

Chapter 5

Pixelating Policy: Issue Transformation in Policy Subsystems

*Definitions of policy problems usually have narrative structure; that is, they are stories with a beginning, a middle, and an end, involving some change or transformation.*⁶²⁴

The task and primary focus of this chapter is to summarize and assess the evidence of issue transformation collected while crafting the case study of information resources management narrated in the previous chapter. In looking for issue transformation and its relationship to policy change the evidence was sorted, organized, pixelated, and examined from issue-oriented as well as temporally-oriented perspectives. Recall that the notion of “pixelating” is a metaphorical reference to a digital imaging technique, in which a portion of a digital image is progressively magnified until the individual pixels (or picture elements), the basic elements of a digital image, can be seen.

In the first section of this chapter each of the six policy issues tracked in the study, paperwork, management reform, IT acquisition, records and information, privacy, and computer security, is examined for evidence of issue transformation. An Issue Transformation Visualization (ITV) is constructed for each issue, the graphic portraying the most basic element of issue transformation: individual witnesses’ descriptions of a policy problem. Where issue transformation is found, the relationship between issue transformation and policy change is examined; also of interest is the temporal relationship between issue transformation and policy change.

Sections two and three of the chapter draw back from the detail of section one’s depiction to situate issue transformation more broadly in policy contexts. In section two, the contributions of this study to the advocacy coalition framework are discussed, locating issue transformation within the ACF’s theoretical framework. The 28-year

⁶²⁴ Stone, Deborah. *Policy Paradox*, p. 138.

length of this case study offers a rare examination of a policy subsystem, from its pre-policy beginnings through its initiation and development into a mature (but still relatively young) policy subsystem. Section three “zooms out” even further to situate this research within policy research and policy theory settings. Here the notion of issue transformation is examined in the context of policy theory and other policy models, and some thoughts are offered on the ACF as a research approach.

The final section of the chapter directs attention to Policy World, the virtual reality depiction of the IRM policy subsystem case study. Policy World presents a visual alternative for examining and interacting with policy artifacts. Instead of lining up words in sequential order to depict policy activities, many of which are not sequential at all, Policy World exploits the multi-dimensionality that can be woven from combinations of 3-dimensional space, color, interactivity, sound, transparency, light, and movement. Viewers can explore according to their interests and alter their points of view, adopting a ground-level view when useful or flying like a bird when wishing to observe a longer time horizon. Policy World is a representation – as is the string of sequential words that constitute this chapter – of a policy environment. As the first virtual reality-based examination of public policy in a dissertation-sized study, Policy World carries the responsibility of nascent expectations. Join in discovering the visual depiction of a policy subsystem and its policy environment.

Before examining the evidence of issue transformation and policy change it may be useful to review the definitions already applied to those constructs in Chapter 3. Issue transformation was provisionally defined as “the abrogation of existing policy agreements and issue definitions in favor of a significant and contentious reappraisal of policy goals and means; issue transformation is an evolving interpretation of complex and dynamic policy interactions, not an event.”⁶²⁵ Issue transformation therefore is viewed as a change to the way an issue has previously been defined; this change can be detected by examining the testimony of witnesses as they describe the policy problem of interest.

Policy change, within the advocacy coalition framework, is characterized as either major or minor. Major policy change is “change to the policy core aspects of a

⁶²⁵ See the definition and discussion of issue transformation in section 3.5.1.

governmental program whereas minor change is change in the secondary aspects”⁶²⁶ (see Table 3.1, Structure of Belief Systems of Policy Elites). “[C]hanges in statute . . . are the usual indicator of policy core change in separation-of-power systems.”⁶²⁷ Policy change therefore involves altering existing authoritative decisions, or creating new authoritative decisions. The differentiation of major from minor policy change revolves around both the scope of the change, as well as the topic of the change. Major policy change typically affects the entire subsystem (*scope*) and can be normative, substantive, or both (*topic*). Minor policy change typically affects a portion of a policy subsystem (*scope*) and involves the instrumental decisions such as administrative rules or statutory interpretation (*scope*).⁶²⁸

To realistically examine issue transformation and policy change, the search for policy change must be conducted within and limited to the same level of government where the search for issue transformation is conducted – in this case the Federal government – and at the level of Federal IRM policy. These parameters simplify and narrow the search for policy change on the legislative side to new legislation or amendments to extant legislation. But policy change also occurs within the executive branch of government; the executive branch equivalent to legislation is its series of Circulars promulgated by the Office of Management and Budget. Circulars provide policy guidance to Federal agencies that is “expected to have a continuing effect of two years or more.”⁶²⁹ Many policy adjustments covered by OMB Circulars would be characterized as minor policy changes; however there are instances where changes to existing Circulars or the issuance of a new Circular would constitute a major policy change under the ACF definition.

As shorthand, one might characterize legislative policy change as either new or amended statutes, and similarly characterize executive policy change as issuing new or revised OMB Circulars.⁶³⁰ The narrowness of this definition beyond even the ACF

⁶²⁶ Sabatier, *Theories of the Policy Process*, p. 147.

⁶²⁷ *Ibid.*, p. 151.

⁶²⁸ *Ibid.*, pp. 133, 147-149.

⁶²⁹ Executive Office of the President. Office of Management and Budget. This explanation is located on the web page from which OMB Circulars can be viewed and downloaded. Available online at <http://www.whitehouse.gov/omb/circulars/index.html>. Downloaded October 15, 2004.

⁶³⁰ This definition begs the addition of “judicial policy change” to make it complete. However, no evidence was found of any judicial decisions that might result in policy change in the IRM policy subsystem.

criteria serves several purposes in this analysis. First, this characterization creates a very clear and unambiguous definition of what is and what is not policy change; identifying policy change is not a matter of interpretation. Second, the tight definition limits the instances of policy change in this study to a manageable number, twenty in this case, but still a number large enough from which one can draw useful conclusions. And thirdly, one might expect that the conclusions about issue transformation and policy change arrived at in this tightly defined environment might also apply in less formal circumstances, and be more generally applicable. This definition however, comes at a price: its narrowness causes us to overlook important political realities. For example, under this definition, neither the Clinton administration's National Performance Review nor the Bush administration's President's Management Agenda are defined as policy changes – unless and until aspects of the presidential initiatives are codified in OMB circulars or in public law. Policy practitioners would assert that presidential initiatives such as the NPR or the PMA represent policy change of at least the same magnitude as most public laws or OMB circulars, although they may be less durable. In research as in real life, such tradeoffs are sometimes inevitable. With these definitions in place, the search for evidence of issue transformation can proceed.

5.1 Visualizing Issue Transformation in the IRM Policy Subsystem

This section discusses efforts to identify, characterize, and visualize changes to the descriptions of six policy issues, and detect the inflection points at which these issue definitions change. In the preceding chapter, the story of the IRM policy subsystem was told as a temporal narrative. As the story of the policy subsystem was being developed, the testimony of the witnesses at the hearings was coded. During the 28 years of the study, 91 hearings were examined and the testimony of 431 witnesses was coded. In the analysis that follows, the evidence relevant to each of the six issues is “pixelated” or disaggregated, so that each issue can be examined individually while preserving its essential context and content.

The assessment of issue transformation is discussed in sections 5.1.1 through 5.1.8. First, in section 5.1.1, the evidence collected by coding witnesses' testimony at congressional hearings is put into a format suitable for analysis. Initially collected from

thematic hearings, the evidence is disaggregated, sorted temporally and topically, and initially presented as a two-dimensional matrix showing the numbers of hearings and witnesses in each of the six issue areas throughout the entire time period of the study. Each of these six issue area is further “pixelated” or expanded to show the how witnesses at the hearings characterized the problem. This section presents the Issue Transformation Visualization (ITV) as the vehicle for assessing issue transformation.

Sections 5.1.2 through 5.1.7 each assess the evidence of issue transformation within a single issue area. In this assessment, an Issue Transformation Visualization presents a comprehensive depiction of the progression of one specific issue over the 28 year time period; displayed along the time line are the hearings, the policy changes, and each witness’s characterization of the policy problem.

Section 5.1.8 summarizes the conclusions that can be drawn as a result of visualizing issue transformation in the IRM policy subsystem. Here, judgments are made as to the likelihood of issue transformation, and the evidence of a relationship to policy change is assessed. In this analysis, the search for issue transformation focuses on an issue’s definition by examining the stability and continuity of that issue’s definition, as well as the alternative definitions offered.

