perform consistently and at an acceptable level of quality; and
- Authentication -- assuring that users of systems and parties to transactions are verified and known so that the sender knows that data has been delivered and the recipient knows the sender's identity. With authentication comes nonrepudiation, since neither party can later deny having sent or received the data.<sup>524</sup>

Having secured management attention, the next challenge was resources.

Funding for computer security had been a challenge before passage of the Computer Security Act of 1987; it remained a challenge. Simply put, the most difficult question to answer was, “How much is enough?” Congressman Horn’s security report card prompted agencies to address their security vulnerabilities. Some agencies, like the National Aeronautics and Space Administration (NASA), had initiated a comprehensive security program, upgraded computer security hardware and software,

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<sup>524</sup> Ibid., Testimony of John Spotilla.

and trained both IT and functional professionals at each of their centers. Working with security experts they implemented a performance-based security program, using metrics to track security incidents -- both the attempts to penetrate NASA's systems, and those attempts that actually were successful. In testifying before Congressman Horn, David Nelson, Deputy CIO of NASA explained one of the results of this program. "Each point is a specific center, and the data is real. Notice the trend line. If you start from the left, as the percentage of budget increases to about 2 percent, the number of incidents levels off. This suggests that spending about 2 percent of information technology budget on security gives a good return on investment. Spending less increases risk, as shown by the trend line. Spending more may not add much return. We have compared notes on this metric with leading companies. They see the same sort of trend in the same sort of sweet spot."<sup>525</sup> While the metric wasn't perfect, it was a place to start, and could help agencies target areas for increased emphasis. Two key lessons of Y2K had now been successfully replicated. First, fear, uncertainty, and doubt – FUD – vanished in the face of relevant, reliable, and credible information. Second, computer security was framed as a management problem, and successfully addressing computer security vulnerabilities required the attention of agency senior executives.

#### 4.3.1.3 Ambiguous Role for CIOs: Coalitions 1997-2000

The greatest challenges facing the IRM policy subsystem during the years 1997-2000 were outside the competency range of most coalition members. Of the four coalitions previously identified, three of them, the *Traditionalists Coalition*, the *Public Interest Coalition*, and the *Information Producers Coalition* were relegated to observer status by the challenges of Y2K and cyber security. These coalitions possessed little of the requisite knowledge and skills to deal with Y2K code changes or the security threats to networked information systems. Until the technical challenges could be dealt with successfully, members of these three coalitions experienced significantly reduced participation, impact, and influence on the policy subsystem. Members of the

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<sup>525</sup> Congress, House. *Enhancing Computer Security: What Tools Work Best?* Testimony of David Nelson.

*Traditionalist Coalition* typically emphasized the public and collective nature of Federal information, and therefore focused on policies and activities related to information dissemination and public access. Dissemination and public access would remain secondary concerns until Y2K problems were resolved and until systems and networks could be reasonably protected from cyber security threats. Members of the *Public Interest Coalition* typically focused on values-related issues, such as privacy, equity, FOIA, and normatively informed views of information access. As noted above, these were moot concerns if the systems and networks were compromised by the Year 2000 date change problem or by attacks that degraded computer and network capabilities.

The *Information Producers Coalition* had focused on commoditizing and selling tailored information products, some of them composed of unique government information. Successful mitigation of both Y2K and security concerns was essential, as business plans and e-commerce strategies emerging among members of this coalition were predicated on successfully addressing these twin challenges. Internet-based e-commerce business models offering on-line information products were totally dependent on reliable computing and communications capabilities. These business models were also dependent upon being able to protect information products from theft and forgery – the core competency of the Software Publishers Association (SPA).

The SPA had made a name for itself fighting software piracy, and had developed audit tools to survey PCs and computer networks to identify unlicensed copies of software. On January 1, 1999 the Information Industry Association merged with the Software Publishers Association to become the Software and Information Industry Association (SIIA), to represent “the common business interests of the computer software and digital content industries. It is expected that the SIIA will have more than 1500 member companies, including Microsoft, Sun Microsystems, Oracle, Dun & Bradstreet, Bloomberg, Reuters, Adobe, Novell, CCH, and Thompson Publishing. . . . Both IIA and SPA have been consistently allied on virtually all public policy issues: intellectual property, privacy, encryption, taxation, and electronic

commerce.”<sup>526</sup> As Internet-based business models matured, the core concerns of the SIIA promised to become more central to the *Information Producers Coalition* and to the IRM policy subsystem.

As noted above three of the four coalitions were much less prominent actors in the policy subsystem for the reasons outlined. Seventy one witnesses presented testimony at the 15 hearings selected for coding from the list in Figure 4.6, Policy Issues and Congressional Hearings, 1997-2000. Five witnesses from small businesses addressed concerns resulting from government paperwork; four witnesses from the *Public Interest Coalition* recounted their experiences with E-FOIA requests, while four agency representatives discussed E-FOIA implementation. As already discussed, most of the hearings and testimony – 42 of the seventy one witnesses – focused on the Year 2000 problem. As visually depicted in Figure 4.6, only one hearing dealt with privacy while another hearing discussed E-FOIA concerns (records and information). By contrast, as noted earlier, eight hearings on Y2K concerns and an additional four hearings with 16 witnesses focused on computer security.

<b>Values of Witnesses Testifying on IRM Issues 1997-2000</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	5	1	0	0	0	0
effectiveness	0	1	0	0	31	3
responsiveness	0	0	4	0	9	0
accountability	0	5	4	0	2	13
equality	0	0	0	0	0	0
<b>Witnesses (total)</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>0</b>	<b>42</b>	<b>16</b>
<b>Hearings (total)</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>4</b>

Table 4.21, Values of Witnesses Testifying on IRM Issues 1997-2000

The *Information Technologists Coalition*, in contrast to the other three coalitions, was ideally positioned by expertise, capability, and capacity to significantly contribute

<sup>526</sup> Press Release. *Software Publishers Association, Information Industry Association Announces Plans to Merge on Jan. 1, 1999*. Software and Information Industry Association, 2000. Available online at <http://www.siaa.net/sharedcontent/press/1999/>. Downloaded April 10, 2004.

to mitigating both the Y2K challenge and help address cyber security threats. Part of the success enjoyed by the *Information Technologists Coalition* resulted from reforms to IT acquisition policies during 1993-1996. The decision to favor commercial IT products, or COTS, over custom designed information systems provided significant component similarity between commercial and government information systems. In the case of Y2K, the threat environment was common to everyone who used computing resources, both government agencies and commercial enterprises. Members of the *Information Technologists Coalition* were able to address the common Y2K crisis without regard to public-private sector differences. The challenges were so similar that lessons learned and best practices developed in one sector were immediately applied in the other. The cyber security threat was somewhat different, as governmental agencies provided a tempting set of cyber security targets; only selected parts of the commercial sector such as telecommunications and banking faced similar security threats. Yet in a few cases, security practices pioneered in the public sector led to private sector innovations and solutions to the security threats. And with the increased use and interconnection of computer networks, communications and networking companies such as Cisco Systems and the Computer and Communications Industry Association (CCIA) played increasingly important roles in this coalition.

In addition to the identified coalitions, two other groups influenced events in the IRM policy subsystem through their actions and advice, and demonstrated the potential to become coalitions. Agency CIOs comprised one group, while the other group consisted of security experts.

Agency Chief Information Officers comprised a group of talented and capable individuals, nearly all of them career public servants. In the hearings held during 1997-2000, twenty seven of the seventy one witnesses were agency CIOs or Deputy CIOs, providing Congressional committees updates on agency progress toward remediating the Y2K problem in critical information systems. The Y2K challenge provided agency CIOs important visibility in Congress, and allowed the CIOs to show their skills at resolving a major problem at the nexus of technology and public policy. The newness of CIOs in government and the newness of the Federal CIO Council suggest most CIOs worked together only a short time. While they faced common challenges and

shared a common set of values (see Table 4.21, Management Reform column, and “effectiveness” row – 19 of 31 are CIO respondents), the lack of a significant history of working together, plus the newness of the CIO within the policy subsystem suggest the CIOs are not yet a coalition in the sense that the ACF defines the term.

The other group that contributed to the IRM policy subsystem was an ad hoc collection of individual security experts and computer and network security companies. These individuals and companies offered computer security or information assurance solutions and expertise, ranging from single individuals with white-hat hacking<sup>527</sup> skills to companies that helped write computer security plans, implemented comprehensive security solutions, or developed and sold computer security hardware and software. As with the CIOs, the security group collectively responded to a crisis; highly skilled in technological terms, they were united in their view that those responsible for hacking and viruses should be held accountable for their actions (see Table 4.20, Computer Security column, “accountability row”- nine of the 13 respondents). While their importance and influence necessarily rises and wanes in response to external cyber security threats, the computer security group exhibited the potential to become an important coalition in the IRM policy subsystem.

#### 4.3.1.4 Issues in a Mature Policy Subsystem: Issues 1997-2000

Management reform was the most visible of the six issues during 1997-2000. Because the Year 2000 conversion problem had been viewed primarily as a management challenge, agency CIOs were finally viewed institutionally as more than technologists, and in some cases became part of the senior management team. The vision of information resources management articulated by the leaders of the Commission on Federal Paperwork was finally realized as the policy subsystem reached maturity. The Y2K crisis involved CIOs in key institutional discussions such as changes to institutional processes and the allocation of institutional resources. The

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<sup>527</sup> According to the Wikipedia, a “white hat hacker” is “Someone who attempts to break into systems or networks in order to help the owners of the system by making them aware of security flaws in it. This is referred to by some as a “white hat hacker” or sneaker. Many of these people are employed by computer security companies, and are doing something completely legal.” Available online at <http://en.wikipedia.org/wiki/Hacker>. Downloaded April 19, 2004.

success of Federal agency CIOs and perceptions of their institutional usefulness were formed in light of their success in addressing Y2K. Continued favorable views of CIOs may very well depend upon their response to the computer security challenge.

Computer security or an expanded view of cyber security that includes networks and information – i.e., information assurance – became the issue of the moment once the Y2K challenge had been successfully met. The experience of Solar Sunrise provided sobering evidence that security for the Federal government’s computers was lacking. Sustained attention to this issue by senior agency executives and by Congress was needed; some advocated a management focus on security such as had been used for Y2K. As the hearings on cyber security document, and the Computer Security Report Card attests, the deficiencies were real and the vulnerabilities posed significant risks to critical national information systems. The availability of resources, money and knowledgeable individuals was a key challenge, the administration acknowledged, but they were actively engaging the problem. During his testimony at the “Security Report Card” hearing OIRA Administrator John Spotilla reported that “we have taken action to ensure that security is tied to agency capital planning and investment control.”<sup>528</sup> In February, OMB Director Jacob Lew issued guidance to the agencies on “incorporating security and privacy requirements in each of their FY 2002 information technology budget submissions. . . . In the future, when requesting approval for information technology funds, agencies must demonstrate how they have built adequate security and privacy controls into the life-cycle maintenance and technical architectures of each of their systems. Without an adequate showing, the systems will not be funded.”<sup>529</sup> Agencies and the administration were now moving faster than Congress in recognizing and responding to the importance of computer security. Department of Energy CIO John Gilligan noted that “It is difficult to get Congress to focus on IT security because there is no single organization with government-wide jurisdiction over it. . . . We are not structurally well-postured” to deal with cybersecurity. Senator Robert Bennett (R-UT), who chaired the Senate Year 2000 panel, added that congressional leaders view government as a cluster of vertical

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<sup>528</sup> Congress, House. *Computer Security Report Card*.

<sup>529</sup> Ibid. Testimony of John Spotilla, Administrator, OIRA, OMB.

organizations. Security problems, however, cut across those organizations.<sup>530</sup> As the legislative session was closing, security provisions in the form of the Government Information Security Reform Act<sup>531</sup> were added to the FY 2001 Defense Authorization Bill as an amendment to the Paperwork Reduction Act. Containing a two-year sunset clause and few enforcement provisions, information security would soon reappear on the issue agenda.

