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White House Computer Adoption and Information Policy from 1969 – 1979

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Abstract

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The history of computers is a growing field of academic inquiry. Scholars have focused on government and military computer development during the mainframe era up until the mid 1970's and on the private and commercial sectors thereafter. The duality of this research agenda is grounded in the technological changes that reduced the cost and increased the accessibility of computer technology to the public. The White House straddled these two worlds, interfacing with the military and the private sector in the midst of the Cold War. It faced a variety of security and policy challenges in a dynamic and uncertain time. This dissertation is the first history and complementary analysis of how the White Houses of Presidents Nixon, Ford, and Carter initially adopted computers and developed information policy during the 1970's. This project consists of four historical cases drawn from archival documents and oral histories: computer adoption by Nixon's National Security Council; telecommunications security policy during the Ford administration; computer adoption by Carter's Domestic Council and the reorganization of the Office of Telecommunications Policy and development of information policy during the Carter administration. Using a multidisciplinary framework, the research invokes previous work in the history of computing, science and technology studies, diffusion of innovation, White House Administration Studies, and surveillance studies to show how an array of complex factors shaped how the White House adopted computers and developed information policy. It also shows how the adoption of computers and users' everyday experiences with them influenced the shape of information policy. Finally, this research asserts that Cold War security concerns were the pervasive factor influencing computer adoption and information policy. Moreover, these

concerns were effectively built into the technological systems and policies of the White House and exist to the present day, influencing post-Cold War technology decisions.

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Abbreviations

ADP: Automatic Data Processing

ARPA: Advanced Research Projects Agency

CIA: Central Intelligence Agency

COMINT: Communications Intelligence

CPIP: Committee on Privacy and Information Policy

CRP: Committee for the Re-election of the President

DARPA: Defense Advanced Research Projects Agency

DC: Domestic Council

DCA: Defense Communications Agency

DCCRP: Domestic Council Committee on the Right of Privacy

DCI: Director of Central Intelligence

DIA: Defense Intelligence Agency

DoC: Department of Commerce

DoD: Department of Defense

DoS: Department of State

DPC: Domestic Policy Council

DPS: Domestic Policy Staff

EO: Executive Order

EOB: Executive Office Building

EOP: Executive Office of the President

ESVN: Executive Secure Voice Network

FCC: Federal Communications Commission

FISA: Foreign Intelligence Surveillance Act

FOIA: Freedom of Information Act

FVPP: Ford Vice Presidential Papers

GRFPL: Gerald R. Ford Presidential Library

GSA: General Services Administration

GSA: General Services Administration

HEW: Department of Health, Education, and Welfare

HUMINT: Human Intelligence

ICT: Information and Communication Technology

IDA: Institute for Defense Analysis

IRS: Internal Revenue Service

ISA: Office of International Security Affairs

JCL: Jimmy Carter Library

NAM: New American Majority

NAR: Nelson A. Rockefeller

NMCS: National Military Command Center

NPM: Nixon Presidential Materials Project

NSA: National Security Agency

NSC: National Security Council

NSDM: National Security Decision Memorandum

NSF: National Science Foundation

NSF: National Science Foundation

NSTAC: National Security Telecommunications Advisory Council

NTIA: National Telecommunications and Information Administration

OA: Office of Administration

OA: Office of Administration

OF: Office Files

OIP: Office of Information Policy

OLC: Office of Legal Council

OMB: Office of Management and Budget

OSTP: Office of Science and Technology Policy

OTP: Office of Telecommunications Policy

OTS: Off the Shelf

PD: Presidential Directive

PFIAB: President's Foreign Intelligence Advisory Board

PRM: Presidential Review Memorandum

PRM: Protected Radio Modulation

PRP: Presidential Reorganization Project

RAC: Rockefeller Archive Center

RFC: Rockefeller Family Collection

RG: Record Group

SCC: Special Coordination Committee

SIGINT: Signals Intelligence

SMOF: Staff Member Office Files

STS: Science and Technology Studies

WHCA: White House Communications Agency

WHCC: White House Communications Center

WHCS: White House Computer System

WHS: White House Staff

WHSF: White House Special Files

Dedication

To Kay, who suggested outlining and is always right.

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Chapter I: Computers in the White House

Introduction

In 2008, Barack Obama was elected president after running a technologically forward-thinking campaign that capitalized on Web 2.0 and social networking Internet sites such as Facebook and MySpace. The overwhelming volume of video, picture and text contributions to Obama Campaign pages on these and similar sites considerably shrank the campaign news dissemination times and forced mainstream media organizations to address stories that they might not have.

Six months after taking office, President Obama and his administration are struggling with how to create that same integrated information systems architecture in the White House. Currently, the White House's information systems architecture is incomplete and, in today's fast-changing technological environment, nearly obsolete. The White House faces a series of technological administrative and legal constraints and President Obama has called for the creation of a federal Chief Technology Officer and a Chief Information Officer to address this issue.

The Obama administration along with the preceding Bush administration also face the challenge of meeting these threats in the face of a resurgence of international terrorism. Not since the end of the Cold War and the demise of the communist threat has national security achieved such prominence in policy discussions. The widespread availability and low cost of computers, software, and access has changed the dynamic of command and control for terrorist groups and governments alike. The strong position of national security in computer adoption and information policy was also apparent during the 1970's when the US faced the communist threat in the midst of the Cold War.

The problem of implementing an information systems architecture for the White House in response to information flow is not unique. In 1970, President Richard Nixon and his administration faced similar challenges: the introduction of computers and a formal information technology policy into the White House. The story of how the White House adopted computers and developed information policy begins during the Nixon, Ford and Carter Administrations and included individuals from both the executive and legislative branches of government, as well as private sector companies. During the Nixon Administration, National Security Advisor Henry Kissinger, Chief of Staff Robert Haldeman, and Project Manager Charles Joyce successfully drove computer adoption forward in the National Security Council to avoid information overload. The primary leaders during the Ford Administration were President Gerald Ford and Vice President Nelson Rockefeller who together formulated information policy for the first time as they faced the threat of Soviet eavesdropping on US telecommunications networks. During President Carter's Administration, Richard Hardin and Richard Neustadt led efforts to computerize the domestic counsel and reorganize the Office of Telecommunications Policy into the National Telecommunications and Information Administration. These individuals did not operate in a vacuum. Government agencies that participated in the White House's deliberations included the Department of Defense, Department of Commerce, the Senate and the House of Representatives. The project also involved private-sector entities RAND Corporation, a non-profit think tank that works to improve policy and decision making through objective research and data analysis and Xerox.[1]

Research Purpose

The purpose of this research is to address the conspicuous absence of pre-existing literature on the topic of information technology implementation and policy in America's Executive Branch of Government, specifically in the White House and to contribute to the documented history of White House management. To richly contextualize this history, this work draws on concepts and analytical frameworks from many different disciplines. For the history of computing, the 1970's is a pivotal decade in the history of computing, with emerging technologies and computer companies expanding their clientele beyond government to the private sector. For science and technology studies, this research provides a longitudinal analysis of technology adoption within the unique and influential organization that is the White House that emphasizes the role of technology users. The case studies presented in this research examine the diffusion of innovation within the White House from the National Security Council to the Domestic Council. These cases offer insight to scholars of White House administrative studies which begin with the Nixon administration. They offer insight into the institutional administrative challenges facing the White House administration. Finally, this research unearths the conceptual foundations of the federal idea of privacy which contrasts with many popularly espoused definitions.

The History of Computing

Rapid changes in computer hardware and software made the 1970's were a particularly dynamic period in the history of computing. Historians of computing have explored the origins, development and adoption of many information and communication technologies (ICTs) including the Internet[2]; technological standards such as Ethernet[3]; and the evolution of hardware and software through corporate histories of such companies as IBM[4] and Microsoft[5]. Historians have shown interest in the role of the Federal government in the development of ICTs. During World War II and the Cold War, the federal government was the primary sponsor of most ICTs

as it sought to compete with the Axis powers and the Communist bloc.[6] As computers became more inexpensive and more versatile during the 1970's, private sector investment in and adoption of ICTs expanded greatly and became a separate independent source for innovation outside of the federal government. The commercial success of ICTs has led historians to explore the stories of individuals, groups, and companies in the public and private sectors-producers and users.

Previous literature by historians of computing have examining the history of computers and ICTs prior to 1970 have focused on the experiences of innovators and early adopters within the federal government and major government contractors such as IBM. A history of the federal government's use of computers is largely absent from the existing literature with the exception of James Cortada's recent entry.[7] Complementary and comprehensive work by Jon Agar looks at the role of computers in the British government.[8] Within the US government, these technology constituencies were concentrated within the defense establishment including the Department of Defense, NASA, the Atomic Energy Commission, and the intelligence community. These organizations manned the frontlines of World War II and the Cold War, producing the arms and technologies to maintain an edge in military technology over the Soviet Union and its allies. During World War II, computer technologies were employed by the government in two distinct roles. The then Department of Defense used computers for complex mathematical computations such as anti-aircraft ballistics tables and rocketry design.[9] A second, less-well documented use was within the secretive cryptanalysis community where computers were used to decrypt enemy communications.[10]

The defense establishment continued to use computers in these roles during the Cold War following the defeat of the Axis powers. Added to computers was the growing recognition within the Department of Defense (DoD) that communications technologies were becoming inextricably interlinked with computers.[11] Computers and telecommunications technologies were a key piece of surveillance technology that enabled the US to observe the activities of the Soviet Union through photography and telemetry interception.[12] The DoD recognized the power of the convergence of telecommunications and computing technologies and funded research to explore and expand networking technologies such as ARPANET and WHIRLWIND.[13] The defense establishment's interest in ICTs has continued through to the present day with the emergence of network centric warfare doctrine and the central role that computers play in the monitoring and interception of global communications traffic by US intelligence services.[14]

Historians of computing have noted the US intelligence community's continuing influence on the computer industry, but only in a cursory fashion. Martin Campbell-Kelly and William Aspray make a passing reference to the contributions of computers to cryptography noting that records surrounding these early computers did not enter the public domain until the 1970's.[15] Paul Edwards also makes a passing mention of intelligence's influence, mentioning Alan Turing's cryptography work.[16] This history of secrecy may explain why histories of computers during World War II focus on the ENIAC and its role in solving ballistic fire control formulae and the construction of solution tables.[17]

During the 1970's, US government agencies outside of the White House maintained varied levels of interest in ICTs. While a number of government bureaucracies including the Bureau of the

Census, the Department of Commerce, the Department of Agriculture, and the Social Security Administration used computers to manage voluminous records or analyze complex forecasting models, computer use was compartmentalized and limited to very specific tasks. Organizations "networked" their computers by physically transferring punch cards or magnetic tape between computers.[18]

Outside of the federal government, historians have examined the emergence of computer companies and their role in the development of computer hardware and software. Prior to 1970, IBM was the largest and dominant computer corporation.[19] Ceruzzi's A History of Modern Computing describes the incremental evolution of information technology as an array of technological advances improving the power, efficiency and form of computers. Ceruzzi discusses the progression from mainframe computers used by large corporations, universities, and the government for number intensive analytical tasks such as accounting and the census. Mini-computers begin overtaking mainframes in the early 1970's, providing computing power at a price affordable to smaller companies. By the end of the 1970's microcomputers enter the field and begin to supplant their predecessors by offering effective computing power at a price that allows them to be deployed with normal employees. The US government occupies an early role as a consumer of mainframe computers but recedes into the background as consumer adoption outstrips government adoption. The story of computers prior to 1970 is the story of mainframe computers.[20]

As the computer hardware environment changed, so did the software environment. Campbell-Kelly's From Airline Reservations to Sonic the Hedgehog describes this process in great detail

and shows how this technology was interlinked with computer hardware and demonstrates a theoretical progression in the composition of software.[21] Early mainframe computers relied upon custom designed software to perform specific tasks, sometimes massive in scope such as the SAGE fire control system or the SABRE reservation system. Programmers wrote these programs to idiosyncratic and designed for a particular hardware configuration. Programmers writing mini-computer software understood that their software might be used on many similar systems by different organizations. For example, mini-computer accounting software might run on a variety of systems meeting certain specifications and configuration requirements. However, even this software would require customization to run on a particular system even if it met the software requirements. Finally, off-the-shelf (OTS) software arrived with microcomputers was usable in a generic sense as long as a user's computer met specific requirements of language, and operating characteristics. Installation consisted of little more than the insertion of a floppy disk into a disk drive and required no technical skill on the part of users. Campbell-Kelly's work focuses upon a commercial producer-consumer framework. The government's reliance upon specialized mainframe computers meant that most of their software needs would by necessity need to be custom written for a particular purpose.

Pre-Internet computer networking during the 1970's was deliberate exercise in logistics. Ceruzzi notes that computer networking in the mid 1960's consisted of couriers carrying magnetic tapes filled with data between computers in different locations. Even into the mid 1970's, data sharing between IRS branches consisted of the physical shipment of magnetic tapes. Computer networking in the early days of the ARPANET was an exercise in physical logistics.[22]

The Advanced Research Projects Agency (ARPA) of the DoD was developing the ARPANET, the forerunner of the Internet during the 1970's. Histories of the Internet focus on individuals and companies. In Abbate's Inventing the Internet, the government is responsible for the funding and conceptual cause for the Internet while its development and present form are a result of the actions of non-governmental developers and early users. Later, the government removes itself from its administrative control by permitting privatization, retaining only an ultimate oversight and control role.[23] The US government's supporting role in the development of the Internet is echoed in other Internet histories.[24] Commercial histories of the Internet focus upon on the companies that sought to exploit it.[25] The role of the government in these histories is as a regulator of variable effectiveness depending upon the historian.

Metahistories of computing such as Edwards's The Closed World and Beniger's The Control Revolution explicitly frame computers within a government and military framework of surveillance and control. Viewing the computer as a critical part of the metaphor of human-machine interaction and cybernetics or computers as a necessary tool for managing complexity and asserting control, Edwards examines how the computer was a rhetorical metaphor and tool for the theory and practice of command and control that the military viewed as essential during the Cold War. Beniger looks at how government and industry used mechanization and computerization to organize and control society through technology.[26]

In short, one to view the literature of history of computing is to subdivide it into two periods based upon the nature of computer users and investors. The early period examines computers largely in the context of the federal government while the later period focuses on the role of

private sector. This is largely driven by the strong influence of users on the evolution of computer technology. The cases in the following chapters examine the blurring of this subdivision by looking at the White House as a unique part of the federal government which, in the 1970's had an uncommon degree of latitude with which to source and install computers, making it a useful window through which to observe the dramatic transformations that were occurring in computers.

Science and Technology Studies

Weibe Bijker's model of the social construction of technology shows, through a series of case studies, how a variety of social, economic and historical factors influence the technological frames of users and producers of technology. Science and Technology Studies scholars have contributed to our understanding of technology as interpretive constructs.[27] Bijker's work explores technologies and their development as sociological constructs. In particular it emphasizes the social environment or frameworks that creators and users of technologies are embedded within. Bijker establishes that the needs and views of users and creators are not necessarily the same. Each framework places different value judgments on aspects of a technology based upon what they view as important based upon their experience and position. These frameworks often clash with successful technologies emerging after a merging of frameworks. This pattern appears frequently in communications technologies. Producers of the Internet and the telephone valued these networks as effective ways of conducting business. Users on the other hand viewed the technologies as efficient messaging systems. The system architects recognized this shift and adapted in the case of telephone system or acquiesced in the case of the Internet.[28]

Along with the social construction of technologies, Thomas Hughes's work on the power of technology managers on large projects and the influence of systems demonstrates how a culture of systems management has influenced the success and failure of large scale technological projects in the US.[29]

The cases presented in the following chapters reveal a rich narrative of social, technological, and historical factors that shaped the adoption and use of computer technology. The cases also point out both the successes and failures of technological systems within the same organization over a short span of time, enabling strong comparisons and evaluations. Finally, they demonstrate that the technological decisions taking place in the White House had an influential effect upon overall US technology adoption and policy and reveal it as an unexpected source of federal technology policy which has been overlooked by recent scholarship.[30]

Diffusion of Innovation

Scholarship on the diffusion of innovation accurately models many of the constituencies and individuals identified in this research. In particular, theories of adopter categories, organizational innovation, and the consequences of innovation have influenced and shaped these cases. Other concepts within the corpus of diffusion of innovation theory are less applicable.[31] Adopter categories describe individuals by their response to technological change and innovation and their willingness to adopt new technologies. Innovators reside at the "bleeding" edge of the continuum and tend to be among the first to adopt new technologies regardless of any potential inherent risk. Early adopters are more risk averse than innovators but are also seek advantage

through the adoption of new technologies. Early majority and late majority follow afterwards and are more deliberate in their choices than innovators and early adopters. The late majority are more skeptical of change than the early majority and are moved to change due to economic imperatives and social pressure. Laggards are the least receptive to change and are traditional in their outlook.[32] Most White House staff members in this project's cases, in particular the Nixon case, fall into the latter two categories. The effect of information technology policy adoption within the White House is perceptible; the Carter White House is shown as being much more receptive to technological innovation.

In all three cases, organizational innovation was directly led by thought leaders of varying effectiveness. Rodgers describes this process in five sequential stages: agenda setting, matching, redefining, clarifying, and routinizing. In the following cases, the agenda setting phase occurs almost instantly as a senior administration official identifies a need early in during the tenure of an administration. During the matching phase, leaders seek out an innovation to meet organization needs. These two phases Rodgers identifies as initiation stages and constitutes the planning and study phases of a technology adoption. In the redefining phase, the technology and the organization change to enable a fit for the technology. The clarifying phase refers to the process by which the innovation is brought to the attention of the rest of an organization. Routinizing occurs when the innovation is thoroughly embedded into the organization's processes. These three phases are also defined as the implementation phase and constitute the embedding of a system into an organization. Problems can occur throughout the process but are particularly problematic if change is implemented before initiation is completed as the

organization tries to implement a half formed plan.[33] Chapter four which deals with the Carter administration illustrates this kind of peril.

Path dependence is a theory that intrudes into these theories of the diffusion of innovation. Path dependence refers to the effect that prior decisions have on later decisions, making them more or less likely. In this way, early technological choices can alter the costs and benefits of future choices. This research project reveals how path dependency early decisions made by the White House set the course for future policy decisions and effectively locked in future policy and technology.[34]

Finally, scholars of diffusion studies rarely take cases from the government sector. The vast majority of cases come from science, business, and communication. Government scholars, as we shall see below, have taken a different approach and have not chosen to apply diffusion theory. This research demonstrates the suitability of this framework for this application by showing how adoption types and path dependency function within the White House over time.[35]

White House Administration Studies

The White House is an idiosyncratic organization which, in the 1970's endured almost a complete personnel change every four years while sitting atop one of the largest bureaucracies in the world. Some scholars of the American presidency have further narrowed their focus to examine White House Administration. Starting with Nixon, presidents have sought to give their cabinets administrative reins over America's enormous federal bureaucracy in an effort to bend the executive branch to executive policy.[36] This policy expanded after Nixon's tenure as

succeeding presidents fought battles with Congress and implemented broad interpretations of executive privilege and authority.

Among the president's powers is his right to appoint and fire appointees and manage budgets through executive orders.[37] Presidents are also able to create agencies by executive order.[38] Examples of these presidential powers are distributed throughout the next three chapters with varying degrees of success. The presidential struggle for bureaucratic control has taken on growing importance for scholars with the expansion of the federal government, though with a small but growing body of research.[39] Historians, as suggested by Andrew Rudalevige, can examine these examples of presidential power through the lenses of centralization, politicization, and their interaction in relation to administration. Centralization refers to the amount of direct control exerted by the president over legislative initiatives and the executive while politicization encompasses presidential hiring and selection on new employees whose loyalties and philosophies align with the president. Their interaction effect is largely unexplored. Scholars in this new area have identified examples of both simultaneous and substitutive use of these strategies, but scholars of presidential administration are still formulating their research agenda.[40]

President administration is not simply a discussion of executive control; politics is also an important component. Brandice Canes-Wrone points out that a president's public relations efforts are an increasingly important factor in presidential administration.[41] Public relations is an important factor in the decision making process in all of the subsequent cases, even if the president is not directly involved in the decision making process.

- Another area of interest is that of presidential coordination. George Krause notes that presidents are frequently challenged by the transitory nature of their office in relation to organizational complexity of the federal government. Krause identifies the following three issues/levels of coordination that arise repeatedly within the cases as leaders strive to move their agendas forward within the White House. Vertical coordination: coordinating between different levels in the same organization
- Horizontal coordination: coordinating across organizations
- Credible commitment: staying true to global organizational goals rather than local organizational goals.[42]

The common thread that binds the disparate work of the aforementioned presidential administration scholars is their united call for new research. The sheer number of theoretical models, data sources, and variables makes empirical research on the administrative presidency extremely challenging and scarce. Yet the importance of such research is manifest as teasing out models for efficiency and success for presidential administrations is highly valuable to current and future administrations.[43] Individually and in total, this research project provides a longitudinal and historical series of cases with a tight focus that provides crucial insights into many of the factors, models, and challenges raised by scholars of the administrative presidency.

Surveillance Studies

Surveillance studies as the section will outline has two distinct lineages which rarely speak to one another. The first body of literature examines the history and use of communications intelligence (COMINT) within the US intelligence community and deals largely with the interaction of state actors. The second body of literature examines the effects of the surveillance

of individuals by states or organizations. These two bodies of literature neatly demarcate into groups: adversarial and custodial surveillance.

- Adversarial surveillance is opposed extra-legal observation usually conducted by states upon their competitors. Espionage is an example of this kind of activity.
- Custodial surveillance is unopposed or opposed legal observation usually conducted by states or organizations upon other organizations or individuals. This kind of surveillance encompasses everything from credit and background checks to the use of frequent buyer cards.

While both types of surveillance have been conducted since ancient times, modern computers and communications technologies have enabled fast, new, and more complex methods of obtaining and analyzing larger amounts of data.

States conduct adversarial surveillance on external bodies including foreign powers and try and protect their citizens from surveillance by foreign agents. Adversarial surveillance theoretically describes US COMINT efforts. Materially, US COMINT has depended upon the development of dependable, ubiquitous, and homogenous telecommunications and computer networks since World War I to gather large amounts of information and sift out important tactical and strategic patterns of its enemies and protect its own communications.[44] These networks are attractive to users because of these qualities which encourage adoption. Broad adoption gives US COMINT organizations a large pool of users to perform surveillance.

The history of the US Intelligence community is broadly and expansively chronicled by William Burrows, James Bamford, and David Kahn. In The Codebreakers, Kahn chronicles the historical

evolution of cryptography and cryptology from ancient times through the Cold War [45]. Bamford's Body of Secrets examines the birth and growth of the National Security Agency (NSA) following World War II. These historical narratives provide strategy background for my dissertation and show the emerging power of communications intelligence in the United States and its influence at the highest levels of government.

Kahn discusses how, despite concerns about the security and control of its communication networks prior to World War II, US communications intelligence nonetheless operated in a series of fits and starts until the Japanese attack on Pearl Harbor.[46] General acceptance that advanced knowledge of the pending attack on the American naval base served to directly undermine Secretary of State Henry L. Stimson's position that "Gentlemen do not read each other's mail." Kahn goes on to describe how the US, in cooperation with the United Kingdom, developed an extensive communications intelligence capability to both gather information and decrypt sensitive communications. Kahn suggests, as have others that the allied intelligence effort was critical to the war effort and considerably shortened the length of the war and reduced the loss of life.[47]

While telecommunications were of primary importance to COMINT practices in World War II, computers also played a vital role. Computers offered a solution to a problem very different from generating gunnery fire direction tables and had a strategic rather than tactical importance attached to their use. Early computers were woven into the fabric of code breaking, overcoming the volume of encrypted communications traffic and providing timely, unencrypted translations to analysts. Computers were used by the British at Bletchley Park to decode German Enigma messages.

While Kahn does trace the history of cryptography into the Cold War period, Bamford focuses specifically on the NSA as an object of inquiry. As the main organization responsible for the acquisition of communications intelligence during the Cold War, its activities reinforce and build upon intelligence strategies developed by the United States during World War II. Bamford chronicles a series of intelligence gathering projects that rely upon monitoring network bottlenecks such as transoceanic cable landings and satellite downlink stations. These projects relied heavily upon computers to gather and sort data for human analysts, linking telecommunications and information technologies in the processes, practices, and activities of the communications intelligence community. Bamford's work reveals that the NSA was one of the largest consumers of telecommunications and computer technology and a major investor in these technologies.

COMINT has a few primary technical requirements to be effective. COMINT requires exploitable (capable of obtaining streams of information regardless of transmission route) telecommunications networks and computers with which to swiftly gather, decrypt, and analyze the accumulated information. Speed is considered important because rapidity enables one to preempt one's foe by getting inside their "decision loop" and acting before they do.[48] These technological requirements require an advanced and preferably superior technology base from which to work. While the US government allocates money to advanced research and design through the National Science Foundation and DARPA, private companies have driven technological innovation, growth of infrastructure, and consumer adoption bringing in existence the kind of complex, ubiquitous networks that enable modern COMINT.

COMINT also requires secrecy to prevent one's adversary from recognizing their private communications are being accessed. Since effective COMMMINT would allow a nation to prepare for, anticipate and pre-empt the actions of an adversary, a foe recognizing that their communications are compromised could and would feed false information to the agent or party performing surveillance , turning the tables by convincing the agent to plan for a false contingency. Note that general knowledge of surveillance does not necessarily compromise COMINT operations because specificity and knowledge of individual surveillance triggers a reaction. COMINT operations are kept secret by necessity for their own effectiveness.

There are many examples of public US COMINT activities that illustrate these operational requirements in a variety of communications networks. During Operation SHAMROCK, conducted by the NSA from August 1945 to May 1975, international cable companies Western Union, RCA, and ITT dispatched copies of 15,000 individual messages per month to the NSA for analysis. In return these companies were granted assurances by the government that they would not be liable for prosecution. These messages were analyzed by computers and sorted for key words. Key word lists were compiled by NSA, CIA and FBI personnel looking for criminal or suspicious activity. [49]

Undersea cables were also not safe from the efforts of the US intelligence community. Beginning in 1974 and continuing through the 1980's the NSA, with the cooperation of the US Navy, initiated a program of tapping Soviet undersea cables. Divers from specially-equipped submarines attached date taps to Soviet undersea cables in the Sea of Okhotsk. The content of the sometimes encrypted traffic included communications between Soviet military commanders

and data exchanges between various commands. This information was used by the NSA and the DoD to analyze the capabilities and intentions of Soviet military.[50]

In 1997, the existence of the ECHELON system was brought to the attention of the European Parliament in a report by its Scientific and Technological Options Assessment group of the Directorate-General of Research. The European Parliament convened a temporary ECHELON committee in 2000 to investigate. In its final report, it asserted that the US, the UK and Commonwealth partners operated a global surveillance system that listened to global satellite communications called ECHELON. Testimony given to the Committee indicated that ECHELON may have begun in the early 1970's.[51] ECHELON was used in the 1990's to identify and track the flow of illegal arms and defend against foreign corporate criminal activity such as bribery.[52]

The 1970's were a very active period COMINT period. The subsequent chapter on the Ford Administration delves deeply into that administration's concerns over significant adversarial surveillance being waged with the Soviet Union. At the same time, there is also a clear awareness of the dangers of "custodial surveillance." As stated earlier, custodial surveillance refers to the capturing of information largely, but not exclusively in a cooperative fashion about interactive partners. Custodial surveillance is seen most commonly in the private sector when an individual uses a frequent buyer card at their favorite store. The Internet "cookies" that track individual web surfing behavior for advertisers

At the state level, Edwards[53] and Beniger[54] both discuss the essence of custodial surveillance as a means of control and influence over a variety of diplomatic, strategic and industrial processes. Both examine how computer technology makes possible new kinds of custodial surveillance, shaping society and galvanizing it in the face of external dangers. Their narratives address the internal functioning of custodial surveillance within the US and more broadly, the West during the Cold War. The power of surveillance to influence individuals has been well fleshed out by Foucault and Lyon.[55] Lyon, like Turow is apprehensive about the power that ICTs give organizations and states to impose upon citizens and consumers. However, both make the point that such surveillance at some level is consensual. In consumerist cases, individuals trade convenience for privacy; for citizens the trade off is security for privacy. Both authors make the point that these tradeoffs are not necessarily equal nor do individuals necessarily have clear ideas about the utility and value of the privacy that they are giving up.

While private entities have few legal restrictions to govern their use of information, government has many owing to the early perception of lawmakers during the 1970's that the government was a repository for citizen information, that, in many cases citizens were required to surrender i.e. income records for tax purposes. As chapter three will demonstrate, policymakers were very concerned about the government's handling of personal information with which they were entrusted. Simultaneously the Ford Administration was wrestling with the challenge of adversarial surveillance posed by the vulnerability to US telecommunications to Soviet eavesdropping.

As illustrated, framing the White House's adoption of computers and related development of information policy within a narrow body of literature is an impossible task. Some literatures are directly relevant but too narrow in scope. Others are germane, but too broad in scope to be directly applicable due to the idiosyncrasies of the White House. Others still are directly relevant and well focused, but are too new and are struggling themselves in the search for applicable analytical frameworks and cases. These are not just challenges within the literature; they are also challenges within the extant scholarship. It is not an understatement to say that when presenting portions of this research, the most frequently elicited reaction is one of surprise, regardless of the scholarly audience. Clearly, this work is directly relevant to ongoing struggles by the White House to adopt new technologies and continue to make information policy.

Form

This research project is comprised of three interlinked case studies examining computer adoption and information policy during the Nixon, Ford, and Carter Administrations. Chapter Two examines computer adoption in the national Security Council during the Nixon Administration. Chapter Three explores the challenges posed by Soviet eavesdropping to the Ford Administration. Chapter Four combines two smaller cases detailing computer adoption by the Domestic Council and the reorganization of information policy during the Carter Administration. Each case study will use a consistent format consisting of a brief literature review, a dramatis personae of important characters in the narrative, a description of the source material I employed, the case study proper and resultant conclusions. The fifth chapter is a synthetic chapter which draws conclusions across cases.

Method

As a series of historical case studies, the primary research resources utilized in this project come from the National Archives in College Park, MD and the Nixon, Ford, and Carter Presidential libraries in College Park, MD, Ann Arbor MI, and Atlanta GA respectively. I have supplemented this primary research with additional materials gathered at the Rockefeller Library and Archive in Sleepy Hollow NY. I was also extremely fortunate to have the opportunity to collect an oral history from Charles Joyce, the chief computer project manager in the Nixon White House.

As previously discussed, this research spans a number of different scholarly literatures. Based upon the available source material, I have developed a historical narrative from the point of view of the White House and key decision makers within each administration. In the course of this narrative, elements of all of the relevant literatures will rise to the fore, though not all literatures will be equally prominent from case to case. While the Nixon chapter draws strongly upon science and technology studies, the Carter Chapter is more heavily influenced by the literature on presidential administration.

Limitations

Many areas within this research examine the close link between communications intelligence strategy and information technology policy. When researching sensitive topics, especially within the sphere of intelligence, one frequently runs into the problem of classification. I do not hold a security clearance and am unable to access such information. To date, my Freedom of Information Act requests have not been fruitful. Bearing those constraints in mind, I do not feel that I have encountered significant information classification issues in my research. I attribute this to many factors but chiefly; my research has not sought out operational level details relating

to intelligence and my target time frame lies thirty years in the past and occurs just prior to digitization. This latter fact is especially important presently as the US government has embarked on a program of classification review since the events of September 11, 2001, reclassifying many documents. Indexes of documents prior to the widespread use of the computer to organize them (occurring first in the Carter White House) makes it time consuming to identify the content of such records without actually reading them. In some specific cases dealing with still classified reports, I was able to piece together the classified report by locating drafts or detailed commentaries of the final report.

In a similar vein, all documentary research projects rely upon the accuracy and completeness of the documentary record. I believe this to be the case based upon two factors. First, based upon my review of the documentary record, I have found that records from different offices depicting the same events to be congruent and hence reliable. Second, portions of this work reviewed in the present day by individuals involved or named in the relevant documents and they have confirmed accuracy of the narrative I have constructed. These conversations have also enriched this research by adding nuance and relative importance to many of the events described. This is not to claim a perfect understanding of the events. Many of the people I will be discussing are still living which presents the opportunity for further interviews and oral histories as well as disputes about the accuracy of this work's interpretations. However, I am confident in the accuracy of the accounts as written.