5.1.1 Pixelating Policy: Exploring the Evidence

The evidence is displayed and summarized in the three tables that follow, Tables 5.1a, 5.1b, and 5.1c. Identical in structure, they consist of two parts: Part I, the upper part of Table 5.1, displays a time-oriented summary of the policy subsystem showing only the number of hearings; Part II, the lower part of Table 5.1 displays an issue-oriented summary of those same hearings. Parts I and II offer differing “points of view;” **time** is the dominant theme in Part I, while the **issue** is the dominant theme in Part II. To present the evidence more understandably, Table 5.1a shows only the hearings portion of the evidence; Table 5.1b shows only the witnesses’ testimony portion of the evidence; and finally, Table 5.1c combines the previous two tables in a summary presentation.

The hearings that were conducted over the course of the 28-year period are shown in Part 1 of Table 5.1a. These are the 91 hearings that were examined and

discussed in the 4-year time chunks within Chapter 4. Part II of Table 5.1a shows how those hearings were dispersed across the six issue areas and across the 28 years. In Table 5.1a, both Part I and Part II show the same information; however, Part II presents the information from an “issue-oriented” perspective. The evidence is “pixelated,” that is, it is decomposed to a finer-grained level of detail, and then examined from the point of view of the individual issues. When viewed from this “issue-oriented” point of view, one can begin to see changes in the policy tempo over time, and the ebb and flow of concern over specific policy issues becomes apparent. One also begins to appreciate

Table 5.1a Summary of IRM Policy Subsystem Evidence (Hearings)									
Part I: Hearings by Time Period									
		1975-1980	1981-1984	1985-1988	1989-1992	1993-1996	1997-2000	2001-2002	Totals
	Hearings	14	13	5	7	17	24	11	91
Part II: Hearings by Policy Issue Area									
Paperwork	Hearings	6	6	--	2	2	3	2	21
Management Reform	Hearings	--	--	--	--	8	11	3	22
IT Acquisition	Hearings	1	1	--	--	4	--	1	7
Records and Information	Hearings	3	2	3	3	2	2	1	16
Privacy	Hearings	4	3	1	1	--	1	--	10
Computer Security	Hearings	--	1	1	1	1	7	4	15
Totals	Hearings	14	13	5	7	17	24	11	91

Table 5.1a Summary of IRM Policy Subsystem Evidence (Hearings)

the complex and interactive nature of issues within the policy subsystem. For example, in overall tempo (seen in Part I), the years from 1985-1992 seem to indicate an interesting lack of attention to IRM policy. Each of the issues, with the lone exception of “records and information,” showed significantly lower levels of policy activity, as reflected in the numbers of hearings. By contrast, the years following those doldrums could be termed a time of IRM policy activism, a trend that continued through 2002. Looking at Part II of Table 5.1a and its orientation on the issues, one can see that issues do not always retain their status; as an issue, “paperwork” gradually lost its policy luster across the 28 years. By contrast, management reform appeared to gain traction only in the mid-to-late 1990s.

Table 5.1b focuses on the witnesses who appeared at those hearings detailed in Table 5.1a. In researching the content of Chapter 4, the testimony of 431 witnesses was coded. Table 5.1b looks at the dispersion of witnesses – first in a temporal sense in Part I, and then in an issue-oriented sense in Part II. Observable in Part I are the numbers of witnesses who appeared at the hearings. Here, in contrast to the suggested policy doldrums of 1985-1992, the numbers of witnesses would not suggest a lack of interest in IRM policy activities, and instead show only a modest drop in numbers of witnesses. Upon closer inspection, however, and using a pixelated view of the witness numbers and their dispersion (Part II of Table 5.1b), it is apparent that only “records and information” and “computer security” received significant policy attention. There was a noticeable drop in policy attention to paperwork, management reform, IT acquisition, and privacy. Also of interest, this view does not support the presumption that management reform became an issue only in the mid-to-late 1990s. Instead, the witness-related evidence suggests that a few witnesses were concerned with management reform all along, but that only in the mid-to-late 1990s were hearings held to highlight the issue.

While these examples illustrate part of the challenge in making assessments based on various pieces of evidence, one conflicting piece of evidence needs

Table 5.1b Summary of IRM Policy Subsystem Evidence (Witnesses)									
Part I: Witnesses by Time Period									
		1975-1980	1981-1984	1985-1988	1989-1992	1993-1996	1997-2000	2001-2002	Totals
	Hearings								
	Witnesses	67	73	40	58	63	79	51	431
Part II: Witnesses by Policy Issue Area									
Paperwork									
	Witnesses	28	32	--	17	11	5	16	109
Management Reform									
	Witnesses	5	13	1	16	32	41	19	127
IT Acquisition									
	Witnesses	10	17	2	1	24	1	1	56
Records and Information									
	Witnesses	18	33	21	32	10	10	--	124
Privacy									
	Witnesses	6	17	3	6	6	8	--	46
Computer Security									
	Witnesses	--	10	15	10	12	14	17	78
Totals									
	Witnesses	67	122	42	82	95	79	53	540

Table 5.1b Summary of IRM Policy Subsystem Evidence (Witnesses)

explanation. The rightmost totals column in Part I of Table 5.1b lists 431 witnesses, the same figure as reported earlier. However the witness total in Part II of Table 5.1b (lower right) lists 540 witnesses. This difference is the result of testimony, in which one witness addressed more than one issue during his or her appearance at the hearing. This, as can be seen, was not an infrequent phenomenon, as just over 25% of the witnesses discussed more than a single issue at a given hearing. Recall from the Chapter 3 discussion of the coding frame that up to three problem descriptions were coded. Witnesses appear to have taken advantage of the opportunity provided by the

hearing to express their thoughts on several issues – a likely indication of the interconnectedness of the issues within the IRM policy subsystem.

In Table 5.1c the contents of the previous two tables are integrated into a single composite summary. As in the previous tables, Part I provides the temporal point of view of the hearings and witnesses, while Part II presents the issue-oriented point of view. To enhance the readability of Table 5.1c, the hearings information in the columns is left-justified while the witness information in the columns is right-justified. This makes it easier to locate specific information or to sum the columnar information if desired.

Table 5.1c Summary of IRM Policy Subsystem Evidence (Composite)									
Part I: Hearings and Witnesses by Time Period									
		1975-1980	1981-1984	1985-1988	1989-1992	1993-1996	1997-2000	2001-2002	Totals
	Hearings	14	13	5	7	17	24	11	91
	Witnesses	67	73	40	58	63	79	51	431
Part II: Hearings and Witnesses by Policy Issue Area									
Paperwork	Hearings	6	6	--	2	2	3	2	21
	Witnesses	28	32	--	17	11	5	16	109
Management Reform	Hearings	--	--	--	--	8	11	3	22
	Witnesses	5	13	1	16	32	41	19	127
IT Acquisition	Hearings	1	1	--	--	4	--	1	7
	Witnesses	10	17	2	1	24	1	1	56
Records and Information	Hearings	3	2	3	3	2	2	1	16
	Witnesses	18	33	21	32	10	10	--	124
Privacy	Hearings	4	3	1	1	--	1	--	10
	Witnesses	6	17	3	6	6	8	--	46
Computer Security	Hearings	--	1	1	1	1	7	4	15
	Witnesses	--	10	15	10	12	14	17	78
Totals	Hearings	14	13	5	7	17	24	11	91
	Witnesses	67	122	42	82	95	79	53	540

Table 5.1c Summary of IRM Policy Subsystem Evidence (Composite)

Next, the problem definitions are integrated into the analysis through the Issue Transformation Visualization. Question three on the coding form (Appendix A) asked for the witness’s characterization of the problem: “The problem is manifested in the following ways (max 3 in priority order).” Twelve possible responses, offered as six pairs, were provided as shown below. Each response within a pair provided one of two likely, yet divergent perspectives on the policy issue (see Table 5.2). In their totality, these problem manifestations were written to cover the full range of concerns addressed by the IRM policy subsystem. Witnesses’ responses were coded to indicate the response that most closely corresponded to their description of the problem. Up to three responses, in priority order, were coded when available.