As an issue records and information remained on the back-burner. Attention at hearings focused on implementing the E-FOIA Amendments, and some agencies had already made significant progress in providing electronic access to information. Despite progress in the E-FOIA area, other records and information challenges remained. Efforts to update records management policies to deal with the realities of the electronic office had made little progress. Agencies that initiated efforts to maintain electronic records found that overall policy guidance was lacking. Aware of this need to provide updated records management guidance, the National Archives and Records Administration began a broad review of policies and practices to examine “how federal work has changed because of word processing, e-mail, the Internet and intranets, and data warehousing.”<sup>532</sup>

Paperwork remained on the policy horizon, but mainly as a narrow issue targeted at reducing paperwork burdens on small businesses and promoting deregulation. A group of lawmakers, lead by Representative David MacIntosh (R-IN) regularly introduced paperwork reduction legislation. In the 105<sup>th</sup> Congress, H.R. 3310, the Small Business Paperwork Reduction Act Amendments of 1998 was introduced with 43 co-sponsors. While it passed the House, the bill was not reported out of the Senate Governmental Affairs Committee. At the beginning of the 106<sup>th</sup> Congress Congressman MacIntosh introduced essentially the same bill; Senator Voinovich introduced the companion bill in the Senate. These bills focused on deregulation and

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<sup>530</sup> \_\_\_\_\_. “CIO Council: Lack of Funding Hinders Security.” Government Computer News, Vol. 19 No. 14, June 5, 2000. Available online at [http://www.gcn.com/vol19\\_no14/news/2123-1.html](http://www.gcn.com/vol19_no14/news/2123-1.html). Downloaded April 22, 2004.

<sup>531</sup> Government Information Security Reform Act, P.L. 106-398, Oct 30, 2000, 114 Stat. 1654.

<sup>532</sup> Menke, Susan M. “NARA to Consider Federal Records Policies.” Government Computer News, Vol. 19 No. 30, October 16, 2000. Available online at [http://www.gcn.com/vol19\\_no30/news/3132-1.html](http://www.gcn.com/vol19_no30/news/3132-1.html). Downloaded April 22, 2004.

exempting small businesses from a number of agency reporting requirements; though neither bill passed, one can see the values of the witnesses, all small business owners, testifying on the impact of paperwork (Table 4.21, Paperwork column, “efficiency” row).

One successful paperwork-related initiative was crafted as paperwork reduction supporters joined with electronic government enthusiasts to develop a technological approach to paperwork reduction. The Government Paperwork Elimination Act (GPEA) passed as part of the Department of Transportation and Related Agencies Appropriations Act of 1999, an omnibus appropriation. The innovation of GPEA was to encourage electronic submission of required information; the legislation required agencies to develop the capability to accept business information in digital form.

After the reforms of the previous time period, IT acquisition focused on agency implementation actions. As already discussed, the decision to give preference to commercial-off-the-shelf items in acquisitions accelerated efforts to remediate the Year 2000 problem, and speeded up IT acquisitions generally. The impact of acquisition reforms was especially apparent in the reduced acquisition times for small procurement items.

Privacy received little direct policy attention; instead it was paid at least lip service in virtually every other issue area. Numerous Y2K remediation efforts focused on ensuring that privacy was included as a key testing requirement, especially at agencies that regularly handled a lot of personal information like the Internal Revenue Service, Federal Bureau of Investigation, and Social Security Administration. Privacy was also a key consideration in efforts to protect agency data, computing, and networking assets from cyber attacks. An initiative to authorize a commission to thoroughly examine privacy in the context of the Information Age was initiated in the House of Representatives. Its intent was to “study issues relating to protection of individual privacy and the appropriate balance to be achieved between protecting such privacy and allowing appropriate uses of information.”<sup>533</sup> The bill was reported out of committee but failed on a vote before the full House.

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<sup>533</sup> Congress, Library of Congress. *Bill Summary and Status, 106<sup>th</sup> Congress, H.R. 4049, To establish the Commission for the Comprehensive Study of Privacy Protection*. Available online at <http://thomas.loc.gov>; search by 106<sup>th</sup> Congress and H.R. 4049.

#### 4.3.1.5 Policy Change as Learning: Policy Change 1997-2000

While few formal policy changes took place, a great deal of learning occurred in all parts of the policy subsystem. Most of the learning dealt with handling large-scale crises at the intersection of information technology and public policy. Synthesized from those experiences was the realization that modern governance and information technology were already inextricably linked, and that linkage was envisioned to grow stronger over time. “Signaling the impact electronic-government initiatives will have on the presidential campaign, both leading candidates debated the future of government reform proposals and argued that more needs to be done. . . . The Republican candidate said that as president he would appoint the Office of Management and Budget’s deputy director for management as government-wide chief information officer to control the \$100 million [e-government] fund [he had proposed]. Earlier this month [June 2000], Gore proposed that government should put nearly every service online within three years.”<sup>534</sup> During the 2000 presidential campaign both candidates extolled the virtues of electronically-mediated governance

The Government Paperwork Elimination Act (October 1998) was the first of only two formal policy changes in the 1997 - 2000 period. Passed as part of an omnibus appropriations bill, GPEA required agencies to “include alternative information technologies that provide for electronic submission, maintenance, or disclosure of information as a substitute for paper and for the use and acceptance of electronic signatures; (2) to develop procedures for the use and acceptance of electronic signatures by executive agencies; (3) to ensure that, within five years, executive agencies provide for the option of electronic maintenance, submission, or disclosure of information as a substitute for paper and for the use and acceptance of electronic signatures.”<sup>535</sup> Agencies were given three years, until October 2001, to develop the capability to accept information in digital form. This was the ultimate in paperwork

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<sup>534</sup> Dorobek, Christopher J. “Gore and Bush Make E-Gov a Campaign Issue.” *Government Computer News*, Vol. 19 No. 16, June 19, 2000. Available online at [http://www.gcn.com/vol19\\_no16/news/2239-1.html](http://www.gcn.com/vol19_no16/news/2239-1.html). Downloaded April 22, 2004.

<sup>535</sup> Congress, Library of Congress. *Bill Summary and Status, 105<sup>th</sup> Congress, H.R. 4328, Making Appropriations the Department of Transportation and Related Agencies for the Fiscal Year Ending September 30, 1999*. Available online at <http://thomas.loc.gov>; search on 105<sup>th</sup> Congress and H.R. 4328. This quote is taken from the CRS Summary of Title XVII of the bill.

reduction, substituting information technology and the power of computers for bureaucrats in dealing with the paperwork burden. Along with GPEA, the Electronic Signatures in Global and National Commerce Act<sup>536</sup> provided the statutory authority for accepting electronic signatures as the equivalent of physical signatures.

The second formal policy change dealt with security. “On October 30, 2000, the President signed into law the FY 2001 Defense Authorization Act (P.L. 106-398) including Title X, subtitle G, ‘Government Information Security Reform Act.’ It amends the Paperwork Reduction Act of 1995 by enacting a new subchapter on “Information Security.”<sup>537</sup> Although the act primarily addressed the program management and evaluation aspects of computer security, it created a single framework for assessing both unclassified and national security systems. It required that each agency conduct annual review of its computer security programs and that agency Inspectors General conduct annual computer security evaluations. The results of agency and IG evaluations were reported to OMB, which would in turn provide an annual report Congress. While this legislation had a 2-year sunset provision, it was the first successful attempt to address computer security since the Computer Security Act of 1987.

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<sup>536</sup> Electronic Signatures in Global and National Commerce Act. P.L. 106-229, enacted June 20, 2000.

<sup>537</sup> Executive Office of the President, Office of Management and Budget. *Memorandum 01-08, Subj: Guidance on Implementing the Government Information Security Reform Act*, January 16, 2001. Available online at <http://www.whitehouse.gov/omb/memoranda/m01-08.pdf>. Downloaded April 27, 2004.

#### 4.3.2 The President's Management Agenda: The Policy Environment 2001-2002

The 2000 presidential election was hotly contested – on the campaign trail, at the polling places, and in the nation's courts. In the aftermath of the election the Bush administration faced a significant challenge. The administration's leaders needed to demonstrate, to the 50% of the voters who had voted for Al Gore, that they could lead the nation; they also had to devise a strategy to implement the President's vision and the promises made during the campaign; and they had to redirect and focus attention on a forward-looking agenda for governing, away from the acrimony of the election and its resolution. At his confirmation hearing on January 19, 2001, OMB Director designate Mitchell Daniels, Jr. signaled that attention to management issues would figure prominently in the new administration.

“In the businesses I've been part of, a budget plan would not be welcome, would be sent back marked incomplete, if it did not indicate the results that it was intended to accomplish in some well defined way that could be measured later on. . . . We've got to get away from the mentality in which the measurement of our commitment to progress in any of these areas is in dollars of input. It needs to be insistence on output.”<sup>538</sup> The OMB Deputy Director, Sean O'Keefe, added additional details when he testified April 24<sup>th</sup> on the topic of paperwork. “The most senior management appointment -- the Deputy Director for Management -- remains unfilled. We have very specific requirements and expectations for that individual, and will take the time necessary to find the right person. We want someone with broad management experience in running an organization, someone who can help us deliver on the President's Management Agenda.”<sup>539</sup> That agenda relied heavily on information technology as its delivery mechanism.

“The government spends roughly \$45 billion annually on IT, but a great deal more needs to be done in order to expand the potential of the Internet to fulfill the President's vision of a 'citizen-centered' government that transforms each agency's

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<sup>538</sup> Congress, Senate. *Nomination of Mitchell E. Daniels, Jr.* Committee on Governmental Affairs, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS #2001-S401-8.

<sup>539</sup> Congress, House. *Paperwork Inflation: Past Failures and Future Plans.* Committee on Government Reform, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS #2002-H401-64. Statement of Sean O'Keefe.

web presence,” testified OMB Director Daniels at a June 21, 2001 oversight hearing on the Government Paperwork Elimination Act. “Later this summer we intend to release a Management Agenda that will clarify this issue, explaining how we can expand use of the Internet to make the government more ‘citizen-centered’ and to achieve greater efficiencies in providing federal information and services, improving connectivity between the government and the public. To drive this agenda forward, a week ago I named Mark A. Forman to serve as Associate Director for Information Technology and E-Government. In this new position within OMB and the Administration, Mr. Forman will work to fulfill the President's vision of using the Internet to create a citizen-centric government.”<sup>540</sup> The broad outlines of the management reform program of the Bush administration were revealed a few days later as OMB Deputy Director O’Keefe testified on pending e-government legislation before the Senate Governmental Affairs Committee.

“Electronic government is one of the key elements in the President's Management and Performance Plan. This administration believes e-government must be integrated with the larger picture of management reform that also includes budget and performance integration, strategic management of human capital, competitive sourcing, and improving financial performance.”<sup>541</sup> O’Keefe went on to outline a vision of e-government that was citizen centered, results oriented, and market based. Rather than focusing on technology, this vision focused on achieving results in four sectors: creating easy access for individuals; reducing burdens on businesses and improving e-commerce; improving intergovernmental exchange of program and performance information; and improving intra-governmental processes and internal efficiency. “OMB's new Associate Director for Information Technology and E-Government, Mark Forman, will lead this strategy, focusing on how information is supplied to the government, managed at an enterprise level within and across agencies, and ultimately supplied to citizens in a way that is linked to agency missions and performance

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<sup>540</sup> Congress, House. *Federal Information Technology Modernization: Assessing Compliance with the Government Paperwork Elimination Act*. Committee on Government Reform, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS # 2002-H401-28. Statement of Mitchell E. Daniels, Jr.

<sup>541</sup> Congress, Senate. *S. 803: E-Government Act of 2001*. Committee on Governmental Affairs, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS #2002-S401-16. Statement of Sean O’Keefe.

goals.”<sup>542</sup> And while appreciative of congressional interest in e-government, O’Keefe was quick to point out that the administration’s focus was not on creating another program, but on using e-government as a tool – to achieve open access, efficiency, and effectiveness – and part of an overall management reform of government performance. To further these initiatives, the President’s budget request included a \$100 million e-government fund. The vision, however, soon collided with reality.