Terminology has proven to be another challenge to my research. While information technology is the common phrase used to describe all things computer today, there are a variety of phrases

which can refer to the same thing e.g. “information automation” “electronic data processing”. This is also true during the period I am examining. These cases take place during the earliest period of White House computer adoption and the terminology relating to it was sometimes unexpected. In the course of my research, I have developed an expert eye for these terms, to what they refer, and to show their relationship to other pieces of the puzzle.

Among the literatures, the history of COMINT poses significant problems for researchers. COMINT is by nature a highly secretive and generally classified topic. Knowledge of practices and operations are limited by government secrecy and are kept out of public view. Knowledge of the Allied success in World War Two against the Axis powers was only revealed in the 1990’s.[56] The information in the public domain is limited but the available evidence does paint and extraordinary picture of the scope and breadth of US COMINT activities throughout the Cold War. COMINT-related secrecy also poses a parallel problem for researchers in identifying individuals with knowledge and access to COMINT related materials and programs.

Another COMINT issue is the dissemination of professional knowledge about adversarial surveillance. Hughes and others note that systems and operations analysis methods spread to the private sector from the government and academia in the 1960’s as individuals became disenchanted with governmental policies and the Vietnam War. [57] The intelligence community maintained its insularity and secrecy until the end of the Cold War when budget cuts and opportunities in the private sector encouraged intelligence professionals to look outside the government, spurring the rise of the corporate intelligence industry.[58] The dissemination of

COMINT from the government does not begin until the 1990's, making it difficult to locate and observe at earlier points in time.

The ongoing War on Terror also creates obstacles. COMINT is an essential weapon used to locate and fight international terrorism and is being strongly defended by the White House in a number of ongoing court cases. The Bush administration aggressively classified documents to protect and hide information about these systems and techniques. As previously noted this is consistent with COMINT strategy but can make it challenging for the researcher. While I have been stymied in my attempts to ascertain the contents of some documents, they constitute a very small, though admittedly perhaps crucial percentage of the documents to which I have obtained access.

Contributions and Overture

History of Computing: My dissertation points out that early telecommunications and computer policy was an outgrowth of strategy devised for harnessing telecommunications networks to national purposes. Reexamining the OTP, the NTIA, and even the FCC in light of this new connection between national interest, intelligence strategy, and telecommunications policy may give rise to new narratives about such things as the breakup of AT&T, spectrum policy, and Internet governance.

My dissertation has broad implications for policy. First, it calls into question US government motives and policy with respect to telecommunications and computer technology. Previous historical narratives about the history of computers have focused on piecemeal governmental

policy approach and do not hint that a broader strategy was being pursued. Looking at current policy on such topics as network neutrality, privacy, and open source software, government policy is somewhat schizophrenic with various branches and departments taking sometimes contradictory positions. The US government does not seem to have an overall strategy towards computer technology. My dissertation asserts that this was not always the case and perhaps is not the case at present. The current hodge-podge of policy conceals an overall strategy towards telecommunications and information technology which now, more than ever, recognizes the importance of the COMINT and the link between the two.

Similarly, my dissertation asserts that telecommunications strategy was rooted in World War Two experience of communications intelligence. Subsequent policy made by the OTP and the FCC are also areas deserving critical scrutiny. National security strategy as applied to telecommunications likely played a role in telecommunications deregulation, universal service, and spectrum allocation. Reexamining these narratives with attention to the national security agenda may provide new explanatory mechanisms with which to evaluate government policy and to scrutinize new policy, through the identification of heretofore unrecognized motivations. The influence of COMINT causes us to reevaluate US anti-trust actions pursued against IBM, AT&T, and Microsoft and their outcomes. In the COMINT framework, monopoly positions make it easier for the government access and negotiate with key technology and infrastructure provider and declassified Eisenhower documents identify this fact.[59]

Science and Technology Studies: My dissertation applies of Bijker's theories of the social construction of technology to the activities of regulators and policy makers in addition to

producers and users of technology. STS narratives focus on the individuals and organizations involved in the development and use of technologies. The role of regulators to shape technology by influencing the environmental factors surrounding the adoption and use of a technology is a critical area which has not been adequately examined by historians of computing who have focused on non-governmental organizations and individuals. My dissertation will address this shortcoming by beginning to examine the role of government policy in shaping computer history. This work also dramatically demonstrates the impact of Hughes's theories about the strength of US systems management expertise by showing how two parallel cases of technology adoption during the Nixon and Carter administrations diverge dramatically due, in large part to differences in project management. Comparisons can therefore be drawn to the effectiveness of policy initiatives backed by national security imperatives, strengthening the arguments of Beniger and Edwards about the rhetorical power of military control and the Cold War. However, the cases also point out the limitations of this rhetoric to White House personnel not involved with national security issues as the Carter case illustrates.

Diffusion of Innovation: This set of case studies provides a tight window onto a series of technology adoption decisions within a single organization. Combined, these case studies are an unusual longitudinal case study with which to examine the effect of leadership, and encouraging organization adoption of technology. The Nixon and Carter cases starkly contrast with one another in terms of how managers perceived user input. These cases also illustrate some of the complex resistances that exist in government to change and offer some successful solutions to the problems they present.

Presidential Administration Studies: The field of presidential administration studies is still trying to focus on a research agenda. Its focus on the presidency starts during the Nixon Administration and moves forward. The cases offered in this research offer a rich and interwoven series of stories showing how many of the theories about the nature of presidential authority and power are or are not expressed within a narrow field over the course of three consecutive administrations.

The Ford case offers new rationale for presidential action: national security. President Ford was highly motivated to secure US telecommunications systems in the face of Soviet eavesdropping. Ford was also specifically crafting policy with the express purpose of avoiding public opinion. This choice was a motivation to avoid public opinion rather than court it. Frequently, when issues of national security are involved, presidential administrative choices are made for overriding security rather than political reasons.

Surveillance Studies: My dissertation redefines and explores the theory of Surveillance Studies by positing the existence of adversarial and custodial surveillance. Today, the field of Surveillance Studies is largely focused on what I have defined as custodial surveillance such as that discussed by Foucault where parties have a defined power relationship. Adversarial surveillance operates in transnational spaces where parties may not have a direct power relationship. These two types of surveillance function in different spaces, characterizing different kinds of power relationships between the observer and the observed

Finally, this paper provides a new historical framework for understanding government policy during the current War on Terror. Government intelligence gathering policy, its relationship to telecommunications companies and the role of information technology in data acquisition and analysis are all traceable to the early emergence of a Nixon-era information technology strategy based upon post-World War II communications intelligence experience. News outlets reporting on US government intelligence programs seem to intimate that these activities are unprecedented and are unique to President George W. Bush's Administration. On the contrary, previous communications intelligence programs such as SHAMROCK were highly invasive and Vice President Cheney and former Secretary of Defense Donald Rumsfeld have direct ties to the Ford White House where they may have developed their strategic thinking linking information technology policy to communications networks.

This research shows how predominant Cold War national security interests during the 1970's strongly influenced the trajectory of US government computer adoption and information policy. It demonstrates the power of national security as a raison d'être for the adoption of new technology and policy. National security interests can also cause policy to skirt the bounds of legality and undermine civil society. In an environment where national security is the prime if not sole motive factor, its absence can leave policy adrift. As will be shown, many of these same conditions exist today and the perils are just as formidable.

The Obama administration's technological challenges did not begin with his inauguration. The technological challenges facing the unique institution that is the White House were first recognized by people within the Nixon Administration in 1969. The National Security Council

was in danger of losing its institutional credibility because it was unable to process the torrent of information flowing into it, and in so doing threatening the national security of the United States.

Chapter II: Kissinger's Information Automation Project: National Security Council Computerization, 1969-73

Introduction

The following case study examines the computerization of the National Security Council (NSC) during the Nixon Presidential Administration. Computerization of the National Security Council (NSC) began during Richard Nixon's Presidential Administration with an information automation plan from Nixon's National Security Advisor, Henry Kissinger. Kissinger recognized that the flow of information to the White House was overwhelming the NSC and therefore undermining the organization's ability to effectively analyze and develop national security policy. The problem of information management was exacerbated by the President Nixon's transformation of the NSC from a research and advisory body to the primary manager of US Foreign Policy. Under the Nixon administration, the NSC was required to make, execute and coordinate defense and foreign policy. The NSC's ensuing effort to address the problem of information overload moved computers and information automation squarely into the center of US national security policy. The situation was unacceptable to the Kissinger and the Nixon Administration in light of the US's involvement in the Vietnam War and the ongoing Cold War.

The Nixon Administration was not the first presidential administration to recognize the growing difficulty of information management in the US Government. The Executive Branch has been struggling to organize and prioritize information since the beginning of the Cold War and the

signing of the National Security Act of 1947 in order to make better decisions and reduce the decision cycle time in relation to foreign competitors and adversaries

The ability of the White House and the NSC to manage the problem advanced significantly during the 1970's, as the development of new information and communications technologies, primarily computers, began to increase pace. The case of computerization in the 1970s is important because it recounts a highly successful story of technological adoption that met users' needs while being implemented early and under-budget in the face of a variety of constraints and challenges. This case also underscores the persistent challenge of information management and shrinking decision cycle times in the national security policy spheres and offers insights with respect to the successful adoption of technological aids and tools. The story of the adoption of computers by the NSC during the Nixon Administration shows how skilled and knowledgeable leadership backed by powerful political support was able to effectively overcome a variety of institutional barriers and implement an information management system that increased the effectiveness of the NSC.

This case traces the adoption of an information automation system by the NSC between 1968 and 1973. It describes the early reaction of Kissinger and his advisors to the embarrassing information management situation at the NSC and their decision to draw upon existing resources at the RAND Corporation and the DoD to remedy the situation. The case goes on to examine the competing viewpoints of information automation and the NSC's own technological skepticism culminating with RAND's dismissal and the adaption and adoption of pre-existing DoD systems. The case concludes by describing the positive reaction of Nixon's staff to the advent of

computers in the White House and explores the roots of the surprising affinity of Nixon's political supporters towards computers.

The NSC's response to the threat of information overload was ad hoc. Kissinger and his advisors appropriated resources that they felt would be effective and threw them at the information automation problem. The White House, unlike other federal agencies was not an entrenched bureaucracy with an institutional memory. It was a congregation of committees whose members were chosen on the basis of political loyalty, effectiveness, and expertise in specific areas. White House leaders such as Kissinger did not consider nor account for paradigmatic technological change. Furthermore, the White House's communications technology support was provided by the Defense Communications Agency (DCA) as part of their mandate to support the command and control infrastructure of the US military and specifically the President in his role as Commander in Chief. When confronting the challenge of information overload, Kissinger called upon outside experts from the RAND Corporation and the Department of Defense. After appointing Joyce as project manager, Kissinger stepped back. Joyce adroitly wielded the power of the White House to gain the cooperation of key government agencies such as the OMB and the DoD and the resources at their command to build an information automation system for the NSC. Internally, Joyce worked to gain the trust and cooperation of the NSC staff which was essential to successful technology adoption. This problem solving approach succeeded because of the effectiveness of Charles Joyce as a project leader. Had Kissinger and his advisors chosen another leader with a different range of experiences, it is unlikely that this project would have been completed early and under budget as was historically the case. The project manager was given by Kissinger and his advisors a great deal of power and latitude to implement and

information automation system for the NSC, an organization which could be characterized as a technology adoption laggard if not somewhat Luddite. Finally, White House information automation was a completely new concept and Joyce was able to take advantage of the power vacuum that existed due to the absence of competing claims for authority over the new technology. Indeed, most White House staffers had little familiarity or understanding of computers and Joyce was their source of knowledge. The unqualified success of this project would lead to wider adoption of computers throughout the White House setting the stage for the creation of the Office of Administration during the Carter Administration. It also changed the way the NSC thought about computers. Through their use, the NSC came to see computers as information management systems rather than glorified calculators suitable for complex arithmetic.

History of Computing

The computers of the early 1970's were large mainframe computers running proprietary operating systems and frequently custom designed applications. The majority of computers were also designed as complex numerical engines for the manipulation of large numerical arrays. Textual processing was in its infancy and word processors were a new concept.[60] The cost of computers had declined to the point where private industry was beginning to rival the federal government in terms of their annual percentage of overall computer sales.[61]

In the early 1970's, the computer hardware market was dominated by IBM's System/360 mainframe[1] which commanded 75% of the global market for computers. Even as IBM was in ascendency, however, it was under assault by the Department of Justice for anti-trust and monopolistic practices.[62] Nevertheless, in spite of its legal troubles, IBM was earning $7.5 billion annually. Mini-computers, the next step on the path towards microcomputers had just begun to be produced by IBM's competitors.[63] Moreover, the federal government was a major IBM client using its computers throughout the federal bureaucracy.[64]

The software market was just emerging as an independent entity—it was only in 1968 that IBM fashioned a software division out of their computer division. Part of IBM's power in the marketplace soon became their creation of software for customers using their system/360.[65] In 1970, IBM began selling software packages where previously software had been a free good or rolled into the cost of hardware deployment and maintenance. Being charged for software was a sore spot for many businesses as software development cost estimates in both time and money were frequently far lower than the actual final cost. IBM's OS/360 chronically ran over budget.[66] Meanwhile, for fledgling software companies who were beginning to develop standardized software packages, the economics of developing, marketing, and selling a software package were challenging but promising. As will be shown, IBM's market power and brand would be an important consideration in the vendor decision to automate the White House.

Science and Technology Studies

[1] The IBM System/360 was the archetypal room-filling mainframe computer of its era. It could accommodate 248 data terminals while handling commercial and scientific work. The System/360 also was the first computer with an expandable storage capacity as well as accommodating a variety of peripheral devices.

The ensuing case presents two different philosophies of technology usage and adoption that draw directly from Edwards, Hughes, and Bijker. RAND's proposal for NSC computerization draws directly out of their history of system management and deployment. Having developed large scale information systems for the DoD, RAND believed in the Cold War rhetoric that Edwards explores in his work. Centralization, control, and cybernetics are all present in the RAND proposal. Absent from it are the unlimited budgets and generous time frames needed to implement them. The system also needed to work reliably. Finally, had RAND's systems approach only been heard by Kissinger, the Cold War rhetoric may have been effectual. As we will see, the future system users were privy to RAND's proposals and their comfort level with technology was not the same as many of RAND's military clients.[67]

Joyce's plan was differently focused. Recognizing his constraints and making use of his expertise in systems management, he focused on user needs. He worked with and listened to the needs and concerns of the NSC secretariat in proceeding with the information automation project. Joyce was also well versed in the political landscape of the executive branch and successfully managed the project through many administrative hurdles. He was also, unbeknownst to him, being aided by the user needs of H.R. Haldeman's political operatives who, unlike the NSC secretariat were comfortable with computers and had plans to use them for electioneering. Here, Hughes's technological management and Bijker's social construction of technology come to the fore as both theories come together to explain and underscore Joyce's success.[68]

Diffusion of Innovation

Knowledge of computers and computer technology did not diffuse easily in the Nixon White House. Haldeman and his staff had previously employed computers to great effect but they were unwilling to make light of their knowledge as they had quasi-legal intentions towards the new White House computer. As we will see, the NSC secretariat was filled with technological laggards-the last people to adopt a new technology. However, by automating existing paper-based systems with computers and choosing a user friendly system, Joyce was able to smoothly educate these users and convert them into adopters. He was able to demonstrate that there was clear value in the new system and persuade the NSC secretariat to adopt the new computers.[69]

Joyce's role as the primary technological evangelist is quite clear. Additionally, Joyce enjoyed the full support of both Kissinger and Haldeman in his efforts and was well respected by his peers. He, in effect had carte blanche to implement systems and it was no secret within the White House that he enjoyed such strong support. It was therefore unsurprising that his decision against RAND raised so little alarm even as RAND tried to press its case. Joyce's request to Kissinger to send RAND a letter declining their services was a strong indicator of the strength of Joyce's position and his voice.[70]

White House Administration

This case is a highly successful example of presidential administration, absent President Nixon. Nixon almost never emerges as a figure in the documentary record of information automation. Despite its importance, Kissinger, Haldeman and Joyce are the three figures who wield authority. Kissinger and Haldeman have direct power through Nixon and invest it in Joyce who makes good use of it in moving along a difficult program early and under budget.[71]

Nixon's only appearance in the record is to temporarily halt construction for fear that the press will take it as evidence of extravagance during a recession. This demonstrates the reactivity of the White House administration to public relations efforts and clearly shows that negative potentialities are a consideration, even during the Nixon administration.[72]

This case also demonstrates best practices with clear planning and research conducted prior to implementation.[73] Joyce successfully employs vertical coordination with other White House agencies such as OMB and WHCA as well as horizontal coordination with the DoD. He also makes a credible commitment to the idea of information automation and follows through on it even in the face of alternatives such as the RAND plan.

Surveillance Studies

Surveillance studies are not directly relevant to this case.

Dramatic Personae

Henry Kissinger

Henry Kissinger served as President Richard Nixon's National Security Advisor. He received a PhD from Harvard University in 1954. He also worked with RAND as a consultant. Kissinger was one of the most influential and powerful members of the Nixon White House and is responsible for many of the diplomatic initiatives of the Nixon administration and the reorganization and expansion of the National Security Council.

Charles Joyce

While Henry Kissinger was the prime motivating force for the Information Management project, its implementation was placed in the capable hands of Charles Joyce. Joyce was a graduate of MIT and a MITRE Corporation veteran assigned to a project to design and implement a command and control infrastructure for the Joint Chiefs of Staff. In 1967, he was hired as one of three people for the command and control section of the Office of the Assistant Secretary for Systems Analysis in the Office of the Secretary of Defense. Within months Joyce would be assigned to lead the group that reviewed the Department of Defense's (DoD) $6 billion annual budget for command and control infrastructure. In this position he and his team reviewed military command and control systems around the world including those linking the President to US strategic nuclear forces.

The process of technology adoption in the White House was quite chaotic with multiple individual stakeholders clamoring for systems that would make their jobs easier. Arriving at the White House in 1969, Joyce had to contend with significant resource constraints as well as persuade the existing NSC staff to adopt new technologies. Joyce, one of Robert McNamera's whiz kids at the DoD, was well versed in administrative tactics and was able to operate independently and with little oversight. Such strengths were crucial to Joyce as he sought to obtain resources and implement systems in the NSC. Joyce carefully negotiated the information automation project through a variety of institutional constraints, including:

- **Financial:** The White House staff and the NSC had small budgets in spite of their growing importance. The Nixon administration was also implementing austerity measures in the face of an economic downturn.
- **Contractual:** The competitive bid structure for federal contracting was time-consuming and laborious, resources in short supply to the NSC.
- **Technological:** Mainframe computers were new to the White House but existed in varying degrees in other executive departments. These systems were largely specialized for specific uses. IBM, the primary producer maintained a tightly controlled production schedule that stretched over years from time of order to time of delivery. Software design was also a time consuming specialized task.
- **Institutional:** NSC policy and administrative staff members were skeptical of computers' potential to assist them with their jobs. Interviews with staff members clearly show that they saw computers as complex computational machines rather than information management machines. Their adoption of the new technology was crucial as they enabled the senior NSC members to make policy decisions by providing them with relevant information culled from the thousands of documents seen every month.
- **Political:** Concerns about the potential for interference from Nixon's political advisors turned out to be unfounded. Archival records demonstrate that Nixon's campaign team was well versed in the utility of computers as information management and analytical tools, having compiled computerized voting records for a number of key states prior to the 1972 elections. They were very interested in having access to a computer within the White House. Nixon's political team was interested in having access to a computer in the White House and was inclined to support Joyce's efforts rather than undermine them.

Friction only occurred towards the end of the initial adoption period as the political team began seeking applications for the Executive office of the President.

- **External:** Prior to Joyce's arrival, the White House commissioned the RAND Corporation to evaluate the NSC's information processing capabilities and develop an information automation plan. RAND's solution envisioned the White House as the central node of government information systems and by establishing standards within the White House; other agencies would necessarily need to conform to its standards. RAND's plan was viewed with skepticism by the NSC which suspected that RAND would be unable to deliver on its technological promises and instead encounter unwelcome cost and time overruns during the tight economic times facing the Nixon administration.

The choice of which information management plan to implement was ultimately made by Joyce with Kissinger's authority. Joyce obtained the necessary funding from the Defense Communications Agency budget by asserting that the NSC computer system was supporting the President in his role as commander-in-chief. Joyce also maneuvered the Office of Management and Budget (OMB) to sign off on an expedited no-bid contract for the computers by co-opting the OMB's own need for computing power. He then transplanted off-the-shelf DoD information management software into well-proven IBM computers diverted from the DoD's acquisition stream. The administrative staff in the NSC Secretariat viewed the computers as information management tools. They used them during and after Joyce and his group implemented them. The policy staff, unlike the administrative staff did not work directly with the new system but did recognize their impact through the greater effectiveness and efficiency of the administrative staff

in providing them with information. Joyce and the information automation project were mostly given a free hand by Nixon's political team, which was enthusiastic about the prospect of having a computer in the White House. He chose the computer systems after making well reasoned recommendations. Finally, he made the NSC secretariat partners in the adoption process, overcoming their fears and concerns and demonstrating how the new systems would enhance their productivity. Ultimately, while he consulted the White House, RAND, the NSC and the DoD, Joyce directed the end-to-end implementation of the NSC information management project. Joyce was able to accomplish this owing to the singular authority and responsibility appointed him by Kissinger.

The RAND Corporation

RAND's involvement in this endeavor was an outgrowth of its already close relationship with the national security establishment. In the 1960's, RAND was the primary developer in the new field of systems analysis that then Secretary of Defense Robert McNamara applied to the Department of Defense's planning and strategy challenges. RAND was also involved in the analysis and strategy of the Vietnam War which preoccupied Nixon's NSC.[74] The NSC's choice of RAND to examine information automation and management systems was unsurprising.

The National Security Council (NSC)

The National Security Council (NSC) was an organization within the Executive Office of the President (EOP) which offered advice to presidents on foreign policy and national security affairs. Initiated by President Truman, its functions have changed over time. During the Nixon Administration and under the leadership of Henry Kissinger, the NSC not only offered advice

but began to plan and execute policy through other executive agencies such as the Departments of Defense and State. Included within the NSC was the *NSC secretariat* led by Jeanne Davis. The secretariat was very unusual in the White House as it was one of the very few places within the White House whose personnel were stable from administration to administration and therefore retained some limited capacity for institutional memory. Other positions within the White House were filled by the president with appointees, but the secretariat needed to function as its critical role was to manage and circulate national security information.

The Defense Communications Agency (DCA)

The Defense Communications Agency was an agency within the Department of Defense that managed all its communications systems and technologies. It was also charged with maintaining the communications for the chain of command. To that end, the DCA also operated the *White House Communications Agency (WHCA)* within the White House to insure that the President as Commander–in-Chief always had access his commanders in the field including control over the government's nuclear weapons.

H.R. Haldeman

H.R. Haldeman was President Richard Nixon's chief of staff and one of the most powerful members of his White House. Haldeman had previously managed Nixon's presidential campaigns and his leading political strategist. He would later be implicated in the Watergate scandal.

Source Material

This case is based upon materials available in the Nixon Presidential materials collection. Surprisingly considering the sensitivity of the some of the documents, all of the referenced records are unclassified or declassified. Many of the records cited come from the records of the NSC secretariat or subordinates of Kissinger and Haldeman. In addition, I was fortunate to have the opportunity to collect an oral history from Charles Joyce in 2008.

Information and Communications Technologies (ICT) Beachhead: Computerizing the National Security Counsel

In early February 1969, Kissinger wrote a memo to President Nixon about the state of technology in the White House:

> "Technical Facilities available in the White House are inadequate for proper information control. To gain control of the vast amounts of reports, memoranda, cables, etc., in the national security area and keep pace with technological changes presently available or planned for the future, we need to move now to make necessary improvements."[75]

As noted at the beginning of this case, the Nixon White House's introduction to information and communications technologies came at the behest of Henry Kissinger who recognized their crucial importance to national security. His belief in their importance, however, was not widely shared among senior White House staff. Memos between staffers demonstrate high levels of skepticism surrounding the adoption and deployment of ICTs. Staffer skepticism crystallized as

RAND presented proposals for National Security Council (NSC) ICT implementation. Staffers' private critiques of RAND's initial information automation proposal echo the conventional wisdom of the early 1970's which questioned the utility of computers and harbored suspicion of being coerced by technologists.

Early Project Development

In February 1969, one month after Richard Nixon's inauguration, Secretary of State Henry Kissinger began the process of moving the White House into the information age. Kissinger lobbied Nixon to computerize the document and information handling of the National Security Council and to redesign the White House Situation Room. Computerizing NSC records would enable improved tracking and indexing, enabling the NSC to sift through information and make informed decisions in less time. The renovation of the White House Situation Room and the White House Communications center were also priorities. The situation room was little more than a secure conference room. The existing communications center had been built in an old underground bomb shelter and was difficult to access, improve, or expand. The redesign of these two areas would also co-locate them, improving the connectivity of the White House to the rest of the world. .[76]

Kissinger's modernization program began almost from the day Nixon took office. A team of Kissinger's staffers including Arthur McCafferty, Larry Lynn, Mort Halperin, and Richard Moose, with input from Roger Levien of RAND, began to examine how the NSC could automate its operations in late January 1969. They produced a four-phase proposal outlining a series of studies analyzing:

- The existing logging and document control system;
- How computers could be used to accomplish these tasks;
- How to utilize the computers of other government agencies to accelerate telegraphic communication; and
- How to create a Situation Room that could take advantage of these functionalities. These studies would together form the ICT implementation roadmap the White House followed in the coming years.

There was good reason for Kissinger's team to be concerned about managing the NSC's information flow. The problem of information management proved embarrassing to Kissinger when the NSC found itself out-organized by the State Department.

> "Our experience with Secretary (of State) Rogers' list of 62 items demonstrates the urgent need to improve our logging and follow-up procedures. Although the list was highly misleading it still took us three or four days to sort it out. We need a system which makes it impossible for such a list to sneak up on us."[77]

At the time, the NSC staff received or created over 1,000 documents per month. Furthermore, staffers might make as many as one hundred changes to a single document which needed to be tracked. All these documents also needed to be conveyed to their destination. The NSC's potential inability to manage information threatened its efficiency and effectiveness, undermining its authority. The NSC was drowning in paperwork [78]

Phase I

Phase I of the plan envisioned by Moose and his team focused on improving the existing manual document system and preparing documents for export into a computerized logging system. RAND would conduct the study portion of phase I over two weeks. Afterwards, the study recommendations would be implemented by the NSC within thirty days. Funding for phase I was limited as neither White House nor the NSC were identified as funding sources. The plan identified other sources including left over funds from an existing research grant from the Rockefeller Foundation, the Department of Defense's (DoD) Advanced Research Projects Agency (ARPA), and the Office of International Security Affairs (ISA).[79]

Phase II

Phase II of the project, determining how computers could be used for document control and logging, would also be conducted by RAND and directed by information systems expert Charles Joyce. Phase II consisted of two components: document control, and document filing and retrieval. Moose's team envisioned the document control component to include: a document receipt record, a location record, searchability with respect to subject origin or recipient, and the capability for a monitoring officer to track action items as milestones approached. The document control component would rely upon a file and retrieval system that would provide an underlying structure to enable these functions. The planned document filing and retrieval system would included a data base with full texts of important materials, abstracts of lengthier documents, and indexes for occasional references that would be searchable with plain text queries. The search results were to be retrievable by the operator on screen or by print out. This phase was projected to cost in excess of $10,000 and take 3 to 4 months. Rented equipment for implementation was

estimated to cost $7,000 to $10,000 per month. The NSC and the White House Communications Agency (WHCA) funded Phase II.[80]

Phase III

Phase III was envisioned to follow phases I and II and was focused on linking other governmental computers into the White House system and making the White House computer into a "switch" that would:

- Utilize the data base at other agencies to expand our capabilities without having to duplicate work they have done;
- Modernize our communications facility to speed up receipt and dissemination of telegrams.

The plan did not identify what organization would be responsible for the work but did note that the Defense Communications Agency (DCA) had already budgeted for this work as it was responsible for maintaining command and control infrastructure to the President. The plan does not identify a budget or time frame for completion.[81]

Phase IV called for the creation of what would become the White House Situation Room with all of the attendant communications, command, and control technologies envisioned to be required of such a facility. The plan also notes that if the White House were to take a strategic lead in information handling technologies, other agencies would be compelled to develop compatible systems. The plan specifically notes that the White House would work closely with the State

Department, DoD, and the intelligence community. Moose, McCafferty, Lynn, and Halperin felt that this kind of stimulus was particularly important as many agencies were falling behind technologically. While Moose and his team's plan for Phase IV included no estimate of the time or expenditure that would be required for implementation, the plan's authors indicated that the results would be worth the government's investment. [82]

Project Approval

On April 11, 1969, Kissinger advised Nixon to approve the Moose proposals and Nixon approved them April 23, 1969. The action memorandum, based upon Kissinger's advisors' plan recommended five specific actions improve the information support to the President. The memo first called for the construction of a conference room to support the situation room with modern communications and display capabilities that would be funded by the DCA. Secondly, Kissinger suggested an automated information system. Noting that such messages were typically routed via Teletype and handled by many intermediaries before arriving at their destination, Kissinger suggested that the envisioned system would index, rout, and display or print out sufficient copies for all receiving parties. The new information handling system would cost $500,000 initially and $300,000 annually which would be borne by the WHCA and would take two years to acquire and install. Third, Kissinger recommended that the communications room, situation room and conference room all be collocated. This would require significant underground construction to expand the existing situation room and relocate the communications center. This improvement would improve the efficiency of the situation room and the communications center. The WHCA would take responsibility for the estimated $1.5 M cost of the project which would take a year to complete. Fourth, Kissinger recommended that the WHCA conduct a review of existing

communications systems to insure that the president could effectively communicate with federal agencies. Finally, Kissinger recommended that the RAND Corporation assist the White House with a study to evaluate an information handling requirements of the White House to effectively utilize the new facilities and improvements described in the proposal. RAND's work would be underwritten by ARPA.[83]

Even as Nixon approved the information-handling project, the Domestic Council and H.R. Haldeman were interested in the new facilities. Ken Cole, a senior domestic policy advisor, noted to Haldeman that the new NSC computer system would have spare capacity to "other White House operations as well" with minimal cost and effort.[84]

A month after Nixon's approval, Joyce had taken charge of the project and was moving it forward after being reassigned from his previous job at the Department of Defense. In a May 24 memo he informs Kissinger that the information handling and display project is coming along well. Joyce relates that he has recruited a design team from the DCA. He had also retained architects through the GSA and begun soil testing for the underground expansion of the situation room. Within the next month, he expected ARPA and RAND to reach agreement over a statement of work as well as receiving designs, sketches and construction plans for the new construction projected to commence in July.[85]

Early Interaction with the Intelligence Community

On May 26, 1969 Lee DuBridge, Nixon's Science advisor and a former member of the President's Foreign Intelligence Advisory Board (PFIAB) wrote to Kissinger to offer his help.

DuBridge noted that a previous report had looked some of the same issues confronting the White House but related them to the intelligence community. He volunteered that there were a number of experts from the Computer Sciences Board of the National Academy of Science available to assist the information-handling project. 1969[86]

On September 8, General Maxwell Taylor, chairman of the President's Foreign Intelligence Advisory Board (PFIAB) issued a letter to Kissinger wherein he expressed the PFIAB's concern over the historically poor information flow between the intelligence community and the president due to the absence of new information handling technologies. The PFIAB wanted the CIA to be responsible for acquiring these new intelligence handling and distribution capabilities. [87]

Joyce, as information handling project manager subsequently commented on this letter to Kissinger in October. Joyce noted that an information handling system was being coordinated by PFIAB but that it required consensus to accomplish anything and that consensus among the members of PFIAB was difficult to achieve. He further noted that PFIAB's information handling panel received advice from the Office of Science and Technology and the National Academy of Science, which raised their estimation of the capabilities of information handling technology, but did little to detail how the technologies might actually be implemented and used. Joyce noted that any consideration of the value of information handling technology needed to be understood with a few caveats: that computers by themselves will not solve information access problems; that computers are not essential to solving information handling issues; that computers may be a poor solution to a misunderstood problem; and that little is known about the information consumption requirements of top policy officials. Joyce counter proposed offering to

coordinate a seminar with the PFIAB's information handling experts and senior officials from the intelligence community. Additional he suggested that specific studies be planned to examine information handling with respect to the President and the Secretaries of Defense and State under the supervision of the NSC or the Director of Central Intelligence (DCI). Kissinger approved this plan in November.[88]

In early December, Joyce and Kissinger received feedback from Richard Helms Director of Central Intelligence regarding the PFIAB's recommendations. Helms told Kissinger that quicker adoption and implementation would be more expensive and that in any case, adequate progress was being made on information handling issues.[89] Kissinger was also aware that the PFIAB had been made a similar recommendation in 1967 with which the intelligence community had vehemently disagreed. Kissinger recommended to Nixon that the president not take any action and await the results of the information seminar being coordinated by Joyce and scheduled to occur in January 1970. The seminar would be attended by the heads of the NSA, CIA, DIA as well as a representative from the Departments of State and Defense and representatives from the bureau of the Budget.[90] The documentary record does not reveal any outcomes from this meeting but does show that Joyce continues the development and deployment of the information handling systems within the White House without consulting the intelligence community.