Table 5.2 Problem Manifestations of IRM Policy Issues	
The Issues	Divergent Issue Descriptions / Problem Manifestations
Paperwork	Information sharing
	Paperwork burden or inadequate forms clearance
Management Reform	Government productivity
	Cost of regulatory compliance
IT Acquisition	Accountability and control
	Cost and lack of control over computing resources
Records and Information	Records management
	Systems of records and archival capabilities
Privacy	Privacy of personal and individual information
	Access to public information
Computer Security	Computer security and data access protection
	Computerized data access and/or information reliability

Table 5.2 Problem Manifestations of IRM Policy Issues

The Issue Transformation Visualization (ITV) is an information graphic, or infographic, a visual depiction that brings “together disparate chunks of information into a coherent visual whole while preserving access to detail.”⁶³¹ As a visual mechanism the ITV combines all the pieces of evidence necessary to assess the presence or absence of issue transformation and determine the relationship between issue

⁶³¹ Horn, Robert E. *Visual Language*. Bainbridge Island, WA: MacroVU. 1998, p. 61.

transformation and policy change. The ITV also incorporates the concepts introduced for Table 5.1. For example, the ITV contains two parts; Parts I and II offer differing “points of view;” **time** is again the dominant theme in Part I, while the **problem manifestation** (the divergent perspectives of the issue) is the dominant theme in Part II. The ITV presents the issue’s timeline and the variation of problem definitions across the 28-year history of the policy issue in a form called a visual matrix, or a modified scatter graph.⁶³²

The blank Issue Transformation Visualization shown below as Figure 5.1 combines the pieces of evidence necessary to assess issue transformation. Part I of the Issue Transformation Visualization, when viewed horizontally, depicts the study’s temporal sequence, spanning the years 1975 through 2002. It provides a common frame of reference for depicting the 28-year policy history of each issue. Part I of the ITV also depicts each hearing on that policy issue (indicated by the tori); each policy

Part I: Chronology of [Issue Name] Hearings, Policies and Policy Change										
1975-76	1977-1980	1981-1984	1985-1988	1989-1992	1993-1996	1997-2000	2001-02			
Policies	→			⊙	▼	⊙				
Part II: Witnesses Characterize [Issue Name]										
Characterization										
information sharing										
paperwork burden										
government productivity										
regulatory compliance	→									←
accountability and control										
control over computing										
records management										
archival capabilities										
privacy of information										
access to information										
computer security										
information reliability										

Figure 5.1 Issue Transformation Visualization

⁶³² Harris, Robert L. *Information Graphics: A Comprehensive Illustrated Reference*. Atlanta, GA: Management Graphics, 1996, pp. 238-239, and 343-344.

(shown by the colored horizontal lines); and each instance of policy change (indicated by the inverted triangle). When viewed vertically the columns of Part I transcend it and connect Part I to Part II; each column spans two years, coinciding with the numbered Congresses, 95th through 107th. The columns are topped with a date-range corresponding to presidential administrations – a memory waypoint. Part II of Figure 5.1 uses the temporal sequence of Part I to organize a matrix graphic; the rows show the 12 problem definitions color-coded to the issues discussed throughout Chapter 4. The columns order the evidence on the timeline. Numbers found within individual cells of the matrix, as illustrated in Figure 5.2 below, show the number of individuals who describe the issue as characterized by the label at the beginning of the row. Depicted here is a hearing in either late 1981 or early 1982, in which nine witnesses testified. Three witnesses described the problem as related to government productivity; six witnesses described the problem as related to regulatory compliance. Three witnesses described the problem as related to government productivity; six

Part I: Chronology of [Issue Name] Hearings, Policies and Pol									
1975-76	1977-1980	1981-1984	1985-1988	1989-1992					
Policies →		⊙	⊙	▼	⊙				
Part II: Witnesses Characterize [Issue Name]									
Characterization									
information sharing									
paperwork burden									
government productivity		3							
regulatory compliance →		6							
accountability and control									
control over computing									
records management		3							
archival									

Figure 5.2 Witness Descriptions / Problem Manifestation

witnesses described the problem as dealing with regulatory compliance; and three witnesses described the problem as one of records management. The large black right-arrow signifies the definition of the issue at the beginning of the study. The large black left-arrow (one can be seen on Figure 5.1) signifies the prevalent definition of the issue at the conclusion of the study. As will be seen when viewing the individual Issue Transformation Visualizations, there is a spread in witnesses' descriptions showing the diversity of opinions about the problem. Of particular interest here is detecting change in the problem definition over time – an indicator that issue transformation is occurring.

As a visual device and as a means to display and compare complex information, the Issue Transformation Visualization has what Edward Tufte calls “multiple viewing depths. Graphics can be designed to have at least three viewing depths: 1) what is seen from a distance . . . 2) what is seen up close . . . and 3) what is seen implicitly, underlying the graphic.”⁶³³ The Issue Transformation Visualization has these three viewing depths. The first, viewing depth (1) displays a 2-part aggregate longitudinal structure, the top linear, and the bottom multivariate. Viewing depth (2) shows the fine structure of the evidence: the hearings, witnesses, and issue descriptions. Viewing depth (3) provides the background structure, a temporal flow that unites the entire graphic.

As the name implies, the Issue Transformation Visualization is optimized to show witnesses' characterizations of the policy issue, and to enhance the probability of detecting changes in an issue's definition. As already noted, individual cells of the matrix contain numbers indicating the number of witnesses who described the problem using the characterization at the left of the row. In this way, one can clearly see the opinions expressed, the extent of consensus around any particular description, and the difference from previous problem descriptions. It should be noted that the analysis contains all of the 540 problem descriptions coded. Every problem description of the 431 witnesses (up to three each), that is, all 540 problem descriptions shown in Table 5.1c are used in this analysis – including those that might be considered outliers.

With all the evidence pertaining to a single issue now arrayed on the Issue Transformation Visualization, one can begin looking for instances of issue

⁶³³ Tufte, *The Visual Display of Quantitative Data*, pp. 154-155.

transformation. Assessing the likelihood of issue transformation involves looking for patterns of stability and change in the definitions of the issues. For example, Figure 5.3 shows a partial ITV showing change in the definition of the issue of interest. The issue,