As recounted by Joseph Stiglitz, Chairman of President Clinton’s Council of Economic Advisors, the deflation of the dot com bubble left a wake of economic and financial devastation. “The next few years confirmed suspicions that the numbers were unreal, as the stock market set new records for declines. In the next two years [2001-2002], \$8.5 trillion were wiped off the value of the firms on America’s stock exchange alone – an amount exceeding the annual income of every country in the world, other than the United States. One company, AOL Time Warner, took write-downs of \$100 billion, an admission that the investments it had made had lost enormously in value. At

U.S. Political Leadership 2001-2002								
YEARS	PRESIDENT	Cong.	Composition of the U.S. Congress					
			Composition of Senate			Composition of the House of Representatives		
			Dem.	Rep.	Ind.	Dem.	Rep.	Ind.
2001-02	George W. Bush	107 <sup>th</sup>	50	50		212	221	2

Table 4.22 U.S. Political Leadership 2001-2002<sup>543</sup>

<sup>542</sup> Ibid. Statement of Sean O’Keefe.

<sup>543</sup> Sources for information in Table 4.22 can be found in note 202. Composition of the Senate was more complex than it appears. “From January 3 to January 20, 2001, with the Senate divided evenly between the two parties, the Democrats held the majority due to the deciding vote of outgoing Democratic Vice President Al Gore. Senator Thomas A. Daschle served as majority leader at that time. Beginning on January 20, 2001, Republican Vice President Richard Cheney held the deciding vote, giving the majority to the Republicans. Senator Trent Lott resumed his position as majority leader on that date. On May 24, 2001, Senator James Jeffords of Vermont announced his switch from Republican to Independent status, effective June 6, 2001. Jeffords announced that he would caucus with the Democrats, giving the Democrats a one-seat advantage, changing control of the Senate from the Republicans back to the Democrats. Senator Thomas A. Daschle again became majority leader on June 6, 2001. Senator Paul D. Wellstone (D-MN) died on October 25, 2002, and Independent Dean Barkley was appointed to fill the vacancy. The November 5, 2002 election brought to office elected Senator James Talent (R-MO), replacing appointed Senator Jean Carnahan (D-MO), shifting balance once again to the Republicans -- but no reorganization was completed at that time since the Senate was out of session.” See [http://www.senate.gov/pagelayout/history/one\\_item\\_and\\_teasers/partydiv.htm](http://www.senate.gov/pagelayout/history/one_item_and_teasers/partydiv.htm). Downloaded May 5, 2004.

the beginning of the nineties, there was no firm worth \$100 billion, let alone one capable of losing that much value and continuing to exist.”<sup>544</sup>

#### 4.3.2.1 Yes, It’s Still the Economy: Socio-Economic Conditions 2001-2002

The slumping national economy was a persistent theme throughout all of 2001. The Federal Reserve opened the year with a ½ % rate cut on January 3; this was followed by another ½ % rate cut on January 31. By early October, the Federal Reserve had cut interest rates nine times in an attempt to stimulate the domestic economy. But while interest rates were at 2.5%, a 39-year low, the unemployment rate continued to rise and by early November stood at 5.6%.<sup>545</sup> The socio-economic information in Table 4.23, while accurate, shows only a portion of the domestic U.S. economic condition.

<b>Selected Socio-Economic Statistics, 2001-2002</b>				
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
US Gross Domestic Product (billions)	\$10,082.2	\$10,446.2		
Median US Family Income	\$51,407 (\$53,106)	\$ <sup>546</sup> (\$52,704)		
Annual Average Consumer Price Index	177.1	179.9		
Average Unemployment Rate	4.7%	5.8%		
Mortgage Interest Rates -- On Jan 1 and on Dec 31 -- and the high for the year	7.07 - 7.16% 7.24%	7.14 - 5.93% 7.18%		

Table 4.23 Selected Socio-Economic Statistics, 2001-2002<sup>547</sup>

<sup>544</sup> Stiglitz, *The Roaring Nineties*, pp. 5-6.

<sup>545</sup> Infoplease. *2001 Month-By-Month*. Available online at <http://www.infoplease.com/ipa/A0878626.html>. Downloaded May 6, 2004.

<sup>546</sup> The Historic Income Tables referenced in note 204 cover only the years 1967-2001, and reflect a Median US Family Income of \$51,409 for 2001; a corresponding value for 2002 could not be found despite a note at the bottom indicated these tables were last updated July 8, 2004. Therefore, the values in parenthesis above showing a Median US Family Income of \$53,106 for 2001, and a Median US Family Income of \$52,704 for 2002 were taken from US Department of Commerce, Census Bureau. *Income in the United States, 2002*, Table 3, p. 9. It is not clear why the Historic Income Tables have not been extended. Available online at <http://www.census.gov/prod/2003pubs/p60-221.pdf>. Downloaded August 4, 2004.

<sup>547</sup> Sources for the data in Table 4.23 (with the exception of Median Family Income), can be found in notes 203-207. See discussion above concerning the Median US Family Income for 2002.

“The top item on [President] Bush’s domestic agenda, a \$1.6 trillion tax cut, was the subject of bitter partisan debate in Congress, with Democrats arguing that the bill heavily favored the rich and would squander the unprecedented budget surplus. The Senate eventually trimmed the tax cut to \$1.35 trillion over 11 years, and Bush signed it into law on June 7.”<sup>548</sup> By late summer, the slowing economy had caused the budget surplus to wither significantly, and analysts believed that the combination of sluggish growth and the stock market plunge was triggering a recession; the key questions being asked were how severe it would be, and how long it would last.

The country, and the economy, suffered another shock on September 11, 2001.

That morning, two commercial planes, en route from Boston to Los Angeles, were hijacked and flown minutes apart into the north and south towers of the World Trade Center in New York City. Shortly afterward, another plane, en route from Washington, DC to Los Angeles, crashed into the Pentagon. A fourth hijacked plane, headed from Newark to San Francisco, crashed into a field near Shanksville, PA – investigators have speculated that the plane’s intended target was Washington, DC, and that passengers aboard the flight may have thwarted the hijackers. Both World Trade Center Towers collapsed, and a section of the Pentagon was destroyed. All 266 passengers and crew aboard the planes were killed; total dead from the Trade Center and Pentagon were estimated in the thousands. The country reeled from the world’s deadliest act of terrorism, which caused the largest single-day loss of life in American history.<sup>549</sup>

In the immediate aftermath of these terrorist acts the National Airspace System was shut down; all private and commercial aircraft were on the ground by early afternoon. Only military aircraft were flying in the United States; finally, on September 13 a limited commercial flight schedule resumed. But in the airline industry, already beset by economic woes, the recovery from this economic and psychological blow would take much longer.

On September 12, as a somber Senator Lieberman gavelled the Senate Governmental Affairs Committee to order, he reflected on the previous day’s tragedy and its linkage to computing, security, and the country’s economic life.

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<sup>548</sup> Infoplease. *2001 World News of the Nation*. Available online at <http://www.infoplease.com/ipa/A0885211.html#A0885212>. Downloaded May 5, 2004.

<sup>549</sup> Ibid.

Today our hearts and minds are naturally focused on yesterday's tragedy, but it is important that the Senate continue with America's business, particularly as it affects America's security. Thus we're holding this hearing as originally planned with the same focus that we had intended, which is to explore the extent to which our critical infrastructure is vulnerable, particularly to manipulations and attacks from cyberspace, the consequences of that vulnerability and what the government is doing and must do to reduce that vulnerability. . . . Yesterday's attacks demonstrate how an organized, coordinated effort can be devastating to our nation. But make no mistake about it: Those attacks were aimed at destroying buildings, killing people and breaking our confidence. In the same way, future attacks can and probably will be aimed at paralyzing our financial markets, our utilities, our transportation systems and other core aspects of our critical infrastructure that are dependent on computer networks.<sup>550</sup>

The bad news was not yet over. On September 21 the stock market suffered its second largest decline in history, dropping 14% as investors sought safe havens following the terrorist attacks on the U.S. Then on October 5 a photo editor in Florida became ill from anthrax. In the next ten days several anthrax-containing letters were delivered through the U.S. Postal Service, one to the office of Senate Majority Leader Thomas Daschle (D-SD), and another to the New York office of NBC TV personality Tom Brokaw.<sup>551</sup>

The year 2002 was highlighted by scandals and tales of individual and corporate greed and misdeeds. "The wave of corporate scandals in 2002 began when Enron, the country's largest energy trader, filed for bankruptcy in Dec. 2001 while under federal investigation for hiding debt and misrepresenting earnings. The company used complicated off-the-balance-sheet partnerships to inflate profits by as much as \$600 million. Enron's collapse not only shook the economy, but it left most of its employees bereft of retirement funds. Arthur Andersen, Enron's accounting firm and auditor, fell next, after it was convicted of destroying Enron-related documents. In July 2002, WorldCom, the nation's second-largest telecommunications company, became the

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<sup>550</sup> Congress, Senate. *How Secure Is Our Critical Infrastructure?* Committee on Governmental Affairs, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS #2002-S401-26. Opening statement of Senator Joseph Lieberman.

<sup>551</sup> Infoplease, *2001 Month-By-Month, October 2001*. Available online at <http://www.infoplease.com/ipa/A0878664.html>. Downloaded May 6, 2004.

largest company to go bankrupt in U.S. history after it admitted to cooking its books. Tyco, Qwest, Global Crossing, ImClone, and Adelphia, among others, were placed under federal investigation for various misadventures in fraud and crooked accounting. And putting a face on the impersonality of Big Business were the stories of extravagantly paid CEOs who indulged in personal enrichment schemes that demonstrated astounding arrogance, greed, and a criminal disregard for their employees. The Bush administration was slow to respond to the scandals, and the measures subsequently passed by Congress were tougher than those the president had proposed.”<sup>552</sup>

By September 24, 2002 the Dow Jones Industrial Averages had sunk to a four year low, closing at 7,683.13. That same day the Federal Reserve voted to hold interest rates steady, but on November 6 the rates were again cut by ½ %, marking a 41-year low. After initially resisting Congressional calls to reorganize the Federal government in the wake of the September 11, 2001 terrorist bombings, President Bush signed legislation on November 25 creating the Department of Homeland Security. Parts of 22 existing federal agencies were merged into one new agency whose mission was to deal with the security threats of the 21<sup>st</sup> Century.

As the dot com bubble lost its steam and the economy slumped, fewer innovations were introduced into the market. Advancements in information technology were focused primarily on crafting faster machines, as measured by the clock speed of the computer’s processor, increases in digital storage capacity, and increases in graphics capabilities. High-end machines were being crafted to handle the demands of increasingly sophisticated games, and game developers were looking to the Internet as

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<sup>552</sup> Infoplease, *2002 News of the Nation*. Available online at <http://www.infoplease.com/ipa/A0905969.html>. Downloaded May 6, 2004.

platform for their next gaming strategy. Access to Internet2<sup>553</sup> (I2) was becoming available, and high schools in five states – Michigan, Missouri, Oregon, Virginia, and Washington – were the first to gain access to the high-speed network. Management of the .edu domain was transferred to Educause,<sup>554</sup> and community colleges were authorized to register under the .edu domain. On July 18, 2001 a fire in a train tunnel running through Baltimore, Maryland caused serious damage to fiber-optic cables used by backbone providers, disrupting Internet traffic in the Mid-Atlantic States and creating a ripple effect across the U.S. During 2001 the computer viruses Code Red (July), SirCam (July), Nimda (September), and BadTrans (April and November) were unleashed on the Internet. The emerging technologies of the year were grid computing<sup>555</sup> and peer to peer computing, typically abbreviated as P2P.<sup>556</sup>

During 2002 the Internet continued to grow; federally recognized U.S. Indian tribes became eligible to register under the .gov domain. The deployment of Internet2

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<sup>553</sup> Internet2 is a not-for-profit consortium led by over 200 US universities and a number of corporate partners from the networking and technology business, including AT&T, Intel, Sun Microsystems, Cisco Systems and others.