The System Decision

The installation and adoption of the NSC computer was, in Charles Joyce's words "one of the most enjoyable governmental experiences" he ever had.[91] The NSC computer was installed

early, under budget and with minimal administrative obstacles. This assessment begs the question of why forces aligned behind the White House computer project.

A Computer System for the White House

The initial work done by RAND for the information automation project did not impress Joyce. RAND researchers Roger Levien and Bruce Goeller proposed to use a custom computer system from Informatics Corporation for the NSC. Levien and Goeller preferred this hardware because they were familiar with it from its deployment at RAND. However, the NSC balked at the initial equipment cost of $45,000, as the NSC did not have that kind of funding within its own budget. Further disinclining the White House from Levien and Goeller's equipment recommendation, Joyce discovered that the CIA already had an existing computer capacity which the NSC could use for free. After some additional haggling between Levien, Goeller, and Informatics representatives, the cost of the RAND recommended computer was reduced to $12,000. Still Joyce did not see the point of paying $12,000 for a computer system that duplicated an existing, free capability that already existed within the government.[92]

The White House Communications Center

With the initial organizational systems finalized in accordance with the 1970 RAND information study, the NSC staff began implementing the data system on the CIA computer. The White House staff believed this to be an interim measure prior to the construction and completion of the White House Communications Center (WHCC) as envisioned in Kissinger's initial information handling memo to Nixon plan. While the WHCC was initially planned to be located under the southwest lawn of the White House, Nixon decided in July of 1970 to veto that location without

explanation.[93] Following Nixon's edict, discussion focused on whether to locate the WHCC in a new building, in the existing Executive Office Building, or in a different White House location. At this point in the discussion, a variety of non-NSC stakeholders began to make their interests known.

Following the RAND proposal Charles Joyce began to design and deploy a - computer system to meet the needs of the White House. Joyce's first task was to investigate the needs of users. While the information handling system was originally desired by Kissinger and the NSC, the Office of Management and Budget and the Domestic Council were also interested in using the new White House computer facilities for their own work. Haldeman held a meeting on June 25 and attended by Kissinger, George Schultz, head of the OMB, John Ehrlichman Assistant to the president for domestic affairs and General James Hughes of the WHCA to discuss the creation of a task force to examine White House computer needs. By the end of August 1970, a task force comprised of the White House Staff (WHS), NSC, DC, OMB, and WHCA had examined the information handling and computing needs of the White House. They had drawn upon the analysis and expertise of the OMB and DCA. The task force came to a consensus regarding a wide range of issues surrounding the systems proposal, notwithstanding the ongoing RAND research into the needs of the White House.

In the "Recommendations for a White House Computer System," the task force identified nine service requirements and five system requirements for the WHCS.[94] To meet these requirements, the report examined the cost effectiveness of buying one, two or three systems to meet these needs. Due to reliability requirements for messaging, the single system solution actually required

two computers. The dual system option linked two message handling computers to a single general purpose computer. The three system solution consisted of a message handling system, a computer serving the White House, NSC and Domestic Council and a third system for the OMB.

Table 1: White House Computer Requirements August 1970

Service Requirements	Systems Characteristics
Automate the message handling functions of the White House Communications Center, assuring maximum reliability and accuracy in operation.	The system must provide suitable privacy and security protection for classified and other sensitive information.
Provide for monitoring at a remote console and selective printing of incoming messages for the White House Situation Room and the NSC staff.	The system must be capable of providing on-line time-shared remote access to information files for different user groups in the White House and the EOB.
Provide two separate on-line indexes of documents, one for the NSC and one for the Domestic Council. Provide for on-line input of information to these indexes.	Message processing must be highly reliable. Other functions can be supported initially at the level of reliability available from a single, good commercial quality central processing unit. The capability to increase reliability by the addition of backup equipment should be planned for implementation in the shortest possible time if the reliability of a single processor proves inadequate.
Provide an on-line action status file for the NSC, integrated with the NSC document index.	Proven computer software should be used to the greatest extent possible. Low-risk approaches should be pursued in the development and acquisition of new software.

Service Requirements	Systems Characteristics
Provide a suitable interface with micro image storage ad remote video display systems serving the NSC and Domestic Council, so that the output of the index search can be used to locate and display documents in the microimage file.	The system as initially installed should be capable of expansion to meet both anticipated growth in existing applications and the addition of new applications of a different character by evolutionary changes in hardware and software. Expansion of capabilities should be possible by the addition of terminals, users, and files without extensive revisions of existing data files and applications programs.
Provide an electrical interface capability between the message handling functions and information storage and retrieval functions to permit updating information files from incoming messages	
Provide a suitable data processing and remote access environment to support a full text storage and retrieval capability and a legislation tracking capability to support multiple users in the White House and Executive Office of the President	
Meet the data processing needs of the Office of Management and Budget in which the requirements for privacy, responsiveness, and efficiency are primary. Some requirements, for non-sensitive tasks in which quick response is not a factor, might continue to be met by utilization of other agency facilities as is presently done.	
Provide automated administrative support for the White House staff as requirements in this are developed.	

In evaluating the merits of the three proposed solutions, the task force was concerned about cost and space as well as efficiency in terms of system utilization. The report found that the single system option, upon further research had to be further subdivided as the two potential system vendors lacked the requisite technical expertise for both message handling and data processing

systems. Message handling was required to process the information coming into the NSC from other parts of the government while information handling was required to print, display, process, and distribute the information within the NSC. The plan agreed on by Kissinger and Joyce required both. The first vendor could provide a strong data processing system but would need to develop a message handling system at great cost of initially $2.16M and an additional $1.25M thereafter. The second vendor could offer a reliable message handling system but minimal data processing hardware and software, at an initial cost of $.985M and an additional $.95M thereafter, which would hamper the White House's ability to expand their systems in the future. Evaluators from the DCA and OMB also dismissed the three-system solution which suffered from high cost (initially $1.33M with an additional $1.27M thereafter) and inefficiency as two computers were not necessary to comfortably handle OMB and White House functions.

The report, citing lower cost in time, space, and money, recommended the two-system approach. Under this plan RCA vendors would provide the message handling system and IBM would supply the data processing systems with an initial cost of $.995M and an additional $1.06M thereafter. The report recommended that the Defense Communications Agency (DCA) should be placed in charge of the systems acquisition with the White House Communications Agency shouldering responsibility for operating the systems. The report chose the DCA because of its record of acquiring systems in a shorter span of time than either the General Services Administration (GSA) or the OMB. The report identified the WHCA as the best operator of the system owing to its rapid response time since it was a 24 hour operation and the report's authors believed that the WHCA could also provide a higher degree of security for both classified and politically sensitive information. The DCA, upon authorization from Secretary of Defense

Melvin Laird estimated that it would take 18 months to complete installation pending the availability of space within the White House. (The messaging system was to be installed in the East Wing of the White House.) Laird's sign-off on the project was mostly a formality as the DCA operated under his authority. The new data processing computer system required a shielded space and an upgraded power supply in the Executive Office Building (EOB) at a cost of $536K. [95]

In September 1970, Haldeman informed, Schultz, Kissinger, Hughes, Ehrlichman and Joyce that he had approved the recommendations of the task force including its conclusion to make Haldeman senior coordinator for all facilities and naming Joyce project manager for acquisition of the computer system. Following acquisition, OMB was to take over from Joyce.[96]

The RAND NSC Information Study of 1970

Kissinger simultaneously approved two studies evaluating information handling procedures in the White House and other implementations for information organization. Both studies would focus on how the NSC handled managed information about the Middle East which was a primary area of concern and representative of greater challenges in the NSC. A seven month RAND study and five month Institute for Defense Analysis (IDA) study were run concurrently and funded by the NSC. While the RAND study was to examine the applications that would be useful to information handling, the IDA was tasked with examining the special role and information handling patterns of the intelligence and military communities' watch centers and the White House Situation Room. The IDA study may also have been related to the PFIAB's interest in information coordination within the intelligence community[97]

RAND had sought the contingency planning study as well but was rebuffed by Charlie Joyce and Robert Behr, Joyce's deputy in April of 1970 because they and Kissinger agreed that it was concerned with military options. (The RAND proposal had included linking the State Department, CIA, National Military Command Center (NMCS) and the White House in contingency planning and evaluation.) Joyce assigned The Joint Chiefs of Staff, the Defense Communications Agency and the MITRE Corporation to complete the contingency planning study along with the IDA.[98]

In March 1970, a RAND study group led by Paul Hammond submitted a research proposal to Joyce who approved it. RAND proposal focused on five areas of information flow interest: the regional US diplomatic agenda, the US regional presence monitor, regional issues file, negotiating histories, and contingency plans. RAND understood that these categories of information were overlapping and that part of the project was to leverage such overlap into efficiency.[99]

The RAND study proposed to investigate these areas in three stages: assessing information availability, constructing data structures, and developing data outputs. RAND anticipated that the project would last five months and take 16 man months of work completed by small teams assigned to each stage. The first area being looked at, the regional US diplomatic agenda, would help diplomats interweave actions, deadlines, and calendars of political, economic, religious, and social events in the region and enable diplomats and the State Department to track and leverage their diplomatic activities more effectively. The US regional presence monitor data structure would provide an in depth accounting of US diplomatic and military assets deployed to a region

including a detailed accounting of individual costs for programs, personnel and bases. The regional issues file would compile events and issues not easily represented in the diplomatic agenda such as issues related US economic, political and social goals. The fourth area, negotiating histories consisted of documents organized by issue and country surrounding the wide range of negotiations the US was involved in. In particular, this area was also to include comprehensive and authoritative pronouncements and interpretations regarding previous agreements and negotiations to maximize continuity. Finally, the contingency planning area focused on examining the potential of electronic data handling to assist in evaluating contingency plans. These studies constituted a comprehensive cataloging of the NSC's current information handling practices so that they might be automated faithfully and articulated accurately in the software.[100]

Initially, RAND sought to characterize the nature of data flows within the NSC prior to the design of suitable applications and software. RAND inserted researchers led by Roger Levien and Bruce Goeller into the White House to examine the flow of documents and devised a complex coding scheme to encode documents for automatic search and sorting and they submitted a proposal and report on April 20 1970.They had devised a system whereby each document was classified by a variety of codes representing topic, author, recipients, and handling instructions. This information was then inputted into the electronic database that would form the basis for NSC queries. The action and information monitoring system (AIMS) was a software package designed to query, contain and maintain the database.

Levien and Goeller divided the project into two overarching, complementary systems: a paper flow system and a computer-based recordkeeping and reporting system. The paper flow system concentrated on devising procedures for handling and collecting documents. The computer system was flexible and accommodated incomplete non-standard entries while retaining the capability to reflect rapid changes to documentary records. The computer system was designed to function through Informatics System IV computer. As noted previously, despite RAND's claims that this was a common computer system, Joyce and others balked at the price of the proposed system especially as they had made arrangements to use processing time on the CIA's computer. Levien concluded this interim report to Jean Davis of the NSC by noting that once steps were taken to implement the system, it could be operational in little over a month. In spite of their confidence, Joyce shelved the AIMS software and the computer proposal for reasons of cost.[101]

The RAND Information System Application Report of 1970

In November 1970, the RAND research team of Paul Hammond, Bruce Goeller, John Koehler and William Quandt issued its final report and recommendations on the information handling software for the NSC. RAND had spent the previous year interviewing NSC personnel and analyzing workflow to discern computer applications that would assist the NSC. Their report was comprehensive and ambitious, but would not be well received.

The report identified three user groups within the NSC: area specialists, functional specialists, and supervisory and support staff. RAND discovered that these groups operated in different ways and thus had different information requirements. Area specialists were focused on a particular global region, functional specialists were focused on a broad area such as foreign trade, and the

support staff provided assistance to these groups as well as senior policy makers in the White House.

For area specialists, five applications were recommended: daily briefing recap, event chronology, regional presence monitor, regional program monitor, and computer-assisted cable handling. These applications were designed to help area specialists focus on information specific to their region of specialization and make it easy to have information at their fingertips about US activities, military presence, and significant regional events.

RAND suggested four applications to assist functional specialists: country data files, a directory and index of government data holdings, quantitative analysis tools, and text analysis tools. These applications were designed to assist functional specialists to easily access key data such as GDP and unemployment and produce comparative analyses. These applications also provided analysts with a repository of data analysis tools including an application to search text for keywords and phrases.

For the advisory and support staff RAND recommended two key applications: an action and information monitoring system and a calendar. These tools were designed specifically to keep their primaries aware of time and project management schedules.

The report concluded with two principal recommendations. The first urged the adoption and implementation of hardware and software to support the aforementioned applications in three phases, with adoption of the most important applications first. Secondly, RAND recommended

that it continue its work, with the support of the White House, to deploy the recommended system and begin work on designing new systems to address additional needs of the NSC. RAND added that their recommendation of an information system for the NSC was based in their belief that such a system would be to the NSC's advantage. More specifically it was important that the NSC had control over the system as the queries submitted by analysts could be as revealing as the answers, revealing NSC internal policy and strategy. As the report indicated, RAND had little confidence in traditional computer companies:[102]

It is therefore essential that the design process involve a group of people who understand computers, are familiar with NSC operations, and can identify and deal with your staff's substantive problems in *their* terms. We have no confidence that any hardware or software vendor, however competent, can meet these requirements. We are confident that we can.[103]

In a personal letter to Kissinger, Hammond went further, noting that the applications report was based upon three key observations of the RAND team. First, that the NSC as an institution cannot be strengthened through expansion. Second, the NSC's main problem is identifying relevant information in a timely fashion out of the large volume in the NSC's possession. Third and crucially, "That other agencies in the national security domain are currently developing information systems to meet their own needs. An early start on an NSC information system will help insist that those developing systems meet the president's needs as well."[104]

Hammond therefore advocated that the NSC acquire the flexible and upgradable system recommended by RAND and provide ongoing administrative support to the system to expand and advance it.[105]

NSC Reaction

The NSC harbored significant doubts regarding RAND's far reaching proposals and self-assuredness. Joyce, Jeanne Davis, NSC secretary and head of the NSC Secretariat, as well as administrative staff and policy analysts were all skeptical of the report. RAND's memo detailing its $120,000 cost estimate for the coming year in anticipation of the implementation of the proposed system added weight to the NSC's suspicion.[106] To better evaluate RAND's report, Jeanne Davis of the NSC solicited comments from representatives of the three groups RAND identified in their report. Their comments were highly critical of RAND's proposal.

The NSC staffers believed that the RAND proposal was too ambitious, failed to address the "real" needs of the NSC, and significantly underestimated the total cost of implementation. Analytical services were singled out especially. Staffers believed that numerical analysis packages could be easily acquired from other governmental agencies or that the NSC could simply obtain pre-processed information. Textual analysis was similarly singled out as staffers voiced their opinion that their existing methods for sorting information were effective and sufficient. They also aired doubts about the effectiveness of automated text analysis. Finally, staffers harbored concerns about the ability of RAND to deliver on the required applications.

NSC staffers believed RAND was going far beyond what they needed in terms of the breadth of recommended applications. In this respect, they were correct. Hammond had already discussed the importance of the NSC setting standards for computers across the government so that the White House would assert its central role in computerization. Time and again, NSC staffers pointed out that their greatest concern was locating and accessing important information. They were not concerned with the establishment of standards which might lead to better long-term information flow and organization. In this regard, NSC staffers sought directly useful applications and found many of RAND's recommendations to be duplicative or of little practical value.

NSC staffers overwhelming suspected that the costs of the RAND applications would be far higher than RAND suggested. Manpower for coding the thousands of documents coming through the NSC would be extensive and would also cost time and money. With the NSC's capabilities already taxed by the volume of information flowing into it, staffers did not recognize a significant time savings from data automation. In many cases staffers specifically noted that existing paper systems, such as the purchase of reference volumes from the United Nations, were highly cost effective. Analysts noted that significant amounts of information would be used infrequently and that it was far more efficient to simply purchase reference books.

The most insightful memo came from NSC staffers Harold Saunders, Samuel Hoskinson, and Rosemary Nasher who saw through the RAND report to the crux of the issue facing Kissinger and the NSC. Their primary issue with the RAND applications report was that it did not deal

with the key issue: Should the NSC lead the government in technology adoption or should it focus on processing information from key agencies? The staffers wrote:

> "The basic issue we face here is not addressed in the RAND study. It [the study] affirms that such information [schedules, policy documents etc.] could be helpfully computerized. RAND's staff has been around the government and knows a lot more than its report says about what the rest of the government is doing and can contribute in this field. But they have not come to the point in this report that should be of greatest concern to us: How can the NSC bring the resources of the whole government to its fingertips by constructing a government-wide system."[107]

While these staffers thought, like Hammond that making the NSC and the White House a leader in government computerization was an important goal, the scope of the RAND report only dealt with the workings of the NSC. RAND, they believed supported such as strategy, but its research essentially answered a different question. Moreover, the staffers recognized that even within the NSC, there was disagreement on this issue. They believed that further internal discussion and decisions be made about the NSC's computer policy course needed to be made before such sweeping action was taken.

Saunders took a more concrete position in a subsequent memo to General Alexander Haig, deputy assistant for national security affairs by proposing that the NSC take a leadership role in developing a government-wide computer system for coordinating information on the rest of the world. Saunders recognized the increasing complexity of information inflows and that policy

decisions would be based on an ever widening foundation of data. The system he called for would provide a broader base for global decision. Saunders concluded: "the main task is for the NSC to provide government-wide leadership in the development of a broad computer system that will stimulate a wider view of our relationships with other countries."[108] Saunders also noted that some of RAND's proposed applications, such as the calendaring system, might have limited utility, but most of their proposals would not be helpful to the NSC.[109]

Understanding the Discussion

To fully comprehend the RAND proposals and the NSC's reaction to them, it is critical to understand the computing environment in 1970. RAND as a government research boutique was interested in finding and solving problems. With respect to the NSC, they were focused on developing a system to better manage information and allow the NSC to function more efficiently and effectively. RAND chose an Informatics computer rather than an IBM which was not widely used and used their own custom software to solve the NSC's unusual information handling requirements. This solution would take money and time which were resources that the NSC did not have.

The NSC was skeptical of these proposals for good reason. Contemporary computer industry trends argued against the solution being proposed by RAND. Cost, manpower, and time were all valuable commodities and the NSC was dubious about RAND's proposed return on investment and the promised minimal disruption that technology implementation would cause. The NSC voiced its desire to RAND through meetings and memos for a more modest solution focusing on its most pressing problems which would in their minds minimize their cost and risk. The NSC

took a further step to minimize its risk by eventually settling on the adoption of an IBM computer, thereby gaining the benefit of an existing pool of software and software authors.

RAND Reaction

After meeting with General Haig on Februarys 5, 1971, Hammond issued an alternate plan with a more limited scope. In the plan, Hammond acknowledged the challenges of implementation, but noted that while taking account of existing structures, technology can affect change, writing:

System design must take careful account of the status quo and doubtless could be used to reinforce the status quo. Yet it can also effect substantial change. Once people start using information system services, in however trivial a manner, the change process is under way: the user learns as he uses and the computer services can be adapted and further developed to reflect the accumulating experiences with the user.[110]

Hammond concluded by arguing that hardware was not a major factor in application development and implementation, reflecting RAND's knowledge of the NSC's reservations about its earlier hardware proposal.[111]

RAND's alternative NSC information system proposal offered three separate alternatives and a fourth option of implementing some combination of the first three choices. The first option was the implementation of a crisis handling system. The crisis handling system was designed for the president as a situation room where he could oversee political and military situations globally and would be linked with the DoD, CIA and the State Department (DoS). The crisis handling system would specifically support the Washington Special Action Group and the president's

nuclear responsibilities. The computer supported situation room would also have the effect of forcing the supporting agencies of configuring their systems in accordance with the situation room and the President.[112]

The second alternative was an intelligence-centered information system that would focus more on analysis than action and would link the various intelligence agencies together to advise the president and provide him with early warning of important events. Hammond envisioned that this interlinking would also provide a fruitful competitive environment among intelligence agencies. Because of its focus on analysis, this system would, unlike the crisis handling system draw upon more capabilities of the intelligence community since it focused on long range plans and strategies, while still placing the president at the center of its focus.[113]

The third option was an implementation monitoring system. This application also focused on the president but was strictly concerned with tracking the implementation and progress of presidential policies. This system had a broader scope than the first two systems as the President and his staff were free to track whichever policies they deemed important.

Having made these alternate proposals, Hammond noted that any information system had to include other considerations such as user base, implementation strategy, labor utilization, and future expandability.[114]

Hammond, as a clearly secondary option also suggested that it might be possible to adapt existing governmental computing systems to the NSC's requirements. Hammond strongly

emphasized that this was a far weaker option because the resulting system would be an incomplete patchwork of systems and applications rather than the cohesive system envisioned by RAND. This conclusion was based upon RAND's experience with other government computer systems. RAND was aware that a wide variety of computer systems were employed by different government agencies and that these systems were idiosyncratically linked to match the needs of the individual organization.[115]

Table 2: RAND Survey of Computer Applications at US Agencies March 1971

Organization	System
Office of Management and Budget	Budget tracking
Department of the Treasury	Treasury disbursement tracking
Office of Emergency Preparedness	Unknown, though significant computing and storage capacity
Department of State	SADI: Subject word indexing Trade Policy Modeling Tariff Surveillance Economic reporting Public policy statement file system Country data file system Law of the Sea Munitions license information system Cultural exchange information retrieval system Berlin crisis file Automated cable distribution
AID	PAIS: Program Activities information system
CIA	Biographical files Specialized information files Other decentralized limited applications
Intelligence Community	COINS: Computer linking interface
NSA	High capacity keyword search software
DIA	Computer indexed microfiche index

Organization	System
DoD	Logistics and operations management systems
US Air Force	Community information system

Hammond's efforts to insure RAND's continued involvement in the NSC's computerization were in vain, however. Joyce advised Kissinger that RAND had been studying the situation for years and had come up with few practical applications new to the NSC staff. He also cited the significant resistance of the NSC staff to many of RAND's proposals. In April 1971, Kissinger approved Joyce's recommendation for four applications: an index of NSC documents and reports; an automated chronology of significant events; an automated meeting and contact list for the president with respect to dignitaries; and a series of applications for the Program Analysis Staff to assist them in their work with Vietnamization (these would include information from the DoD and the DoS). The analysis of Vietnamization was a major complex objective as it sought to aggregate and analyze data from the wars of Southeast Asia, country programming studies, economic models, and force cost analyses. Joyce chose these applications based upon RAND's work and the responding comments of the NSC staff. Joyce was particularly interested in avoiding duplication of information and sought to simplify the aggregation of this information for use by the Program Analysis Staff. Much of this information was related to force strengths, supply situation, and infiltration rates and was consequently classified.[116] Cost as noted previously was a major concern for the White House and this problem was elegantly overcome by saddling the DCA with $5.7 million of the estimated $6.5 million cost between 1971 and 1973. This was accomplished by Joyce who from his past work at the DCA understood that it had a substantial budget for the purpose of insuring the command and control infrastructure of

the US military including the President in his role as commander-in –chief. RAND's work ended with a polite thank you letter from Kissinger which also marked the beginning of the implementation of computers in the NSC.

RAND's attempt to bring the White House into the Information Age in 1971 was doomed from the beginning. RAND's proposals fell onto an unreceptive audience of NSC staffers who were comfortable with existing paper-based research systems and only desired a supplemental way to help them navigate the ever increasing volume of information flowing into the NSC. At the top, Kissinger wanted information channeled into sound policy. Charles Joyce, project coordinator negotiated between all these constituencies to support an incremental approach using existing governmental capabilities that were embedded in the military and intelligence organizations with whom the NSC already worked closely. This decision set the initial computing standards for the White House and cast information and its analysis in the dim light of the Cold War.

Conclusions

Joyce and his team received input from RAND and other agencies regarding the White House computer hardware configuration. Later, he received advice from RAND and users within the NSC regarding computer users. In the end, the internal voices of users won the debate. The internal stakeholders experience with documentary records and suspicion of computers led to an incremental adoption plan that focused on creating a functional inexpensive computer system for the White House that was designed for national security purposes. RAND's vision for a unified computer system based in the White House and to which information from all government

agencies would flow had insufficient support from NSC users who simply wanted to manage their ever increasing flow of information.

Computer Applications for the President

Following the lead of the NSC to adopt a computer system, Haldeman approached Joyce seeking to employ the new White House computer for the use of the Domestic Council and the President. Haldeman was interested in a variety of applications organized into four broad categories: contact lists, administration of the White House, index applications, and presidential correspondence.

Within the contact list category Haldeman wanted four specific applications: KARDEX information, appointments information, entertainment information, and an outgoing presidential correspondence log. The KARDEX system would be a searchable address file containing the president's circle of friends whom he addressed on a first name and nick name basis and would include additional fields describing these individuals' relationships with Nixon. The appointments file would contain similar information fields as the KARDEX system but also include those people who had spoken with the president in face-to-face conversations, by telephone, or while he was travelling. The entertainment file would consist of KARDEX information for people who had attended White House or presidential social occasions. The outgoing presidential correspondence log was to be a data file that held information on all letters and telegrams sent with the president's signature.

The application dealing with the administration of the White House would be the White House and Special Projects Payroll. At the time, this piece of software Haldeman wanted on the White House computer was a tested package that tracked employee information related to their employment including leave accrual and payroll.

The index applications would consist of a Central Files/Domestic Council Index and a Public Information Index. The Central Files/Domestic Council Index, would be compatible with the NSC system and contain titles and summaries of documents held within the White House's Central Files. The Public Information Index would serve as a catalog of press releases and public announcements made by the White House.

The presidential correspondence application would, unsurprisingly, be a letter preparation application which the White House staff envisioned would be implemented in three stages. The initial goal would be to allow a remote computer to reproduce form letters onto typewriters. Once this was achieved, the White House staff then wanted the system to have a composing capability to create form letters out of standard paragraphs. In the final iteration, the staff hoped that the computer would be programmed with sufficient vocabulary and linguistic capability to compose complete, high-quality letters.

Computers, Power, and Politics

Though expanding the pool of computer users beyond the NSC to include White House Staff appeared to be an afterthought during the summer of 1970, it was actually a carefully thought out plan by Joyce. In August 1970 H.R. Haldeman took over the post of White House Coordinator which gave him the authority to manage and steer the course of the computer project. In practice,

Haldeman left such matters to Joyce. Joyce was an effective project manager who had the trust of Kissinger and NSC principals such as Jeanne Davis. The NSC viewed the computer as its own and wanted to ensure that its interests were protected. With Joyce as project manager, the NSC was confident in a successful outcome.[117]

Joyce was asked to develop and deploy software for the EOP through numerous meetings and memos from Bruce Kehrli, an assistant to Haldeman who Haldeman delegated to manage the computer project. Funding for these software projects were provided by the DCA with Joyce vouching for their use for national security affairs. The initial discussions of White House computer use included it use for the EOP along with the NSC and the OMB. After Joyce completed acquisition of the computer system and had made decisions about the applications for the NSC, Haldeman through Kehrli had him turn his attention toward the needs of the EOP. Joyce notes in a memo that:

Since April 1971, there has been a new emphasis on the use of computers to support preparations for the 1972 elections.[118] The software needs of the EOP had expanded beyond what they had initially been described as during the initial hardware negotiations of 1970. Joyce sought guidance from Haldeman and his staff in terms of prioritizing the acquisition and deployment of new software applications.

Haldeman, Gordon Strachan Haldeman's liaison to the Committee for the Re-election of the President (CRP)[2], Robert Morgan, Deputy Assistant to the President for Domestic Affairs, and Jeb Magruder, Deputy Director of Communications were interested in the benefits afforded to the administration by a computer. The analysis and proposal for a White House computer included provisions for a "data processing and remote access environment to support a full text storage and retrieval capability and a legislative tracking capability to support multiple users in the White House and Executive Office of the President" and "administrative support for the White House Staff."

Jeb Magruder was especially interested in automating presidential letter writing which he hoped[119] to put in the service of President Nixon's re-election bid.

The White House political staff's interest in computer applications for both administrative and political functions became more evident in June 1971. While Joyce's team was busy installing the White House computer in the East Wing and Executive Office building, the Committee for the Re-election of the President (CRP) and Strachan were concurrently compiling a list of potential computer applications listing them "in order of increasing partisan characteristics."CRP and Strachan were sensitive to the fact that use of the White House computer for partisan political purposes would appear improper to the public, especially with the Nixon Administration's contentious relationship with the press. [120]

Table 3: Potential EOP Computer Applications June 1971

All public statements by the President
Outcome of Administration proposals sent to Congress

[2] Many readers will identify the CRP or "CREEP" as popularized by the media of the day as the force behind Watergate and other Nixonian dirty tricks. In official documents the organization is abbreviated as CRP and I have maintained this convention.

Summary of all Federal programs since 1/1/69
Grants and public works projects initiated under this Administration
Economic data by Congressional district
Voting record of all Congressmen
Congressional legislation introduced since 1/1/69
Federal patronage by Congressional district
Published public opinion polls 1/1/69
Voting data for the past several elections y Congressional district
Demographic data by lowest census unit capable of being compiled for congressional districts and states
Voter registration information by precinct
Software for simulated mapping of demographic data
Major statements by opposition contenders
Major editorial comment since 1/1/69 on this Administration
Listing of all office holders-Federal, state, and local
Key members of local, state, and national Republican Party
Program to generate address labels and compile and sort lists of names

One of the first applications developed for the president's office was the KARDEX system for tracking contacts. KARDEX was a searchable data file that replaced an existing index card system that the President's secretaries already used. The new system included name, address, and keywords reflecting the individual's relationship to the president. KARDEX's advantage over the card system was its ability to be searched based on a variety of criteria including zip code, state, and keyword.[121] The KARDEX system was completed and operational by November 1971. Test KARDEX index print outs of President Nixon's contacts were printed in six directories with the same content but organized in different ways e.g. alphabetically, by state. These directories were kept by the President's secretarial staff: Noble Melencamp, Ray Price, Mike Smith, Alexander Butterfield, and Rosemary Woods. The staff recognized that these directories were reference tools and that the KARDEX system was the ultimate authority. To that end, the staff also used the directories to correct the inevitable data entry errors that were part of any similar

project.[122]

In the run up to the 1972 elections, the Committee for the Re-election of the President collected 31 million names and related demographic information such as income, address and make of car at a cost of $1 million and built a computer database.[123] CRP used this information as the foundation for its direct mail and get-out-the vote program. President Nixon also sent out nine million telegrams.[124] The White House computer was part of CRP's strategy for the 1972 election to organize and process mailings to Nixon's supporters and potentially provide processing power to analyze and utilize the voter databases that the Nixon campaign had collected. In May 1971, Jon Huntsman expresses to Joyce his concern that crucial applications will not be ready for "the critical months of 1972."[125]

CRP's database was comprised of registered voters and could produce customizable computerized lists of voters, record voter responses from canvassing, and filter results for ethnicity, age, income, and census tract information. First voter registration information was collected by vendors from selected states and formatted into a specific format designed by CRP. CRP added to this data set information about people already involved in the Nixon campaign such as contributors and volunteers. The standardized voter information was sent on to University Computing Company which integrated it with demographic information culled from other public sources such as census data and saved the whole database on magnetic tape.[126]

CRP viewed the database as a revolutionary new political campaign tool. While initially used for direct mail organization, CRP envisioned it as a multipurpose tool to conduct targeted

fundraising, campaign organizing, and volunteer recruitment. CRP believed that the database provided a 5%-10% advantage for a candidate using it. They also understood that the database was not a static artifact and estimated that up to 20% of the database would become obsolete annually, necessitating ongoing maintenance, updating and augmentation costing $806,000 through the 1976 presidential election cycle.[127]

The Nixon staff was also interested in using databases of supporter information throughout the presidency to build stronger relationships between Nixon and his supporters. Nixon's New American Majority (NAM) provided a ready pool of likely candidates. In Nixon's presidential campaign, he had worked to draw white working-class white voters to him by supporting a range of domestic policies. This NAM had only just been defined and Nixon and his advisors were invested in its continuation and therefore sought to include representatives from the NAM to reach out and encourage the participation of these voters in Republican politics. The political staff was keenly interested in using the White House computer to enable this kind of relationship building by inviting key donors and supporters to White House social events and to arrange for meetings between such supporters and Nixon when the President was travelling the country.