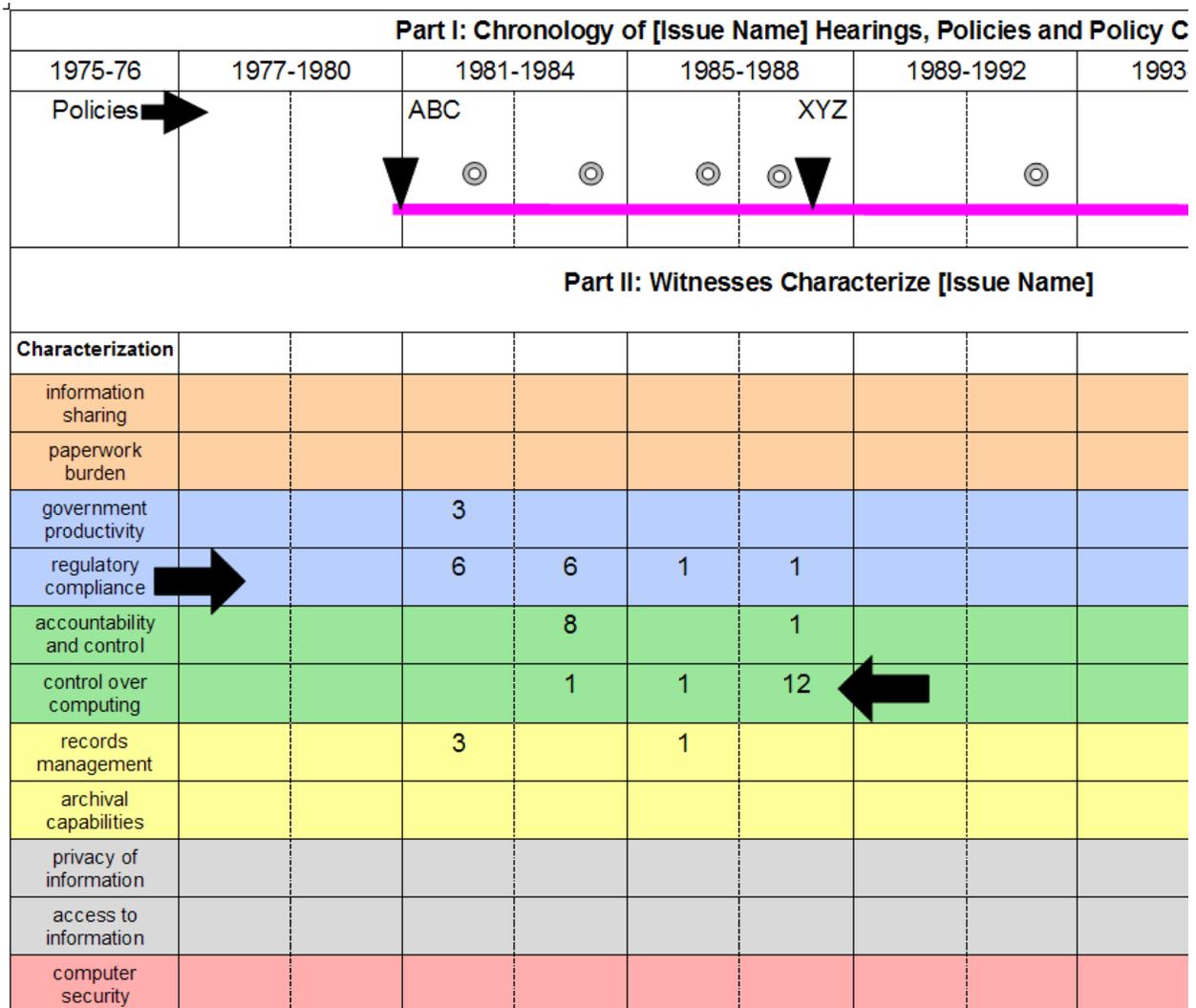


Figure 5.3 Assessing and Visualizing Issue Transformation

originally defined as involving regulatory compliance (the black right-arrow on the left of the graphic), led to policy change (new legislation – ABC Act of 1980). Hearings in 1982 reaffirmed that issue definition. Another hearing in 1984 signaled a shift in thematic emphasis toward “accountability and control” (8 witnesses). Hearings in 1986 and 1987 demonstrated a further shift in emphasis, with 12 witnesses in 1987 describing the problem as involving “control over computing.” This shift – issue transformation – was enough to trigger legislative policy change, passage of the XYZ

Act of 1988. By the end of 1988 this issue had been redefined as involving “control over computing,” a significant change over the 1980 focus on “regulatory compliance. In this case issue transformation preceded policy change. Whether or not the issue transformation facilitated policy change is unknown at this point.

Instances in which issue transformation is believed to have occurred are now evaluated to assess the type of change that has occurred. Two types of change resulted from issue transformation in this study: a change in issue content, or a change in issue focus. Most instances of issue transformation identified in this research involve a change in the *issue content*, that is, a change has occurred in the substantive nature of the policy; the “*what*” or substance of policy has changed. The second type of issue transformation is also likely, but somewhat more difficult to detect: a change in the *issue focus*. A change in issue focus signals a change in the policy actor or the intended recipient of policy action; the “*who*” or focal point of policy action (actor or recipient) has changed. The research method used here, i.e., the coding form with its issue descriptions, is oriented toward identifying issue content changes, the first type of issue transformation. However, in cases where policy change has resulted, one can sometimes find indications of a change in issue focus within that policy change. Substantive knowledge of prior policies as well as the policy change is necessary to detect changes in issue focus.

The nature of the relationship between issue transformation and policy change can also be determined from the ITV. The temporal relationship is important, because situating issue transformation before policy change suggests that issue transformation could influence policy change. Alternatively, situating issue transformation after policy change would suggest that issue transformation results from policy change. In the example shown in Figure 5.3, issue transformation preceded policy change. As discussed in the following paragraphs, issue transformation preceded policy change in each instance where both issue transformation and policy change occurred.

Once the direction of the relationship between issue transformation and policy change has been identified the question of causality becomes relevant. Influence, the softer cousin of causality, is also of interest. “Men do not think they know a thing till

they have grasped the ‘why’ of it (which is to grasp its primary cause).”⁶³⁴ Stone describes the use of causality, and the transmission of causal relationships through issue transformation into policy change. “In the polis, causal stories are strategically crafted with symbols and numbers and then asserted by political actors who try to make their versions the basis of policy choices. Causal stories are essential political instruments for shaping alliances and for setting the distribution of benefits and costs.”⁶³⁵ Stone’s description here supports the ACF’s model of causation, including both the external events that influence the policy subsystem and the interactions of advocacy coalitions. The “causal stories” in this research are the instances of testimony, witnesses’ descriptions of the problems, and the policies that they would either maintain or change.

The narrative in Chapter 4, using the ACF’s causality model, demonstrated that the reality of causality is incredibly complex, sometime very direct, and at other times nearly imperceptible. For example, this study revealed that: 1) external events, such as new information technologies like computer networks, the Internet, and the advent of the World Wide Web, played significant and perhaps direct roles in issue transformation and policy change because of the possibilities that they offered; 2) external events, in the form of domestic agendas of new administrations – such as Reagan’s regulatory reform, Clinton’s NPR, or Bush’s PMA – played a significant role in issue transformation, and served to both promote and inhibit some possibilities for policy change; 3) coalitions played the roles indicated in the ACF in most cases; 4) in many instances, however, the coalitions were not particularly strong, especially in comparison with the “governmental authorities,” and played much lesser roles than the ACF might lead one to expect; 5) in still other cases, such as the agency CIOs or IT acquisition professionals, coalitions that one might expect to develop never formed – due probably to the hierarchical authority relationships (not to mention the necessity of “clearing” their testimony with OMB before testifying); and 6) most Federal departments and agencies closely guard their prerogatives, and may be hesitant to embrace the participation of agency actors in advocacy coalitions, especially in coalitions that are likely to include

⁶³⁴ Quoted in Stone, *Policy Paradox*, p. 188, and attributed to Aristotle’s *Physica*, Book II.

⁶³⁵ Stone, *Policy Paradox*, p. 189.

either staff or members of Congress, or vendors with whom one has or might have a business relationship. The real-world participation of agency members in advocacy coalitions is problematic – for reasons relating to either the appearance or the reality of improper influence. In reiterating the disclaimer offered in Chapter 1, this study was not designed to identify either influence or causal relationships, but where either can be discerned, they are reported. An informal heuristic for assessing influence and causation is offered in the summary comments.

In sections 5.1.2 through 5.1.7 that immediately follow, an Issue Transformation Visualization is created for each of the six issues addressed in this study. Each visualization proceeds from the information presented in Table 5.1c; that information will not be duplicated. The accompanying discussion addresses each instance of issue transformation and the presence or absence of corresponding policy change. Section 5.1.8 then summarizes the evidence of issue transformation and policy change across the entire IRM policy subsystem.

5.1.2 Paperwork Reduction to Paperwork Elimination: The Issue of Paperwork

Paperwork was the signature issue that provoked formation of the Commission on Federal Paperwork and eventually resulted in the Paperwork Reduction Act of 1980. That legislation called for initiating and formalizing information resources management as a management construct and an institutional reality; in the terminology of the ACF a policy subsystem was legislatively established. Within the 28-year history of paperwork as a policy issue, there were four instances of policy change: 1) The Paperwork Reduction Act of 1980; 2) the Paperwork Reduction Reauthorization Act of 1986; 3) the Paperwork Reduction Act of 1995; and 4) the Government Paperwork Elimination Act of 1998. This chronology of paperwork as a policy issue is visualized in Figure 5.4, Paperwork: Issue Transformation Visualization. The top part of the graphic displays the chronology. Paperwork related hearings, policies, and policy changes are depicted on the timeline. Hearings that were conducted on the issue of paperwork are depicted by a torus at their relative occurrence on the timeline. Each instance of policy change is indicated by the inverted black triangle and the acronym above that symbol. Altogether, 21 hearings on paperwork were held over this 28-year period. This visualization