Internet2 is not a separate network from the Internet. It is an academic testing ground for such technologies as IPv6, IP multicasting and quality of service. A primary goal of Internet2 is to ensure the transfer of new network technology and applications to the broader education and Internet communities. Available online at <http://en.wikipedia.org/wiki/Internet2>. Downloaded May 20, 2004.

<sup>554</sup> EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. Membership is open to institutions of higher education, corporations serving the higher education information technology market, and other related associations and organizations. Available online at <http://www.educause.edu/about/membership.asp#WHAT>. Downloaded May 19, 2004.

<sup>555</sup> "Grid computing offers a model for solving massive computational problems using large numbers of computers arranged as clusters embedded in a distributed telecommunications infrastructure. Grid computing's focus on the ability to support computation across administrative domains sets it apart from traditional distributed computing. Grid computing has the design goal of solving problems too big for any single supercomputer, whilst retaining the flexibility to work on multiple smaller problems. Thus grid computing provides a multi-user environment." Available online at [http://en.wikipedia.org/wiki/Grid\\_computing](http://en.wikipedia.org/wiki/Grid_computing). Downloaded May 6, 2004.

<sup>556</sup> Generally, a peer-to-peer (or P2P) computer network refers to any network that does not have fixed clients and servers, but a number of *peer* nodes that function as both clients and servers to the other nodes on the network. This model of network arrangement is contrasted with the client-server model. Any node is able to initiate or complete any supported transaction. Peer nodes may differ in local configuration, processing speed, network bandwidth, and storage quantity. Popular examples of P2P are file sharing-networks. Available online at <http://en.wikipedia.org/wiki/Peer-to-peer>. Downloaded May 6, 2004.

continued, using the new version of the Internet Protocol set, IPv6,<sup>557</sup> and by summer's end the Internet2 community was comprised of 200 university, 60 corporate, and 40 affiliate members. Within the "wired" culture, hip individuals published their own blogs.<sup>558</sup> By the end of 2002 it was estimated there were 171,638,297 Internet host computers.

#### 4.3.2.2 Moving Toward E-Government: The Policy Subsystem 2001-2002

"You've spoken about results, not intentions, and that's really a good place to start."<sup>559</sup> At the close of his January 19, 2001 confirmation hearing, OMB Director-designate Mitchell E. Daniels, Jr. signaled that the Bush administration intended to balance OMB's traditional focus on the budget with increased emphasis on management. The next several appearances before both the Senate Governmental Affairs Committee and the House Government Reform Committee, as noted in the previous sections, provided additional details of the administration's thinking. Rather than pursuing management reforms based on a legislative agenda or on the recommendations of an expert commission, the Bush administration intended to implement a management reform agenda within the framework of existing legislation and policy. Electronic government was envisioned as the delivery mechanism, and enterprise architectures established the conceptual framework for efficient and effective service delivery.

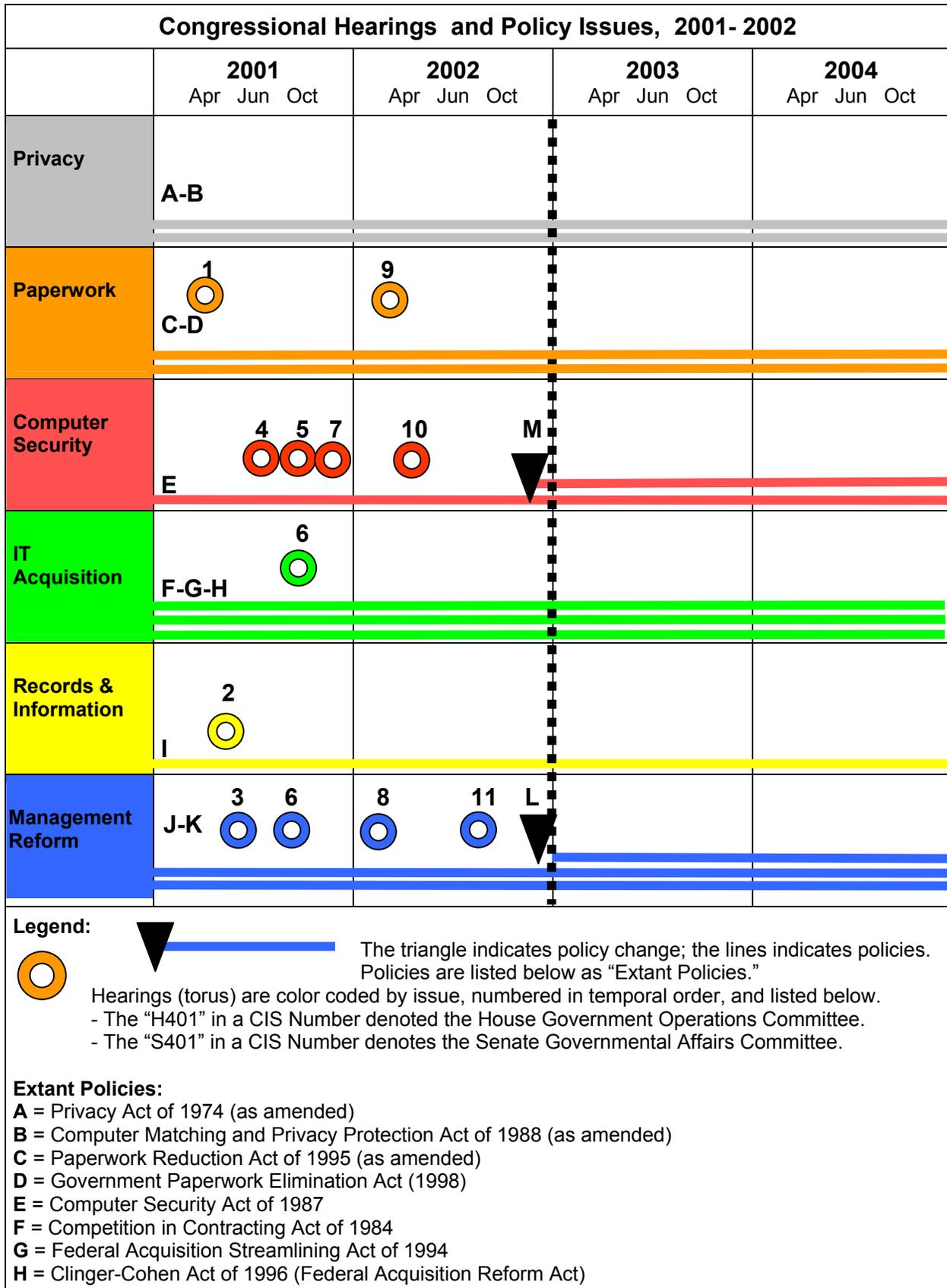
During the summer of 2001 a number of announcements provided insight into the definition and framing of the Bush administration's management agenda and the role of e-government in their management reform plans. In addition to congressional testimony, the OMB announced on May 4 that Robert J. O'Neill, Jr., President of the National Academy of Public Administration, would serve as Counselor

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<sup>557</sup> IPv6 is version 6 of the Internet Protocol. IPv6 is intended to replace the previous standard, IPv4, which only supports up to about 4 billion ( $4 \times 10^9$ ) [Internet] addresses, whereas IPv6 supports up to about  $3.4 \times 10^{38}$  [Internet] addresses. Available online at <http://en.wikipedia.org/wiki/IPv6>. Downloaded May 6, 2004.

<sup>558</sup> A weblog (often web log, also known as a blog, see below) is a website which contains periodic, reverse chronologically ordered posts on a common webpage. Individual posts (which taken together are the weblog) either share a particular theme, or a single or small group of authors. Available online at <http://en.wikipedia.org/wiki/Blog>. Downloaded May 6, 2004.

<sup>559</sup> Congress, Senate. *Nomination of Mitchell E. Daniels, Jr.* Statement of Mitchell E. Daniels, Jr.



<b>I = Freedom of Information Act and E-FOIA Amendments of 1996</b> <b>J = Clinger-Cohen Act of 1996 (Information Technology Management Reform Act)</b> <b>K = OMB Circular A-130, Management of Federal Information Resources</b> <b>L = E-Government Act of 2002</b> <b>M = Federal Information Security Management Act</b>				
<b>No</b>	<b>Year-Congress</b>	<b>CIS No</b>	<b>HEARING TITLE AND DATE</b>	<b>PURPOSE</b>
1	2001 107 <sup>th</sup> – 1 <sup>st</sup>	2002-H401-64	Paperwork Inflation: Past Failures and Future Plans. April 24, 2001.	Oversight
2		2002-H401-28	Federal Information Technology Modernization: Assessing Compliance with the Government Paperwork Elimination Act. June 21, 2001.	Oversight
3		2002-S401-16	S. 803: E-Government Act of 2001. July 11, 2001.	Legislation
4		2002-S401-26	How Secure Is Our Critical Infrastructure. Sept. 12, 2001.	Oversight
5		2002-H401-74	Information Technology -- Essential Yet Vulnerable: How Prepared Are We for Attacks? September 26, 2001.	Exploratory
6		2003-H401-4	Transforming the IT and Acquisition Workforces. October 4, 2001	Exploratory
7		2002-H401-108	Computer Security in the Federal Government: How Do the Agencies Rate? November 9, 2001.	Oversight
8	2002 107 <sup>th</sup> – 2 <sup>nd</sup>	2003-H401-41	Turning the Tortoise into the Hare: How the Federal Government Can Transition from Old Economy Speed To Become a Model for Electronic Government. March 21, 2002.	Exploratory
9		2003-H401-46	Paperwork Inflation -- The Growing Burden on America. April 11, 2002.	Oversight
10		2003-H401-66	H.R. 3844, the Federal Information Security Management Act of 2002. May 2, 2002.	Legislation
11		2003-H401-60	H.R. 2458 and S. 803, the E-Government Act of 2002. September 18, 2002.	Legislation

Figure 4.7 Policy Issues and Congressional Hearings 2001-2002

to OMB Director Daniels, to “coordinate various policy and program issues with government-wide management councils, including President’s Management Council, Chief Financial Officers Council, Chief Information Officers Council, Procurement

Executives Council, and the President's Council on Integrity and Efficiency."<sup>560</sup> On June 14 Mark A. Forman was named as the Associate Director for Information Technology and E- Government, filling a newly created position within OMB, a position not subject to Senate confirmation. His broad portfolio included overseeing "implementation of 21<sup>st</sup> Century information technology throughout the federal government. This includes responsibility for the e-government fund, established in the President's Budget to generate interagency e-government innovation. He will direct the activities of the CIO Council, which consists of federal agency chief information officers; advise on the appointments of agency CIOs; and monitor and consult on agency technology efforts. Working with the DDM [OMB Deputy Director for Management], who will be the federal CIO, Mr. Forman will be responsible for a variety of oversight functions statutorily assigned to OMB."<sup>561</sup> Forman was selected because of his technical skills and thorough knowledge of government; prior to joining OMB he directed e-business and e-government initiatives at Unisys, and was responsible for defining and deploying a public sector-focused global e-business strategy at IBM. "Prior to joining IBM, Mr. Forman was the senior professional staff member on the majority staff of the Senate Governmental Affairs Committee, where he played pivotal roles in the drafting and enactment of major federal laws, including the Federal Acquisition Streamlining Act, the Information Technology Management Reform Act, and the Paperwork Reduction Act. He was also the senior advisor to the U.S. Senate on information technology issues."<sup>562</sup>

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<sup>560</sup> Executive Office of the President, Office of Management and Budget. "Robert J. O'Neill, Jr. to Serve as Counselor to OMB Director on Management Issues." News Release 2001-08, May 4, 2001. Available online at <http://www.whitehouse.gov/omb/pubpress/2001-8.html>. Downloaded May 20, 2004.