> "We continue to work in the creation of a system of Contact Books, one for each constituency group that will contain biographical information, contributions during the campaign, and will document those social and other activities to which each person has been invited. This will allow us to continuously prepare invitation lists of those most worthy of being invited to upcoming events."[128]

Nixon's staff arranged for key supporters to attend social events, including state dinners and guest seating in the president's box at the Kennedy Center. Haldeman emphasized the importance of coordinating and managing this information in Nixon's second term and assigning Rose Woods responsibility for coordinating invitations.[129] This was due in part to Woods's work with the KARDEX system that had been one of the first applications developed for the White House. The NAM information was mostly input into the computer by January 1973 and the White House was already steering such perks to NAM people. The political staff went further as the system became available to appoint NAM people to full time administration jobs, commissions, and boards.[130]

By June 1972, Nixon's political staff was envisioning a transition in the adoption process from building applications to address administrative issues, to building applications to support political objectives. Contact lists, file indices, payroll and accounting, and correspondence applications had largely been completed. As the end was in sight for designing applications to deal with routine challenges, Nixon's political staff began considering the design of other applications including opinion polls and public attitude analysis tools with a clearly partisan political bent. These applications were the same applications that Joyce had expressed concerns over months earlier. The staff also gave consideration to hiring its own project manager whose qualifications would include loyalty to the administration because of the potentially politically sensitive nature of future analysis applications.[131]

Conclusions

The above case provides insights into White House technology policy and national security affairs with respect to four key questions: how well did the U.S. government develop coherent

strategies that effectively integrated its national security resources; could U.S. agencies cooperate to implement these strategies; which variables best explain the strengths and weaknesses of the U.S. government response; and what diplomatic, financial, and other achievements and costs resulted from these successes and failures?

Prior to Kissinger's order to automate information handling, information handling was conducted manually with long standing document and mail protocols providing organization. This system had emerged over time, shaped by users. Prior to the information automation project, there was no system for making systematic changes to information handling procedures. Initially policy was going to be solely the domain of the NSC led by Charles Joyce. Once people in the White House discovered that the NSC's information automation actually meant that the NSC was in the process of acquiring computers, the acquisition and deployment plan became an interagency project within the White House. Project leadership was shifted so that Chief of Staff Haldeman oversaw the whole project with Joyce making decisions regarding acquisition and deployment. The priorities for computer applications still reflected the overriding needs of the NSC, with the OMB, DC, and EOP receiving attention afterwards.

While each of these organizations expressed their information processing needs to Joyce, they were not equally forthcoming to Joyce regarding their expertise and knowledge base. NSC secretariat and analysts were technological laggards who had not interacted with computers except to read about them. They expressed significant doubts about the effectiveness of an information automation system. The OMB needed the computer to process the federal budget and communicated this to Joyce. OMB's cooperation with Joyce was essential to make the

acquisition non-competitive and speeding the installation of the computer. The DC was also an organization of technological laggards and did not think that computer applications would be an aid to their work. This would begin to change during the subsequent Ford Administration. The EOP, however was a technological innovator. Their use of computers to analyze voting and create voter databases was far in advance of either political party. They also envisioned advanced applications that would allow them to capitalize upon their technological advantage. It is clear from the record that they did not communicate their level of technological sophistication to Joyce and on a number of occasions asked for applications such as a mailing system that could be used by Nixon's social secretary to dispatch invitations to a special event or by CRP to contact likely voters prior to the 1972 election. Joyce was aware of the political sensitivity of such applications; he did not realize that the EOP's vision of potential computer uses exceeded his own. With Haldeman in charge, the EOP effectively oversaw all of Joyce's activities and progress.

In the absence of any established procedure, Joyce was free to create his decision mechanisms with the approval of Kissinger and later Haldeman. Kissinger and Haldeman both gave virtually unlimited authority upon Joyce. Joyce consented to interagency reports rarely and in all cases to establish and map existing systems and user needs. Joyce's experience with technology adoption acquired during his work at the DoD led him to value the opinions and needs of users as they articulated them. While relying upon reports to describe general needs, Joyce relied upon his conversations with users within the NSC and EOP to select and develop applications.

This approach conflicts with that employed by RAND. The RAND Corporation's initial involvement was in response to the NSC's lack of time and money to accomplish a major task.

The RAND's reports reflected their experience in dealing with clients in the DoD where resources and acquisition timelines were large and required high degrees of testing and troubleshooting. While proposing a specific information automation system for the White House, RAND was invested in the idea of making the White House the hub of national security information in the US government. This idea, while supported by some in the NSC was not within the project scope envisioned by either Kissinger or Haldeman. Kissinger simply wanted to improve information organization to cope with the growing torrent of documents flowing into the NSC. Haldeman also wanted to meet the NSC's needs, but he also wanted this accomplished quickly so that Joyce could move on to work on the applications for the EOP.

Joyce, having been involved in DoD acquisition understood RAND's perspective. However, he was also aware of the very significant constraints weighing upon the White House. At a time when Nixon was seeking to cut the federal bureaucracy and reduce costs, Joyce was charged to spend millions on new technology and complete the project as quickly as possible. RAND's proposal was suitable for the DoD but not to the White House. Joyce marshaled monetary resources from the DCA to underwrite the new computer system. To accelerate adoption, he negotiated with the OMB to receive permission to acquire the White House IBM computers non-competitively. Applications were adapted from existing software already supporting DoD command and control. Joyce also brought over additional personnel from the DCA to write and customize applications and otherwise assist with the information automation project. These essential tasks were accomplished by Joyce directly or at his direction by Kissinger or Haldeman writing to Secretary of Defense Laird. The record indicates that Laird and the DoD acquiesced to every request made by Kissinger and Haldeman. It is likely that the minimal manpower and

budgetary requirements of the White House did not constitute a significant expenditure to them while appeasing demands from the White House.

The information automation project endured little oversight outside of the White House. In 1970, the White House Communications office prepared a document responding to press questions about a computer in the White House and in 1971 Congress asked the General Accounting Office to inquire about the legitimacy of the no-bid contract for the computer. In both cases, these inquiries did not inhibit the adoption and deployment of the computer system. And found no wrong doing.

One problem that this case illuminates is that the White House was not a bureaucratic organization with an organizational memory. Everything that an administration wanted to accomplish within the White House had to occur within its term of office. For Joyce, the time pressure was immense and as previously noted led him away from RAND's proposals. The absence of organizational memory would not significantly hinder the Ford Administration when it took office owing to the significant overlap between administrations, but would have serious consequences when Jimmy Carter succeeded President Ford in 1976, causing disruption within the White House's computer infrastructure.

By the end of the Nixon Administration, the NSC had an operational information automation system. Members of the NSC secretariat were writing programs for the computer to generate queries for the analysts. The EOP and the OMB also made use of the computer and were developing applications. During the Ford Administration, the DC began to use the previously

developed applications on the White House computer and the Carter Administration went further by creating the Office of Administration which among other things, coordinated White House computing resources.

Many ideas from the Nixon period persist in the White House to the present day. The automation of the President's Daily Brief is found in the list of initial NSC applications. RAND's idea to make the White House the central hub of national security information persists to the present day. The Total Information Awareness (TIA) program and Directorate of National Intelligence can trace their lineage back to RAND's information automation report. The multi-media conference room and situation room with modern communications systems to command the power of the United States in time of crisis both trace their origins to an embarrassed Henry Kissinger.

In many ways, the success of Kissinger' information automation project can be attributed to Charles Joyce's success as project manager. His leadership moved the project forward in the face of scarce resources and dubious adopters. His bureaucratic knowledge and experience in the DoD coupled with the strong authority granted him by Kissinger and Haldeman brought the project to a successful outcome. In an environment that was devoid of experience with computers and which was without formal processes for technology adoption, Joyce successfully launched the first White House computer system.

The information automation project had a major effect on the NSC. Information processing and organizational tasks were standardized and streamlined. Kissinger's fears were allayed as the

NSC was able to print out lists of projects and progress reports with supporting briefs. Beyond the day-to-day activities of the NSC, the information automation project had a broader impact on US national security policy as can be seen through the lens of US technology policy. The NSC's early computational view of computers transitioned into a data management view of computers. As this occurred, a similar shift took place in US national security technology policy. The NSC viewed computers as a secondary computational technology with respect to nuclear and rocketry programs. By the end of the Nixon Administration, the NSC saw computers as a primary information management technology that could be applied the economic spectrum and needed to be controlled to limit the economic strength of communist nations.

Kissinger's information automation project had far-reaching ramifications. It introduced computers into the White House for the first time and with it, standardized information management within the NSC. Following their introduction, user attitudes towards computers changed and that influenced their receptivity to seeing computers in a new policy light.

Chapter III: Soviet Eavesdropping and its Effect on US Information Policy 1974-1977

Introduction

In June 1975, the Rockefeller Commission released its final report on Central Intelligence Agency (CIA) activities within the United States. Established by President Gerald Ford in January 1975, The Commission's report investigated and exposed a variety of illegal surveillance activities perpetrated by the CIA within the United States and in violation of its charter. Tucked into a small section discussing foreign intelligence threats the United States was

a passage addressing the vulnerability of domestic telephone conversations to foreign intelligence services. The report stated:

> "While making large-scale use of human intelligence sources, the communist countries also appear to have developed electronic collection of intelligence to an extraordinary degree of technology and sophistication for use in the United States and elsewhere throughout the world, and we believe that these countries monitor and record thousands of private telephone conversations. Americans have a right to be uneasy if not seriously disturbed at the real possibility that their personal and business activities which they discuss freely over the telephone could be recorded and analyzed by agents of foreign powers.
>
> This raises the real specter that selected American users of telephones are potentially subject to blackmail that can seriously affect their actions, or even lead in some cases to recruitment as espionage agents.[132]

The Rockefeller Commission had significantly weakened this section from an earlier draft at the behest of the intelligence community and the White House. Initially, the Commission had detailed a far more serious and technologically advanced threat posed by Soviet espionage:

> "While making large-scale use of human intelligence sources, the communist countries also appear to have developed electronic collection of intelligence to an extraordinary degree of sophistication. Recent defectors report that these countries regularly monitor and record most of the telephone communications in major population centers of the United States. Hundreds of thousands of conversations

> are thus being intercepted, with particular numbers sorted out by the use of computers. Radio microwave transmissions, which carry most of the communications in the United States, can be and are being monitored and transcribed on a regular basis, night and day. American users of telephones who have anything to hide are therefore potentially subject to blackmail that can seriously affect their actions, or even lead in some cases to recruitment as espionage agents.
>
> These foreign invasions of the privacy and security rights of Americans therefore demand our most serious concern. They do not in any sense justify unlawful activities of the CIA which impinge on the privacy and rights of American citizens. But they do argue strongly for strengthening the counterintelligence activities of the FBI within the United States, and for maintaining, if not increasing, the CIA's capacity for collecting foreign intelligence.[133]

The Ford Administration was fully aware of the scope and gravity of this threat. President Ford began securing US telecommunications systems immediately after taking office in August 1974 by issuing National Security Decision Memorandum (NSDM) 266 "Improved Security of Telecommunications". Ford was well versed with information policy, having previous led then President Nixon's Domestic Council Committee on the Right of Privacy (DCCRP). As chairman of the DCCRP, Ford led a far ranging examination of the impact of computer and telecommunications technologies on US society. The DCCRP observed that these two

technologies were converging due to rapid innovation and potentially posed a threat to individual privacy.

During the three years of his presidency, Ford issued four NSDMs on the security of US telecommunications, more than any other President. The Ford Administration studied, proposed, and implemented a range of privacy measures designed to protect the vast amount of information collected and held by the US government about its citizens.[134] In the course of this process, the Ford Administration developed the concept of "Information Policy" for the first time. The actions of the Ford Administration are a watershed in US information policy. Both Ford and then his Vice President Nelson Rockefeller would lead the DCCRP and learn about the potential of information and communication technology. Ford and Rockefeller were also deeply involved in the crafting of US national security policy with respect to telecommunications security. This cross pollinating work shaped the technological vision of the Ford White House by connecting telecommunications and computers. When Ford learned of Soviet eavesdropping on US telecommunications from the National Security Council (NSC), he understood the significant threat to US national security it posed. Such a capability would allow the USSR access to valuable information collected by the US government on US citizens, businesses and organizations. The Ford Administration developed the first US information and privacy policies in response to the Cold War surveillance threat posed by the Soviet Union. Privacy was a Cold War defense of information.

The Ford Administration approached the problem of telecommunications security and information policy in a considered manner, mobilizing the NSC, National Security Agency

(NSA), Office of Telecommunications Policy (OTP), and DCCRP. It addressed both of open and secret policy and specifically chose to exclude organizations such as the Federal Communications Commission (FCC) which had authority over public telecommunications policy to maintain secrecy. The NSC, NSA, and OTP functioned well to develop and deploy telecommunications security strategy. The DCCRP was unaware with the exception of those members that sat in multiple organizations of the parallel policy discussions that were taking place in secure conference rooms. In the end, these parallel tracks arrived at similar solutions to manage information policy, secret and public.

The successful response of these organizations to the telecommunications security and information policy challenges before them is attributable to the urgency and importance that the Ford Administration attached to them. Ford issued four NSDMs over a three year span on the topic of telecommunications security, a singular event in the history of the presidency. The White House perceived the threat to be real and significant. They applied all of their resources to address the problem. The centralized decision making process led to limited scrutiny and opposition to the plan. Telecommunications providers had little choice than to cooperate with the US government, their largest client. Legally, the NSC was operating in an area in which the law had little to say. Having established the president's authority in this area, the policy making occurred without any legal constraints. The greatest problem facing the whole process stems from the decision to exclude Congress and the FCC from the policy-making process. The security measures discussed and implemented by the NSC clearly had repercussions on the public telecommunications marketplace but Ford decided that this information could not be

disclosed to the public as public trust in government had already been damaged by the Watergate scandal.

The work of the Ford Administration had profound implications for US information policy. The subsequent Carter administration was left with a telecommunication security program which they continued to develop leading to the creation of the National Security Telecommunications Advisory Committee (NSTAC) during the Reagan Administration. The work of the Ford Administration also instrumentally shaped the Federal Intelligence Surveillance Act (FISA), passed during the Carter Administration and a contentious legal hurdle during the second Bush Administration to the present day.

History of Computing

Computer technology during the mid 1970's was rapidly changing as mini-computers and generalized software became available. Mini-computers with their lower acquisition and operating costs enabled smaller organizations without the resources to acquire mainframe computers to still gain the benefits of computerization. Mini-computers were less capable than mainframe computers but that was acceptable to smaller organizations.[135] Computer software for these smaller, more generalized machines had similar characteristics, making the computers useful to a wide-range of less technical consumers.[136]

Networking technology was largely an exercise in the physical transversal of punch cards or magnetic tapes and the world wide web was still almost twenty years away. The Internet was still in its early deployment with limited accessibility and was pretty much unknown outside of the research community.[137] In some areas this was changing. The telecommunications company

AT&T was offering data services on its network, with the federal government as its largest client. Networking was used to transfer data or share processing resources between computers that could communicate. Unlike the Internet as used today, computers did not automatically have the capability to communicate with one another. Computer systems, especially mainframe computers were frequently idiosyncratic. Modem technology and the networking technology that would become the infrastructure of the Internet would address those issues.[138]

The federal government, as the largest client of IBM, relied upon a homogenous base of computers within the various departments of the executive branch.[139] The federal government was also the largest organization collecting and processing information about US citizens including such agencies as the Internal Revenue Service (IRS), the Department of Justice, and the Census Bureau. The US government was also beginning to use computers to manage its human resources and budget. So in addition to the information of private citizens collected through normal reporting, the federal government was managing the records of its employees, civilian and military.

So, in cities such as Washington DC which housed many government buildings information homogeneous government could exchange information over telecommunications networks. During the Ford Administration, new telecommunications companies like MCI using new transmission technologies were building facilities in to be able to bid for lucrative government contracts. As I will explore in the surveillance studies section, encryption of these signals or wireline telecommunications was limited to specialized secure, and mostly military and diplomatic networks.

Science and Technology Studies

The urgency and directness of the Ford administrations efforts to protect US telecommunications was premised on a number of factors. Ford and Rockefeller had both learned about privacy and the vast amount of information stewarded by the federal government in the course of their work on the Nixon initiated privacy commission. The NSC had come to see computers as information tools through their adoption of computers during the Nixon administration. NSC members that were linked to the intelligence community further understood and accepted that computers could telecommunications in this way because the US intelligence establishment was already doing it. Finally, all of the actors were still sealing with the Watergate scandal and attendant public mistrust.

Despite the novelty of the threat, the key actors in this case approached the problem of telecommunications security with knowledge and experience already in hand. They understood in varying degrees the severity and scope of the threat and wielded the governmental forces within their control to shape and protect US policy. These actors sought to expand the reach of a known existing technology to address a new problem, framing it with their own experience and knowledge. This is in effect the social construction of technology policy at the highest level.[140]

This case also again highlights the limits of Edwards and the power of Cold War rhetoric.[141] As we will see, the option of having the federal government compel telecommunications companies to adhere to new telecommunications policy is clearly discussed and the Cold War threat is clear. Equally clear is the potential backlash in industry and among the public, which the President and

the NSC deem to be more threatening. Compounding the rhetoric of control and management is the clear understanding among the parties that there is no ideal solution to the problem. The solutions they offer all are expensive and have the potential to undermine the deregulating telecommunications market. As powerful and single-minded as these men are, they understand that control of the situation is not within their grasp nor will it ever likely to be and they must accede to a compromise that cedes control to the telecommunications carriers.

Diffusion of Innovation

This case addresses the rare question of how does a government diffuse a classified technology into the private sector while maintaining secrecy. The body of the case constitutes the planning stage of telecommunications security.[142] As will be discussed, the federal government in this period is the pre-eminent developer and user of cryptographic technology in the world. It chooses not to advertise this capability for national security reasons and strategic advantage. This advantage is threatened by the advent of Soviet eavesdropping because the private sector upon which the government relies upon to transport information needs elements of their highly secret encryption technology to protect US telecommunications.

The Ford Administration considered a variety of choices and also considered both political and economic factors in their decision making process. Their concern over these factors led them to construct a program that would meet their needs while inviting the telecommunications industry to meet with and receive technological expertise from the secretive National Security Agency (NSA). Had AT&T still retained its telecommunications monopoly, the outcome might have been different as the government would have had considerable negotiating power with a single

company. With deregulation and its attendant public scrutiny, the Ford administration took a less confrontational approach.

White House Administration

This case also presents a very unusual case of the exertion of presidential power. The White House purposely acted to centrally control their work and keep it out of the public eye and therefore deemed that neither congress nor the FCC could be involved. The avoidance of public notice in national security matters was a crucial factor in the policy debate.[143]

Ford centralized his authority on this issue and avoided politicization. This appears to be a different kind of interaction effect than Rudalevige refers to in his work.[144] Politicization and centralization are not substitutions nor are they applied simultaneously. The issues addressed are too sensitive for politicization to overcome.

The case also addresses Krause's ideas regarding presidential coordination. Credible commitment was the central driving theme of Ford's policy effort with its urgent national security component. Telecommunications security policy strictly limited vertical and horizontal coordination to those few organizations that were required to participate due to their responsibility or expertise. Even conferring with the telecommunications companies was a debated issue until the administration understood that it would be necessary.[145]

Surveillance Studies

This case starkly lays out the difference between adversarial and custodial surveillance. The work of the Domestic Council Committee on the Right to Privacy (DCCRP) is one of the first comprehensive evaluations of the effects of data exchange upon the public. The DCCRP was chaired by both Ford under Nixon and Rockefeller under Ford. This experience exposed both men to concerns about the impact of new data systems might have upon individual privacy. Both men worked to strengthen individual privacy by attempting to limit the impact of this kind of custodial surveillance.

At the same time, neither man shied away from the hard decisions required by the knowledge of Soviet eavesdropping. Their knowledge about the potential power of custodial surveillance in fact informed and strengthened their fears about the potential impact of Soviet surveillance. The Ford Administration was unwilling to inform the public about this because of public mistrust in the government caused by the Watergate scandal and congressional investigations into the illegal activities of the intelligence community. To their minds, their actions to protect US telecommunications networks were a response to the adversarial surveillance conducted by the Soviets. No records indicating policymakers considered the telecommunications security program as anything but a defense against Soviet adversarial surveillance appear to be available. Moreover, the content of the documents indicate that the administration was strictly focused on defense and at no time was there a sense that this might be turned into any kind of intelligence gathering system.

Another key component to the case from the surveillance studies literature is the key role played by the National Security Agency. During the Ford Administration, it existence was denied by the

federal government. Since the beginning of the Cold War, the NSA had been charged to protect US communications and intercepting foreign signals. Interception involved the use of a range of techniques from exotic satellites to simple bribery of foreign embassy officials. Decrypting those communications and encrypting US communications involved some of the top mathematicians in the United States and acres of the most expensive and powerful computers in existence. The NSA therefore was the most advanced center for cryptographic studies in the world. When the Ford Administration consulted the NSA and advocated for their involvement, it was with this understanding. Even AT&T, a technology juggernaut in its own right through its renowned Bell Labs was not comparable.[146]

Dramatis Personae

President Gerald Ford

Gerald Ford received a BA in economics and political science and served in World War II. He was a member of the US House of Representatives from 1949 to 1973 and served on the powerful appropriations committee. President Nixon appointed him as Vice President following Spiro Agnew's resignation in December 1973 following his guilty plea to charges of tax evasion. Eight months later he was sworn in as President following the Watergate Scandal and Nixon's resignation

Vice President Nelson Rockefeller

Nelson Rockefeller served as governor of New York between 1958 and 1973. In 1974 Gerald Ford nominated him as Vice President served in office until 1977. He had a wide range of governmental, business, and philanthropic interests and the first Rockefeller to enter politics.

National Security Council (NSC)

Owing to the abrupt transition between presidencies, the NSC remained stable between the Nixon and Ford Administrations. The changes wrought by Nixon and Kissinger to make the NSC into an advisory and policy implementation body remained. Ford's NSC was led by Brent Scowcoft.

National Security Agency (NSA)

The NSA was the preeminent collector of signals and communications intelligence. It was responsible for securing government communications and devised encryption schemes. Although it was part of the Department of Defense, its existence was denied by the federal government.

Domestic Council Committee on the Right of Privacy (DCCRP)

The DCCRP was created by President Nixon in 1974 to examine how the federal government collected, used, and stored information about citizens and employees. It was chaired by Vice President Ford who would later pass the role onto Vice President Rockefeller.

Telecommunications Carriers

The US telecommunications market during the period in this case was mostly monopolized by AT&T. While local telephone service was still a monopoly, The Federal Communications Commission ruled that new carriers such as Microwave Communications Inc (MCI) could provide long distance service. The federal government was the largest consumer of telecommunications services and AT&T anticipated that these upstart carriers would begin

challenging its dominance. In 1974, Department of Justice began an eight year anti-trust action against AT&T.

Soviet Union

The United States was still in the midst of the Cold War with the Soviet Union during the time frame of this case. While Ford was continuing Nixon's policies of détente, espionage was (and is) an ongoing activity between the superpowers.

Source Material

The source material for this case comes from open materials available at the Ford Presidential library and the Rockefeller Archive. Given the sensitivity of the topic, it comes as a surprise that these materials are declassified. This case also indirectly employs one classified document, NSDM 338, which I reconstructed from other materials. Such uncertainty always accompanies work such as this and the role of the researcher in such situations is to minimize it. An example of this is my search for the NSA's testimony to the Rockefeller Commission. While I was able to establish a date, time, and the identity of the witnesses, I also discovered that the Commission intentionally took no notes from the briefing.[147]

The case follows a parallel structure first exploring the more public work of the DCCRP beginning during the Nixon Administration, briefly looking at the relevant work of the Rockefeller Commission and then concluding with the secret work of the NSC during the Ford Administration. It ends on Ford's last full day in office and shows how the White House's

information and information security policies aligned and fused, though unbeknownst to all but a handful of senior policy makers.

Prelude: The Domestic Council Committee on the Right of Privacy

President Nixon formed the Domestic Council Committee on the Right of Privacy (DCCRP) in 1974 and assigned Vice President Ford as chairman. Nixon formed this committee based on growing public fears of "Big Brother" style information control and management. In his 1974 State of the Union address, Nixon described this effort: "Modern information systems, data banks, credit records, mailing list abuses, electronic snooping, the collection of personal data for one purpose that may be used for another---all these have left millions of Americans deeply concerned by the privacy they cherish." He went on to promise that he would "establish a new set of standards that respect the legitimate need of society, but that also recognize personal privacy as a cardinal principle of American liberty."[148]

These brief sentences convey the thinking of Nixon's assistant for Domestic Affairs Kenneth Cole. In a January 1974 memo, Cole suggested to Nixon that individuals own their own personal information and that the business of society is conducted smoothly when this privacy is protected. New communications and computer technologies had greatly improved information sharing but also made information protection more difficult. He advocated that government should define and protect privacy in the face of technological change. In this articulation of privacy, Cole specifically limited the notion of individual privacy by asserting that it did not provide protection from overriding government responsibilities in areas such as criminal intelligence and national security.[149]

Cole organized his thinking about privacy into broad categories with associated problems and principles. Cole's operationalization of privacy resembles that of modern "opt-in" privacy standards that are in force in the European Union.

Table 4: Nixonian Privacy Issues January 1974

Functional Category	Problems	Principles
Collection of information	Legality and relevance Technology Pervasiveness	Individual right to discover information collection Individual requirements SSNs
Storage of Information	Security Facilities	Security for personal data Access and ability to correct personal data Shared vs. dedicated government data systems
Use and dissemination of information	Misuse Organizational	Individual knowledge of use Individual ability to stop the use of information Organizational responsibility

The initial meeting of the DCCRP occurred in February 1974. President Nixon and Vice President Ford conveyed Cole's privacy framework to the assembled membership including the secretaries of the Treasury, Defense, Commerce, Labor, Health, Education and Welfare, the Attorney General, and the directors of the Office of Management and Budget (OMB), Office of Telecommunications Policy (OTP), Office of Consumer Affairs, and the Domestic Council (DC). Nixon and Cole had invited these organizations to the table because of their intensive capturing, analysis and storage of personal information. Despite the authority of these individuals, Nixon made clear that privacy policy was a "very political and sensitive area" and

policy would be crafted by committee discussion and not by the staff.[150] As in other areas of the Nixon White House, the President and his advisors maintained tight control over policy.

The DCCRP's draft action plan of March 1974 identified three objectives: to organize and staff the DCCRP, to begin short range plans that could be accomplished within four months within the executive branch, and to examine long range plans that would take longer than four months. The action plan outlined goals and projects reflected Cole's privacy issues which he had previously articulated to Nixon. Short term projects included restricting the use of social security numbers, and protecting statistical data, IRS taxpayer data, Federal civilian data, uniformed military personnel data, and federal contractor and grantee data. Long term projects included developing state and local statutes, strengthening the Fair Credit Reporting Act, and implementing a code of fair information practice for the private sector.[151] The broad membership of the DCCRP was a reflection of the ambition and scope of these projects and the pervasiveness of government data use.

By July 1974, the DCCRP under Ford's leadership had examined a variety of initiatives and had decided to go ahead with the implementation of proposals in fourteen areas.

Table 5: DCCRP Proposed Privacy Initiatives July 1974

Federal Data Processing and Data Systems Procurement	Develop and promulgate privacy guidelines
Computer System and Network Security	Development of security standards
Consumer Transactions	Consumer privacy rights
Cable Television Systems	Prohibit cable systems from collecting

	user data
Federal Mail Lists	Individual right to avoid federal mailing lists
IRS Taxpayer Data	Securing IRS data
Notice of Rights of Data Subjects	Informing consumers of the ramifications of providing information to the government
Electronic Funds Transfer Systems	Consumer privacy in electronic funds transfers
Individual Access to Federal Records	Right of individual to personal information collected by the government
Military Surveillance of Political Activities	Protect individuals from military surveillance of their political and personal activities
Federal Employees' Rights	Protect the information of federal employees
Parent/Student Access to Education Records	Protection of academic records
Individuals' Financial Records Maintained by banks	Protect individual privacy at financial institutions from government intrusion
Fair Credit Reporting Act	Protection of individual commercial records

These initiatives placed the weight of law and protection on the side of the individual citizen. The cable television system initiative would make it illegal for system operators to collect or

disseminate data from subscribers without their express permission. Likewise, fair credit reporting protections were much stronger, requiring the credit agency to notify individuals whenever any negative event was going to be applied to their credit history and allowing time for them to dispute it. Consumers would also have to be informed whenever they were subject to a credit report and credit agencies had to obtain their approval to issue any such report. The initiatives proposed by the DCCRP were strongly consumer-centric and made the individual the final arbiter of their personal information.[152]

Ford pronounced this program of initiatives met with Nixon's goal of actionable items in a short period of time. Ford adjourned the DCCRP with the intention of reconvening in September. In the meantime, he instructed the DCCRP to begin implementation of these initiatives across the government. He further ordered that the DCCRP should monitor executive and legislative activities that might impact privacy and continue to coordinate with state and municipal officials. Finally, he also announced that the National Science Foundation's Office of Science and Technology Policy had agreed to take responsibility for long range privacy projects.[153]

The unfolding Watergate scandal followed by President Nixon's resignation in August 1974 left many initiatives in stasis as attention and resources were first focused on the potential impeachment and then the reconstitution of the White House under President Ford. Ford, now President continued to make personal privacy a priority and did not neglect the DCCRP. Shortly after assuming the Presidency, Ford directed that the DCCRP be temporarily put under the direction of the Domestic Council until a new Vice President was sworn in whereupon the he

would take up direction of the DCCRP. Nelson Rockefeller was appointed by Ford to the role of Vice President and approved by the Senate in December 1974.[154]

Before Rockefeller could be sworn in, the task of the DCCRP was growing explosively. By October 1974, the DCCRP had identified had seven additional initiatives to begin work on.[155] This explosion of new privacy issues may have in part contributed to Rockefeller's attitude upon taking over leadership of the DCCRP. January 1975, Rockefeller suggested that Ford make add a privacy section to his State of the Union address and that the DCCRP be renamed the Domestic Council Committee on Privacy and Information Policy. While the first suggestion was adopted, the second was problematic for the White House. By expanding the purview of the DCCRP, the White House believed that the expanded entity would create turf battles between executive agencies which each had their own vision of information policy.[156] The DCCRP pursued an alternative option to begin examining the whole concept of information policy.