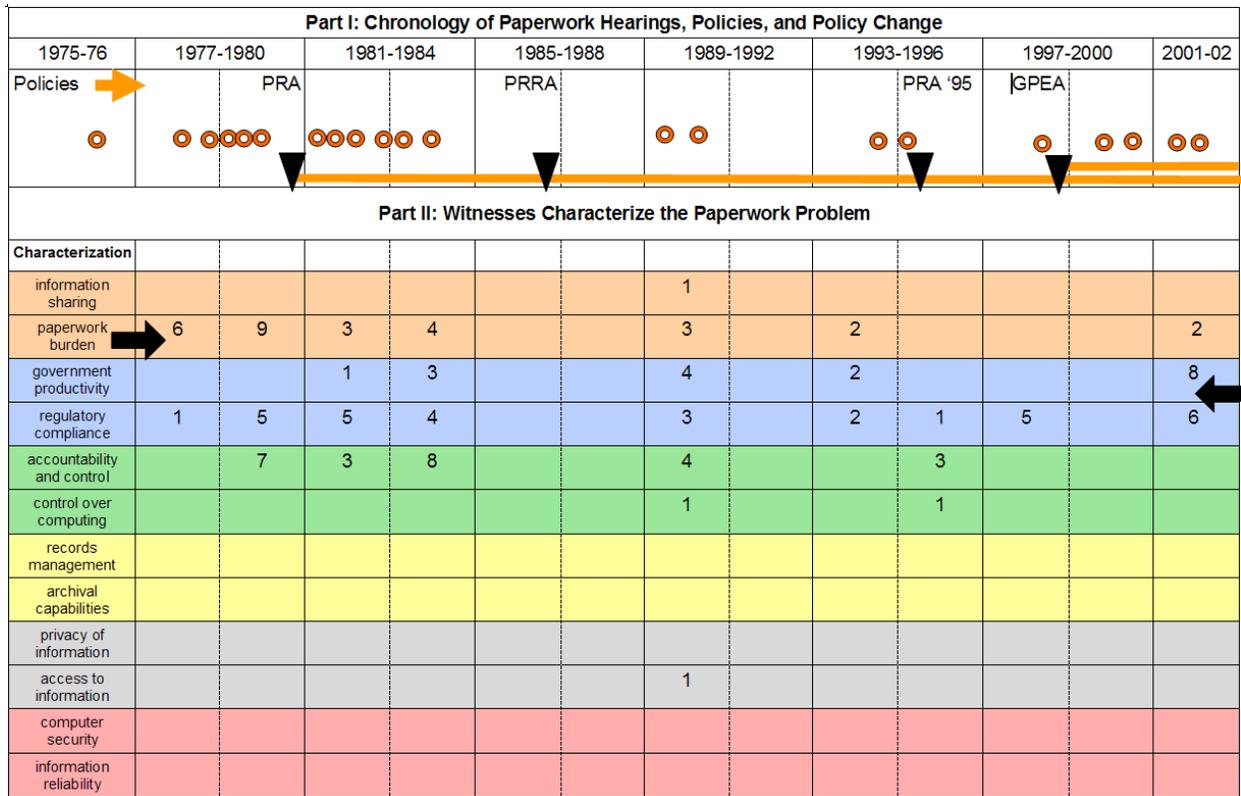


Figure 5.4 Paperwork: Issue Transformation Visualization

provides the researcher and reader an opportunity to quickly detect clusters of hearings and significantly eases the task of identifying temporal relationships that may link the outcome of hearings to policy change.

Part II of Figure 5.4 details the characterization of paperwork as a policy issue by the 109 witnesses testifying at these 21 hearings. Tracing the numbers of witnesses and their characterization of the problem provides insight into the competing ideas voiced within a policy subsystem with respect to this issue. From the nearly unanimous agreement shown by testimony of members of the Commission on Federal Paperwork and other witnesses in 1978 (black right-arrow on Figure 5.4), the bill before Congress in 1980 was broadened and amended to satisfy the political demands of three constituencies. Senator Lawton Chiles (D-FL) favored protecting small businesses through the paperwork reduction provisions of the bill; Representative Frank Horton (R-NY) favored management reforms through the IRM concept and regulatory compliance; and Representative Jack Brooks (D-TX) emphasized the accountability and control over

computing resources provisions the bill added to the IT acquisition process. Where paperwork was concerned, issue transformation occurred prior to passage of the Paperwork Reduction Act of 1980 and was instrumental in achieving policy change.⁶³⁶

In the months following passage of the Paperwork Reduction Act of 1980, the implementation oversight hearings show the impact of the Reagan administration's regulatory reform policies (discussed in the previous chapter). Also reflected is congressional concern with the implementation actions of the administration, framed as "accountability and control" problem descriptions seen through 1984. During the hiatus of 1985-1988, the Paperwork Reduction Act was reauthorized via a provision in the Omnibus Drug Supplemental Appropriations Act of 1987,⁶³⁷ a policy change that showed no evidence of issue transformation. An even broader spread of opinions on paperwork resulted from overtures by the incoming Bush administration in 1989 suggesting that the previous policy impasse was over; little policy progress was achieved, however.

With the arrival of the Clinton administration in 1993, concern over paperwork burdens was overshadowed by the new focus on improving performance and management, the National Performance Review. The impact of the 104th Congress (1995-96), especially the ideas in the Contract with America⁶³⁸ advanced by the leadership of the House of Representatives, is reflected in the shift in problem description to include accountability and control in the definition of paperwork. However, bipartisan agreement on the importance of performance and management within the Senate prompted passage of the management-reform-oriented Paperwork Reduction Act of 1995. This instance of issue transformation occurred during 1993-1995 as issue content underwent change, from a narrow paperwork-oriented issue (get government off our backs) to a much broader management-oriented issue (make government work better so we need less of it) with a substantial accountability

⁶³⁶ An earlier attempt to pass paperwork reduction legislation, S. 1411, The Paperwork and Redtape Reduction Act of 1979, was unsuccessful, primarily because it did not have the backing of Rep. Jack Brooks. The bill that passed in 1980, H.R. 6410, had been broadened to secure Brooks' support. See Figure 4.1, items 12 and 13, and the chronology discussion at the end of section 4.1.3.

⁶³⁷ Congress, Library of Congress. *Bill Summary and Status for the 99th Congress, P.L. 99-591*. <http://www.thomas.loc.gov>. Search on 99th Congress and PL 99-591. The Paperwork Reduction Reauthorization Act is listed under the "Short Title(s) As Enacted." Downloaded May 30, 2004.

⁶³⁸ Gillespie and Schellhas, *Contract with America*.

ingredient. The issue focus also switched from paperwork's impact on citizens and businesses – an external focus – to the efficiency and effectiveness of government processes – an internal management focus that aligned with the Clinton administration's views. In this instance issue transformation preceded and facilitated policy change – passage of the Paperwork Reduction Act of 1995.

The management emphasis continued through the second Clinton administration. However, paperwork reduction advocates, in order to advance their preferences, redefined the paperwork issue in terms of regulatory compliance (in this case government complying with the legislated paperwork reduction goals) using Internet-based information technology as part of the solution. This instance of issue transformation, between 1995 and 1998, presented a new approach to achieving the paperwork objective of burden reduction – using information technology as the vehicle. Improved Internet-based applications could be used to produce efficiency by requiring agencies to accept electronically submitted forms as a substitute for paper. This instance of issue transformation was primarily a change in issue content, bringing paperwork reduction and information technology together to solve the paperwork problem. There was also a change in issue focus – from businesses submitting required paperwork to businesses supplying IT-based GPEA solutions – this issue description provided opportunities for members of the *Information Technologists* coalition to craft and sell solutions to agencies. Policy change soon followed with passage of the Government Paperwork Elimination Act of 1998.

By the end of 2002, paperwork concerns focused primarily on ensuring managers' attention was focused on increased productivity and attention to citizen's needs (black left-arrow on Figure 5.4). This was accomplished in several ways, all of them involving information technology: agencies were implementing GPEA and were accepting electronic submission of information; agencies were planning inter-agency e-government initiatives to develop common solutions across institutional boundaries thereby eliminating redundant processes and their attendant information requirements; and agencies were being encouraged to share their information.

5.1.3 Technician to Citizen-Centric Manager: The Issue of Management Reform

Management reform was central to the concept of information resources management, as outlined in the final report of the Commission on Federal Paperwork. For if the notion of information resources management was accepted and implemented, the management of every Federal agency and bureau would be forever changed – at least that was the hope. The IRM concept posited a new management function, fully devoted to managing the information resources of the organization.

The initial implementation years of 1981 to 1984 saw little outward progress toward implementing the IRM concept. Administration policy was focused on regulatory reform, and management reform happened only as a consequence of its alignment with the Reagan administration's agenda. As can be seen in Figure 5.5, several witnesses testifying about other problems were also interested in the topic of management reform. Policy guidance for implementing the Paperwork Reduction Act of 1980 was finally published in December 1985 as OMB Circular A-130, *The Management of Federal Information Resources*.⁶³⁹ Policy change, in the form of executive branch policy change, had occurred even though there was little evidence of management-reform-related issue transformation in the hearings.⁶⁴⁰ In this case, the evidence of issue transformation was found in the information sciences literature,⁶⁴¹ and the transformation involved both issue content and issue focus. Issue content addressed broad policy guidance for all Federal agencies to implement the information resources management concept for managing automated data processing, government publications and information, records management, and the security of Federal automated information systems. The issue focus, found in the circular, was directed at the Administrator of OIRA, the heads of agencies, and the senior information resources management officials in Federal agencies.