<sup>561</sup> Executive Office of the President, Office of Management and Budget. "Mark Forman Named Associate Director for Information Technology and e-Government." News Release 2001-13, June 14, 2001. Available online at <http://www.whitehouse.gov/omb/pubpress/2001-13.html>. Downloaded May 20, 2004.

<sup>562</sup> Ibid.

Electronic government was seen as a key component in the administration's management reform strategy. In remarks before the Senate Governmental Affairs Committee on July 11, OMB Deputy Director O'Keefe contrasted the differences between the Senate's e-government bill, S. 803, the *E-Government Act of 2001*, and the administration's thinking on e-government. These were differences of philosophy, of control, and of implementation. Philosophically, O'Keefe stated, "We see IT and e-government not as a programmatic end, but as a tool to enable the President's vision through enabling open access, efficient government operations, and effective decision-making. In our judgment, it is crucial that we reverse the trend of stove-piping the IT community from the management work that needs to be accomplished in all sectors of government."<sup>563</sup>

In terms of control, the administration eschewed the Senate's provision for a Federal CIO, opting instead to vest that authority in the OMB Deputy Director for Management. "The President believes that the OMB Deputy Director for Management should be the government-wide CIO because all management challenges are intertwined. This move ensures senior level commitment to IT and information resource management issues. It also guarantees linkage to the budget process, and it assures management attention by agency heads while preserving their authority and responsibility to the President, to direct their agencies."<sup>564</sup> As for implementing e-government initiatives, no additional legislative support was seen as necessary. "The President's e-government initiatives, coupled with the important legislation this committee has championed including the Clinger- Cohen Act, GPEA [Government Paperwork Elimination Act], GISRA [Government Information Security Reform Act] and the PRA [Paperwork Reduction Act], provide sufficient authority for us to make the transition to e-government."<sup>565</sup>

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<sup>563</sup> Congress, Senate. *S. 803: E-Government Act of 2001*. Testimony of Sean O'Keefe. "Stove-piping" as defined in the Wikipedia is: "In engineering and computing, a **stovepipe system** is a legacy system which cannot be upgraded or refactored and which must be built around until it can be replaced entirely. Examples of stovepipe systems [include]: Systems for which new hardware is no longer available; Systems whose original source code has been lost; or Systems that were built using old or *ad hoc* engineering methodologies for which support can no longer be found." Available online at [http://en.wikipedia.org/wiki/Stovepipe\\_system](http://en.wikipedia.org/wiki/Stovepipe_system). Downloaded August 4, 2004.

<sup>564</sup> Ibid.

<sup>565</sup> Ibid.

The content of the e-government initiative was unveiled through OMB Memorandum M-01-28, *Citizen-Centered E-Government: Developing the Action Plan*, in which OMB Director Daniels described the formation of an e-government task force under the leadership of Mark Forman. Agency heads were requested to nominate senior e-government leaders to be part of the task force. “We ask your help in establishing this task force of knowledgeable individuals to identify high payoff e-Government opportunities and set in motion a transformation of government around customer needs.”<sup>566</sup> Members of the task force were tasked to identify measures that would result in strategic improvements in four categories: service to individuals such as single points of access to information for citizens; service to businesses that would consolidate the myriad redundant reporting requirements; intergovernmental affairs that would make it easier for states to meet reporting requirements; and internal efficiency and effectiveness initiatives to improve government performance while reducing its cost. It was anticipated that this task force, called Quicksilver, would begin work in early August and conclude their efforts in five to six weeks.

The President’s Management Agenda (PMA) was formally announced at a press conference on August 24, 2001. Consisting of five cross-cutting initiatives and nine targeted initiatives, the PMA focused on improving government performance. In his message prefacing the PMA, President Bush noted that “Government likes to begin things – to declare grand new programs and causes. But good beginnings are not the measure of success. What matters in the end is completion. Performance. Results. Not just making promises, but making good on promises.”<sup>567</sup> Five key initiatives comprised the core of this reform agenda: 1) strategic management of human capital focused on the means to enhance government performance; 2) competitive sourcing promoted the notion that competitive markets, even where government is concerned, can reduce the cost of government activities; 3) improved financial performance focused on producing accurate and timely information to support operating, budget, and policy decisions; 4) expanded electronic government consisted of initiatives to

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<sup>566</sup> Executive Office of the President, Office of Management and Budget. Memorandum 01-28, Subj: *Citizen-Centered E-Government: Developing the Action Plan*, dated July 18, 2001. Available online at <http://www.whitehouse.gov/omb/memoranda/m01-28.html>. Downloaded May 20, 2004.

<sup>567</sup> *The President’s Management Agenda*, p. 1.

deliver significant productivity and performance gains across government; and 5) budget and performance integration was designed to produce performance-based budgets beginning with the Fiscal Year 2003.<sup>568</sup> Underpinning the PMA initiatives and the President's vision for government reform were three guiding principles – “that government should be: citizen-centered, not bureaucracy centered; results-oriented; and market-based, actively promoting rather than stifling innovation through competition.”<sup>569</sup>

Expectations were high that these management reform measures would yield substantial and visible results. The PMA initiatives were specifically targeted at flattening the hierarchical command and control bureaucracies to make them more responsive. Responsive, to the administration, meant a focus on producing results instead of merely adhering to institutional and programmatic processes. Organizations “burdened with overlapping functions, inefficiencies, and turf battles will function more harmoniously,”<sup>570</sup> it was believed. But in order to meet these high expectations, changes had to occur in managerial routines. For example, the PMA proposed to “shift the burden of proof” of program performance to program proponents, requiring proponents and program managers to demonstrate that their programs accomplished their goals and achieved their stated results. Further, the PMA proposed to alter the presumption of program continuity, by requiring that programs show positive and measurable achievement as a precondition to their continued funding. Finally, the PMA proposed imposing “consequences for persistent failure,” by identifying “mismanaged, wasteful or duplicative government programs, with an eye to cutting their funding, redesigning them, or eliminating them altogether.” Agencies and programs would be required to produce evidence of program performance as “a prerequisite to continued funding.”<sup>571</sup>

OMB announced its e-Government strategy on October 25, 2001. Developed by Mark Forman's Quicksilver Task Force and adopted by the President's Management Council (PMC), the plan created “multi-agency teams to develop and

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<sup>568</sup> Ibid, pp. 11-29.

<sup>569</sup> Ibid., p. 4.

<sup>570</sup> Ibid., p. 7.

<sup>571</sup> Ibid., pp. 7-8.

deploy 23 major E-Government initiatives. These measures [e-government projects] will use Internet-related technologies to accelerate and streamline service delivery to citizens, reduce paperwork burdens on business, improve management and responsiveness of joint federal-state-local programs, and apply commercial best practices to improve government operating efficiency.”<sup>572</sup> Agency sponsors, along with their collaborating partners, spent the last two months of 2001 developing business cases to outline the capabilities and benefits of the Quicksilver initiatives and justify their costs. Within OMB, “Portfolio Managers” were hired to lead the four e-government “portfolios” of government to citizen (G to C); government to business (G to B); government to government (G to G); and internal efficiency and effectiveness (IEE).<sup>573</sup>

The Quicksilver Task Force’s review also exposed and documented a major, but not completely unknown weakness of modern government – redundancy. Government’s size and complexity hide numerous duplicative functions and programs, and simultaneously hamper attempts at comprehensive assessment and description – except when viewed as budget requests. The Task Force’s analysis, using agencies’ Fiscal Year 2003 budget submissions, discovered “that redundant and overlapping agency activities have been major impediments to creating a citizen-centered electronic government.”<sup>574</sup> Using business-oriented terminology, methods, and practices, the Task Force identified 28 lines of business, the “business operations of the Federal Government, independent of the agencies that perform them.”<sup>575</sup> A line of business “describes the mission and purpose of the United States government in terms of the services it provides both to and on behalf of the American citizen. It includes the

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<sup>572</sup> Executive Office of the President, Office of Management and Budget. *OMB Outlines New Federal E-Government Strategy*. News Release 2001-54, October 25, 2001. Available online at <http://www.whitehouse.gov/omb/pubpress/2001-54.html>. Downloaded May 20, 2004.

<sup>573</sup> For example, the Government to Citizen Portfolio contains a description of the portfolio, information about the portfolio manager, and a description and status of each of its five projects. Similar information is available for each of the portfolios and projects. View the four E-Government Portfolios online at <http://www.whitehouse.gov/omb/egov/>. The Government to Citizen Portfolio is at <http://www.whitehouse.gov/omb/egov/gtoc>. Downloaded May 25, 2004.

<sup>574</sup> Executive Office of the President, Office of Management and Budget. *E-Government Strategy*. February 27, 2002. Available online at [http://www.firstgov.gov/Topics/Includes/Reference/egov\\_strategy.pdf](http://www.firstgov.gov/Topics/Includes/Reference/egov_strategy.pdf). Downloaded May 25, 2004.

<sup>575</sup> See the Federal Enterprise Architecture. Available online at <http://www.feapmo.gov/feaBrm2.asp>. Downloaded May 25, 2004.

delivery of citizen-focused, public, and collective goods and/or benefits as a service and/or obligation of the Federal Government to the benefit and protection of the nation's general population.”<sup>576</sup> While identifying the lines of business, the Task Force’s assessment revealed that “nearly 500 business lines are operating in the agencies, which equates to an average of 19 agencies performing each line of business.”<sup>577</sup> “For example, a community attempting to obtain economic development grants could file over 1,000 forms at more than 250 federal bureaus, each form containing much similar data. The Task Force found that this ‘business architecture’ problem creates underlying redundant activities and processes, resulting in unnecessary burdens and costs on citizens, state and local governments, businesses and federal employees.”<sup>578</sup>

In addition to the redundancy that the Task Force uncovered, their analysis surfaced pragmatic barriers to successful e-government project implementation. The task force identified five vital areas that required significant attention and intervention by agency executives to ensure e-government success. “The barriers identified concerned culture, architecture, trust, resources and stakeholder resistance.”<sup>579</sup> To deal with the two systemic challenges, trust and architecture, two additional e-government projects were initiated. An e-Authentication initiative was begun to provide common solutions to the problem of establishing an individual’s “identity” in an e-government context. This, it was hoped, would assuage citizen privacy concerns over trusting their information in an e-government application. Another initiative to define a Federal Enterprise Architecture<sup>580</sup> was started to create a Federal IT framework for identifying and eliminating the duplication identified by the Quicksilver analysis. This framework was intended to be robust, encompassing both e-government and traditional IT projects, and would show how the agencies’ architectures related to each other. The remaining areas requiring attention were matters of agency governance.

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<sup>576</sup> See the Federal Enterprise Architecture, Business Reference Model, Version 2.0. Available online at [http://www.feapmo.gov/feabrm2\\_line\\_of\\_business.asp?@businessareaid=102959](http://www.feapmo.gov/feabrm2_line_of_business.asp?@businessareaid=102959). Downloaded May 25, 2004.

<sup>577</sup> Ibid.

<sup>578</sup> OMB, *E-Government Strategy*, p. 2.

<sup>579</sup> Ibid.

<sup>580</sup> See the Federal Enterprise Architecture Web site at <http://www.feapmo.gov>. Downloaded May 25, 2004.

Agency Chief Operating Officers (COOs), typically the agency deputy secretaries who were already responsible for achieving results under the PMA, along with their appointed and career staffs were expected to address the governance issues: the prevailing bureaucratic institutional culture, the adequacy of resources for inter-agency e-government initiatives, and the resistance to change barriers inside agencies. Success in achieving the objectives of the President's Management Agenda was monitored by OMB, documented on the Executive Branch Management Scorecard,<sup>581</sup> and periodically reviewed by the President and the President's Management Council (PMC). The "stoplight scoring system" was used to assess agency status and progress, and contained standard criteria for describing an agency's condition as "green" (success), "yellow" (mixed success), or "red" (unsatisfactory) for each of the five PMA initiatives.<sup>582</sup> In addition to displaying an agency's "Current Status," the Scorecard also displayed each agency's "Progress in Implementing the President's Management Agenda." The stoplight approach was again used to depict progress, but the colors had somewhat different definitions: "red" signaled that the initiative was in serious jeopardy and was unlikely realize its objectives without significant management intervention; "yellow" indicated "some slippage or other issues requiring adjustment by the agency in order to achieve the initiative objectives on a timely basis;" and "green" implied that "implementation is proceeding according to plans agreed upon with the agencies."<sup>583</sup> The first Executive Branch Management Scorecard assessed the quarter ending June 30, 2002,<sup>584</sup> and quarterly updates were posted on the results.gov Web site.<sup>585</sup>

Political executives were held accountable for the results generated by their agencies, and that accountability extended to CIOs. Writing in *Government Technology's Public CIO* magazine, editor Tod Newsome reflected on the success of e-government initiatives. "With the president's backing, [Mark] Forman has the

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<sup>581</sup> See the Scorecard explanation at <http://www.results.gov/agenda/scorecard.html>. Downloaded May 25, 2004.