The DCCRP continued making progress on privacy issues throughout 1975. Ongoing conversations between Rockefeller and the DCCRP led them to the conclusion that the Federal government lacked a conceptual framework for information as well as any mechanism to coordinate any kind of policy on the subject.[157] To examine the idea more critically, the DCCRP convened a Roundtable on Privacy and Information Policy in September 1975 to examine the expanding sphere of issues interlinked with privacy and information policy. In December 1975, Rockefeller once again brought the DCCRP's concerns about information policy to Ford's attention. In the memo, Rockefeller noted that the Federal Government's information policy was created piecemeal by many different agencies. He asserted that the United States was moving

towards a post-industrial information-based society and that it was essential that the Federal Government begin to develop analytical frameworks and a unified information policy. This time he asked Ford to discuss information policy in his State of the Union Address. But unlike in the previous year, he sought the reconstitution of the DCCRP as the Committee on Privacy and Information Policy (CPIP).[158]

Ford responded again by including an information policy section in the State of the Union Address. He did not authorize the reconstitution of the DCCRP. Rather, he directed the DCCRP and Rockefeller at its head to produce a report on information policy consisting of: a list of information policy issues relevant to federal policymakers; a status report on the ongoing information policy studies occurring across the government, and policy recommendations based upon this information. The DCCRP was further instructed to work closely with all federal agencies that had responsibilities formulating information policy. This report was to be completed and presented to the president by September 1, 1976.[159]

In September 1976, the DCCRP under Nelson Rockefeller's leadership issued its National Information Policy Report. President Ford had instructed the DCCRP in the previous March to examine information policy issues facing the federal government, report on the progress of existing investigations within the government and make recommendations on how the government should organize itself to make and implement information policy.[160] The report recommended that the US pursue a unified and coordinated National Information Policy by establishing an Office of Information Policy (OIP) in the executive office of the President. It also recommended the creation of a Council of Information Policy comprised of senior agency

representatives and led by the director of the OIP and an Advisory Committee drawing upon expertise in the private sector to assist the OIP in its duties. The Report made these recommendations having identified "information policy" as an exceedingly broad topic that demanded a wide range of perspectives. [161]

Despite the breadth and complexity of "information policy", the authors made seven parting suggestions for the future work of the proposed OIP:

- Encourage open and equal information access for all
- Protection of personal information and protection of individual rights to safeguard that information
- Encourage systems that create and distribute knowledge
- Appropriately regulate the power available to the government through the use of information systems
- Encourage efficient information systems
- Support private sector competition in information technologies to strengthen innovation
- Make rules that embody stability in spite of technological change to encourage private sector technology adoption

The OIP would not come into being but the model would be influential in the simultaneous debate going on in the NSC over telecommunications security. The proposed OIP was very similar to the entity suggested by the NSC to make telecommunications security policy in structure, membership, and resources. Similarly, the policy suggestions made by the report resemble many of the NSC's telecommunications security concerns on issues such as encouraging technological innovation, public access, and private sector competition.[162]

In September 1976, Rockefeller presented an action memo based upon the DCCRP's recommendations. The first item was the creation of an OIP to begin implementation of the report's recommendations. Rockefeller felt that this was best accomplished either within the OTP or as a temporary adjunct of the OTP. Ford assented to the latter. Second, the DCCRP was not funded for the 1977 fiscal year and its work on privacy issues was ongoing. Rockefeller suggested and Ford agreed that the DCCRP's responsibilities and portfolio be temporarily handed over to the OTP until such time as an OIP was existent.[163]

The Rockefeller Commission

While Vice President Rockefeller was leading the DCCRP forward on privacy and information policy, he was also leading the Rockefeller Commission's investigation of the CIA. As chairman of the Commission on CIA Activities within the United States also known as the Rockefeller Commission, he became aware of the threat posed by Soviet surveillance as the commission gathered information. The commission's original mandate stemmed from President Ford's January 1975 order to examine whether the CIA had violated the privacy of US citizens and had participated in the assassination of foreign leaders in the aftermath of the Watergate scandal. While the report focused on these questions, testimony from CIA, NSA, and FBI representatives provided the commission with the unsettling knowledge that Soviet Union was eavesdropping on U.S. telecommunications networks. The U.S.S.R. was also capable of evaluating these calls and culling data from them through the use of computers. In June 1975, the Commission asserted in its final report that the protection of individual liberties and rights was of primary concern to the government and any organization infringing these rights must be held accountable. At the same

time, the commission acknowledged the necessity of national intelligence regulated by the government and noted that it was essential for public safety. Public safety and personal liberty were mutually supportive and essential qualities of American society.[164]

The Rockefeller report examined in detail a wide variety of the CIA's surveillance activities that violated individual rights. Surveillance of telegraphy, mail, electronic surveillance and wiretapping were all activities undertaken by the CIA within the US against US citizens in spite of the CIA's charter which mandated that its activities be conducted outside the US. During their six month existence, Rockefeller and the commission acquired an understanding of electronic surveillance and became more aware of the vulnerability of US telecommunications networks.[165]

It was not easy for the Commission to obtain information on foreign surveillance activities within the U.S. On April 7 1974, the commission heard testimony from the representatives of the NSA including its director, Lt. General Lew Allen regarding Soviet signals intelligence efforts directed against the United States. The testimony was so sensitive that that their presentation was not recorded.[166] As of April 29, 1975, neither the FBI nor the CIA could offer contributions "suitable" for publication.[167] The President's Foreign Intelligence Advisory Board (PFIAB) commented on the U.S. domestic counter intelligence problem by noting that there were an ever increasing number of Soviet agents within the U.S. The PFIAB went on to note that Soviet efforts were not limited to HUMINT (human intelligence) but also SIGINT (signals intelligence) which collected through various technical means and then analyzed by computer.[168]

The issue of size and technical means were a hotly debated topic between the NSC and the Rockefeller Commission. The initial draft identified Soviet intelligence manpower at 2,000,000. Further consultation with the intelligence community reduced that to 1,000,000 and then 500,000 as the committee wanted to have a defensible number so as not to undermine the reports credibility. General Brent Scowcroft, Ford's National Security Advisor, and Secretary of State Henry Kissinger successfully argued that the wording of the final report avoid mentioning computers and microwave communications.[169]

Following the release of the report, the deputy director of the OTP John Eger issued a cautionary memo regarding the report's disclosure of Soviet telephone espionage and suggesting that the OTP, NSC, and DCCRP form an interagency group to examine the issue. Ford and Rockefeller agreed but limited the DCCRP's participation to its chairman, Rockefeller.[170] Days later, the memo was withdrawn without having been seen by the president by General White House Counsel Thomas Keller. James Connor, Ford's staff secretary informed the OTP that the NSC was responsible for the situation. Connor further told the OTP that it should stay out of this policy area unless asked by the NSC.[171] The White House was intent on keeping soviet espionage, computers, microwave transmitters, and telephone espionage out of the public eye even as the DCCRP was moving to consider information policy, and for good reason.

Out of the Public Eye: The NSC and DUCK PINS

Since the fateful information policy discussion between Cole and Nixon, the White House asserted that national security concerns superseded the protections afforded by personal privacy. Protecting citizens' personal information from the US government and private industry was

secondary to protecting such information from the Cold War threat of Soviet eavesdropping and capture of personal information. The NSC feared that the Soviets would use personal information to suborn U.S citizens to act as agents as was discovered by the Rockefeller Commission. Following Ford's inauguration in August 1974, the NSC informed the President that the nation's telecommunications systems were insecure and that the Soviet Union was intercepting US telecommunications. Telecommunications security would preoccupy the Ford Administration throughout its three year existence, issuing four NSDMs on the topic.

Table 6: Ford Telecommunications Timeline 1974-1977

Date	Event
8/9/74	Gerald Ford takes office
8/15/74	NSDM 266 Improved Security of Telecommunications
5/23/75	NSDM 296 Improved Communication Security
9/1/76	NSDM 338 Further Improvements in Telecommunications Security
1/18/77	NSDM 346 Security of US Telecommunications
1/20/77	Gerald Ford leaves office

President Ford issued National Security Decision Memorandum 266 on 15 August 1974 instructing James Schlesinger, Secretary of Defense that "immediate defensive steps be taken" to combat the potential for Soviet interception of wireless communications in the Washington DC area i.e. satellite and microwave signals. NSDM 266 placed the Department of Defense (DoD) and the Office of Telecommunications Policy (OTP) in charge of this effort which in the short term would move threatened US government communications to traditional wireline connections and in the long term would either develop secure wireless communications or expand wired

connectivity. In addition, Ford informed the State Department, Office of Management and Budget, and Central Intelligence Agency of this plan.[172]

The DoD's short term plan to secure US telecommunications in the Washington DC area was code-named DUCK PINS. This plan involved transferring sensitive government telecommunications traffic to wireline networks. DUCK PINS immediately began to ruffle feathers. Since 1974, the Federal Communications commission had been deregulating AT&T's long distance telephone monopoly to allow new companies such as MCI to compete. Relatively inexpensive microwave towers and satellites enabled MCI and other AT&T competitors to provide telecommunications services but NSDM 266 pronounced them vulnerable to Soviet eavesdropping. Since only AT&T had a large, secure and costly wireline infrastructure, it was the immediate beneficiary of DUCK PINS as it was the only carrier that could immediately offer the wireline services demanded by NSDM 266.[173]

The situation was also problematic for the General Services Administration (GSA) was in the process of bidding out government telecommunications circuits between Washington DC and New York City in November 1974. The NSC understood that AT&T's competitors would submit competitive bids to wrest lucrative government business away from AT&T. The competitors' networks would be based upon insecure microwave architecture and would fail to meet the new requirements for secure governmental communications in NSDM 266. The GSA could not award them contracts, but could not tell them why. The GSA either had to delay or cancel the procurement or reallocate telecommunications service to eliminate the initial

requirement. DUCK PINS had the potential to undercut deregulation through the secret adoption of telecommunications security measures and parameters.[174]

In the long term, DUCK PINS was similarly problematic to deregulation. DUCK PINS called for all government and private communications to be protected from interception. Previous to deregulation, this would have been accomplished through discussions between the federal government and AT&T. With deregulation, such discussions would have to take place with all long distance carriers including AT&T. If the government excluded the other carriers from the discussions, the government was would have to explain its actions and publicly reveal the vulnerability of the US telecommunications infrastructure, a politically unacceptable outcome. Alternately, the US government could selectively discuss the situation and work with some telecommunications companies, but this entailed the same risk of favoritism.

One potential solution to this problem was to limit the telecommunications lines that needed to be protected. Among those singled out for protection were the growing data systems of the GSA, Social Security, and Veterans Administration which compiled computerized information on the millions of citizens served by these organizations. The NSC recognized that evaluating data systems and trying to protect Washington DC communications would take time.

The NSC's telecommunications panel worked through these issues throughout the Ford Administration and initiated the Executive Secure Voice Network (ESVN) to secure telephone communications and Protected Radio Modulation (PRM) to protect microwave transmissions. It also began examining cryptography as a long term solution for data protection. This progress

was affirmed in May 1975 by NSDM 296 which acknowledged the ongoing conversion of government microwave links over to cables and enjoined government agencies to continue this process. It also continued to emphasize that the problem of telecommunications security in the US should continue to be kept out of the public eye, in spite of the potential for publicity during the implementation of PRM.[175]

In August 1976, the Telecommunications Panel discussed a point paper examining the government's role in providing cryptographic systems and ensuring their integrity and security. Integrity and security were crucial to protecting US military, diplomatic, economic, and technological interests. Secondarily, the government would implement cryptographic systems to protect US citizens' right to privacy. Conceptually, the NSC asserted that the US government had a "unique" capability in cryptography and that it should take the lead role in developing, testing, and distributing cryptographic systems. The NSA with a budget in excess of $1 billion was responsible for protecting US government communications systems and decoding the signals of foreign governments.[176] The NSC also envisioned that a portion of the crypto key would be kept from the US government through an escrow system to assuage the public's privacy concerns. Finally, the NSC believed that common carriers would be participants in the development and deployment of such systems owing to their expertise in communications networks. The point paper advocated maintaining a complete US government monopoly on cryptographic materials and systems. It provided no evidence that cryptographic systems were to be used in an offensive manner and that the government's participation was due solely to the expertise that resided in such places as the National Security Agency.[177]

Cooperation with the common carriers became an ongoing theme of DUCK PINS. A July 1976 paper made recommendations on the implementation of multichannel radio protection set out clear positions about the interrelationship of government, business, and the public. The paper advocated seeking voluntary cooperation with microwave and satellite carriers noting that imposing a requirement would require public disclosure of the threat of interception and take time to navigate the regulatory and judicial issues that would arise. Voluntary cooperation, the paper noted, would require the establishment of standards and well-defined procurement practices. It also emphasized the importance of bringing carriers other than AT&T into the program swiftly to allay competitive concerns that AT&T had an unfair advantage. AT&T had made presentations and been involved in the early planning of DUCK PINS because of its technological and infrastructural advantages.[178]

The paper next recommended that national security rather than individual privacy should be advanced as the main reason for the protection of communications. The report noted that Vice President Rockefeller had already informed the public about the threat in the Rockefeller Commission report. Unfortunately, the public was unimpressed by the US government's efforts to protect privacy and would be skeptical about the new regulatory and legal mechanisms required. By invoking national security concerns, these hurdles could be bypassed or avoided by keeping out of public view.

The paper also proposed that the government create an industry advisory committee to keep all carriers abreast of technology, plans, and policies. The paper further suggested that this advisory committee be formed under the auspices of the executive branch rather than the FCC or an

advisory group so that issues could be raised and discussed in a timely fashion. Here again, the paper warned that if all carriers were not together, it was highly likely that uninvited carriers would perceive government favoritism, complain, and make the program public. The authors did not see giving cryptologic technology to the carriers as a problem. While they recommended that the government supply and maintain all cryptographic materials they also felt that the US government could serve in this role without becoming enmeshed in the operations of carriers' facilities by using sufficiently trained and vetted personnel from the carriers.

Out of Sight: the NSC and NSDM 338

NSDM 338 "Further Improvements in Telecommunications Security" issued in September 1976 remains classified.[179] However, the Report of the Special Task Group on Telecommunications Organization issued in December 1976 sheds light on the thinking of the Ford administration following the development of DUCK PINS and the content of NSDM 338. NSDM 338 directed the creation of the Special Task Group whose members were drawn from the NSC, OMB, OTP, the Domestic Council and the White House Counsel's Office to examine the implications and ramifications of protecting private sector microwave communications. Specifically, the NSC assigned the Task Group to examine the idea of creating a new government entity or reconfiguring an existing entity to manage the telecommunications security program. NSDM 338 noted that the entity should be evaluated on a range of criteria including its ability to examine telecommunications policy issues, program management, authority and ability to act within the government, funding, manpower, and access to the intelligence community.[180]

Noting that the government had already taken steps to protect critical governmental information, the report went on to say that government had an important role in preserving national communications security as it was the repository for cryptographic expertise and provided the standards and policies that enabled the continuing function of a nationally integrated telephone system. The report emphasized the need for the government to create a "favorable climate for public acceptance of communications security so that it is perceived as a means to increased privacy and not as a threat."

The report suggested two ways for the government to protect communications which echoed the thoughts and concerns of Joyce and Moe in 1975. The government could mandate a program by requiring the cooperation of telecommunications carriers but this would require significant government intervention into the market and likely include difficult and "politically sensitive" decisions about what parts of the private sector to protect. Alternately the government could encourage the private sector to take on this project by providing key parts of research and technology, establishing standards and policy, and educating the industry regarding the importance of secure communications. Both options involved significant financial, regulatory, and legal challenges that required the cooperation of multiple government agencies. Moreover, the cost and effectiveness of the new technologies to protect microwave transmissions were unknown and these initiatives could seriously impact the move towards the deregulation of the common carrier market. All of these issues were to be addressed in a report authored by the OTP.

To implement these plans, the report saw the need for a government entity that could address all of the varied and complex issues. The report noted that to date, these matters had been handled in an ad hoc way by the NSC with assistance from the NSA, DoD and OTP with the Department of Justice contributing to threat assessments. While the NSA would have been a logical choice based upon their signals intelligence expertise, the Task Group deemed the political sensitivity of assigning telecommunications to an intelligence organization unworkable. The Task Group proposed six possible entities: a cabinet committee reporting to the President and supported by a private sector advisory board; a joint government committee in the Office of the Vice President supported by a private sector advisory board; continuation of NSC oversight; assignment to a single cabinet office; formation of a new organization in the Executive branch and reporting to the President; and designation of an existing organization in the Executive branch and reporting to the President. All of these possibilities included pros and cons relating to the criteria laid out in NSDM 338.

The Report concluded with a series of observation and criteria as it did not want to make recommendations to a new administration.

- The Task Group noted that the first three organizational options were better suited for a more passive governmental role while the latter three would support more aggressive government intervention.
- Cooperation with industry was preferable to federal mandates.
- Competition should continue to be encouraged and security programs should be designed with this in mind.

- The organization must be consultative in nature, but have authority to implement decisions.
- The organization must have expert staff to provide support to the decision making process.
- The organization should not be perceived as a military or intelligence arm of the government by the public so that it will receive public support but at the same time needs direct participation and cooperation with the NSA.
- The organization needed input from the private sector, as stakeholders.

With these criteria in mind, the Task Group favored the creation of a cabinet committee or a government committee in the Office of the Vice President. The Task Group felt that the NSC did not have the proper staff for implementation. Designation of a cabinet portfolio or creation of a new executive office would be advisable only if the government proceeded to issue mandates. Finally, they believed that designation of an existing executive branch agency was inadvisable as their fortunes and influence waxed and waned from administration to administration. The Task Group's findings mirrored those of the Privacy Commission's call for an Office of Information Policy and this is unsurprising given that the authors of these reports had significant overlap, including the Vice President and members of both the Domestic Council and the NSC.[181]

Choosing to Remain out of the Public Eye: Ford and the NSC

In January 1977, Ford received a memorandum from National Security Advisor Brent Scowcroft and Jim Cannon, Assistant for Domestic Affairs and Director of the Domestic Council on the status of DUCK PINS and associated programs. Ford faced the decision of whether to expand protection to all domestic communications or limit it to sensitive government communications

only. Guiding his thoughts were two reports; a damage assessment to US interests prepared by the intelligence community and technical assessment of US capabilities to protect telecommunications.[182] The threat report concluded that US microwave telecommunications were at continuing risk of interception. The technical assessment asserted that there were no insurmountable technical challenges to deployment, while noting that an "evolutionary approach" utilizing a range of technologies would be necessary to adapt and protect the expanding range of telecommunications.

The memo then focused on two key policy questions; whether to protect the private sector and whether to tell the public about the problem. In arguing to protect the private sector, Scowcroft and Cannon stressed that making a decision would emphasize to the incoming Carter administration the importance of the issues at hand. There was also direct evidence that US national interests were being significantly damaged by Soviet eavesdropping. Finally, if the government did not act and US vulnerabilities became known to the public, private sector carriers would implement security in a piecemeal manner that might not be effective. Scowcroft and Cannon also cited two drawbacks of protecting private sector communications. First, such protection might compromise existing US signal intelligence capabilities being used against the Soviets by identifying and addressing the problem. Second, many of the new common carriers were struggling financially and new equipment might be a significant competitive disadvantage.

With respect to the question of informing the public, Scowcroft and Cannon identified a number of advantages. Private organizations, once warned would take independent measures to protect information. Public disclosure would put the Administration's efforts in the "right perspective."

At the time there were a variety of investigations dealing with government invasions of privacy and the public was concerned about the infringement of their civil rights by government, military and intelligence organizations. Identifying the Soviet threat would explain government actions. Public explanation would also assist in the research, development and deployment of security technologies as the private sector would be more disposed to cooperate. Finally, public disclosure would force the incoming Carter Administration to continue to address the issue. The unredacted disadvantages of public disclosure included generating anti-Soviet sentiment and creating a panic leading to a headlong rush for more security than current technology is able to provide. Scowcroft and Cannon went on to discuss implementation and organizational options for the Task Group report.

Other presidential advisors weighed in on this decision. Ed Schmultz and Philip Buchen of the White House Counsel's office emphasized the importance of carefully explaining the program to the public and Congress so as to allay any fears of the military and intelligence communities' access to the public communications network.[183] In the end, President Ford agreed to implement private sector protection but chose not to make the telecommunications situation public. He further authorized the creation of a joint committee comprised of members of the NSC and the Domestic Council and chaired by Vice President Rockefeller to continue to work on telecommunications security issues.

Four days after President Ford signed the memo ordering the protection of private sector telecommunications and concealing the problem from the public, he issued NSDM 346 "Security of US Telecommunications" which was prefaced by an acknowledgement that microwave radio

was insecure and easy to intercept.[184] It went on to relate that Washington DC government microwave communications had been transferred to cables and that government communications in New York and San Francisco were in the process of being moved to cable. Communications links between the government and sensitive government contractors were also being protected. Microwave communications protection equipment was being developed by the DoD and would be tested in Washington DC within the year. The OTP had developed a deployment plan for these systems for these three cities and the rest of the nation. NSDM 346 further announced the formation of a joint committee chaired by the Vice President and tasked it with deciding whether to encourage private sector cooperation by requiring secure communications in government communications, creating standards and working with the common carriers; or to mandate a protection scheme throughout the national network which would have required legislation to implement. NSDM 346 concluded:

In both these alternatives, the government would establish policy, standards, and regulations, would assist the private sector by making government-developed cryptographic technology available for commercial application, and would promote public acceptance of the need for communications security by making the private sector aware of the nature and scope of the threat as well as the commercial availability of government-approved secure communications. Industry would apply bulk protection techniques to the communications networks and would pass the added costs on to users.[185]

NSDM 346 was the distillation of three years of aggressive policy research, technological investigation, and project deployment which concluded that the public should not be informed.

President Ford and his staff, well versed in information issues through their involvement in the DCCRP, Rockefeller Committee and others viewed the protection of US telecommunications networks as one of its highest priorities. NSDM 346 charted a direct course into the future for the continuation of this policy and the ongoing protection of US telecommunication networks while refraining from revealing US vulnerability to the public. The brief comment in the body of the Rockefeller Report is one of the few acknowledgements of the problem.

Analysis

This case study interweaves three subcases: the DCCRP, the Rockefeller Commission, and the telecommunications security work of the NSC. These cases overlap chronologically and thematically to explain the origins of federal information policy and look at the issue from an open, semi-open, and closed perspective. In all three subcases, the federal government acted in an ad hoc manner to establish committees, commissions, and working groups to deal with pressing issues of information policy and security with varying degrees of success. One common factor that drove all three organizations forward was the initiative provided by President Ford and Vice President Rockefeller. Both men had a deep appreciation for the importance of computers and telecommunications networks born out of their early work on privacy with the DCCRP. This knowledge advanced telecommunications security policy and refocused the DCCRP from the issue of privacy to the broader issue of information policy. The Rockefeller Commission appears to have accidentally stumbled into the threats being addressed by the NSC and revealed them to the public. Only the efforts of National Security Advisor Scowcroft and Secretary of State Kissinger limited the diffusion of knowledge regarding the foreign surveillance threat. Rockefeller cooperated in this by steering the Commission away from this

topic and towards its stated objective of examining CIA misdeeds. Rockefeller also acted as a gatekeeper between the NSC and the DCCRP to coordinate the creation of information policy.

The DCCRP's formation by Nixon to address privacy concerns was momentous. Nixon formed the DCCRP by bringing together representatives from federal agencies that held and analyzed large volumes of personal information. Under Ford and Rockefeller's leadership, many initiatives were completed to secure personal information held by the government. However, the DCCRP's initiatives that called upon the private sector to voluntarily protect personal information such as credit and medical histories went unheeded. The DCCRP was able to support Congress in the passing of the landmark Privacy Act of 1974, but the DCCRP's greatest successes on the issue of privacy were within the federal government and within participating agencies.

Throughout 1975 and especially in the latter half of the year, the DCCRP's orientation changed from privacy to focus on information policy. This was in part due to the ongoing work and research of the DCCRP. However, it also coincides with the publication of the Rockefeller Commission Report and the implementation of DUCK PINS. The DCCRP's efforts to formulate privacy policy were strongly influenced by Rockefeller's activities in all three efforts.

The revelations contained in the Rockefeller Commission regarding telecommunications security were little more than a footnote but prompted some of the most heated discussions over content within the White House. It seems clear from the documentary record that the Commission examined domestic counterintelligence efforts for the sake of completeness. The Commission

was taken aback by the revelations of the NSA and the PFIAB regarding Soviet surveillance efforts and did not resist Scowcroft and Kissinger's efforts to play down the information in the final report. This may also mark the point at which Rockefeller became aware of the work of the NSC on telecommunications security which was top secret and highly compartmentalized. When Ford issued NSDM 266, Rockefeller was not yet Vice President. By June 1975, when both NSDM 296 and Rockefeller Commission report emerge, Rockefeller was communicating about telecommunications security policy with the NSC but was not on the distribution list for NSDM 296. The speed with which the DCCRP changed its focus to investigate information policy and the subsequent inclusion and mention of Rockefeller in NSC telecommunications security documents indicate that Rockefeller may have also been taken by surprise. President Ford's support for Rockefeller's plan to change the DCCRP's focus to information policy indicates that Ford and Rockefeller were sharing information from the second half of 1975.

The NSC's response to the telecommunications security problem was direct and swift. President Ford issued NSDM 266 almost immediately upon taking office and pressed the NSC with a flurry of subsequent NSDMs. Ford had been concerned about personal privacy since chairing the DCCRP under Nixon. Ford perceived Soviet surveillance to be a grave threat. The NSC acted in concert with few agencies to bring DUCK PINS to fruition. It included the NSA because the protection of federal communications was one of the NSA's prime missions and because the NSA had unique expertise in the field. The NSC also involved the DoD as it was the NSA's parent organization. The DoD also contained the Defense Communications Agency which had experience developing, deploying and maintaining secure communications networks. The OTP was involved almost by default. By charter federal telecommunications policy was the OTP's

responsibility, but almost from the entity's creation during the Nixon Administration it struggled to establish itself, fighting numerous turf battles with the Departments of Commerce and Defense as well as the FCC. Even though the White House had created it, the OTP rarely enjoyed presidential support for its policies and initiatives and it would be abolished by the Carter Administration.

The NSC's interactions with civilian agencies were even more authoritative. It all but ordered the GSA to comply with new telecommunications security requirements. The NSC and the President were extremely wary of Congress and the FCC for fear that any information provided to them would swiftly become headline news. In the post-Watergate environment with multiple investigations like the Rockefeller Commission occurring, Ford and the NSC were acutely aware that the public trust in the federal government was at historic lows. The public would be alarmed to learn that U.S. telecommunications systems were vulnerable to interception by the Soviets and by extension the federal government. They believed that the public would refuse to accept assigning the White House's most secret intelligence agency to protect the vulnerable public phone calls.

The origin of information policy in the federal government centers on President Ford and Vice President Rockefeller. Both men learned about the breadth of personal information held by the federal government through their chairmanship of the DCCRP. Presidential succession and the Rockefeller Commission exposed them to the national security implications of this situation. One reason why they were successful in pushing forward their information policy agenda was their similar vision and the lack of any opposition. Nixon created the DCCRP and Ford created the

Rockefeller Commission and both were responsible to the President. While their work and findings were read by Congress and the public, it was consumed by the White House. The DCCRP, the Rockefeller Commission, and the NSC were beholden to the President and designed to him.

The lack of external oversight over Ford and Rockefeller with respect to information policy and security is startling but unsurprising. The policies they advanced all regulated the actions of the executive branch which they oversaw and were generally quite successful. Indeed, problems emerged when policy moved beyond the executive branch such as the lack of private cooperation with the DCCRP and DUCK PIN's regulatory challenges. Internal squabbles such as OTP's turf struggles were quickly and easily dealt with.

Conclusions

In the course of exploring telecommunications security, Ford and Rockefeller made a number of key determinations about the relationship between government, industry, and the public with respect to privacy and national security. First, national security trumped privacy. Policymakers were very concerned about the legal, regulatory, and political problems associated with informing the public of the vulnerability of U.S. telecommunications networks. They decided that the breadth of privacy and impact of technology was too poorly understood by the public, unlike the government which had actively been coming to terms with the fusion of computers and telecommunications technologies. Individual privacy was secondary to telecommunications security and information policy. Second, it was imperative that the federal government develop a sound, cogent information policy. The U.S. economy was moving towards an information-based

economy and society and the government needed to begin considering relevant policies. Third, the NSA was in a unique position to lead telecommunications security projects because of its virtual monopoly on the development and deployment of cryptographic systems. During the 1970's, this was clearly true.[186] The federal government and specifically the NSA had expertise and technology that was unparalleled. Finally, the NSC needed to involve common carriers to insure the success of protecting US telecommunications. This conclusion posed significant challenges to policymakers because of the deregulation of the industry and the infrastructural security of AT&T's wireline infrastructure. Because of the urgent nature of US telecommunications security, the NSC had to approach AT&T initially. The NSC also realized that the changing nature of the industry would require them to approach other carriers and reassure them that AT&T's prior interaction with the government was not due to favoritism, but because of AT&T's dominant technological and architectural position.

This new research invites a wide range of questions. How did the Carter Administration view the telecommunications security problem? The Ford Administration had set in motion a range of telecommunications and information policy plans and gave responsibility for their completion to the Carter Administration. A preliminary analysis of the records indicates that the Carter Administration was concerned by the situation and accepted many of the premises of the Ford Administration but modified or ignored others. Ford had designated the scorned OTP as heir to telecommunications security and information policy but the Carter Administration abolished the OTP. How did this alter the path of federal policy? Is the NTIA, the OTP's successor agency the dual heir to the telecommunications security management entity described by Ford Administration documents and the Office of Information Policy? It meets many of the key

criteria laid out in their policy research. With respect to privacy, how did the federal government employ the rhetoric of privacy to secure US telecommunications? Initial federal privacy policy focused on securing the massive amount of information held by the government on the public. The work of the DCCRP and the NSC approached information security from different directions. The DCCRP was concerned with possible government misuse of information while the NSC sought to eliminate foreign acquisition of such information. Limiting disclosure and mandating data encryption protects privacy but more importantly for policy makers in the Ford Administration, limits access to potentially damaging information about the nation and its citizens. My research into the Ford Administration's telecommunications security and information policy offers new insights into the origins of U.S. information policy. It provides new examples of the relationship between common carriers and the federal government in which cooperation is encouraged and demanded by the federal government without the oversight or knowledge of the FCC. What of the FCC? The FCC is largely absent from the documentary record and when mentioned is viewed as more of an impediment. The FCC was concerned with regulating broadcast and common carriers. Nonetheless, the Ford Administration was keen to maintain a level playing field in the common carrier market despite the deployment of new technology and regulations. Finally, the ongoing role of technology is one worthy of further examination. What role if any did telecommunications security have in the adoption of fiber optics and digital switches? Both technologies increased the difficulty and cost of eavesdropping and may have been deemed useful to telecommunications security policy makers. Encryption technology has also been a bone of contention with the clipper chip debate and the emergence of PGP in the 1990's.

The DCCRP initial goal of insuring the privacy of citizens in an information age quickly expanded into a full-fledged examination of information policy. As Rockefeller became aware of not just the necessity of protecting federally held data from not only the federal government but also from foreign governments, privacy necessarily expanded. By the end of the Ford Administration, policymakers agreed that a single entity needed to be created empowered to create, implement, and manage information policy. The unswerving commitment of Ford and Rockefeller to the creation of information policy drove this agenda forward, informed by research bodies like the DCCRP and the Rockefeller Commission.

Telecommunications security and information policy continue to be an issue to the present day. Since 9/11, the federal government has focused on the new threat of terrorism made more virulent through their use of information and communications technologies. This situation is similar to the threat faced by the Ford Administration in August 1974. President Ford and Vice President Rockefeller were thoroughly familiar with privacy and telecommunications security issues through their work leading the DCCRP and the Rockefeller Commission. To them, the Soviet eavesdropping threat and the openness and vulnerability of the US telecommunications network was an urgent problem. The Ford Administration first secured governmental communications through a combination of privacy advocacy and technology adoption within the federal government. Then it began to work with the common carriers to expand security to include the private sector. All of these efforts were performed without addressing the telecommunications security issue to the public. Indeed, the public was purposely kept out of the loop for fear of the political and economic chaos that might ensue from a general panic caused by such revelations. Privacy was the public cover story for telecommunications security in an era

where the public mistrusted the federal government and especially the military and intelligence communities in the wake of the Watergate scandal, the Vietnam War, and CIA activities in the US. The Ford administration believed that despite public distrust it had to take urgent, decisive action to secure US telecommunications from the threat of Soviet eavesdropping.

Chapter IV: Computer Adoption and Information Policy During the Carter Administration 1977-1981

Introduction

In 1976, Jimmy Carter entered the White House following a politically tumultuous eight years of Republican scandal and reconciliation under Presidents Nixon and Ford. Carter, a former governor of Georgia was an outsider to both Washington DC and the Federal government unlike his predecessors. President Carter brought with him a White House staff unfamiliar with the federal bureaucracy. The Carter Administration, suspicious of the DC establishment, sought to modernize and streamline the federal government as then Governor Carter had done in Georgia, especially in the face of a looming economic recession.

The Carter Administration's inexperience with the federal bureaucracy and suspicion of DC undermined its efforts to adopt computers for the domestic council and reorganize its information policy. Carter White House officials expended inordinate time, political capital, and money arguing about the Domestic Council's needs while trying to purchase hardware and software. The resultant disagreement blurred the Domestic Council's computerization goals and raised the specter of political embarrassment for the White House, leading to a reorganization of implementation responsibilities within the White House.

During the reorganization of the Office of Telecommunications Policy, White House officials utterly unfamiliar with interagency politics, failed to consult the Department of Defense (DoD) and the Department of Commerce (DoC) which strongly impeded the White House's efforts to

transform the Office of Telecommunications Policy into the National Telecommunications and Information Administration, creating an entity responsible for federal information policy.