⁶³⁹ Office of Management and Budget. "OMB Circular A-130: The Management of Federal Information Resources."

⁶⁴⁰ This is a problematic aspect of this research approach. Although Congress keeps records of its hearings and makes most of them public, the executive branch has no comparable set of records readily available to the public. The research approach, therefore, appears to favor the legislature, although administration witnesses testified at nearly all of the hearings used in this study.

⁶⁴¹ See Herson and McClure, *Federal Information Policies in the 1980's*, pp. 118-124 and 399-404.

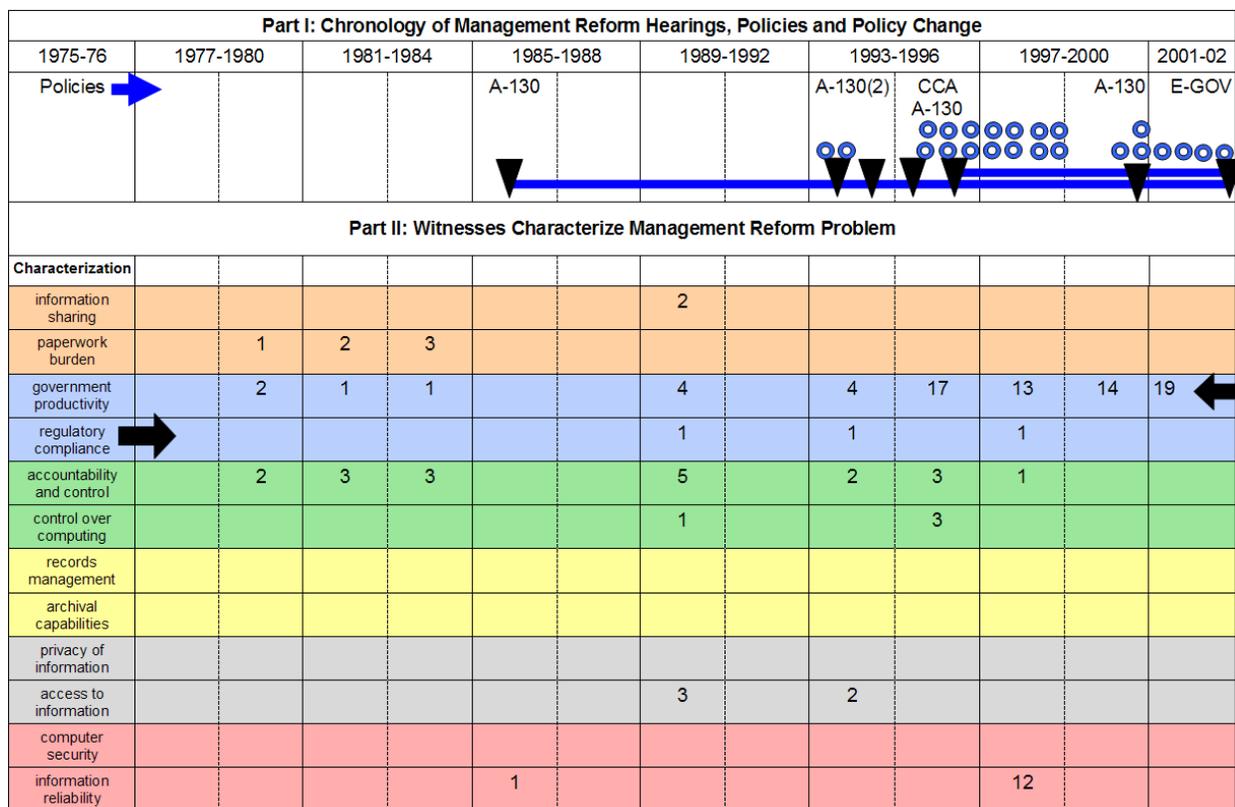


Figure 5.5 Management Reform: Issue Transformation Visualization

Concerted attention to management reform next occurred during 1989-1990, as policy actors tried to engage the new Bush administration in policy dialogue. Little came of these efforts, and management reform remained on the back burner until the arrival of the Clinton administration.

Sally Katzen, the Clinton administration’s OIRA Administrator, promised and quickly provided updated policy guidance via OMB Circular A-130. “Government productivity” and “accountability and control,” key themes of the management-reform-oriented National Performance Review and Government Performance and Results Act of 1993, were the themes of issue transformation that set the tone for three successive instances of executive policy change, designed to completely update OMB Circular A-130. These updates occurred on June 25, 1993, July 25, 1994, and April 3, 1995. The first policy change focused on information management topics, replacing the earlier focus on information technology; the second updated information technology management policies; and the third update to OMB Circular A-130 modernized

guidance for information security practices to incorporate the policies of the Computer Security Act of 1987.⁶⁴²

Issue transformation was propelled by OMB's policy actions and the attention to management reform by the Senate Governmental Affairs committee. The stage was set for introduction and eventual passage of the Information Technology Management Reform Act, later renamed the Clinger-Cohen Act of 1996. Issue transformation in this case combined issue content – applying performance management constructs directly to information resources management policies – with a new issue focus – the CIO in each Federal agency. Advances in networking technologies and in new Internet capabilities prompted a continuing evolution of management reforms. Issue transformation, focusing on government productivity, encouraged adoption of electronic commerce practices in government. The late 2000 update to OMB Circular A-130, the Clinton administration's final policy change, harmonized and updated Federal IRM policies consistent with policy changes in other issue areas. Incorporated into this executive branch policy change was guidance for implementing electronic commerce, and the first policy recognition of electronic government, a subject of the administration's growing interest.

While the 2000 Presidential campaign had focused on the use of the Internet, the incoming Bush administration positioned its e-government efforts within a broader management reform context called the President's Management Agenda. Unveiled in August 2001, the PMA closely integrated the themes of management reform and electronic government. The PMA presented an interesting case, in which an external event, issuance of the President's Management Agenda, preceded issue transformation, and even guided and shaped the evolution of the resulting issue transformation. In this instance, the issue content of management and electronic government was reoriented to accentuate the agency managers' responsibility for achieving the desired performance and results. The PMA also readjusted the issue focus to the citizen via the PMA principles of "citizen-centric, results-oriented, and market driven government." As was the case with the NPR, the PMA was considered

⁶⁴² Holden and Herson, "An Executive Branch Perspective on Managing Information Resources." In Herson, *Federal Information Policies in the 1990s*, pp. 83-104. Once again, the best insights into executive branch policy change were found in the information sciences literature.

an “external event” and not a policy change (recall the definition of policy change outlined earlier excluded these administration initiatives unless and until they were either codified into OMB Circulars or legislation). The e-government initiative of the PMA paralleled in many respects the push toward electronic government led by Senators Joe Lieberman (D-CT) and Fred Thompson (R-TN). Their legislation, introduced as S. 803, The E-Government Act of 2001, was regarded as a management reform by its authors. The issue transformation that occurred during 2001 and 2002 included both issue content and issue focus as noted above, the latter directed at codifying e-government within OMB. The 2002 version of the bill was signed by President Bush on December 17, 2002.

5.1.4 Best Price to Best Value: The Issue of IT Acquisition

Concern over the cost of acquiring computing resources in the Federal government had been a persistent concern since at least the late 1950s, as documented in the previous chapter’s discussion. With passage of the Brooks Act in 1965, it seemed as if those challenges had been successfully met. However, as shown in Figure 5.6, well-intentioned policy goals do not necessarily result in the desired policy-relevant behavior. By 1977-1978, the prevalent thematic definitions of IT acquisition as a policy issue contained similar expressions of concern over “accountability and control” and “concern over the cost and lack of control over computing resources.” As the incidence of sole-source IT acquisitions continued relatively unabated, pressure increased for accountability and for dealing with those responsible for violating existing IT acquisition processes. The resultant policy change, the Competition In Contracting Act of 1984, responded to those pressures; this policy change was preceded by issue transformation. Here the issue content changed to focus on providing a level playing field for vendors – in a word, equity – in acquisition policy, replacing the previous and almost myopic focus on cost. The issue focus also changed to address those commercial firms seeking to do IT-related business with Federal agencies, moving away from a focus on rules-based processes for Federal IT acquisition officials.