<sup>582</sup> See the scorecard standards at <http://www.results.gov/agenda/standards.pdf>. Downloaded May 25, 2004.

<sup>583</sup> The Scorecard, <http://www.results.gov/agenda/scorecard.html>.

<sup>584</sup> See the first Executive Branch Scorecard at <http://www.results.gov/agenda/20040514scorecard.pdf>. Downloaded May 25, 2004.

<sup>585</sup> Ibid.

authority to align agency e-government initiatives with the administration's agenda through a highly visible scorecard that ensures standards of success through a simple but effective grading system. And it works, according to Forman. Agency CIOs who haven't maintained good scores are dressed-down at full Cabinet meetings or removed from their posts."<sup>586</sup> "Getting to green" was synonymous with success and survival.

Traditional policy players, such as members of Congress, continued to play their usual roles in most policy issue areas, but they assumed a noticeably lesser role in relation to management reform issues. Of the eleven hearings held during 2001 and 2002, three dealt with electronic government-related concerns, and two of those focused on e-government legislation. At the first of the two hearings on the E-Government Act, OMB Deputy Director O'Keefe had testified that the administration was pursuing the president's five management initiatives, one of which was e-government, and that neither a Federal CIO nor additional congressional authority was deemed necessary to achieve those goals. At the second hearing on the E-Government Act a year later, OMB Deputy Director for Management Mark Everson testified that the Senate's version of the bill, S. 803, "aligns with how OMB is currently managing its e-government initiatives. We created the Office of the Associate Director for IT and E-Government to ensure that e-government and associated information technology policy objectives are fully integrated with the President's Management Agenda, and the Senate bill reflects this objective. The Administration does not support requiring the head of this Office of Electronic Government to be confirmed by the Senate."<sup>587</sup> The House sponsored version of the E-Government Act contained no such confirmation provision and the administration's position prevailed; H.R. 2458, the E-Government Act of 2002, passed Congress and was signed by President Bush on December 17, 2002.

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<sup>586</sup> Newsome, Tod. "At the Top." In *Public CIO*, August 2003. Available online at <http://www.public-cio.com/story.php?id=2003.08.01-62609>. Downloaded May 20, 2004.

<sup>587</sup> Congress, House. *H.R. 2458 and S. 803, the E-Government Act of 2002*. Committee on Government Reform, 107<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2002. Lexis-Nexis Congressional, CIS #2003-H401-60. Testimony of Mark Everson.

The topic of enterprise architectures and e-government was the focus of one informational hearing on the issue of management reform. GAO's enterprise architecture expert, Randy Hite, defined and explained the function and importance of an enterprise architecture.

Enterprise architectures are high-level blueprints for transforming how a given entity, whether it be a federal agency or a federal function that cuts across agencies, operates. Without enterprise architectures to guide and constrain IT investments such as e-government initiatives, stovepipe operations and systems can emerge, which in turn can lead to needless duplication, incompatibilities, and additional costs. E-government refers to a mode of operations (using people, process, and technology, particularly Web-based Internet technology) to enhance access to and delivery of government information and service to citizens, business partners, employees, other agencies, and other levels of government. It has the potential to help build better relationships between the government and its customer bases by making interaction smoother, easier, and more efficient. Together, enterprise architectures provide a vital means to a desired end – successful delivery of e-government applications, which in turn promise improved government performance and accountability.<sup>588</sup>

Hite went on to explain that the Bush administration was pursuing 24 e-government projects, and that the success of these projects in large part depend upon their being implemented within the context of an enterprise architecture.

In its simplest terms, an enterprise is any purposeful activity, and an architecture is the structure (or structural description) of anything; thus simply making an enterprise architecture is a way to describe the structural composition of such activities as a federal agency or a government function that transcends more than one agency (e.g., grants management). Building on this, enterprise architectures consist of models, diagrams, tables, and narrative, which together translate the complexities of a given entity into simplified yet meaningful representations of how the entity operates (and intends to operate). Such operations are described in logical terms (e.g., business processes, rules, information needs and flows, users, locations) and technical terms (e.g., hardware, software, data, communications, and security standards and protocols). These windows into the entity's operations are provided for the current, or 'as is,' environment, as well as for the target, or 'to be,'

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<sup>588</sup> Congress, House. *Turning the Tortoise into the Hare: How the Federal Government Can Transition from Old Economy Speed To Become a Model for Electronic Government*. Committee on Government Reform, 107<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2002. Lexis-Nexis Congressional, CIS #2003-H401-41. Testimony of Randy C. Hite.

environment. A third element is a transition plan that charts the journey between the two.<sup>589</sup>

Despite enterprise architectures having been mandated by the Clinger-Cohen Act of 1996, agencies had been slow to internalize the concept and even slower to appreciate the transformational potential of an enterprise architecture. Hite's overview and rationale for enterprise architectures provided committee members the necessary background and context to appreciate the testimony of five agency CIOs who described the beneficial integrating effect of enterprise architectures on their departments. At the Department of Housing and Urban Development, for example, Deputy CIO Deborah Stouffer described a pre-enterprise architecture environment that consisted of over 200 individual information systems, containing redundant, outdated, and frequently contradictory information – useless for decision-making – and explained how e-government efforts were effecting change. “As a result of HUD's enterprise-wide approach to IT investment management, the Department is now pursuing several cross-program, enterprise-wide, or cross-government initiatives. For example, Native EDGE is a cross-government office and Internet portal led by HUD, with 17 partnering agencies. It includes a call center and resource library for Native American small businesses and community development practitioners. The site also contains a publications clearinghouse, business partner links, and a technical assistance information center.”<sup>590</sup>

The notion of an enterprise architecture, once grasped and applied to IRM issues, became a central construct in discussing some of the policy challenges faced within the IRM policy subsystem. For example, in discussing the implications of Government Paperwork Elimination Act implementation, it became apparent that an information architecture would help identify duplicate information collections within an agency. As OMB Director Daniels testified, “But before we look at simply converting a paper process to an electronic one we must uncover duplicative reporting requirements and areas where programs can share the information they collect.”<sup>591</sup> Testifying about the Department of Defense's GPEA implementation John Osterholz emphasized the

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<sup>589</sup> Ibid.

<sup>590</sup> Ibid., Testimony of Deborah Stouffer.

<sup>591</sup> Congress, House. *Federal Information Technology Modernization*.

value and utility of DoD's enterprise architecture. "We now have, as a result of a lot of hard work, the first enterprise IT architecture in Department of Defense history. So we now have the ability to look across the enterprise known as the Department of Defense and address the value of information, how hard we need to protect it, what are the interoperability difficulties associated with moving that information around, both within the department and externally, and be able to address the value of the capital investments necessary to move us further forward toward GPEA compliance."<sup>592</sup> But even as the benefits of an enterprise architecture were becoming apparent in implementing GPEA, the benefits of that approach were not well understood; then agencies became involved in interagency e-government projects.

The interagency composition of the e-government projects prompted an expansion of the enterprise architecture concept. For if an enterprise could realize significant benefit from having an enterprise architecture, it was reasoned, could not also the Federal government realize significant benefits in its interagency e-government initiatives from having a Federal Enterprise Architecture? Within industry a similar question had been recently probed by reengineering advocate James Champy. "Where reengineering showed managers how to organize work around processes inside a company, X-engineering argues that the company must now extend its processes outside – hence the X, which stands for crossing boundaries between organizations. When an organization's processes are integrated with those of other companies, all the partners can pool their efforts and effectively become a new multi-company enterprise, far stronger than its individual members could ever be on their own. X-engineering is the art and science of using technology-enabled processes to connect businesses with other businesses and companies with their customers to achieve dramatic improvements in efficiency and create value for everyone involved."<sup>593</sup>

By the fall of 2002 a Federal enterprise architecture effort was well underway. "OMB is leading the development of a Federal Enterprise Architecture (FEA) with the support of the CIO Council. The purpose of this effort is to identify opportunities to

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<sup>592</sup> Ibid., Testimony of John Osterholz.

<sup>593</sup> Champy, James. *X-Engineering the Corporation: The Next Frontier of Business Performance*. New

simplify processes and unify work across the agencies and within the many lines of business of the Federal Government. The foundation of the FEA is the Business Reference Model (BRM), which describes the government's lines of business and its services to the citizen independent of the agencies and offices involved. This business-based foundation provides a common framework for improvement in budget allocation, horizontal and vertical information sharing, performance measurement, budget and performance integration, cross-agency collaboration, and e-government, as well as separate component architectures. The lines of business and sub-functions that comprise the BRM represent a departure from previous models of the federal government that use antiquated, stove-piped, agency-oriented frameworks. The BRM is the first layer of the Federal Enterprise Architecture and it is the main viewpoint for our analysis of data, applications and technology. The outcome of this effort will be a more citizen-centered, customer-focused government that maximizes technology investments to better achieve mission outcomes.<sup>594</sup>

#### 4.3.2.3 Centralized Policy, Decentralized Execution: Coalitions 2001-2002

Coalitions played a reduced, albeit an important, normative role in the policy-related activities of the IRM policy subsystem. The Bush administration's market-oriented approach to implementing the President's Management Agenda and electronic government followed a corporate model. Decision-making was centralized in OMB in order to define and concentrate the focus on the administration's priorities. As already recounted, the PMA was crafted over a period of approximately 7 months, with the broad outlines provided in testimony before congressional committees well in advance of the PMA's August 24<sup>th</sup> unveiling. The administration's broad management strategy, consisting of five government-wide initiatives and nine targeted initiatives, framed the management agenda to address, at least in broad terms, all the major challenges identified in the GAO's high risk series.<sup>595</sup> With most of the issues addressed – at least in principle – and by framing the President's Management Agenda

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York, NY: Warner Books, 2002, pp. 2-3.

<sup>594</sup> Congress, House. *H.R.2458 and S. 803: the E-Government Act of 2002*. Statement of Mark Everson.

<sup>595</sup> U.S. General Accounting Office. *Major Management Challenges and Program Risks: A Government-wide Perspective*. GAO 01-241, January 2001.

as management reforms with an effectiveness twist (as shown in Table 4.24), coalitions had little to either oppose or propose.