The Carter Administration faced a variety of problems but overcame them in a piecemeal fashion with the expenditure of valuable resources. Organizationally, the White House's lack of an established bureaucracy with the exception of the secretariat of the National Security Council left the incoming Carter Administration bereft of institution knowledge as it took power after eight years of democratic rule. The Carter Administration found itself with little institutional memory and few administrative resources, resulting in its reinvention or rediscovery of previously known concepts and policies. This is particularly evident during the reorganization of the OTP as White House staffers repeatedly failed to understand the necessity of consulting stakeholders such as the DoD, DoC, and Congress.

Exacerbating these problems, President Carter did not strongly support his designated leaders on computer adoption and information policy nor did he clearly define their roles and responsibilities. This led to conflict between senior officials within the White House. President Carter saw computers and information policy as tools to increase the efficiency of the federal government. Richard Hardin who Carter appointed to examine computer usage within the White House and later would be the first director of the Office of Administration (OA) shared this vision with Carter as he had led the modernization of Georgia's information systems. Hardin's background with consulting firm Arthur Anderson was reflected in his work, producing reports and strategic vision papers for the White House. This work style was unsuited for the federal environment with multiple powerful stakeholders, accountability measures, and significant

resource constraints. It also failed to account for the needs of users, resulting in a backlash within the Domestic Council.

The Carter Administration was also a victim of its dynamic technological environment. In the late 1970's, computers became a widely adopted business technology as inexpensive mini-computers and hobbyist microcomputers began to replace mainframe computers. But commercial technology adoption in business was a top-down process with little input from actual users. Computer programmers, operators, and engineers acted as intermediaries between computers and information seekers. Mini-computers and microcomputers began to blur this line. Hardin's proposals sought to hit a moving technological target and would cost resources that the White House simply didn't have.

The Carter White House's experience with information policy and computers was filled with by policy missteps, administrative turf battles, and awkward adoption. By 1980, the Carter Administration had remarkably little to show for its efforts. The administration finally agreed to the need for information policy and had assigned it to a new agency the National Telecommunications and Information Administration (NTIA) after a bruising administrative fight to abolish its predecessor, the Office of Telecommunications Policy (OTP). Hardin had created the OA which deployed over forty applications to serve the needs of the Domestic Council (DC) but with little indication of the cost savings or improved efficiency that were the original goal of the project.

This case study of computer adoption and information policy in the Carter White House illustrates the changing nature and views of computer technology by the officials swept into power after Carter's victory over President Ford in the 1976 elections. These officials sought to reinvent the White House and improve the efficiency of the federal government through the liberal application of computer technology and forward thinking policy. While taking credit for important new entities such as the OA and the NTIA, the Carter Administration paid a high price. Carter's White House staff consistently underestimated the power of the departmental bureaucracies within the executive branch and other entities. They were alternately oblivious to or dismissive of earlier innovations, leading them to reinvent policy. Finally, Carter officials were plagued by a lack of communication leading to missed opportunities to reach consensus, growing resentment between officials, and ultimately impeding technology adoption.

This case study consists of two specific sub-cases that illustrate these themes. The first case examines the abolition of the OTP and creation of the NTIA, showing how the Carter Administration struggled to implement long prepared policy in the face of bureaucratic obstacles. The second case explores the adoption of computers by the Domestic Council and the creation of the OA, explaining how the administration succeeded in spite of its lack of communication and failure to recognize existing stakeholders within the government. These cases epitomize both the Carter administration's misplaced technological vision and administrative myopia.

The Carter Administration stumbled through computer adoption and information policy. Multiple organizations and individuals vied for control and power over change in an ad hoc manner. Administration officials frequently were at odds with each other and other executive

branch agencies. These officials also attempted to implement change from the top down with mixed results. While they created significant institutional changes including the creation of the NTIA and the OA, their high resource cost diminished their achievements.

History of Computing

The computer technology environment in the late 1970's was very dynamic. Mainframes, mini-computers and micro-computers all existed side by side, with mainframes still dominating the market. Mini-computers with their lower cost structure were beginning to edge out mainframes in some markets and micro-computers were slowly extending beyond the hobbyist market. Mainframes and micro-computers dominated government needs.[187]

Similarly, the software market was changing. A variety of applications for mainframes and even mini-computers were widely available including text processing. Applications for the newer micro-computers were not as readily available owing to their more recent arrival.[188] Networking was also in its infancy. The Internet had progressed beyond its experimental stages and was linking academic and government networks.[189] Xerox was just unveiling Ethernet technology. Moreover, innovation was accelerating in all of these technological areas.

The convergence of these networking and computing technologies had significant ramifications for Richard Neustadt's reorganization of the OTP. He sought to expand the purview of its successor agency to include information policy, which had already been a major concern of the preceding Ford administration.

Richard Harden, the initial head of the computerization of the Domestic Council was eager to make the White house a shining example of the newest technologies available. He wanted to make White House information available to anyone who could take a seat at a terminal. He was interested in the Xerox ALTO system, one of the first micro-computer systems which employed then exotic technologies such as Ethernet and laser printers. This system was untested and cutting edge. He also sought and had limited Internet and e-mail accounts made available to him and his staff after speaking with DARPA.

Both men, in crafting their policies and strategies identified the ongoing technological change occurring within the computer industry and sought to incorporate it into their plans and policies. The cases will indicate that despite these intentions, their execution failed in a variety of ways leading to almost pyrrhic success.

Science and Technology Studies

While aware of the technological innovations happening around them, both Neustadt and Harden failed to appreciate the social context into which they were attempting to introduce change. Both men did not take into account their interaction with the established bureaucracy of the federal government. They also failed to take into account, users' needs, desires and fears. In an environment in which they were attempting to introduce significant socio-technical change, these oversights would unsurprisingly cripple their efforts. They failed to appreciate how their technological and policy initiatives were situated within their environment.[190]

Hardin and Neustadt pursued their policy initiatives under the aegis of the domestic policy staff. Nonetheless, their efforts were hindered by Cold War security concerns. Harden's desire to adopt the ALTO and make the White House a shining example to technological innovation was crushed by the Secret Service's considered opinion that the cost of shielding the system from eavesdropping would be prohibitive. Neustadt's policy initiatives all but ignored the well developed information policy being pursued by the Carter Administration's National Security Council. These men were outside of the rhetoric of Edwards' closed world but nevertheless their efforts came into conflict with the realities of the Cold War. The deflected their efforts but did not defeat them. Harden's user friendly vision of networked information systems was at odds with the closed rhetoric of the Cold War. Neustadt's reorganization of the OTP continued in spite of the work of the NSC and the objections of the DoD.[191]

Finally, the documentary record does not convey the impression that either man was a systems expert even when considering the system as the federal bureaucracy. Neither man emerged out of the systems management field that Hughes identifies as such a strong advantage. In fact, both men demonstrate a remarkable degree of ineptitude in dealing with the federal bureaucracy even after discovering problems. If we extend Hughes's definition to include bureaucratic expertise, these men lacked it; further undermining their chances for a successful outcome.[192]

Diffusion of Innovation

In the case of domestic council information automation, one can clearly identify Harden as an innovator. He is seeking to obtain the latest technology for the White House and is willing to spare no expense. This unfortunately ignores the fact that the White house is unwilling and

functionally incapable of adopting an unproven technology. This tendency is strengthened by the general reluctance if not outright hostility of the staff to Harden's proposals. Their lack of respect for him undermines his potential standing as a technological evangelist within the organization.[193]

The waters are further muddied by Harden's awkward process of organizational innovation. He did not interact with users or evaluate existing processes to determine how they might be transferred over to computer; rather he asserted, based on his experience and industry best practices that certain computers and software would increase efficiency. In his striving to bring about efficiency, he did not take effectiveness into consideration.[194]

White House Administration

President Carter's role in these cases is remote. Both Harden and Neustadt worked for Carter prior to his election but the amount of direct supervision each received was negligible. If these cases are representative, it seems clear that Carter favored politicization over centralization, at least on these issues. At the same the lack of direction can be seen as a major hindrance to the efforts of both men.[195]

At the same time, both cases struggled under the weight of avoiding negative publicity. Neustadt's travails with Congress and the executive branch threatened to be an embarrassment to the President. Similarly, Harden's arguments over computerization were a point of contention and required the intervention of the Office of Legal Council to mediate. The potential of the embarrassment factor precluded both situations from worsening.[196]

Most importantly neither Harden nor Neustadt demonstrated any semblance of coordination. Both men were unable to vertically coordinate within the White House or horizontally coordinate with other branches of the executive branch or Congress. They were also unable to maintain credible commitment by sacrificing the overall goal of institutional efficiency in favor local or personal goals. Neustadt, by the end of OTP reorganization just wanted to conclude the process without angering any other stakeholders while Harden, frustrated by his resource constraints was ready to move along to new challenges having handed "successfully" founded the Office of Administration. [197]

Surveillance Studies

The Federal government and the White House in particular have always been concerned by the potential threat of foreign eavesdropping. In the case of the computerization of the Domestic Council, the Secret Service intervened to assert that the ALTO system was in sufficiently shielded and emanated electromagnetic signals that could be used to reconstruct information on computer screens, conveyed by cables, or output from printers.

The Federal government had taken steps from the early Cold War to protect its telecommunications and electronics from eavesdropping by creating TEMPEST standards. TEMPEST was a standard for shielding electronics to conceal their emanations. In the 1970's, sensitive communications equipment that would carry classified information was built with TEMPEST already embedded. Retrofitting to the standard was prohibitively expensive, especially for a Carter administration seeking to minimize costs.[198]

Dramatis Personae

Richard Harden

Richard Harden was the first director of the Office of Administration. An organizational consultant from Georgia, Harden had worked as Commissioner of Human Resources under then Governor Carter in Georgia, introducing that state's bureaucracy to information automation. In Georgia, Harden had impressed Carter with his organizing acumen acquired in part through his early work with Arthur Anderson and with his work as Commissioner and on Carter's presidential campaign.[199]

Richard Neustadt

Rick Neustadt served in the Carter White House as assistant director of the Domestic Policy Staff. Prior to this, he served on Carter's 1976 presidential campaign as an advisor. Neustadt was given the responsibility of reorganizing the Office of Telecommunications Policy by the director of the domestic policy staff, Stu Eizenstat.

Office of Telecommunications Policy (OTP)

In 1968, President Johnson formed the President's Task Force on Telecommunications Policy headed by Undersecretary of State Walt Rostow. The Rostow Report noted that there was little or no coordination within the federal government on telecommunications policy and called for the formation of an entity reporting to the president that would advise on and manage federal telecommunications policy. Johnson left the creation of the OTP to his successor Nixon who created it in 1970 by executive order under the leadership of Clay Whitehead.

The OTP was charged with managing federal telecommunications and computer policy. It also provided advice to the President and the rest of the federal government on telecommunications and computer issues. During the Ford Administration it assisted the NSC with developing telecommunications policy. The OTP was disbanded in 1978 by President Carter.

National Telecommunications and Information Administration (NTIA)

The NTIA was created in 1978 by President Carter as a successor agency to the OTP. Located within the Department of Commerce, it is responsible for evaluating communication and information technologies for the White House and the federal government. It also generates and promulgates related policy advice to the executive branch.

Office of Administration (OA)

The Office of Administration was created in 1977 by President Carter within the Executive Office of the President (EOP). It was and continues to be responsible for maintaining information and records within the White House outside the domain of the national Security Council, which manages its own records. The OA was initially proposed by Richard Hardin who envisioned the OA as the central White House data processing and information management.

Source Material

The cases are based upon original research conducted at the Jimmy Carter Presidential Library. Many of the records come from the personal files of the primary actors within these cases, augmented by relevant peripheral accounts.

Reinventing the Wheel: The Case of the OTP and the NTIA

The Office of Telecommunications Policy since its creation by the Nixon Administration had been a lightening rod of criticism. Almost from its inception, various agencies, most notably the DoD and the DoC had called for its abolishment. Despite its existence as an entity within the Executive Office of the President (EOP), the Nixon and Ford Administrations had frequently been at odds with it.

From its inception, the OTP struggled to assert authority. Executive agencies including the General Services Administration (GSA), Office of Management and Budget (OMB), DoD, and DoC vied with the OTP to maintain their autonomy on telecommunications matters. The GSA was responsible for acquiring telecommunications goods and services for the federal government. The OMB had previously set many policies regarding computer and telecommunications usage and acquisition, both of which were covered by the OTP's charter. The DoD's Defense Communications Agency (DCA) was in charge of all communications for the DoD. Finally, the DoC maintained a telecommunications policy organization that provided research support to the rest of the federal government. In theory, the OTP was partially responsible for these efforts; in practice, none of these agencies were willing to concede any of

their responsibilities. In short, the OTP struggled to assume responsibilities that were already shouldered.

The OTP's competitors were not limited to the executive branch. The OTP frequently sent out research findings to the Federal Communications Commission (FCC) on overlapping issues such as broadcasting and satellite regulation. Within the White House, the OTP had offered to assist the NSC in its information automation project citing its authority over federal computing. The NSC declined.

The OTP's task in asserting its authority was made more difficult by the Nixon administration's hostility to the organization. The OTP and Whitehead frequently released findings and press releases without consultation that put the Nixon administration in a difficult or embarrassing position. Notably, the OTP released policy suggestions on public broadcasting that while in line with the Nixon administration's general hostility to the mass media, made the OTP a lightning rod for criticism from the public. The OTP also released policy pronouncements and advanced policy initiatives such as its open skies initiative on satellites without consulting or coordinating with other agencies. Nixon's displeasure was evidenced by the complete absence of interaction between Whitehead and Nixon.

Following President Nixon's resignation and President Ford's accession, it was little surprise that the new administration was interested in abolishing the OTP. The OTP however did not go quietly and mustered Congressional support to its continued existence. It also continued to fight running budget battles with the DoC on telecommunications research, eventually resolving into

an uneasy partnership across a range of shared research responsibilities. As noted in the previous chapter, the Ford Administration was deeply involved in the effort to secure US telecommunications networks and the OTP had become involved in the research and planning of this effort. The OTP's role in this effort is difficult to discern but based upon the documentary evidence, the Ford Administration believed that the OTP was an innocuous organization to lead such an effort and moreover already had mandated responsibilities in this area. By the end of the Ford Administration, the OTP had managed to demonstrate institutional resilience in the face of efforts to abolish it.

"Is this what the Thrill of power is all about?"

-Neustadt to Eizenstat[200]

The Carter Administration

Even before taking office, the Carter Administration had decided to abolish the OTP. Richard Neustadt authored a briefing book for the Carter-Mondale transition team in which he recounted the OTP's troubled history. Neustadt deemed the organization to be largely a failure due to its poor leadership and the constant interdepartmental struggles between it and the DoC's Office of Telecommunications which sometimes had to be settled in cabinet chambers.[201]

The dissolution of the OTP and the subsequent creation of the NTIA might have been a foregone conclusion, but the process was anything but easy. Initially, Neustadt suggested that the new entity which would eventually be named the NTIA, absorb the DoC's Office of

Telecommunications and the OTP. He further recommended that the OMB should retain authority to manage communications procurement with the assistance of the new NTIA as the OMB had only three employees detailed to the task. Neustadt suggested that the DoC manage budgetary and manpower requirements for the new organization in the midst of the transition.[202]

By August 1977, Neustadt was still struggling with the implementation of a new executive order (EO) abolishing the OTP and reorganizing telecommunications policy. In particular there were five key areas that needed to be addressed by the new EO: international communications policy, the role of the domestic policy staff, spectrum management, governmental communications, and information policy. International communication policy was at issue because the Department of State (DoS) considered it within their purview. The OTP and the DoS had suffered from unclear boundaries and poor communications. Neustadt asked DoS for their views on resolving this issue. Stu Eizenstat told Neustadt that the Domestic Policy staff did not want any responsibilities with respect to information policy including national security issues and that all of these responsibilities should be ceded to the DoC. Neustadt suggested that spectrum management should also be handled by DoC with OMB functioning as an appeals body to resolve disputes. Neustadt suggested that the new EO should delegate responsibility for government communications to the OMB. This was a delicate matter as OMB, as previously mentioned, maintained only three staff members to oversee a $10 billion budget across the federal government. Neustadt asserted that government policy impacted public policy so OMB's decisions needed to be supported by DoC. Finally, Neustadt asserted that information policy be added to the new entities area of responsibility as the reorganization staff that he had overseen had come to the conclusion that technological advances were swiftly merging information and

telecommunications. OTP had previous assumed some of this responsibility but it had not been specifically identified in their charter.[203]

Even the name of the new entity in the DoC elicited significant debate. The idea of a National Telecommunications Administration was initially proposed by Senator Hollings in July 1977.[204] The addition of "information" in the NTIA was at Neustadt's suggestion, reflecting his view of the inseparability of telecommunications and information policy. While DoC supported this change, OMB resisted. Neustadt believed that their resistance was based upon OMB's concern that the congressional Government Affairs Committees would demand an additional report to expand the authority of the DoC. Neustadt concluded that this issue could be resolved through favorable leadership in the DoC and cooperation from the DoS and OMB and blamed much of the turf battles on the previous leadership of the OTP which had asserted its authority in an "overly aggressive" manner.[205]

"Administration" was another potential sticking point in the new entity's name. The Carter White House was seeking to shrink government and the creation of a new administration was a potential political problem. On the other hand, Neustadt believed using "administration" would be a gesture of goodwill towards South Caroline Senator Hollings, though potentially offending Representative Brooks.[206]

Information Policy Challenges

Even after Neustadt resolved the naming issues and the executive order was in its final drafting stages, the fledgling NTIA was facing a complex of minefield of issues and turf battles. The new

NTIA faced the legacy of the OTP's attempts to craft federal telecommunications policy and the battles that had been fought in the previous eight years. NTIA also had to coordinate across almost every important agency within the executive branch, many of whom were not in the practice of conferring with other agencies on telecommunications matters. Furthermore, the OTP's transition also moved the focus for federal policy from the EOP to the DoC and invoked further turf turmoil. In the end, Neustadt identified the DoD, DoC, DoS, GSA, OMB, National Science Foundation (NSF), and Health, Education, and Welfare (HEW) as stakeholding agencies with interests in procurement, international policy, common carrier policy, spectrum management, and research. Neustadt was also concerned that realignment could upset relations with key congressmen including Representative Brooks. To mitigate these challenges, Neustadt proposed the creation of a working group in the White House with representatives of all of the stakeholding agencies to discuss issues, exchange information, and try to resolve disputes.[207] Neustadt as assistant director of the Domestic policy staff was at the center of the Carter Administration's efforts to develop a comprehensive information policy. In October 1977, he identified 13 key issues that would be included under the information policy rubric.

Table 7: Carter Administration Information Policy Issues October 1977

Issue	Responding Agency
The future of the US Postal Service	DoC/Domestic Policy Staff (DPS)/OMB
Regulation of the Communications Common Carrier Industry	DoC/DPS
Regulation of the broadcast and cable industries	DoC/DPS
Home Computers and communications	DoC/DPS
Government purchase and management of	Presidential Review Memorandum (PRM)

Issue	Responding Agency
telecommunications systems	
Government purchase and management of data processing systems	PRM
Privacy	PRM
Distribution of government-held information	PRM
Spectrum planning	DoC/DPS
Public telecommunications	DoC/DPS
International information flows	
Electronic funds transfers	Independent Commission
Advertising	

This laundry list of information policy issues illustrates a fundamental misunderstanding of the role of the White House in the policy making process and demonstrates a marked refusal to acknowledge or ignorance of the work in these areas by previous administrations. Issues in the list relating to public telecommunications and broadcast networks were the domain of the FCC. All of the issues relating to privacy had been comprehensively explored by Ford's privacy commission resulting in part in the Privacy Act of 1974. Federal government acquisitions were already managed and controlled by the DoD, OMB, and the GSA. Congress had also weighed in on this issue with the Brooks Act of 1965 which sought to economize federal computer acquisitions.[208]

Stu Eizenstat, executive policy director of the Domestic Policy staff was not impressed with Neustadt's suggestion. "Information policy" was simply too broad, amorphous and involved too many stakeholders for executive action to make meaningful gains except in certain cases such as privacy. Eizenstat also believed that examining information policy would provide an opportunity for all of the relevant stakeholders to begin offering suggestions and input on any issue under the rubric. Neustadt affirmed that the decision to make the DoC the lead agency on the issue of communications was good, though he harbored reservations about the process leading to the decision. Neustadt also voiced frustration with the culture of the Carter White House, which was at odds with its effort to streamline and add efficiency to the government.[209]

Eizenstat was already unwillingly involved in the NTIA's issues even prior to its formation. In December 1977, he wrote to the OMB on behalf of the NTIA. The OMB had slashed the DoC's budget numbers for the NTIA which Eizenstat explained would hamstring the organization's ability to perform its duties and advise on policy. He noted that the OTP had suffered from similar problems which had hamstrung its efforts to fulfill its responsibilities. On behalf of the Domestic Policy Council, Eizenstat requested that the funding be restored noting that they were relatively small amounts of money that would have dramatic effects, especially for a new bureaucratic entity that was just beginning its work.[210]

Neustadt advised the fledgling NTIA that the Carter Administration would be seeking advice on a seven issues during 1978: public broadcasting, revision of the Communications Act, US position and policy for the World Radio Conference, privacy, Soviet interception of the telephone system, postal issues including electronic funds transfer and e-mail, and enhancement of rural communications.[211] All of these issues, with the exception of the World Radio

Conference policy papers had been addressed by research conducted by the Ford Administration. Neustadt noted that the DoC was already deeply involved in the Soviet telephone surveillance issue.

By March 1978, the definition of terms and responsibilities of the new organization and the new EO were still unresolved. Neustadt in a warning letter to Eizenstat explained that Congress had reinterpreted the plan, dramatically shifting its meaning. The original intent was to transfer most of the OTP's responsibilities to the DoC with a few functions remaining with the EOP. Representative Brooks had amended the plan to instead make OMB responsible for policy while the NTIA would be responsible for research and engineering. Hollings, Brooks senatorial counterpart held to the original intent of the plan and the committees found themselves at loggerheads. Neustadt opined that Brooks's reinterpretation was based largely on the fact that Brooks had oversight over OMB as Chair of the Government Affairs committee but no influence over DoC and did not want to lose authority over federal telecommunications systems.[212]

Neustadt if anything understated the scope of the problem to Eizenstat. Mary Jo Manning, Senator Hollings's aide on the Senate Communications Subcommittee communicated to Neustadt that the Senator felt that the most recent draft was illegal as it deviated from the original proposal in scope and furthermore believed that the Administration broke its word to the Senate when broaching the topic of the abolishment of the OTP of which Hollings had been a strong supporter. While Neustadt believed that these arguments might not win the day, he was convinced that Hollings could hold highly embarrassing hearings "on the foul-ups in our first

Reorganization Plan."[213] At the same time, Neustadt was concerned about angering Brooks in the House of Representatives.

Neustadt then learned that in the previous October the DoS, DoD, and GSA had not been consulted about the plan and were strenuously objecting to the original draft EO. Neustadt informed Eizenstat that he had worked to address their concerns. He then had to deal with the struggle between the EO, OMB, Hollings and Brooks which had not been resolved. Neustadt warned Eizenstat that the President might have to get involved and make a decision on the competing plans of detailing the balance of authority and responsibility between OMB and NTIA with Brooks supporting OMB's primacy and Hollings supporting DoC.[214]

Neustadt suggested some modifications in the language of the EO to appease Hollings and not ruffle Brooks by restoring the intent and language of the EO to favor DoC rather than the OMB. He also suggested that a presidential statement emphasizing the role that the DoC would have on telecommunications policy coupled with some outreach efforts to show good faith to both Hollings and Brooks.[215]

By June 1979, Neustadt was still tracking information policy issues but the initiative had shifted to the Congress. Neustadt sought the advice of staff members on a range of bills moving through congress dealing with information policy including amendments to the Freedom of Information Act, Copyright amendments, and a report reorganizing government automatic data processing (ADP). He also sought additional issues of interest and suggestions and clarifications regarding the already identified issues.[216] Neustadt found that the ongoing management of information policy issues to be challenging.[217]

Information Policy and National Security

In the midst of the hard fought battle over the reorganization of the OTP into the NTIA, Neustadt and his staff had all but ignored the national security elements of information policy. Previously, the Ford Administration had also examined information policy and inextricably linked public policy and national security policy. The available documents of the Carter Administration do not reflect this understanding. Rather, Neustadt seems to have completely excluded national security concerns from information policy and making the information policy concerns of Carter's NSC difficult to communicate if not articulate.

From the beginning of the Carter Administration, the NSC had been forced to address the issue of Soviet Surveillance of US telecommunications networks. In Presidential Directive NSC-24 dated November 1977, National Security Advisor Zbigniew Brzezinski conveyed Carter's decision based upon the policies inherited from Ford and addition study conducted by the NSC. Carter had decided to mandate that classified information relating to national defense and foreign relations would be only transmitted via secure channels. Other government information that might be useful to a foreign power should be "protected." The private sector should be warned about the threat to sensitive information should be encouraged to take appropriate measures. Carter also encouraged the FCC and the common carriers to protect their networks from foreign surveillance through policy and legislation if necessary.[218]

To accomplish these ends, Carter first directed that the government brief private sector telecommunications carriers and key government contractors, convey to them with information

about the eavesdropping threat, and provide technology with which to develop countermeasures. The Secretary of Defense was to take personal charge of this program with respect to government contractors holding classified materials. US government personnel were to be given additional security training to cope with the threat. Carter directed the government to continue research and development into technical countermeasures to foreign surveillance including the secure wire line program DUCKPINS and the adoption of Executive Secure Voice Network (ESVN) for voice communications.[219]

To support this, Carter authorized the NSC's Special Coordination Committee (SCC) to create a special Subcommittee on Telecommunications Protection (STP). The STP was chaired by the director of the Office of Science and Technology Policy (OSTP) with support for the DoC. Membership included DoS, DoD, CIA, NSA, Treasury, Justice, Transportation, energy and NSC staff. The STP would manage day to day operations and file annual progress reports with the NSC. The Secretaries of Defense and Commerce were singled out for special roles under this regime. NSC-24 named the Secretary of Defense Executive Agent for communications security to protect government-derived classified information and unclassified national security related information. The directive named the Secretary of Commerce Executive Agent for communications protection for all non-national security related unclassified information and for the commercial and private sectors, assisting them to increase their level of communications protection and privacy. Individual agencies were responsible for their own communications security and emanations practices. Funding and legalities for these programs was to be handled by the OMB and the Attorney General. The directive also rescinded the four National Security Decision Memorandums issued by the Ford Administration in favor of NSC-24.[220]

NSC-24 laid down the foundation for federal information security policy. It defined areas of responsibility and divided them between the DoD and the DoC. The directive does not mention any involvement by the OTP or what would become the NTIA; although it is likely that the as the DoC's primary telecommunications policy research organization, it would be tasked with many of these responsibilities. There is some evidence that Neustadt was aware of this decision as he was on the directive's distribution list.[221] Neustadt was aware that the OTP had significant national security responsibilities. In fact, the OTP was actively involved in the crafting of NSC-24. William Thaler, acting head of the OTP also was also head of the NSC's subcommittee for drafting NSC-24.[222]

Epilogue

In September 1977, before the OTP reorganization was finally resolved, C.L. Haslam, General Counsel for the DoC wrote to Stu Eizenstat to deliver a post-mortem on the reorganization process. Haslam noted a series of problems with the process and made recommendations for corrective action.

- Haslam noted that the actual reorganization plan was poorly worded and vague leading to arguments between DoC, OMB and Congressional interests over meaning.
- Congressional interactions were haphazard and did not consistently involve the DoC. Haslam asserted that congressional feedback to the DoC was frequently inconsistent with understandings to which the DoC had previously agreed.
- The reorganization plan did not clearly identify the reorganizational responsibilities of either OMB or DoC leaving both agencies how to proceed.

- The federal government was inadequately resourcing the new NTIA. Haslam felt that the OTP was effectively being dismantled and its responsibilities forced upon the NTIA.
- These problems may have been enhanced by OMB's role as drafter of the plan and functional agency involved in the plan set up a conflict of interest.

The result of these problems led to problems in defining the authority of the new agency and congressional negotiation issues. It also diminished the perceived authority of the NTIA in the eyes of Congress and the rest of the federal government, especially with representative Brooks seeking to minimize DoC's authority and influence.[223]

Haslam suggested that future reorganizational plans should be drafted clearly and terms well defined. Congressional relations should be emphasized to create a sense of involvement among stakeholders. Clear arbiters should be designated to resolve issues that arise in reorganization. Temporary budgets and staffing should be extended to cover the responsibilities of merged organizations to avoid overwhelming them. Stakeholders should be sensitive to OMB's involvement especially when OMB is also impacted by their own policy.[224]

Neustadt commented on this letter to Eizenstadt asserting that Haslam's critiques were misplaced and believed that it was simply an attempt by the DoC to expand its influence. Neustadt told Eizenstat that the reorganization matter was already settled, even though the reorganization would not be resolved for some months. Neustadt also told Eizenstat that he had already drafted a reply and saw "no reason for you to get into this." Eizenstat was not so sanguine. Writing on the memo, he asked Neustadt if Haslam's description of events was correct.[225] More pointedly, Eizenstat added to Neustadt's perfunctory note to Haslam:

> "C.L.: Your memo is first rate! I frankly wish I could get more involved in these plans before they are sent up. My role was extremely secondary and the only issue which you raised which really came to my attention directly was the Brooks amendment. I was informed a satisfactory arrangement had been reached. I hope your advice will be followed in the future. Thanks for your thoughts. Stu"[226]

Neustadt's leadership in the reorganization of the OTP into the NTIA weakened the new NTIA with stakeholders in the White House, the federal bureaucracy, and Congress. The NTIA's ongoing role in national security matters was not discussed with stakeholders outside the NSC until after NSC-24 and only then in the context of the DoC's function as an Executive Agent.

The debate and process of OTP reorganization was continuously hampered by a fundamental lack of understanding by Neustadt and his staff with respect to advancing agendas in the federal government. Information policy as a topic still had importance, but had lost the champions it had during the previous administration where both President Ford and Vice President Rockefeller were directly involved in the crafting and shaping of information policy. Neustadt proved to be a weak advocate for what had been an important policy initiative and in the process diminished the Carter Administration's efficacy on information policy issues.

This process also directly detracted from the business of making information policy. The course of these negotiations occupied the attention of the OTP and Office of Telecommunications. Ongoing projects slowed down as morale sank among employees in both agencies as fears of budget and staff cuts filtered through them. Only in areas such as national security where powerful agencies such as the NSC drove policy forward was there progress.

Harden: Architect of the Office of Administration

At the same time that Neustadt was struggling to reorganize the OTP, Richard Harden, Carter's special assistant for budget and organization began wrestling with the challenge of automating information for domestic policymakers in the White House.

Harden was a vocal evangelist within the Carter White House for information and would spearhead the creation of the Office of Administration. Like Neustadt, however, his vision was undercut by his inexperience with the federal bureaucracy and the broad array of stakeholders involved in decision making. Harden also demonstrated a breathtaking disregard for the needs of technology users impeding technology adoption and hindering the development of the OA.