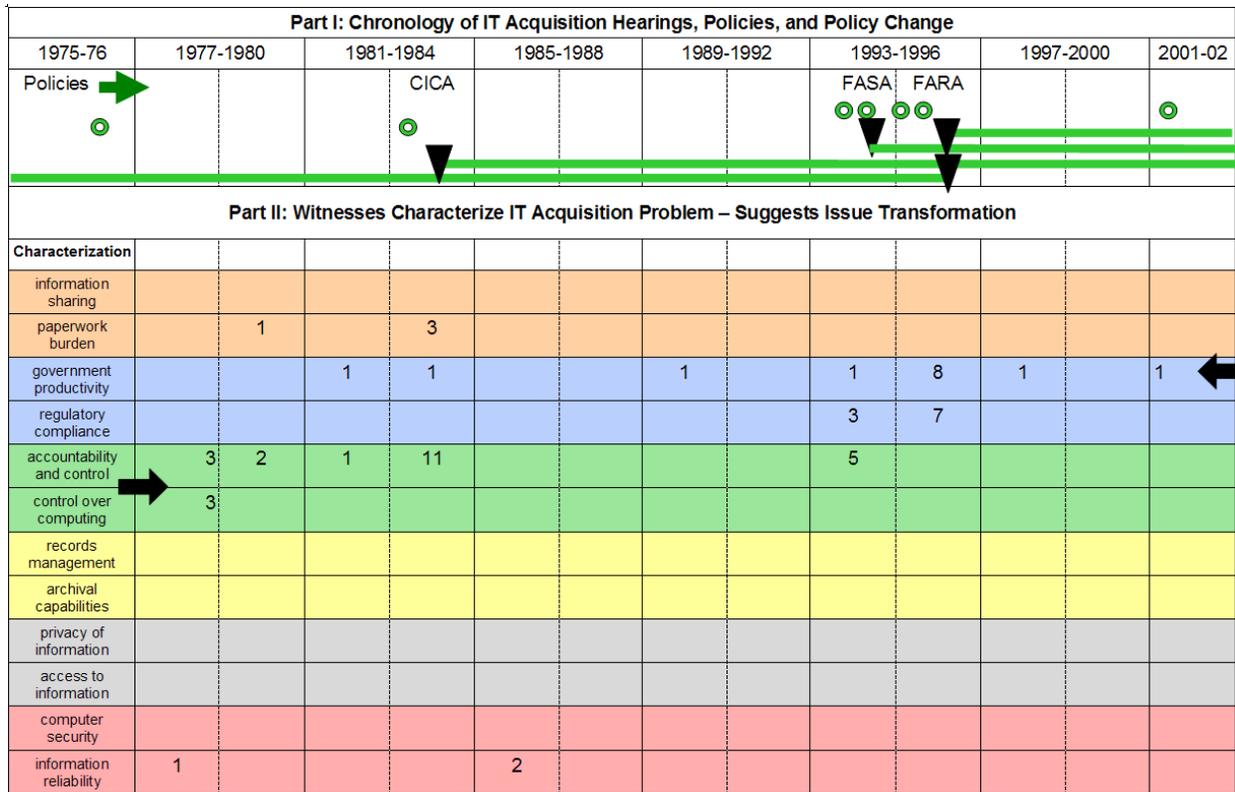


Figure 5.6 IT Acquisition: Issue Transformation Visualization

By 1993 there was again pressure for change. As some had predicted, the rush to provide a level playing field had hidden costs; firms protested contract awards causing significantly lengthened acquisition cycles, and the resulting project delays undercut anticipated productivity gains. Information technology acquisition was now increasingly discussed, defined, and framed in terms of management constructs, a concern over “government productivity” and a concern over “the cost of regulatory compliance” – in this case, the hidden costs imposed on government to comply with its own regulations. These very real concerns were the subject of concerted bipartisan legislative and executive branch efforts, in consultation with industry, that resulted in policy change – the Federal Acquisition Streamlining Act (FASA) of 1994 and the complementary policies of the Federal Acquisition Reform Act (FARA) of 1996. Simultaneously, the FARA’s companion legislation, the management-reform-oriented Information Technology Management Reform Act (ITMRA) of 1996 repealed the 30-year-old Brooks Act of 1965. (Later FARA and the ITMRA were renamed the Clinger-Cohen Act of 1996.) Issue transformation drove these policy changes.

When one retrospectively considers issue transformation in the light of the policy changes that FASA and FARA brought, the substantial impact of issue transformation becomes more apparent. In this instance the issue content shifted significantly: policy makers embraced a preference for commercial off-the-shelf products; process streamlining was advocated; and numerous acquisition regulations were changed. The issue focus also changed as a result; it became more complex, encompassing both acquisition professionals and vendors, who were envisioned as working cooperatively, rather than at arms-length in an adversarial and legalistic setting. Issue transformation preceded policy change in each of these cases. When considering FASA and FARA, one should not overlook the almost unprecedented cooperation of all parties concerned – the executive branch, both parties in Congress, and the affected industry all were pursuing a common goal. Policy change is almost easy when this level of agreement is present.

5.1.5 Information and Access: The Issue of Records and Information

Records management as a specialization has a long and proud history. Within modern organizations professional records managers occupied a specialized niche; they were the keepers of institutional memory, organizing and preserving the individual records of daily decisions and the institutional activities that result. But as can be seen in Figure 5.5, after 1980 the voice of records managers as members of a profession was silent.

Records and information nearly splintered into several issue areas as can be seen in Figure 5.7. Some advocates concentrated on the paperwork side of the issue, a focus on records retention requirements imposed on individuals and businesses to demonstrate their statutory compliance – like keeping individual tax records for three years. Other advocates focused on information management, those activities necessary to enhance agency productivity. Still others focused on accountability, especially agency accountability for making information accessible to citizens. Another strand in this multi-faceted issue focused on access to information, and on ensuring compliance with government information locator policies and information access

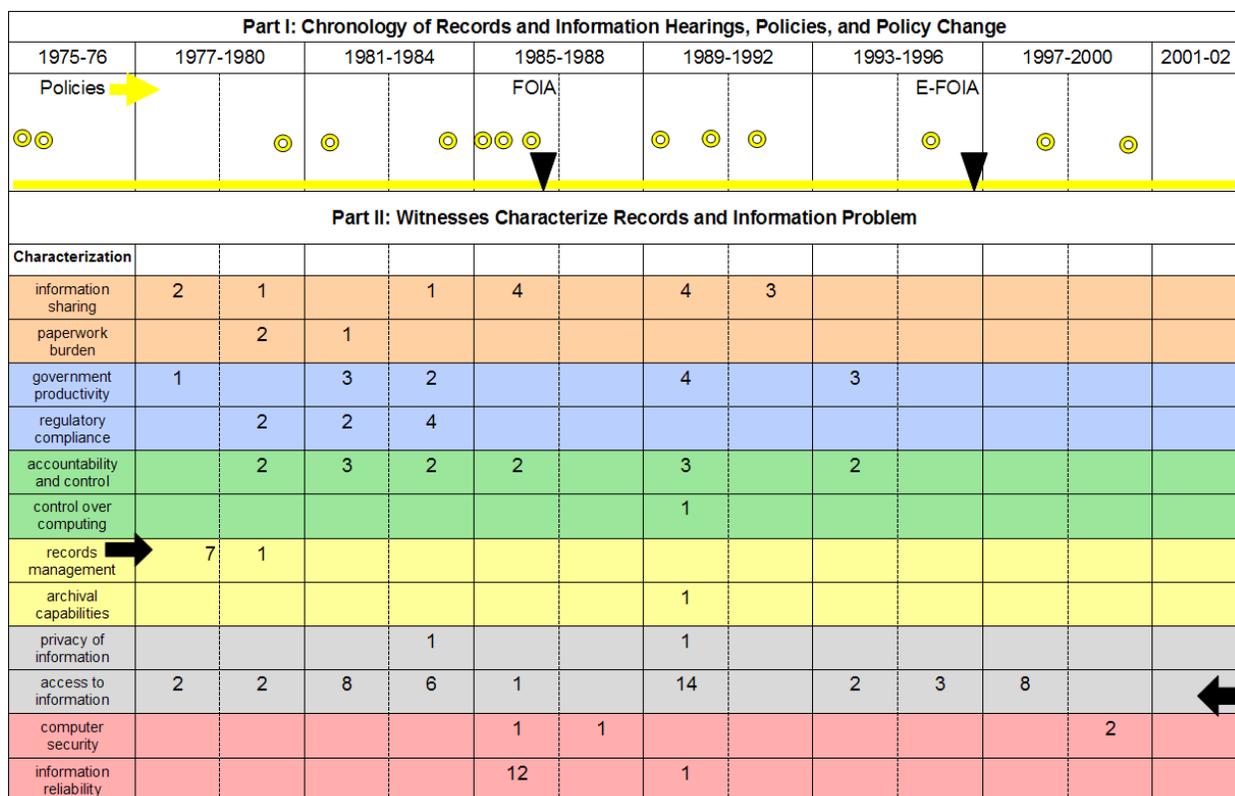


Figure 5.7 Records and Information: Issue Transformation Visualization

statutes such as the Freedom of Information Act. The last significant thread was a short-lived effort to focus on information reliability, that is, the quality of government information.