<b>Values of Witnesses Testifying on IRM Issues 2000-2002</b>						
<b>Codeform Item 2: The problem is one of:</b>	Paperwork	Privacy	Records & Information	IT Acquisition	Management Reform	Computer Security
efficiency	7	0	0	0	0	0
effectiveness	3	0	0	0	18	2
responsiveness	4	0	0	0	1	7
accountability	2	0	0	0	0	7
equality	0	0	0	0	0	0
<b>Witnesses (total)</b>	16	0	0	0	19	16
<b>Hearings (total)</b>	3	0	0	0	4	4

Table 4.24 Values of Witnesses Testifying on IRM Issues 2001-2002

The *Traditionalists Coalition* participated only once in policy subsystem discussions during this time period, at the first hearing on the E-Government Act of 2001. *Traditionalists* expressed concern for continued information availability in an e-government environment. Sharon Hogan, the spokesperson for the American Library Association, wanted assurances that e-government information dissemination would address “the entire life-cycle of electronic information, from creation to permanent public access and preservation.” Creation and access could be quickly established in e-government contexts, but permanent public access and preservation of digital information was much more challenging and more frequently overlooked. In emphasizing the challenge of “permanent public access and preservation,” Hogan cited the work of the “Cybercemetery,”<sup>596</sup> a unique archive that provided the only continuous public access to information from defunct government agencies and special commissions. The web site was created in 1997 after the closing of the Advisory Commission on Intergovernmental Relations (ACIR), and since then the publications and working documents of eight other defunct government bodies have been

<sup>596</sup> Hogan was referring to the Federal agency “Cybercemetery” maintained at the University of North Texas under a Memorandum of Understanding with the Government Printing Office. The “Cybercemetery” was available online at <http://govinfo.library.unt.edu/default.html> as of May 31, 2004. The URL given in Hogan’s testimony is no longer active.

added.”<sup>597</sup> The ALA’s expression of concern highlighted records and information as a policy issue, and although unstated, it underscored the tendency of technologists to forget about the information content of automated systems, especially when a system had served its purpose and was being replaced.

The *Public Interest Coalition* was represented by two new members, ones closely associated with e-government concerns, Public Technology, Inc. (PTI), and the Council for Excellence in Government. PTI was represented by their President, Costis Toregas, who described the organization as a non-profit research and development organization focused on local government, as well as the technology arm for the National League of Cities (NLC), the National Association of Counties (NACo) and the International City/County Management Association (ICMA). PTI’s interest in Federal e-government activities stemmed from a desire to share local government experiences, and its realization that e-government’s technological infrastructure must accommodate the political realities of federalism. From PTI’s point of view, several principles defined e-government: e-government meant improved service delivery to citizens without regard to the level of government delivering the service; e-government demanded an e-citizen, and serving all citizens, not just those who can afford technology, was the measure of e-government success; e-government provided an opportunity to reengineer government, and to establish viable interagency and public-private partnerships.<sup>598</sup> Patricia McGinnis, President and CEO of the Council for Excellence in Government, emphasized the potential of e-government to reconnect citizens with their government through a normative view of e-government-enabled public administration.

This is not only about e-government. It is also about e-the people. The Internet links people not only to one another and to e-commerce, but to the public marketplace of ideas, initiatives, innovation, transactions, and results. At the Council for Excellence in Government, we think of our ambitious mission in terms of excellent performance and results, and also in terms of the American people's understanding, participation, and trust in government. If you ask what has the greatest potential to improve the performance of government and connect it to people in a meaningful way, the answer is clearly electronic government. . . . [W]e developed a

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<sup>597</sup> Congress, Senate. *S.803: E-Government Act of 2001*. Testimony of Sharon Hogan.

<sup>598</sup> *Ibid.*, Testimony of Costis Toregas.

blueprint for E-government which we released in February. Our report is called *Electronic Government: The Next American Revolution*<sup>599</sup> because we believe strongly that the Internet has the potential not only to revolutionize the way government operates but also to put ownership of government truly in the hands of all Americans. . . . For the next generation of leaders – who are the young people of today – the Internet is a part of their connective beings. Sixty percent of adults in the U.S. are on-line; 75% of 12-17 year olds are on-line. Unfortunately, young people do not see much of a role for government in their pursuit of life, liberty, and happiness. What for young Thomas Jefferson was a great experiment in representative democracy is for young people today boring and irrelevant – ‘whatever.’ They don't vote much. . . . Besides not voting, the best and the brightest are also not choosing government service. But they are choosing to change the world through new technology and communications. This presents an important opportunity for e-government to attract young people to a bold, new enterprise and connect people of all ages to the public policy arena.<sup>600</sup>

The *Information Producers Coalition* was not actively involved in any of the policy subsystem's activities, at least as far as could be determined from available evidence. However, one might presume that the market orientation of the PMA would serve the *Information Producers Coalition* well by opening up existing information sources and providing increased opportunities to develop and market additional information products.

The *Information Technologists Coalition* was well represented during this time period with members presenting their views at four of the eleven hearings. Coalition representatives provided advice on topics ranging from security to electronic government, and from enterprise architecture to future interactive technologies. Members of the *Information Technologists Coalition*, such as Thomas Gann, VP of Siebel Systems, who represented the Information Technology Industry Council (ITI), provided their best practices, modified for e-government, as exemplars: design solutions around the citizen; the Internet as an important part of the e-government solution, but only a part of a comprehensive solution; multiple channels for citizens to approach government; and use of e-government to train, retain, and recruit the best

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<sup>599</sup> Council for Excellence in Government. *Electronic Government: The Next American Revolution*. Washington DC, 2001. Electronic file available at <http://www.excelgov.org/usermedia/images/uploads/PDFs/bpnt4c.pdf>, downloaded May 31, 2004.

<sup>600</sup> Congress, Senate. S. 803: *E-Government Act of 2001*. Testimony of Patricia McGinnis.

employees.<sup>601</sup> Similarly, Barry Ingram of Electronic Data Systems, representing the Information Technology Association of America, provided the accumulated wisdom of ITAA on e-government: senior leadership and championing lead to success; cross-agency standards are essential for both horizontal and vertical interorganizational e-government efforts; and bringing services on-line raises expectations, so e-government requires rapid scalability that includes security and privacy.<sup>602</sup>

As in the previous time period *Security Experts* played a role in informing key members of the policy subsystem, testifying in one hearing about the threats and approaches to countering threats to information systems and the information infrastructure. While their advice was useful, much of it was not immediately actionable, like calling for higher quality software and recommending a Manhattan Project initiative for counter-terrorism technology.<sup>603</sup> The timing of the advice, given in the immediate aftermath of the September 11, 2001 terrorist attacks was not helpful to the security experts' cause. However, these security professionals did what experts are supposed to do – give policy advice that descriptively bounds the problem and assesses its scope and gravity. Their lack of coordination and collaboration suggested that the information security environment was no more cohesive than was the policy environment for computer security, critical infrastructure protection, and information assurance in the aftermath of the terrorist attacks. Given the focus on the physical attack, and the psychic desire for a physical response to that attack, cyber security would likely once again take a back seat to physical security considerations. Such factors suggest that security experts were unlikely to become a coalition in the near future.

Agency Chief Information Officers became increasingly important as leaders of policy implementation, rather than as coalition members in promoting likely courses of action. The centralized policy approach of the Bush administration focused on providing cohesive policies supported by the techniques and tools needed for effective

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<sup>601</sup> Congress, House. *H.R. 2458 and S.803: E-Government Act of 2002*. Testimony of Thomas Gann.

<sup>602</sup> Congress, Senate. *S.803: E-Government Act of 2001*. Testimony of Barry Ingram.

<sup>603</sup> Congress, House. *Information Technology – Essential Yet Vulnerable: How Prepared are We for Attacks?* Committee on Government Reform, 107<sup>th</sup> Cong., 1<sup>st</sup> sess, 2001. Lexis-Nexis Congressional CIS # 2002-H401-74. Testimony of Richard Pethia; Testimony of Michael Vatis, September 26, 2001.

policy implementation. And while CIOs were unlikely to function as a coalition under these circumstances, CIOs were more effective individually and collectively because of Mark Forman's focus on providing the necessary policy implementation tools, and the President's Management Council's focus on achieving the PMA's goals.

#### 4.3.2.4 Everything is Secondary to the PMA: Issues 2001-2002

Significant management reforms were put in motion by the Bush administration through its emphasis on the President's Management Agenda and especially on e-government. These reforms were targeted initially at governance, and they focused primarily on achieving performance. But as evidence of substantial duplication surfaced from the work of the Quicksilver Task Force, the institutions of government – especially duplicative programs and their supporting information technologies – came under scrutiny as targets of management reform. OMB Director Daniels noted on May 4, 2001, "President Bush has made improving government performance a top priority. Bob O'Neill will play a central role in the development and implementation of management reforms that will make the Federal Government more citizen-centric, results oriented, and market-based."<sup>604</sup> By the end of 2002 however, it was evident that improving performance also involved consolidation, especially in some of the e-government initiatives. "The purpose of this memorandum," wrote OMB Director Daniels, "is to advise selected agency heads of our intention to consolidate IT systems relating to recreation reservations systems as part of the President's Recreation One Stop initiative. Currently the Federal government operates a number of reservation systems for federal recreational facilities. Multiple government reservation systems make it difficult for the public to find and make reservations. Establishing a one-stop Federal recreational reservation system will make it easier for citizens to use Federal parks and recreation facilities. At the same time, consolidating reservation systems will benefit the taxpayers, because maintaining a single recreation reservation system is more efficient and cost effective than having multiple agencies operate their own

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<sup>604</sup> Executive Office of the President, Office of Management and Budget. "Robert J. O'Neill, Jr. to Serve as Counselor to OMB Director on Management Issues."

reservation systems.”<sup>605</sup> The duplications uncovered by the Quicksilver Task Force, when considered within the context of the Federal Enterprise Architecture and addressed as management reforms, created the very real possibility of fundamental institutional realignments. As a policy issue, management reform was beginning to grow legs.

In terms of publicity and number of hearings, computer security was a highly visible and pervasive issue. From the critical infrastructure focus of Senator Lieberman’s September 12, 2001 hearing and Congressman Horn pronouncing a computer security grade of F for the Federal government on November 9, 2001, computer security was clearly a hot-button issue for the policy subsystem. Four hearings focused on the topic, two of them exploratory, one focusing on oversight, and the final hearing focused on H.R. 3844, the Federal Information Security Management Act of 2002. This bill focused on permanently extending the information security initiative begun two years earlier with the Government Information Security Reform Act of 2000. It focused on requiring a uniform approach to risk-based information security programs in all agencies. As noted by Congressman Tom Davis, the bill’s sponsor, in opening the hearing, “Record IT security expenditures and unprecedented attention to IT security (while important indicators of ‘level of effort’) are not the benchmarks that we should use to determine success.”<sup>606</sup> He advocated establishing minimum mandatory management controls for implementing agency-wide security management programs.

Paperwork reduction continued to receive attention in two ways. With the approaching Government Paperwork Elimination Act deadline of October 2003 for agencies to be able to receive paperwork electronically, this e-government feature received continuing attention from OMB. The more conventional view, continued oversight of administration efforts to reduce the paperwork burden on individuals and small businesses, earned a straight-forward, if somewhat acerbic assessment by OMB

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<sup>605</sup> Executive Office of the President, Office of Management and Budget. *Improving Customer Service By Establishing a One-Stop Recreation Reservation System*. Memorandum M-03-30, December 12, 2002. Available online at <http://www.whitehouse.gov/omb/memoranda/m03-03.html>. Downloaded May 31, 2004.

<sup>606</sup> Congress, House. *H.R. 3844, the Federal Information Security Management Act of 2002*. Committee on Government Reform, 107<sup>th</sup> Cong., 2<sup>nd</sup> sess., 2002. Lexis-Nexis Congressional CIS #2003-H401-66.

Deputy Director O’Keefe. “I must admit that I did not expect to be testifying before you, discussing the Paperwork Reduction Act. One provision in the Paperwork Reduction Act, however, puzzles me -- namely, the statutory goals for government-wide paperwork burden reductions. In 1980, 1986, and 1995, Congress enacted laws that set annual government-wide 5% or 10% paperwork burden reduction goals - calling for a total burden reduction of 85% between 1981 and 2001. In our judgment, these goals are clearly unobtainable. Continued effort to reduce paperwork burden responsibly -- form by form, regulatory requirement by regulatory requirement -- is very important. But making blanket cuts to meet arbitrary and, as history has demonstrated, unrealistic, statutory goals does not make sense. These statutory percentage reductions have not happened, nor can they happen through the work of the Executive Branch alone. . . . The Federal Reports Elimination and Sunset Act of 1995 provided for the elimination of many statutory reporting requirements on May 15, 2000. But, during the 106<sup>th</sup> Congress, Congress reimposed over 250 of these reporting requirements.”<sup>607</sup> Not until a clear connection could be expressed between program requirements and the information necessary to manage or regulate a program – the insight provided only by an enterprise architecture – could meaningful paperwork reduction occur.