As early as May 1977, the idea for an Office of Data processing services had emerged from the Oval Office. President Carter in his February 2 1977 address had called for the reduction in White House Staff. Senior officials Noel Sterritt and Hugh Carter saw that information automation was an "essential" method of shouldering the increased workload following staff cuts.[227]

Harden was aware of the work that had occurred in the previous two administrations with respect to information automation in the NSC. In an interview with an official of the NSC Secretariat in June 1977, Harden learned of the basic functions of the information automation system including its document routing system, computer indexing system, and hardware configuration. A number of key points and understandings emerged from this ninety minute interview. First, while the NSC had a larger staff than the Domestic Policy Council (DPC), the DPC received information

from more sources and would likely require a more substantial staff to handle the expected information flow. The NSC system was complicated but flexible and developed over many years. The NSC had also enforced its procedures to make them routine. Finally, the DPC had yet to define its role in the reorganization process or support systems. Nonetheless it had still generated many documents that would need to be organized.[228]

These findings raised a series of questions in the minds of Harden's staff about the applicability of the NSC systems. To begin, the DPC's administrative needs were still undefined and problems with the NSC had not been explored. What level of staffing would be needed to maintain the larger system required to meet the DPC's needs? The whole issue of secrecy and confidentiality with respect to freedom of information requests would have to be addressed. Finally, would the DPC want old materials entered into the system?[229]

Harden addressed the question of the computing needs of the White House to the OMB in June 1977. Writing to the OMB he suggested that the topic of data processing support be reviewed in a study to evaluate existing EOP applications and taking three to six months. This was to be followed by a second study to evaluate hardware requirements.[230] In a companion memo to Hugh Carter President Carter's Special Assistant for Administration, Harden proposed splitting the reorganizational responsibilities with Carter along technological lines with Harden retaining the information technology portfolio.[231]

Harden and his staff completed the data processing study in August 1977 and identified twenty systems using twenty-six different terminals to access information. Information handling

frequently had a literal meaning as documents were hand carried from building to building. The absence of word processing capabilities and graphics capabilities meant that heavily revised documents could go through up to 40 retypings. With respect to existing data processing systems, the report noted that the lack of equipment standardization in the EOP would put and increasingly heavy burden on future administrations. The report identified the two most crucial challenges to the EOP was information handling at the organizational unit level and communication between organizational units and the outside world.[232]

The remainder of the report was a catalog of existing EOP systems. Harden's staff gathered information from senior level staff in EOP units such as the NSC, Records Office and the Presidential Personnel Office. Each entry described: a particular software system; its purpose; the hardware utilized; and a brief history. The description does not account for personnel required to operate the system, associated costs, or amount of data handled.[233] The composition of a June 1977 report was similar but briefer, focusing only applications, department, hardware and a contact point.[234]

In a memo to President Carter in September 1977, Harden wrote that the new central administrative unit on which he was working was coming along well. This entity would handle a number of administrative needs of the White House including payroll, maintaining a library, supplies, and White House orientation. The new entity also included a data processing advisory committee and data processing applications group. Harden anticipated that there would be accompanying staffing cuts as the unit finished establishing itself. President Carter personally approved of the progress.[235]

In December 1977, President Carter issued an Executive Order creating the Office of Administration. Its responsibilities were the same as those proposed by Harden who President Carter named its first director.[236]

Office of Administration: Early Organization

It was not until April of 1978 that Harden and his staff began to finally write a comprehensive EOP Data Processing plan. The plan consisted of six parts: an introduction, user requirements, coordination with external systems, security requirements, equipment requirements, and software requirements. In discussing with his assistant Carl Calo, Harden betrays an alarming degree of detachment and lack of understanding. "User requirements" consist of the types of services needed by users rather than anything related to training employees to use the system. Harden acknowledged that he lacked answers to many security questions and assumed that the NSC computer system would require some kind of additional security. In making this assertion Harden presumes that the OA will be given authority over the NSC computer system which was unlikely to have occurred in any circumstance. He also told Calo that he was depending on him for his expertise in the hardware and applications sections. There is no discussion of timeframe or budget.[237]

In the April 1978 proposal describes a complex computer system for the White House. The introduction describes Harden's process. The OA received input from industry experts and representatives from EOP agencies. Then, they matched the needs described by the experts to the equipment offerings of thirty vendors. Following that, Harden asked for additional input from White House officials and industry authorities. The result was a robust computer network

including processors, storage, terminals, e-mail, access to external information systems such as the New York Time and Congress, and internet access. Software offerings included word processing, project management, filing, microfiche management for users running the gamut the president to file clerks. In addition, special purpose systems for particular agencies e.g. budgeting software for OMB were anticipated. The proposal asserted that each such application would be developed and delivered "within 2-3 weeks." [238]

The proposal also asserted that the new system would connect to a wide range of external information sources through terminals throughout the White House. Another part of the communications capabilities of the system was an email (messaging) system with the capability of mass distribution. The proposal did not address the cost for acquisition of these capabilities.[239]

The hardware requirements of the system were formidable. The proposal called for terminal-based workstations, a mini-computer, printers of various specifications including page, letter-quality, and micrographic. A communications processor for e-mail handling and networking, a host computer to manage databases, and early Internet routers were also included.[240]

Harden envisioned that the security requirements of the new system could be adjusted to the usage of individual terminals and systems. The proposal acknowledged that highly secure systems were expensive requiring shielding, security clearance checks, and secure spaces for the equipment. To address this, the proposal suggested that stand alone secure terminals could selectively be attached and detached from the network depending on the usage. In addition, the system would maintain a complete record of individual user's file access.[241]

The problems of Harden's proposal were laid bare by the Presidential Reorganization Project (PRP) which was responsible for oversight of Carter's ongoing reforms and government reorganization. In a memo shortly after Harden and Calo's April presentation, the PRP found that the proposal lacked perspective which made the strength of the proposal difficult if not impossible to assess as it focused on creating a new system without addressing the migration from older systems which the PRP suggested was 95% of the actual task. Moreover, the proposal's forward focus begged as many questions about what information was not presented as was presented as it did not address the 95% of the existing systems. Second, the hardware requirements were apparently unrelated to the size and scope of actual needs. Finally, as presented the proposal acknowledged that the project would be difficult, time-consuming, and laborious. But again, the proposal did not address the migration issues which would dramatically increase the costs and risks. The PRP concluded that as presented, the project presented an unacceptable level of risk and that the it was likely that Harden and his team would need additional time and research to examine the migration issue which, in the opinion of the PRP had not yet been conducted. [242]

How the ALTO Almost Came to the White House

In December 1977 Richard Harden visited the legendary Xerox PARC research center to look at a new computer system that Xerox was trying to market. The ALTO system was a cutting edge system whose component technologies including the desktop PC, Ethernet, the mouse, and laser printers would find their way to other companies such as Apple and 3Com which would lead the personal computer boom of the 1980's and 1990's. Harden was impressed by the technology and

asked Xerox to draw up a system based on his specifications. The system would have the information sharing, printing, and word processing.[243] Sample systems were delivered to the White House in March 1978.[244]

The system apparently worked well except that it failed its security review. The Secret Service was very concerned about the interception of electromagnetic emissions for electronic equipment as they feared that Soviet eavesdroppers would gain access to sensitive information. For that reason, sensitive electronics were protected by TEMPEST shielding which insulated the devices and dampened their emissions. The Secret Service conducted two separate tests at Xerox PARC and the White House on the laser printer and Ethernet technology and reported that they radiated emissions that would jeopardize the security of information processed on the system. They estimated that insulation for the system would cost approximately $20,000 per room for materials plus construction costs.[245]

The Mini-Computer Flap of April 1978

Such criticism did not slow down Harden who followed up with Hugh Carter about a potential hardware acquisition based upon the proposal with a few modifications. Harden sought to lease an Interdata computer to which the terminals would be connected. Harden had already moved forward by engaging the GSA to acquire hardware and software.[246]

Hugh Carter however had other ideas. Working with the White House Communications Office (WHCA) which was part of the Defense Communications Agency (DCA), he was able to arrange for the acquisition of a HP 3000 mini-computer to serve the interim computing needs. To

Carter's mind, this had a variety of advantages. By working through the WHCA, the White House was able to invoke Defense that enabled a streamlined acquisitions process with less over sight and taking less time enabling the system to be installed in May 1978.[247]

The reasons for this acquisition run deeper, however. Val Giannini, one of Hugh Carter's assistant explained that the OA had not been able to and would not be equipped to provide internal ADP support until December of 1978. Furthermore, the cost of the commercial acquisition of hardware and software suggested by the OA far exceeded the available White House office budget. Giannini noted that such services could be obtained through the WHCS "for a fraction of the cost." Giannini was also reluctant to open the White House to external commercial vendors and potentially give them access to White House information.[248]

To add insult to injury, The system that the OA had been seeking to obtain already had documented operating issues. The hardware had been tested by the Navy which resulted in the discovery of "serious service issues." The OA's choice of software was also dubious as the package recommended by the OA had not yet been tested and was not commercially available.[249]

Finally, Giannini confessed that the White House office lacked of confidence in the OA's capabilities and management. As would be noted in the Lipshutz correspondence, Giannini stated that accounting reports had not yet been produced, personnel papers were filled with errors, and messenger service was so poor that one agency was forced to hire its own messenger.[250]

Harden responded to these critiques in a confidential memo by warning Carter that Giannini's actions might have dramatic negative effects. The non-competitive nature of the acquisition would anger GSA and the Brooks committee which oversaw such acquisitions. Harden was concerned that the new computer would not meet the specifications he had laid out previously. Harden went on to point out that such a non-competitive acquisition was at cross purposes of on-going studies into competitive bid processes for ADP in the federal government and President Carter's own inclinations. Harden explained that he wanted the acquisition approach to match that which was going to be recommended in the study to the President. Finally, he wanted the possible embarrassment of acquiring expensive duplicative hardware.[251]

Carter was not so sanguine and also was concerned by Harden's unilateral actions. In a May 15 memo, Carter wrote to harden to clarify the relationship between their offices. Carter asserted his office's primacy in handling all data processing services for the White House. To that end all conversations between harden's staff and potential users needed to include a representative from Carter's office. Carter's office was also the directing authority for the development and management of applications. Carter was also concerned that Harden's newly leased computers would be used and would have sufficient applications for their employment. Harden concurred with Carter, only requesting a list of applications sought.[252]

This was only a lull in the ongoing struggle between the two men. Three months later the conflict reignited and attracted the attention of White House counsel Robert Lipschutz. Carter raised three issues with Lipschutz. Initially, the most recent dispute between Harden and Carter arose over a legal decision arising out of the OA's responsibility with respect to freedom

information requests. In essence, for White House documents to receive protection as presidential records they had to be kept and retained by White House personnel and the OA did not qualify, resulting in a potential vulnerability to Freedom of Information Act (FOIA) requests. Ownership and control of information was at the core of the issue.[253]

Giannini shot back a week later with comments on Harden and the OA's information system proposal after being asked by harden to comment. First, Giannini acknowledged his role in the creation of the plan but noted that it was minimal. He suggested that the OA ADP document was more properly a concept paper rather than an implementable plan. The plan did not assess its own cost but Giannini estimated that, as written the plan would take "tens of millions of dollars." The plan did not identify the funding source for the system. In addition, there was no indication of research regarding whether the suggested applications were cost-effective.[254]

Giannini had other concerns. He believed that the system would take many years to implement and some interim plan needed to be implemented in the short term. He also cited the plans total neglect of human engineering. The plan did not examine human processes and habits and how employees would react to the new technology. Giannini advocated for a study to examine user issues to enable training and examine existing processes.[255]

Further reflection brought further critiques. After Hugh Carter described the system requirements of the interim computer, Giannini concluded that the new system would be overwhelmed in six months. Carl Calo, Harden's assistant had responded that additional capacity could be obtained from the OMB computer. This networking capability however was predicated on the acquisition

of new software expected to be available in September 1978. As Giannini put it "Is it sound to predicate the viability and legality of White House computer capability on a small private software company's planned delivery schedule?"[256]

The situation culminated in June 1978 with Giannini and colleague Ralph Peck offering Hugh Carter an ADP management plan for the White House. The plan called for the adoption of twenty systems by December 1979 and standardizing existing system. The plan was focused on improved effectiveness, productivity and cost and personnel savings. The outline plan is notable for the almost total absence of the OA.[257]

Carter had other unresolved issues with Harden. In a confidential memo to Lipshutz he notes that OA is supposed to provide administrative support *on request*. Instead, the OA under Harden had been installing unrequested software on White House systems without consultation or notification in violation of the OA establishment order and the agreement reached by Harden and Carter months earlier. Carter also had issues with the general performance of the OA in providing administrative when requested. In such areas as payroll, purchasing, personnel, document duplication, courier service, press relations, and accounting the OA was failing to provide the needed level of support creating addition work for White House staff and creating potential embarrassment for the White House and the Carter Administration. Carter asked for Lipshutz's assistance in resolving the outstanding issues.[258]

Harden also contacted Lipschutz about Carter. Harden complained that redoing systems and turning them over to Carter's people was a waste of time when his staff had new applications to

develop and deploy. Harden asserted that several systems affected by the legal finding needed to impact a number of agencies which did not have FOIA exemptions and the records would be open anyway. Harden also noted that he had tried to get Carter's staff in deployment but that they had been unresponsive whereupon Harden's staff completed the project. Finally, Harden believed that his interpretation of the order creating the OA was correct and was willing to bring it before his old friend President Carter to resolve the issue. Harden asked Lipschutz to draw up papers more specifically defining the OA's role relative to the White House.[259]

Lipschutz responded by drawing up a document that defined all White House documents as White House property. The OA might process, duplicate, file or maintain such information but they retained no ownership rights over the information nor could they disseminate without permission from the White House Office.[260]

Carter's distrust of Harden continued though. Carter began examining the needs of the information and data needs of the White House staff anew and issued a report in October 1978. In the introduction, the new report explicitly stated that it was based upon the "needs" (quotes in original source) identified by the Office of Administration's report of the previous year. To augment their findings, the authors of the report interviewed senior White House Staff and conducted an additional 50 interviews with staff members at other levels in the White House. Carter's analysis found that the senior staff mainly needed a system that facilitated coordination, planning, communication, and action tracking. The report unequivocally asserted that advanced management techniques such as computer-based simulations were untried and untested. In the

words of the report: "Directly stated, the White House is no place to test the state-of-the-art in management science technology."[261]

The report dismissed the idea of providing senior policy staff with access to automated data bases. Citing "insurmountable technical problems which preclude extensive accessing of departmental and agency data bases", the report suggested that it would be too challenging to make this information available over a broad range of terminals using different software. The report drew attention to some of the main problems associated with increased of automated data processing (ADP) in the White House. Namely, senior staff harbored deep skepticism about the systems coupled with distrust of ADP systems based on earlier negative experiences. The report indirectly attacked Harden's direction of the OA: "This means that those responsible for implementing ADP systems must be prepared to do more than just design the system and give it to the user."[262]

The report suggested that the first step towards effective ADP implementation was the development of a manual system to handle existing records, but noted that a vast amount of information needed to be captured and documented about existing processes. The report planned that such a project could be completed by the end of the year and be available on a limited basis with computer support during 1979.[263]

One overarching issue that the report noted and which came out in the interviews was that President Carter's decision not to have a chief-of-staff in his administration led to confusion in decision making throughout the White House. As a direct result of this decision, White House

senior staff needed to approach President Carter with day-to-day issues for resolution leading the President to spend time on minutiae rather than important issues of the day; the strife between Harden and Hugh Carter being one example. Many interview comments provided in the report's appendix underscored this feeling among White House Staff.[264]

Harden had clear ideas about the OA's role and data processing mission as well as its focus on serving the Carter's needs. In a draft memo from November 1978, Harden addressed President Carter and asked him how much data processing support he wanted. Harden mistakenly noted that previously, the EOP received only minimal data processing support on technical issues rather than acting as a management tool.[3] Harden then spends the remaining five pages describing various systems that could be implemented.[265]

Harden advocated the creation of a series of data bases organizing files: Congress, administration officials, public opinion, state and local officials, leading experts, political supporters, interest groups, schedules, issues, projects, legislation status, and evaluation indications. Harden noted that this was a lot of information, but went on to say that much of this information was already in the White House. The primary problems in Harden's mind were the creation of a terminal that could access this information and an interface that allowed easy access by administration officials. Harden noted that he had already approached the Defense Advanced Research Projects Agency (DARPA) and the National Bureau of Standards (NBS) for assistance. Harden believed that the terminal issue would be resolved within a few months but conceded the interface issue required significant additional work.[266]

[3] This was not true of the Nixon Administration in which the EOP received considerable support from the NSC's computer system. This is also true of the Ford Administration, but to a lesser extent. See Chapter 2.

Harden continued by identifying important advantages for the adoption of such a system. First, Harden noted that the adoption of such technology would put the White House at the forefront of modern business management technology and would lead the rest of the federal government by example. Next, such a system would assist in evaluating personnel by identifying productive individuals suitable for promotion. Finally, the system would enable the swift aggregation of information in time sensitive circumstances. Harden concluded by acknowledging the need for system security. The security needs of the system would directly affect the selection of hardware and govern who would have access.[267]

Conspicuously absent from Harden's memo is any mention of research conducted to actually determine the needs of users. Harden clearly identifies himself as the main arbiter on the categories of information that Carter and his staff might require. His plan also did not address the issues of cost and time required to put the system into operation.

The ongoing struggles over the White House information systems did not make it into the status reports issued by the OA. In its year-end report for 1978, Harden reported to President Carter than consistent progress was being made in all of its areas of responsibility: financial management, administrative services, personnel management, information services, and information management. The President commented that the progress was very good and that he anticipated seeing addition cost and personnel services in the White House budget in the years to come.[268] Nonetheless these problems continued into 1979.[269]

By 1980, it was clear that Hugh Carter's faction had won the battle over information management services. The annual report for the White House written by his office provided

detailed information about software implementation in five areas: policy support, scheduling systems, records and files applications, administrative applications, and text processing capabilities totaling forty-five applications of which four were under development and six were planned for development.[270]

By contrast, the OA's report of the same year "Toward an Information Efficient Executive Office of The President" was a forward-looking document. Asserting early that government expenditures on information technology will exceed $1 trillion in 1985, it argued that a comprehensive system for acquiring and using information efficiently was crucial. The paper identified studies previously conducted by the OA and studies it anticipated in the future in five areas: analysis of needs, structured knowledge base development, support services, and information processing systems. It also included chapters on implementation scheduling and cost. Both chapters are characteristic of the OA under Harden. The implementation schedule stretched out over 1980 and only addressed a fraction of the proposed research projects. The budget was itemized into personnel, equipment and contract services with projections of substantial increases in all areas.[271]

Analysis

The Carter Administration's efforts to manage computer adoption and information policy were beset with problems internal and external. Time and again, the narrative illuminates how policy policymakers, in the absence of strong backing attempted to promulgate and implement technological policy within the EOP while oblivious to the demands and concerns of other

entities. In both cases, even though senior administration officials blessed the efforts of policy makers, they provided little actual support or authority. Senior officials and policy makers were not unified in their project goals leading to confusion and drift in the implementation. Finally, there is no evidence of any cooperation or influence between the two cases. Both projects appear to have been isolated from one another in spite of the fact that they might have had significant influence on each other.

In the case of the OTP, Eisenstadt designated Neustadt and his staff to handle the reorganization of the OTP. Neustadt moved the entity to DoC and named it the NTIA with a minimum of consultation. This resulted in the sharp exchanges between the White House and the host of agencies involved in information policy including long powerful executive departments such as the DoD and DoC, EOP entities like the OMB and Congress. The government had widely acknowledged that information policy was widely distributed across the federal government. While the initial impetus to reorganize the OTP had emerged during the Carter team's transition, the actual planning of the reorganization invited little comment and the implementation rested in the hands of Neustadt and his staff. The reorganization had little precedent but Neustadt tried to craft policy in the absence of precedent or organization knowledge. In short, Eizenstat gave Neustadt responsibility without significant oversight or guidance. Functioning in a vacuum while conceptualizing such an endeavor proved to be fraught with pitfalls and institutional danger for Neustadt.

Harden faced a similar situation when President Carter appointed him with the directive of increasing the cost efficiency of White House operations. Harden sought to begin planning and

implementing a wide ranging computerization of the White House, taking as his model some of the latest technology of the day. In so doing, he ran square into Hugh Carter's area of authority. To make matters worse, Harden's plans did not relate in any meaningful way to the environment into which he was trying to introduce the technology or its new users. Cost, personnel, and time were all resources that he gave short shrift to in his analyses. These deficits undermined his plans, especially with Hugh Carter, leading to the need for mediation from the White House Counsel's office between White House Staff members.

In both cases, Eizenstadt and President Carter gave Neustadt and Harden general instructions to advance their plans. Their superiors did not give any thought to how these men would go about achieving their goals. Neustadt and Harden did not integrate their approaches into the existing federal bureaucracy and as a result encountered strong resistance to their plans. The teams assembled by Neustadt and Harden lacked clear direction and authority. Both men received only weak support from within the White House. Eizenstat and President Carter provided little in the way of guidance or experience in dealing with the issues these efforts faced. The processes adopted by these two projects were largely insular and poorly defined their goals and stakeholders. The reorganization of the OTP and the concept of "information policy" would be a relevant issue to a variety of agencies, departments and entities. Neustadt advanced policy he had devised during the reorganization process without consulting these stakeholders. The problems associated with this eventually led to various parties calling the matter to Eizenstat's attention who was understandably dismayed. Neustadt also had to contend with agencies that were unwilling to cooperate with each other in the fight over departmental turf. All too frequently, the

record shows that Neustadt made decisions without consulting any stakeholders and spent large amounts of time and effort repairing relationships damaged by his unconsultative leadership.

Neither Neustadt nor Harden and their respective teams worked well with the rest of the federal bureaucracy. Neustadt's efforts to reorganize the OTP initially ignored a host of federal departments, important White House entities, and Congress. Their efforts to consult with many of these agencies only came as an afterthought. Moreover, Neustadt's superior Eizenstat was unaware of this pervasive problem until the issues had reached crisis levels. The reorganization of the OTP had been sought by the Ford Administration and the OTP itself was regarded with distaste by the Nixon Administration which created it. Both previous administrations recognized however that the reorganization would require significant amounts of political capital because of the breadth and scope of the OTP's potential influence and neither administration was willing to make the investment. The Neustadt team only a belatedly recognized this truth.

Neustadt's discussion of information policy pointedly avoided national security issues in spite of the fact that information policy had been a central focus of the previous Ford administration. It is unclear due to an absence of relevant documentation whether this was by choice or accident. It is clear that he was aware of the important role that information policy had in a national security context and the paradoxically leading role that the OTP had in that discussion. While the reorganization was accomplished by the end of the Carter Administration, it proved to be a drain on resources to the administration and an unnecessary point of contention among the stakeholders.

The reasons for the ambivalent results of these efforts stem from deficits in a variety of areas including decision making structures and processes, organizational culture, and base-line capabilities and resources. Harden and the OA also had to interact with a variety of agencies, mostly within the EOP, but these relations were if anything more contentious. Harden consulted with senior people in the White House and with external industry experts. The actual technology users were not involved in the early discussions. Harden also paid little attention to the NSC system or the process by which it came into existence during Nixon and Ford Administrations. Harden also coordinated poorly with the White House Office in the person of Hugh Carter. Their interactions were interactions were contentious and required the intervention of the White House Counsel to moderate. In the end, Harden's efforts on data services in the OA became little more than an executive consulting exercise recommending future systems that would increase White House information efficiency while Carter's efforts resulted in technology adoption that increased effectiveness and existed within the personnel and fiscal constraints of the White House.

In Harden's case, the situation is if anything, more authoritarian. Harden, an experienced management consultant who had previously worked for Jimmy Carter in Georgia sought to replicate his efforts on a grander scale. He seized on a vision of what would be recognized twenty years on as a de facto norm, inspired in part by the glimpse of the future provided by the ALTO system. He then methodically went about creating it. In the process, he ignored the limited capabilities of the newly organized OA. He did not take note of issues relating to budget, personnel, acquisitions, and security that were fundamentally relevant to his agenda. Indeed the ALTO episode illustrates how cost and security considerations defeated his technological vision.

In the course of researching ADP in the White House, he also placed a great emphasis on getting the opinions of senior people in the White House and many outside experts while ignoring low-level staff who in all likelihood would be the actual users of the technology he was advocating. In his vision, however he was seeking in bringing Internet-like information availability to the desk of every White House employee. In a sense, he was trying to create the office environment of 2000 in 1980 while ignoring all of the technological limitations.

The organizational cultures surrounding Neustadt and Harden also contributed to the mediocre results of their efforts. Both men and their teams pursued policy visions that did not directly align with those of their superiors, weakening their positions with respect to other governmental entities. Their non-consultative leadership styles did not advance their agendas. In Harden's case, his experience and reliance on his experience as a consultant may have tangibly weakened the plans and programs he advanced. The time frames, budgets, and approaches he advocated for the White House were unsuitable for the constraints of presidential term.

Perhaps the biggest problem facing both men was the absence of a professional bureaucracy in the White House with the exception of the NSC Secretariat and the attendant institutional memory deficit. Combined with the Carter Administration's distrust of the previous Nixon and Ford Administrations, this left both projects to begin work in a vacuum. With the exception of the NSC secretariat, upon a change of administration a whole new staff took office, frequently with only minimal information about the operations of the White House. Carter's team therefore took office with little knowledge of previous methods of operations and even those were suspect. Neustadt and Harden undertook large complex projects to change a process that they knew little

about. Moreover, they also discounted the significant research on information policy done by the Ford Administration and the institutional expertise resident in the NSC regarding technology adoption.

The absence of an institutional memory served Neustadt and Harden poorly in that they were poorly equipped to understand the fierceness of the turf battles they would encounter. Had they understood the degree of involvement and consultation required they might have structured their efforts differently. This also contributed to the problems both men encountered in effectively assessing the resources available to them in their efforts to make policy. From the documentary record, both men relied upon themselves and a staff of a few individuals to make and implement policy. This may have contributed to their tightly focused vision with respect to their efforts. This was exacerbated by the Carter Administration's demand to streamline the White House staff. This likely impacted Neustadt more significantly as the lack of personnel narrowed communications channels and left fewer staff to function as liaisons.

Their efforts also suffered for lack of budgetary resources, especially Harden. Once he began to float the cost of his information management system, it quickly became apparent to other White House stakeholders that his ideas and plans were untenable. Indeed, Hugh Carter eventually, called upon the resources of the White House Communications Agency with its coffers filled by the DoD to assist in the computerization of the White House.

Time was also in short supply for both efforts. It took both projects almost two years to begin to see results. Even with this progress, by the end of the Carter Administration neither project had

emerged unscathed or on schedule. Copious amounts of time were used by Neustadt to assuage angry stakeholders and Harden to argue with Carter over information technology plans leading to delayed implementation.

Congress proved to be an impediment to both efforts. Representative Brooks' chairmanship on the House Governmental Affairs Committee and the Brooks Act regulating computer acquisition by the federal government meant that their efforts were beholden to him by choosing not to work under the umbrella of national security. Department stakeholders also had congressional allies who spoke up in their defense.

Neither Neustadt nor Harden seemed to acknowledge the amount of resources at their command. These management issues hamstrung their ability to apply resources to the task at hand. In the documentary record, Harden appears to be wholly unconcerned regarding the financial cost of the systems he advocated. Both men seem to have believed that they exercised a significant if not predominant amount of control over the issues they stewarded. This view is not supported by the evidence, the degree of opposition they faced, or the eventual results of their efforts.

Finally, both efforts were embroiled in a variety of legal problems. In both cases the charters for the NTIA and the OA were subject to interpretation. Unhappy stakeholders raised these issues frequently in negotiations and Neustadt and harden spent a considerable amount of time defending their own positions. Furthermore, they made their defenses without the support of their superiors; they were defending on their own and frequently overmatched when facing the power of Congress, the OMB or the DoC.

These results of these two efforts are uncertain. The NTIA came into being and continues to the present day as the central authority on federal information policy as an unassuming part of the DoC. The Office of Administration also still exists as the institutional bureaucracy that supports the functions of the White House. Its role as a keeper of records and vulnerability to FOIA requests has been on display in recent lawsuits targeting the Bush Administration.

At the time of their creation during the Carter Administration, their respective reputations were unremarkable and long term survival was an issue. Since then both entities have served important purposes. The NTIA continues to manage federal information policy. While the DoC had oversight authority over the operation of the world wide web, the NTIA is the organization within the DoC that actually advises and keeps tabs on the Internet authority ICANN. The NTIA manages federal frequency management and conducts research on new technologies, providing valuable non-partisan expertise to the FCC and the DoC.

The OA continues to provide essential services to the EOP. It is an important records repository for the White House and still manages its administrative affairs. It has also become an entity similar to the NSC secretariat that has an institutional memory and is able to provide support to the White House in the form of institutional memory and systems that exist during political transitions. This is perhaps the OA's most valuable contribution to the modern White House.

The costs of these achievements have largely been forgotten; relegated to the history of a presidency with a reputation for disorganization. During the Carter Administration, they

generated additional headaches and taxed existing overworked staff members, contributing to the very inefficiency that the Carter Administration sought to minimize by their creation.

Chapter V: Reflection and Synthesis

Introduction

The cases presented by this research are remarkable for a variety of reasons. The inner workings of any presidential administration are often difficult to reveal without the assistance of people actually working within the specific administration. Modern presidential libraries are increasing careful about the records they released into the public domain as evidenced by the extended time frames required to open records for research. The author experienced this issue in dealing with many presidential libraries with estimated review times ranging from one to five years.

The American Presidency is a topic that has increasingly attracted public and academic scrutiny. Recent administrations have refused to divulge their deliberative process to maintain their impartiality and protect their process. Reporters, activists, and the public have all sought to reveal the hidden processes that occur within. The events of 9/11 muted much of this inquiry in situations involving national security. Years later and following revelations of hidden scandals, openness is in vogue.

This is especially true in the area of information policy. The Obama administration has made cybersecurity and governmental openness a priority along with modernizing the federal government's information infrastructure. At the same time, the government has not been forthcoming about the ways in which it surveils the Internet and telecommunications networks

nor has it commented about the cooperative role of telecommunications companies in ongoing surveillance.

The four cases presented in this research clearly illuminate the challenges faced by presidential administrations in dealing with the forward march of technology and ever-changing information policy. They show that previous administrations, even at the beginning of the computer era in the White House faced many of the same questions and challenges facing the White House today. The relevance of these cases is direct and indisputable.

So, why hasn't someone brought these cases to light earlier? If we accept the relevance of these cases to the federal government and the White House, what factors have led researchers away from them? The answers to this question vary from discipline to discipline. Within the history of computing, government computer usage is a topic that focuses upon a couple of well known examples.[272] Outside of well known case such as the Internet and Whirlwind, the everyday computerization of the government is not a focus of research despite the central role played by the federal government.[273] Science and technology studies have a similar issue but in their defense, the scope of their inquiry is far broader. Nonetheless, it would seem that if one wanted to explore US policy in this area, one of the first places might look would be at the top of an organization.

The literature of the diffusion of innovation takes the scope argument of science and technology studies. Diffusion studies can be found in some form in almost every academic discipline in both the arts and the sciences.[274] Academics in this area have an immense amount of material from which to fashion case studies. On the other end of the spectrum, the White House administration

studies is a fledgling branch of presidential studies, itself a small area. They also suffer from a problem of abundance, though relative to their smaller numbers.

Scholars of surveillance contend with yet another problem; that of the purloined letter. It is something of an occupational hazard to constantly believe that reputable research in surveillance studies requires one to be something of a private detective, ferreting out closely held, confidential, or even secret information. Seeking information in an open straightforward manner without recourse to a Freedom of Information Act (FOIA) request is just not cricket. This is especially true of scholars examining governmental surveillance.[275] I was surprised by the records that I found.

The second problem that all scholars in this area must negotiate carefully is the perception that they are in fact conspiracy theorists. The adage "it's not paranoia if someone is actually out to get you" comes to mind. I feel the need to preface presentations of portions of this work that it is meticulously researched with publicly available sources and is not the ramblings of an unstable scholar.

The final overall problem with the material in these cases is that it does not neatly fit exclusively into any one of these areas. While some of these areas overlap, others do not. Absent intersection, non-overlapping disciplines do not communicate well or inform each other. In so doing, they would relate a plainer narrative, lacking the nuance that multiple analytical frameworks provide.

Putting It All Together

This project presents four interrelated historical cases describing early events in the history of White House computer adoption and its formulation of information policy. These cases are differentiated topically and chronologically. Crucially, they are also differentiated by administration and goal.

Table 8: Case Comparison Matrix

Administration	Nixon/Ford	Carter
Political Party	Republican	Democrat
Area	National Security	Domestic Policy
Goal	Effectiveness	Efficiency
Computer Adoption	NSC Computer Adoption	DC Computer Adoption
Information Policy	Telecommunications Security	OTP Reorganization

While the political leanings of the administrations do not seem to be important, the knowledge gap created by the transition was crucial. The Nixon Ford transition was from a functional point of view more like a second term. The complete staff changes that characterize the shift between Ford and Carter are simply not present between Nixon and Ford. This was certainly due to the unexpected nature of Nixon's resignation. As these cases indicated, the White House at this time lacked institutional memory outside the NSC secretariat which resulted in stronger and more successful initiatives from the Nixon/Ford case that the Carter cases.

A second cross-sectional point is that the Nixon/Ford initiatives were both guided by urgent national security concerns led by Kissinger, Haldeman, Ford, and Rockefeller. These men saw these programs as key pieces of US cold war strategy and necessities if the US was to effectively hold off and triumph over the threat of communism. The Carter initiatives, while conducted with his blessing, were not driven by him or senior domestic policy makers in the Carter administration. They were guided by the pressing domestic policy need to slim down the government and save money. They lacked the imperative of fighting the cold war.

A final cross sectional difference is the different the different institutional approaches to effectiveness and efficiency. Joyce, Ford and Rockefeller were concerned that the systems and policies they put in place would address the challenges set before them by the cold war. To do that, they addressed the broader needs of users and the private sector. Harden and Neustadt sought to improve the efficiency of the systems they were charged to put in place. They were concerned cost and time savings: the results of the process. In their efforts, they ignored or did not consult stakeholders repeatedly. In the end, Joyce, Ford, and Rockefeller created efficiency by focusing on effectiveness while Harden and Neustadt focused on efficiency to the exclusion of effectiveness and received only questionable improvements in efficiency.

These cross-sectional themes also run through the disciplinary analyses:

History of Computing

With apologies to Richard Harden, the presidential administrations of the 1970's were not trying to keep up with the rapid technological changes in the computer industry, like businesses across

the country were. Computer hardware, software, and networking technologies were changing drastically. Government is unlike business in that it exists in a mostly non-competitive environment. The same competitive pressure that drove the airlines to develop and adopt the SABRE system did not exist.[276]

Government did have external competition however. The Soviet threat was still very real and national security concerns were a priority. The deep involvement and concern of senior policy makers during the Nixon and Ford Administrations is evidence of this. However, the closed world rhetoric asserted by Edwards did not seem to resonate into the national security deliberations of the Nixon and Ford administrations. In fact, they were resigned to an open world, settling for influence having lost hope of control. RAND's proposal was fully in line with the idea of the closed world but was dismissed by Joyce after the NSC secretariat all but refused to go along with it. Joyce and the NSC secretariat recognized that the torrent of information flowing into the NSC could not be controlled; only managed.[277]

The NSC came to a similar conclusion in considering the problem of telecommunications security. The task of protecting the nation's telecommunications traffic from eavesdropping was a vast task complicated by telecommunications deregulation and the public policy implications. The problem was simply too large to control and so the Ford administration settled for making it manageable.

White House computer adoption would be inextricably linked not to Harden's vision of the ALTO and the paperless office, but Joyce's effective office that responded to the needs of users.

Moreover, Joyce recognized the importance of reliability and the resource constraints of the White House. Harden's approach was similar to that of RAND. Both sought to make the White House technological example for the rest of the government, though for differing reasons. Both also were unaware of the resource constraints that the White House imposed. RAND understood things in the context of working for the Department of Defense with large budgets and long timelines. Harden was a technological innovator who believed that the newest technologies would be perfect for the White House, even if they were expensive and unproven.

Cold war concerns did not dominate the Carter administration's policy initiatives, but did make crucial interventions. The Secret Service's report on the insecurity of the ALTO doomed the ill-fated but influential system. Similarly, Neustadt's failure to incorporate the concerns of the Department of Defense into his reorganization of the OTP increased the difficulties he and his staff encountered during the process.

The cold war had a major impact on the development of computers and information policy. Its effects were not uniform. These cases provide examples of high level computer and information policy where the closed world rhetoric was rebuffed by pragmatic realism. The threat of the Soviet Union was no less real, but the resources and conditions of the White House dictated that control was impossible. Manageability was an acceptable substitute.

Science and Technology Studies

As technological evangelists, Charles Joyce and Richard Harden could not have been more different. Joyce had graduated from MIT and then gone to work for the Department of Defense

before Kissinger called upon him. Harden was a business technology consultant with experience in state government. Joyce carefully studied and worked with the human, financial, institutional and technological resources at his disposal while Harden looked outside of the White House for inspiration and direction. Their effectiveness reflected their appreciation of the position. Joyce efforts were welcomed, early, and under budget. Harden's responsibilities were assigned elsewhere as he focused on running the office of Administration.

Joyce and Harden had fundamentally different views of how to accomplish their tasks. Joyce was a classically trained Hughesian systems manager while Harden's only large scale experience in technology stemmed from his work with the government of the state of Georgia.[278] Harden was ill-equipped to navigate the bureaucracy of the federal government while Joyce was able to co-opt the federal government to provide monetary and technological resources outside the abilities of the White House.

Similarly, the differing policy approaches of President Ford and Neustadt are stark. For all of the urgency facing President Ford, he directed the NSC to take careful stock of the situation and examined the impact of telecommunications on a wide range of actors including the federal government, the private sector and the public. Neustadt's approach was to begin reorganizing before understanding how the OTP was tied into the executive branch and Congress. The results were entirely predictable. Technologies develop and exist within a social context. Joyce, Ford, and Rockefeller were cautiously aware of this. Neustadt and Harden ignored it at their peril and cost.[279]

These cases provide ample evidence for the powerful impact that users have upon the adoption of technological systems. In all four cases, users were highly influential in the decision to adopt or reject technological change, sometimes in spite of their leadership. The Nixon and Ford cases also provide evidence for the impact of technology adoption upon policy formulation.

Diffusion of Innovation

While Harden might be identified as an innovator and Joyce as an early adopter, the users that these men were trying to coax into adopting computers were mostly late adopters or laggards. This did not reflect upon their actual technological aptitude. Joyce noted that many users were eager after their introduction to computers.[280] Rather this is characteristic of their understanding of computers as large numerical processing engines. Textual processing was a new technology with which they had little contact.[281] Despite their reluctance Joyce was successful in persuading them to use the new technology. Rodgers notes that a key attribute of successful technology evangelists is the respect of their peers and users. The evidence clearly indicates that users respected Joyce but scoffed at Harden.[282] Harden's experience was presaged by RAND's failure to persuade Joyce and the NSC secretariat eight years earlier.

The inter-relationship between the various cases presents interesting evidence for different kinds of institution diffusion of technology. At the beginning of the Nixon administration the NSC was unfamiliar with computers except as presented by various DoD reports that may have crossed their desks. By the beginning of the Ford administration, the NSC was using computers to manage daily information flows. National security policy makers had visceral experience of the capabilities of computers. When the Ford administration confronted the threat of Soviet

eavesdropping which was enabled by computer technology, no one in the NSC doubted the threat and they were only too aware of the volume and kind of sensitive information that flowed through government information networks. This experience intensified the urgency of the threat and led President Ford to become one of the most influential individuals in the history of information policy.

The Carter cases almost the exact opposite situation. Computer adoption and information policy were crafted simultaneously and with dubious results. Neither Harden nor Neustadt were aware of each others' activities. Moreover, neither man seemed willing to learn anything from the Nixon/Ford experience. Domestic council policy staff members unacquainted with computers were trying to devise information policy leading to the botched reorganization of the OTP.

These cases provide strong support for the idea that policy makers should have experience with the technologies they are seeking to address. Successful policy emerges from policy makers with first- hand knowledge of the technology in question. These cases also illustrate the challenges to diffusion that can arise from institutional boundaries and prejudices. Whether it was a change in party, administration or simply an argument between the domestic policy and national security policy staffs, these administrative divides clearly inhibited if not prevented diffusion from happening within the White House during the 1970's.

The arc of these cases also show the effectiveness of path dependency in shaping White house technology decisions. The computer systems adopted during the Nixon administration were still in use during the Carter administration. The NSC's information management systems proved to meet the Domestic Council's computing needs while avoiding the huge cost of a new and

possibly incompatible system. Similarly, Ford's telecommunications security policy laid the foundation for future policy. By identifying the NSA as the encryption technology provider and standard setter to US telephone companies, the Ford administration established the NSA as the primary government agent to interact with public companies on telecommunications security technology and policy. The Carter administration had little choice but to endorse Ford's policy initiative as the cost of failure to national security was too high to be borne. This research identifies the existence and effectiveness of path dependence within the federal government.

White House Administration

This research project provides supporting evidence for many theories advanced by presidential administration scholars. The Nixon/Ford cases and Carter cases provide striking contrast in approach between administrations. Coordination, the impact of public relations and centralization are all supported by this work. This research also makes the case that for a consistent bureaucracy within the White House to maintain continuity and institutional knowledge.

Coordination was employed extensively by Joyce and Ford. Both men reached out to other federal agencies and drew upon the White House's own capabilities. They also maintained credible commitment to their goals. This was certainly made easier because of the national security imperatives involved; but not exclusively so. By contrast, Harden and Neustadt failed at almost every opportunity to establish vertical or horizontal coordination. Furthermore, their commitment to institutional goals wavered and changed as they were forced to coordinate by their superiors.[283]

Public relations are another important thread that runs through all of these cases, though in a negative sense. Nixon and Joyce were sensitive to negative public reaction to the cost of a new computer and potential privacy issues. Ford and Rockefeller crafted US telecommunications security policy to expressly avoid anticipated negative public reaction. Both Neustadt and Harden were forced by their superiors to change policy lest their internal arguments become public and become an embarrassment to the Carter administration. Neustadt and especially Harden considered that a successful project might lead to positive public reaction initially but this idea was buried after both projects bogged down in administrative trench warfare.[284]

This research also illuminates the impact of centralization and the perils of politicization in a technical area. The Nixon and Ford cases show very strong interest by Kissinger, Haldeman, Ford, and Rockefeller leading to strongly centralized authority and decision making by Joyce and within the NSC. Kissinger selected Joyce for his ability not for his political loyalty. Conversely, the Carter initiatives received minimal attention from senior officials. While President Carter believed Harden to be an expert in his field, both Neustadt and Harden had worked on the Carter campaign and were politically reliable. These cases suggest that centralization has positive outcome benefits in technical settings while politicization is at least less effective if not a detriment.

This research also opens up new inquiry into the impact of a change of administration. Despite leading the federal bureaucracy, the White House's of the 1970's had remarkably few employees retained between administrations, diminishing institutional knowledge, impeding diffusion of

experience, and leaving new officials to flail about as they tried to get their bearings. These administrative handoffs might be crucial points of examination in the study of presidential administrations.

Surveillance Studies

The project makes a theoretical contribution to the field of surveillance studies by identifying and differentiating the concepts of adversarial and custodial surveillance by showing that senior policy makers beginning in the Nixon administration identified these as separate areas. These concepts were defined by senior policy makers who specifically differentiated protecting the privacy of citizens between foreign governments and the federal government and the private sector. This division was further delineated during the Ford administration as it sought to simultaneously craft policy to address both types while keeping adversarial surveillance out of the public eye. The Ford administration also consciously divided federal policy along these lines by keeping adversarial surveillance policy within the NSC and placing custodial surveillance regulation within the hands of the OTP and the Department of Commerce.

This division of effort was brought out during Neustadt's reorganization of the OTP as both Defense and Commerce fought over responsibilities with each other and Congress. This was problematic the secrecy associated with adversarial surveillance efforts and contributed to the problems facing Neustadt. Harden's case demonstrates that surveillance issues have very real policy implications in sensitive environments. The cost of protecting the ALTO system effectively doomed its deployment in the White House despite harden's enthusiasm.

The Ford case stands out in particular by identifying a number of historical milestones with far reaching policy ramifications. The Ford administration identified the NSA as a necessary stakeholder in future discussions related to adversarial surveillance due to its unique cryptographic expertise. It asserted that the NSC, NSA and telecommunications carriers should cooperate outside of public view to meet federal information security needs to avoid negative public opinion. It established the partnership between Commerce and Defense as the leaders of policy relating to custodial and adversarial surveillance and established that they should cooperate in areas of overlapping responsibility. Finally, it shows that that the OTP was far more involved in both aspects of surveillance policy than previously thought, adding additional and hidden layers of complexity to Neustadt's task of reorganizing the OTP into the NTIA.

Implications for Current Presidential Policy

This hybrid research is both historical and policy driven. If it is to be successful, it should be able to provide explanations for current policy decisions. Here are a number of policy issues that have been reported on in the press over the last few years.

"Staff Finds White House in the Technological Dark Ages"[285]

In 2009, President Barrack Obama took office having run a campaign that utilized modern information and communication technologies to an unprecedented degree. The Obama Administration was quite surprised to find the White House was equipped with outdated software, limited e-mail access, no instant messaging, and intermittent telephone service. Staffers understood the challenges but were resigned to the slow pace of the transition because that is the way things work at the White House. Staffers were unable to blog, set up web sites, or begin

changing the technological orientation of the White House. They should have known. President Bush was not technologically adept.

This situation was completely in line with the findings of this research. It is likely that the six year old software new Obama staffers found on their computers were the last remnants of the last technologically savvy administration; the Clinton Administration. But the incoming administration is unlikely to accept the status quo.

The Obama administration's relative youth and technological adroitness likely places many if not all of them with technology adopters who might be categorized as innovators or early adopters. Unlike the earlier efforts of Joyce and Harden, the new technological leaders would not need to persuade staffers to adopt new technologies. Rather, it is likely that the new Chief Technology Officer will need to rein in scattershot technology adoption processes and impose a degree of order and standardization.

In this respect, the Obama administration is similar to the Ford administration. The highest leaders and advisors within the organization are well aware of the power of new information and communication technologies and fully support their innovative adoption and utilization. The resource constraints that bound Joyce and Harden do not exist. The cost of computer hardware, software and networking technology are a fraction of what they were in the 1970's and the power of today's systems dwarfs that of the mainframes or even the ALTO. The Obama administration is fundamentally changing how the White House uses ICTs.

"Bush Moves to Shield Telecommunications Firms"[286]

Following the events of 9/11, the Bush administration in an effort to protect the United States from future attack may have instructed the NSA to monitor Internet traffic with the cooperation of US telecommunications carriers including Verizon and AT&T. The conditional nature of the previous sentence is based upon the fact the government has not divulged the existence of such a program in spite of the presence of whistleblowers. This has prompted a variety of lawsuits charging the federal government and telecommunications companies with violating individual privacy rights. While the federal government has a degree of immunity stemming from the secrecy of the activities, telecommunications companies do not necessarily enjoy the same protection and President George W. Bush sought to extend them protection. These cases are ongoing.

Keeping the Ford case in mind, this whole situation is perfectly reasonable from the government's point of view and from this project's definition of adversarial and custodial surveillance. The tangible threat posed by terrorists using the Internet is similar to the threat of Soviet eavesdropping faced by the Ford administration, made all the more visceral by the events of September 11, 2001. Nixon, Ford, and Carter all ascribed to the differentiation and to the idea that national security trumped privacy. Adversarial surveillance issues override custodial surveillance concerns. The legal challenge is that the plaintiffs seeking to protect privacy and the government seeking to protect its citizens are arguing their points askew. Privacy as defined by a succession of administrations is not monolithic and inviolable. It is malleable and recedes in the face of national security concerns.

It is also unsurprising that the NSA and telecommunications companies are working with one another. As the telecommunications security case points out, this was exactly the kind consultative relationship originally envisioned by the Ford administration, repositioned to address a new threat. This cooperation has been going on for decades.[287]

Finally, the Bush administration's position on this issue is also one of direct historical continuity. Prior to his election as Vice President, Richard Cheney served as President Ford's chief of staff. Similarly, Presidents Ford and Bush both appointed Donald Rumsfeld as their Secretary of Defense. Both men were deeply involved in the policy discussions of the Ford administration and may have applied similar reasoning and precedent to keep the cooperation of the NSA and telecommunications companies out of the public eye.

"Obama Says He Will Name National Cybersecurity Advisor"[288]

Cybersecurity and the possible threat posed by terrorists or foreign powers to disrupt or attack the United States have been a growing concern of the government since the George W. Bush administration. President Obama has created a high level government position to take charge of strategy. Moreover the Department of Defense has dramatically increased its spending and attention to cybersecurity and is building a cyberwarfare corps. The Obama administration is still debating what organization will lead these initiatives: the Department of Homeland Security or the NSA. Civil libertarians are already voicing strong objections to the NSA.

In the end however, the NSA is likely to be the lead agency, officially or unofficially and for the same reasons that the Ford administration brought them into the telecommunications security

debate. As the largest organization responsible for collecting communications and signals intelligence, the NSA has likely been hacking foreign computer networks for years.[289] Their expertise and knowledge is unsurpassed, even by the rest of the Department of Defense.

If cyberwarfare constitutes active measures, internet governance is the issue at the heart of passive measures. The code of the Internet defines the artificial medium.[290] The Internet is operated by ICANN, an international corporation supervised by the Department of Commerce with advice from the NTIA. While the Internet and the World Wide Web are US inventions, much of the rest of the world sees ICANN as a puppet of US policy.[291]

The historical cases presented in this work offer some support for that opinion. The OTP has historically acted as the public face for telecommunications security and conducted research on behalf of the Department of Defense. It is likely, that the NTIA as its successor agency conducts itself similarly. As the Obama administration develops serious cybersecurity policy it is unlikely to relinquish any level of control over the Internet, even oversight.

"Obama to soon get secure BlackBerry"[292]

President Obama is a fan of communications technology especially his BlackBerry. Unfortunately for him, BlackBerry devices are not secure enough to handle the top secret information that might be directed to the President and were not certified by the NSA. But the President was insistent and the NSA developed a secure version use by him and top administration officials.

As these cases have demonstrated, security issues are a constant fact in any White House technology decision. The ability to negotiate security related challenges depends upon the resources one is able to muster to overcome them. President Obama probably gave the NSA little choice. Joyce avoided security issues in part by choosing a proven secure Department of Defense system. Ford harnessed security to his aims. Neustadt was impeded by security issues while Harden was defeated by them.

The Primacy of Security

The narratives of the computer adoption efforts and information policy initiatives of the Nixon, Ford, and Carter administrations are oddly synchronous with the more recent efforts of the second Bush administration and the Obama administration despite the three intervening decades separating them. Both sets of administrations found themselves facing implacable enemies (Communism and terrorism) which directly threatened the United States. In the 1970's, the White House made policy based upon perceived national security imperatives. Similarly in the 2000's, the White House has swiftly reacted to the suddenly looming threat of terrorism by subordinating policy to perceived national security requirements. Then as now, the perceptions are likely to have been inaccurate. The Ford administration based its estimate of Soviet eavesdropping capabilities upon known US capabilities, discounting the fact that US computer technology was at least five years ahead of that of the Soviet Union and crafted policy that impacted the private sector while avoiding Congressional oversight. Similarly, the "bodyguard of lies" employed by the second Bush and Obama administrations to cloak their anti-terrorism activities likely overpowers the intelligence gathering and analysis capabilities of terrorist organizations, but also impedes the functioning of a democratic state. In a state of external threat, the primacy of national security concerns is assured. However, the relationship between the

strength and nature of the threat and the White House's reaction to it seem to correlate geometrically leading to over reactive policies that threaten civil society.

Sequels Anyone?

The research presented in this body of work is but a scratch on the surface of the available material. In the process of collecting archival research, I collected over 25,000 photographs of documents that I considered "interesting." I have pending Freedom of Information Act requests that are unsurveyed. Within the scope of this projects timeframe there are many additional cases, relating to the White House's interaction with computer and information policy. Even as this document is being written, new research, fruit of five year old FOIA requests are being made available at the Reagan Library. The first four thousand pages of documents related to communications technology have just been released with further materials to come. This line of research is possesses an abundance of riches, archivally speaking.

The richness of the material covered in this project points in new many new directions of research and a multitude of questions. The institutional history of the OTP and the NTIA is one promising story. This project indicates that the OTP played a substantial role in both public and secret US telecommunications policy and begs questions about what other roles and projects did it undertake. How does this legacy influence the present day activities of the NTIA?

The visceral experience of using computers had an impact upon US policy makers in the Ford administration. What other areas were affected by their experience? Preliminary research

indicates that US high tech trade policy was also shaped by policy makers' appreciation for the capabilities of computers. This story also needs to be mapped out and explored.

Computer adoption and information policy did not stop with Carter. Subsequent administrations wrestled with these problems with varying degrees of success. How did the foundations laid down in the 1970's influence policy in the 1980's?These are simply constructed questions. But all of them expand explosively when we consider employing a multidisciplinary framework to examine them. This project appropriated five different literatures and in the case of surveillance studies combined the literature on signals intelligence with the general literature on surveillance. This was my deliberate choice. There were a number of addition literatures which could have expanded the complexity of the multidisciplinary framework further such as sociology or the history of foreign relations. As it is, some of the cited literatures such as that of the diffusion of innovation are immense and become topically specialized.

Approaching Multidisciplinary Research

This project therefore offers a multidisciplinary research method to approach topics which border a variety of literature. By creating multiple analytical frameworks and applying them simultaneously, the resulting findings are strengthened by an interaction effect. For example, the influence of users on technology in this project was addressed primarily by the literature of science and technology studies and diffusion of innovation. But the presidential administration studies literature was also relevant and germane in looking at how a president exerts influence.

Moreover, in the absence of that literature the framework is not as compelling or informative. The research suffers for its absence.

Multidisciplinary research like this projects have their own shortcomings. By covering so many frameworks there is always the potential to superficially invoke a literature. Multidisciplinary research also poses a challenge to the author as conveying many different interrelated nuances is not an easy task and risks confusing the reader.

Researchers must also be true to the mode of primary research they employ. This project is, at its heart a historical project employing historical documents and oral history. All of the challenges and flaws of this method are still present in the final project, augmented by those of the multidisciplinary analysis.

Denouement

The scenes depicted in the cases of this project shed light about the present. The White Houses of the 1970's struggled to adopt computers and conceptualize information policy. During the Nixon administration, Charles Joyce helped the NSC navigate the torrents of information flowing to it and which threatened to overwhelm it. Mustering the resources of the executive branch, he and his team deployed a system that the NSC secretariat welcomed after dispatching a competing vision of information automation brought by RAND and which would have likely led to failure. Joyce smoothly negotiated administrative hurdles and inadvertently benefitted from pockets of early adopters within the Nixon White House.

In the mid 1970's, President Ford and Vice President Rockefeller came face to face with the threat of Soviet eavesdropping. Both men had discovered in the course of their federal service the magnitude of the threat as both had chaired efforts to craft federal privacy policy. In the aftermath of the Nixon scandal, Ford was unwilling to bring this information to the public or to tell the public that the secretive NSA would be leading the effort to protect US telecommunications in cooperation with US telecommunications companies. To move protection efforts forward, he and the NSC chose not to inform Congress or the FCC of their actions.

During the Carter administration, Richard Neustadt tried to reorganize the much maligned OTP and improve the efficiency of the government. He had a plan to implement this policy but tried to move it forward without consulting the numerous congressional and executive stakeholders involved. His plan also all but ignored the previous work done during the previous administration on information policy. He revised his plan numerous times to appease the angry stakeholders and avoid embarrassing the Carter administration. At the end of the day, Neustadt emerged bruised and battered with the NTIA. Efficiency succumbed to simple resolution.

Simultaneously in another part of the Carter White House, Richard Harden had a vision to bring computers to the masses of the domestic policy staff. Like Neustadt, he did not consult the stakeholders and users within the White House nor did he consult with NSC about their earlier, successful computer adoption. The domestic policy staff viewed his plan with healthy skepticism which became after realizing that Harden was oblivious to his resource constraints. Harden's

efforts were even less well received than Neustadt's. Though he formed the Office of Administration, he was stripped of his responsibility for domestic policy staff computing.

These scenes offer insight and lessons for present day information and communication technology use and policy. They resonate strongly with the activities of both the Bush and Obama administrations. The events of 9/11 imposed a cold war mentality upon the Bush administration and reminding Ford administration veterans Vice President Cheney and Secretary of Defense Rumsfeld of their actions during the Ford administration. This has directly led to the current challenges facing the Obama administration with respect to Internet governance and security.

The Nixon and Carter administration cases reveal the right and wrong ways to adopt technology and develop information policy. Joyce leveraged every resource at his disposal and commandeered unallocated resources while listening to the needs of users and successfully deployed an NSC computer system. Harden all but ignored his resource constraints and users. He lost his responsibility for deploying computers for the use of the domestic policy staff. Neustadt also failed to coordinate with the internal and external stakeholders involved in his information policy initiatives resulting in a less than desirable outcome.

The current Obama White House operates under few of the constraints that bound their predecessors of the 1970's. The White House is filled with staff eager to adopt and adapt new technologies. The administration encourages the use of technology as it was one of the forces that propelled Barack Obama's candidacy to success in the democratic primary and the general

election. Unlike the 1970's, today's information and communication technologies are powerful, interoperable and inexpensive. The new CTO will not have to persuade users to expand their technology usage but rather constrain it to established standards. In the case of the White House, the one omnipresent unchanging technological constraint is security and it binds everyone from the lowest staff member to the President and everything from NSC's computers to the President's BlackBerry.

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Waterman, W. W. (2009). The Administrative Presidency, Unilateral Power, and the Unitary Executive Theory. *Presidential Studies Quarterly* , 5-9.

Winkler, J. (2008). *Nexus.* Cambridge: Harvard University Press.

Curriculum Vitae

John Laprise

Mount Clemens, MI

EDUCATION

Northwestern University, Evanston, IL.

Doctor of Philosophy Candidate in Media, Technology, and Society, Anticipated December 2009.

Dissertation: White House Computer Adoption and Information Policy 1969-1979

Advisors: Professors James Schwoch, Ph.D. Shane Greenstein, Ph.D., Miriam White, and Richard Morris, JD.

King's College-London, London, UK.

Master of Arts, War Studies, June 1993.

American University in Cairo, Cairo, Egypt.

Certificate in Arabic Language, June 1992.

Miami University, Oxford, OH.

Bachelor of Arts, History and Religion, May 1991.

Bachelor of Philosophy in Interdisciplinary Studies, May 1991.

PROFESSIONAL RESEARCH EXPERIENCE

Research Coordinator, Office of Institutional Research, Harper Community College 11/02-9/03, Palatine, IL.

- Interviewed and coordinated communications with project stakeholders.
- Authored institution's comprehensive open source environmental scans.
- Analyzed effectiveness of existing programs.
- Judged new program proposals for viability.

Research Analyst, New Paradigm Resources Group7/00-2/02, Chicago, IL.

- Researched the telecommunications industry through interviews and open source materials.
- Executed competitive intelligence projects for Fortune 500 clients.
- Evaluated the effectiveness of new and emerging technologies.

- Trained colleagues in competitive intelligence best practices.
- Presented findings to executive management.

Research Analyst, Kirk Tyson International11/99-6/00, Schaumburg, IL.

- Conducted competitive intelligence projects through open source and primary research.
- Designed research projects for Fortune 500 clients.
- Delivered findings to stakeholders.

ACADEMIC RESEARCH EXPERIENCE

Graduate Research Assistant, Kellogg Graduate School of Management, Northwestern University 6/04-9/04, Evanston, IL.

- Analyzed telecommunications common carriers.
- Proposed taxonomy for classifying companies.
- Evaluated and coded carrier data.

TEACHING EXPERIENCE

Instructional Competencies

- *Teaching*
  - Helped students understand course materials and concepts.
  - Advised students on research strategies and projects.
  - Conducted weekly seminar sessions and lectures.
  - Coached students on project presentations.
  - Coordinated guest speakers.
- *Technology*
  - Supervised instructional technology capture of lectures.
  - Managed instructional media presentations.
  - Designed and managed course website.
- *Assessment*
  - Evaluated oral student projects and presentations.
  - Graded written student exams and assignments.
  - Designed student assignments and exams.

Instructor, Northwestern University, 4/08-6/08, Evanston, IL.

- COMS 394 *Junior Seminar: Intelligence through the Ages,* Spring 2008.

Teaching Assistant, Northwestern University, 9/04-6/06, Evanston, IL.

- COMS 377 *Marketing Popular Culture: Rhetoric of Television Comedy*, Spring 2005.
- COMS 201 *Research Methods in Communications Studies* Fall 2004 and Fall 2005.
- COMS 322 *Rhetoric of the American Presidency: Nixon* Winter 2005.

- COMS 372 *Mass Media and Campaign Strategies* Winter 2004.
- COMS 373 *Mass Media and American Society* Spring 2004.
- COMS 383 *Satellites*, Winter 2005.

Competitive Intelligence Trainer, New Paradigm Resources Group, 7/00-2/02, Chicago, IL

- Instructed individuals and small groups in basic and advanced open source research techniques.
- Taught basic and advanced interviewing research techniques to individuals and small groups.
- Provided on-going coaching and feedback.

HONORS AND AWARDS

Presidential Management Fellowship Finalist, 2009, Office of Personnel Management.

Jacob K. Javits Fellowship, 2005-2009, US Department of Education.

International Graduate Student Conference on the Cold War Travel Grant, UCSB, 2008, Santa Barbara, CA.

Grant-in-Aid, 2008, Rockefeller Archive Center, Sleepy Hollow, NY.

Grant-in-Aid, 2008, Hagley Museum and Library, Wilmington, DE.

Conference Travel Grant, Society for the History of Technology, 2006, Las Vegas, NV.

Dissertation Research Grant, Northwestern University, 2006, Evanston, IL.

STS (R)evolutions Conference Travel Grant, Virginia Tech, 2005, Blacksburg, VA.

WebShop, University of Maryland-College Park, 2004, College Park, MD.

PUBLICATIONS

"Kissinger's Information Automation Project: Early White House Computer Adoption 1969-72," IEEE Annals of the History of Computing, *Under Revision.*

"Listening in on DC: Soviet Eavesdropping and the Origins of US Privacy Policy." Technology and Culture. *Under Revision.*

Contributor. Military Communications From Ancient Times to the 21st Century, Christopher Sterling, ed. ABC-CLIO. Santa Barbara, CA .2007.

"Cyberwarfare Seen Through a Mariner's Spyglass." Technology and Society, 2006.

"A State of Constant War: Policy Implications of Data Literacy." Proceedings of the International

Conference on Information Warfare, 2006.

"Cyberwarfare Seen Through a Mariner's Spyglass." Proceedings of the International Symposium on Technology and Society, 2005.

"The New Torchbearers," Telephony, 2001,(With Edrick Harris) .

PRESENTATIONS

"Telecommunications Security during Deregulation: NSTAC and US Telecommunications Security Policy 1968-1995", Telecommunications Policy Research Conference, Washington, DC, 2008.

"Tales of Urgency and Desperation: The Cold War's Influence on White House ICT Adoption 1968-80", International Graduate Student Conference on the Cold War, UCSB, Santa Barbara, CA, 2008.

"Kissinger's Information Automation Project: Early White House Computer Adoption 1969-72," Society for the History of Technology 2007 Annual Conference, Washington, DC, 2007.

"Listening in on DC: Soviet Eavesdropping and the Origins of US Privacy Policy," Telecommunications Policy Research Conference, Washington, DC, 2007.

"From Barcodes to RFIDs: Consumer and Commercial Responses to Individual Identification Technologies," Society for the History of Technology 2006 Annual Conference, Las Vegas NV, 2006. (With Jason Gallo).

"From Barcodes to RFIDs: Consumer and Commercial Responses to Individual Identification Technologies," International Communications Association 2006 Annual Conference, Dresden, Germany, 2006. (With Jason Gallo).

"Understanding the Origins of US Internet Policy," International Communications Association pre-Conference on Internet Governance, Kurort Rathen, Germany, 2006.

"Narrative Structure in Gaming", Northwestern University, Evanston, IL. 2006.

"The Technological Foundations of US Information Warfare Policy," Northwestern University, Evanston, IL, 2006.

"A State of Constant War: Policy Implications of Data Illiteracy," International Conference on Information Warfare, University of Maryland-Eastern Shore, MD, 2006.

"Introduction to Internet Research," North Park University Chicago, IL, 2006.

"Peering into the Ether: The Development of US Information Warfare Policy 1970-2005," Culture and Society Workshop, Northwestern University, Evanston, I, 2005.

"Cyberwarfare Seen Through a Mariner's Spyglass," International Symposium on Technology and Society (IEEE), Los Angeles, CA, 2005.

"Charting a Course through Uncertain Waters: Applying Maritime Principles to Cyberwarfare,"

International Communications Association 2005 Annual Conference, New York, NY, 2005.

"Information Security: Remembering the Human Element," STS (R)evolutions, Virginia Tech, Blacksburg, VA, 2005.

"Phreaking and Hacking: Theories and Praxis of Network Defense," Graduate Student Conference Northwestern University, Evanston, IL, 2005.

Communications and Transportation Roundtable, Association of Internet Researchers, Brighton, UK, 2004.

"From Ambivalence to Desire: An Examination of the Consumer Adoption of Telephony," Graduate Student Colloquium, Northwestern University, Evanston, IL, 2004.

PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronic Engineers, 2003-Present.

International Communications Association, 2003-Present.

National Communications Association, 2003-Present.

Society for the History of Technology, 2003-Present.

Association of Internet Researchers, 2003-Present.

The Internet Society, 2003-Present.