While IT acquisition in its classic sense received little attention during 2001 and 2002 because of previous policy successes, it took on additional policy importance because of the workforce issues highlighted by the National Academy of Public Administration.<sup>608</sup> This issue dovetailed with the administration’s PMA initiative, Strategic Management of Human Capital, in focusing attention on the challenge of maintaining the needed workforce. David McClure, GAO’s Director of IT Management Issues, testified, “Few management tasks facing federal agencies are more critical to their ability to serve the nation than attracting, retaining, and motivating people. As our

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Opening remarks of Congressman Tom Davis.

<sup>607</sup> Congress, House. *Paperwork Inflation: Past Failures and Future Plans*. Committee on Government Reform, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional, CIS #2002-H401-64. Testimony of Sean O’Keefe.

<sup>608</sup> NAPA. *The Transforming Power of Information Technology: Making the Federal Government an Employer of Choice for IT Employees*. Washington, D.C.: National Academy of Public Administration, August 2001. Available online at [http://209.183.198.6/NAPA/NAPAPubs.nsf/17bc036fe939efd685256951004e37f4/2217788ab424548185256ad500585a7b/\\$FILE/napa\\_it.pdf](http://209.183.198.6/NAPA/NAPAPubs.nsf/17bc036fe939efd685256951004e37f4/2217788ab424548185256ad500585a7b/$FILE/napa_it.pdf). Downloaded May 31, 2004.

society has transitioned from the industrial age to the knowledge age, organizations have come to recognize people as their most critical assets. Because people create knowledge and put it to practical use, the success or failure of federal agencies, like that of other organizations, depends on having the right number of people with the right mix of knowledge and skills.”<sup>609</sup> While this was especially true in the IT workforce, the same could be said of the acquisition workforce, especially those with IT acquisition skills. Attention to human capital was especially “critical in a modern, results-oriented management environment [because] people are assets whose value can be enhanced through investment.”<sup>610</sup> The expected result, as outlined in the PMA, was that “Human capital strategies will be linked to organizational mission, vision, core values, goals, and objectives.”<sup>611</sup>

Records and information was a low profile issue during most of this period, but as noted earlier in the testimony by Sharon Hogan of the American Library Association, specific attention needed to be paid to the complete life-cycle of information. Within the e-government arena, that realization also struck home, resulting in Electronic Records Management being designated as one of the initial 23 e-government initiatives. As described in the *E-Government Strategy*, “this initiative will provide the tools that agencies will need to manage their records in electronic form, addressing specific areas of electronic records management where agencies are having major difficulties. This project will provide guidance on electronic records management applicable government-wide and will provide tools for agencies to transfer electronic records to NARA in a variety of data types and formats so that they may be preserved for future use by the government and citizens.”<sup>612</sup>

Privacy remained a touchy policy issue, and briefly resurfaced in the wake of the September 11, 2001 terrorist attacks. Concerns over the difficulty of positively identifying individuals, especially for purposes of immigration and mass transit security, caused renewed discussion of a national ID and highlighted the uneasy tension

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<sup>609</sup> Congress, House. *Transforming the IT and Acquisition Workforces*. Committee on Government Reform, 107<sup>th</sup> Cong., 1<sup>st</sup> sess., 2001. Lexis-Nexis Congressional CIS# 2003-H401-4. Statement of David McClure.

<sup>610</sup> Ibid.

<sup>611</sup> *President's Management Agenda*, p. 14.

<sup>612</sup> *E-Government Strategy*, p. 33.

existing between privacy and security. In e-government initiatives, privacy and security were considered and incorporated from the outset, as positively identifying individuals was important to e-government transactions. “A successful E-Government strategy must deploy effective security controls into government processes and systems. E-Government must also ensure privacy for personal information that is shared with the Federal Government. The e-Authentication project will enable mutual trust to support widespread use of electronic interactions between the public and government and across government by providing common solutions to establish ‘identity.’ It will provide a secure, easy to use and consistent method of proving identity to the federal government that is an appropriate match to the level of risk and business need of each initiative.”<sup>613</sup> Technology was perceived as the answer to a vexing policy challenge.

#### 4.3.2.5 Making Good on Promises: Policy Change 2001-2002

While there were substantive policy changes made during these two years, only two of these policy changes resulted from legislation; the remaining policy changes were initiated within the constructs of existing legislation and policies. In the final weeks of 2002 the E-Government Act of 2002 was passed; it was signed by President Bush on December 17, 2002. This legislation formalized many of the e-government activities that had been put in place: an e-government official in OMB; an official Office of Electronic Government; a program of cross-agency initiatives; validation of the CIO Council and its codification through legislation; and an acknowledgment that electronic government was the next wave of government reform, a reform of government focused on the citizen and enabled by technology.

Embedded within the E-Government Act of 2002 was the other policy change, the Federal Information Security Management Act of 2002. This legislation required the Director of OMB to oversee the information security policies and practices of Federal agencies, and required that each federal agency develop a risk-based information security management program. Each agency’s program was to be tailored to its assessment of the risk; annual internal assessments of the agency’s security posture were required, with the assessments made available to selected committees of

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<sup>613</sup> Ibid, p. 11.

Congress as well as the General Accounting Office. This legislation also reiterated the leading role of the Department of Commerce and the National Institute of Standards and Technology in providing security standards and guidelines for Federal agencies – other than national security systems.<sup>614</sup>

Perhaps most interesting policy-related activities were not policy changes per se, but rather tools and concepts designed to ensure policy outcomes and speed policy implementation in the IRM policy subsystem. These tools and concepts were developed and refined by OMB's Office of Information Technology and E-Government, and by selected individuals from both the public and private sectors, and were designed to aid in implementing extant legislation. For example, while the Clinger-Cohen Act of 1996 required agencies to develop Capital Asset Plans, it had provided only broad guidelines for a capital asset planning process. OMB personnel refined the Capital Asset Plan and Business Case, and gave it visibility within OMB's Circular A-11, *Preparation, Submission, and Execution of the Budget*, as Part 7 of the Circular.<sup>615</sup> A business case, the OMB Exhibit 300, was defined as describing how an information system (a capital asset) supported a federal program, and how all the elements of the business case related to the information system and to the resources requested. In the Capital Asset Plan and Business Case, the IT professional was asked to describe the functional program being supported, the information system envisioned, the plans for IT acquisition, privacy, security, records management, and legacy system updating, and the performance, project management, and expected benefits of the system. The OMB Form 300, the Capital Asset Plan and Business Case, became the one document in which most, if not all, of the policy issues of concern to the IRM policy subsystem were brought together in terms of the information system and the substantive program it was designed to support.

The concept of and requirement for an agency enterprise architecture was likewise outlined in the Clinger-Cohen Act of 1996, but as noted above, few specifics

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<sup>614</sup> Congress, Library of Congress. *Bill Summary and Status, 107th Congress, H.R. 3844, Federal Information Security Management Act of 2002*. Available online at <http://thomas.loc.gov>; search on the 107<sup>th</sup> Congress, and H.R.3844. Downloaded May 31, 2004.

<sup>615</sup> Executive Office of the President, Office of Management and Budget. *Circular A-11, Part 7, Planning, Budgeting, Acquisition, and Management of Capital Assets*. July 2003. Available online at <http://www.whitehouse.gov/omb/circulars/a11/03toc.html>. Downloaded May 31, 2004.

were provided, and the notion of an enterprise architecture was initially conceptualized as applying to an agency. The advent of e-government initiatives, and the insights of the Quicksilver Task Force, forced the realization that a Federal Enterprise Architecture (FEA)<sup>616</sup> was required in order to effect interagency change – an enterprise architecture for the entire federal government! In concept then, each agency would align its enterprise architecture with the FEA; interagency e-government initiatives, both now and in the future, would be possible as a result. Practically, the FEA provided a language for describing the complexity of Federal government activities in terms of standardized and defined business processes – lines of business they were called. “Its foundation is the Business Reference Model, which describes the government's Lines of Business and its services to the citizen independent of the agencies and offices involved.”<sup>617</sup>

The Federal Enterprise Architecture envisions a hierarchy of five reference models that, beginning from the most general, called for a Performance Reference Model to articulate “government-wide, line-of-business specific performance measures and outcomes.”<sup>618</sup> The Business Reference Model, next in the hierarchy, enumerated the lines of business, the agencies, the customers, and the business partners. Level three of the FEA contained the Service Reference Model. “The Service Component Reference Model (SRM) is a business and performance-driven, functional framework that classifies Service Components with respect to how they support business and/or performance objectives.”<sup>619</sup> Level four of the FEA presented the Data and Information Reference Model and Level five concluded the model with the Technical Reference Model that addressed technologies, standards, and specifications. At the end of 2002 only the Business Reference Model had substance; the other models were only described conceptually. Yet despite the lack of definition, the Federal Enterprise Architecture provided the first conceptual model or template for agency enterprise

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<sup>616</sup> Information on the Federal Enterprise Architecture is available online at <http://www.feapmo.gov>.

<sup>617</sup> Federal Enterprise Architecture. “A Business-Driven Approach.” Available online at <http://www.feapmo.gov/feaBusinessFocused.asp>. Downloaded October 13, 2004.

<sup>618</sup> Federal Enterprise Architecture. Available online at <http://www.feapmo.gov/feaPrm2.asp>. Downloaded October 13, 2004.

<sup>619</sup> Federal Enterprise Architecture. Available online at <http://www.feapmo.gov/feaSrm2.asp>. Downloaded October 13, 2004

architectures and offered a governance view that transcended institutions, functional programs, and technological systems. It provided the first vocabulary with which to talk about achieving desired outcomes using standardized processes enabled with modern information technologies – without regard to the institutions of government.

Language and constructs such as those introduced by the Federal Enterprise Architecture are not found in traditional views of government. Such traditional views of government, based on notions of Weberian bureaucracy depict “this administrative machinery, and the career public servants within it, . . . [as] an essential intermediary between elected officials and society. It transforms the often vague and ambiguous decisions and judgments of the executive, the legislature, and the judiciary into operational and organizational rules and programs.”<sup>620</sup> The policies articulated by the Bush administration’s e-government initiative envision direct connections between government and the citizen; between government and business; between governments (intergovernmental); and internal to government (intragovernmental) – all mediated by information technology with significantly less of the mediation typically provided by career public servants. Less positively, government has been viewed as a collection of institutions and programs, serving first the needs of those institutions and programs, and only secondarily the needs of citizens.<sup>621</sup>

Policy activities, such as the Capital Asset Plan and Business Case and the Federal Enterprise Architecture are the result of major policy change taking place at the level of the policy core – in the terminology of the advocacy coalition framework. Such changes involve “fundamental value priorities, . . . basic perceptions concerning the general seriousness of the problem, . . . strategies for realizing core values within the subsystem, . . . and the basic policy instruments to be used.”<sup>622</sup> Although such policy change affects the entire IRM policy subsystem, it goes beyond a single policy subsystem. Underlying the E-Government Strategy and the President’s Management Agenda is a concerted effort to reconceptualize governance in the image of business, with much less reliance on the traditional constructs of institutions, programs and

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<sup>620</sup> Fountain, Jane. *Building the Virtual State: Information Technology and Institutional Change*. Washington, DC: Brookings Institution Press, 2001, p. 44.

<sup>621</sup> The President’s Management Agenda, p. 4.

<sup>622</sup> Sabatier, *Theories of the Policy Process*, pp. 121-122.

bureaucratic authority. Governance is reconceptualized using the language, constructs, and techniques of business. “So while the government needs to reform its operations—how it goes about its business and how it treats the people it serves, it also needs to rethink its purpose—how it defines what business is and what services it should provide. The President’s vision for government reform is guided by three principles. Government should be: Citizen-centered, not bureaucracy-centered; Results-oriented; Market-based, actively promoting rather than stifling innovation through competition.”<sup>623</sup>

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<sup>623</sup> The President’s Management Agenda, p. 4.