Most of the hearings related to records and information emphasized oversight, focusing on agency administration of the Freedom of Information Act and responses to various FOIA requests. The increased attention during 1984-1986 resulted from the Reagan administration's efforts to restrict dissemination of law enforcement and confidential business information, and agency retrenchment from information dissemination programs. Public interest advocates were consciously involved in reframing the issue in information-access terms, and they were heavily involved in pushing for the 1986 amendments to the Freedom of Information Act. Here, issue content was reoriented from the physical records to the notion of information access. Issue transformation again preceded policy change. Similar information-access concerns surfaced in 1995-1996, this time over access to information in electronic form. Here, issue transformation moved the content into the electronic arena and broadened

the focus to include IRM professionals. As before, the public interest advocates pushed successfully for policy change, in the form of the Electronic Freedom of Information Act, or the E-FOIA amendments of 1998. The resultant policy change decreed that information access provisions, previously applied only to hard copy information, applied equally to information in electronic form.

5.1.6 Didn't Realize I Had It Until It Was Gone: The Issue of Privacy

Choosing the color gray to represent privacy as a policy issue was no accident. The “gray area,” that transitional space between contrasting conditions, is a fitting metaphor for privacy. In the mid-1970s, privacy as a policy issue focused on the growing power of computers to store and aggregate increasing amounts of data that could identify individuals – that concern remained valid throughout the study. Despite the protections afforded information in government databases by the Privacy Act of 1974 (as amended), much of the public perceived that privacy was threatened by government computers; as a result, privacy remained a hot-button policy concern.

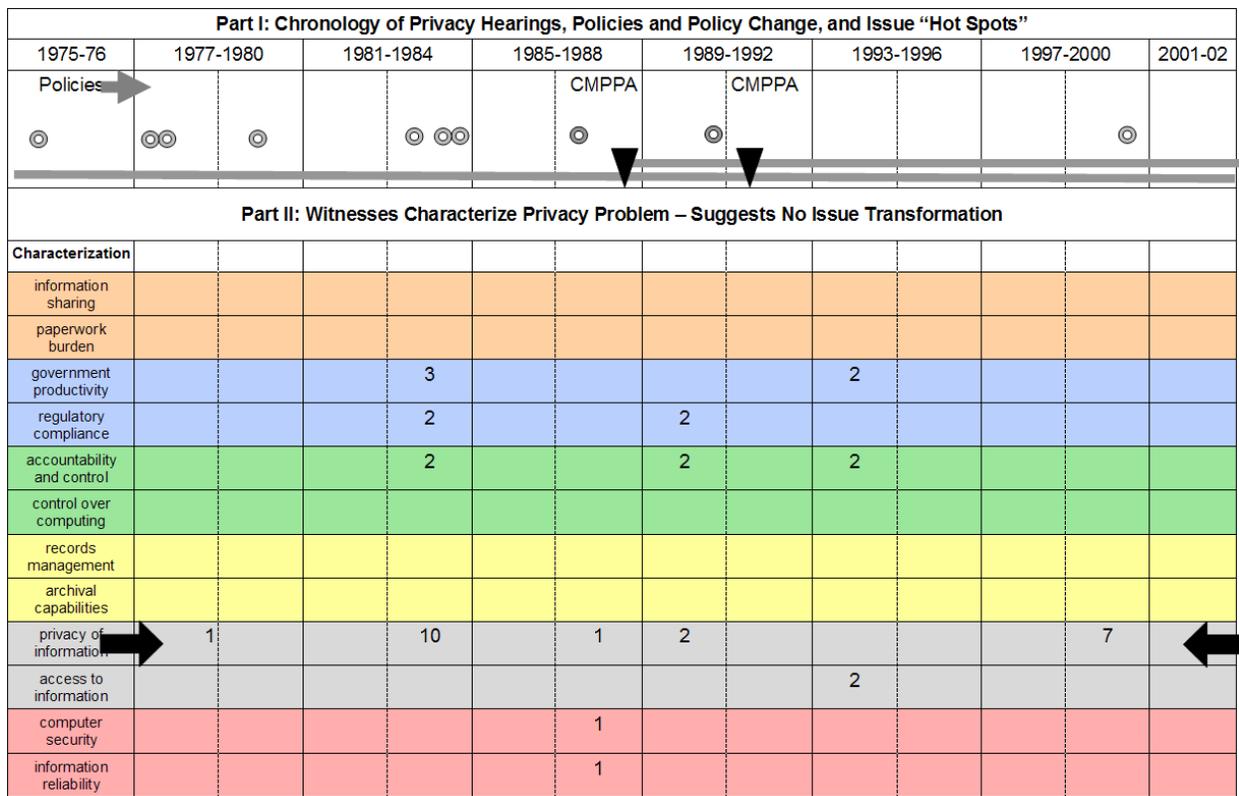


Figure 5.8 Privacy: Issue Transformation Visualization

As shown in Figure 5.8, ten hearings addressed privacy. Many of the hearings were related to various aspects of Privacy Act oversight. The policy change that occurred in 1988 involved computer matching, establishing controls and limits on ad hoc agency processes. The Computer Matching and Privacy Protection Act (CMPPA) focused on establishing processes and provisions for Federal agencies in sharing and matching information with the state and local agencies responsible for service delivery. Enabling this level of data sharing while still ensuring the privacy protections guaranteed by both Federal and state privacy legislation was a policy balancing act. The 1990 amendment to the same act authorized a state-requested policy adjustment to this balancing act, designed to streamline state-federal coordination processes for computer matching.

One can see from Part II of the figure that attempts were made from time to time to cast the privacy issue in an alternative light. Privacy had been discussed in relation to government productivity, regulatory compliance, accountability and control, information access, computer security, and information reliability. While each of these attempts at alternative issue definition represented a valid viewpoint, the highly personal nature of privacy may have increased the difficulty of crafting policies involving privacy compromises.

Within the IRM policy subsystem, privacy was a relatively static issue; no issue transformation occurred, and attempts to redefine the issue were short-lived. One possible explanation for privacy being such a static issue might be that privacy was a component of many other policies and policy subsystems, such as law enforcement, banking, vital statistics, and commercial transactions. In reaching beyond the IRM policy subsystem and interacting with other policy subsystems, this issue appears to exhibit a different political dynamic.⁶⁴³ Changing the notion of privacy in one of these arenas could have substantial and far-reaching impact in other policy subsystems.

⁶⁴³ Sabatier, *Theories of Policy Change*, p. 137. Sabatier notes that interaction among related subsystems can occur along both functional and territorial lines. Subsystems may overlap, and one subsystem may be nested within another.

5.1.7 Still a Geek's World: The Issue of Computer Security

Constructing locks and keys for invisible electronic 1s and 0s hardly seems the stuff of public policy. It is, however, the stuff of computer security. As a policy issue, computer security has a checkered past. Initial computer security concerns stemmed from the need for physical protection of computing assets. Computer crime was one of the first manifestations of the computer security issue, as a few insiders in banking and finance applications learned how to program their way to nefarious ends. Over time and as computers entered the workplace, user access controls were added to the list of security concerns. The advent of computer networks dramatically changed the computer security environment. Organizational networks were connected into extended inter-organizational networks and finally connected to the Internet. As the networks grew, so too did the physical and technical complexity of computer security challenges. Crafting policies for the complex computer security environment promised new and significantly different challenges. Crafting computer security policies involved addressing a mixture of political, cultural, institutional, legal, and technical challenges.

Computer security was initially addressed by standards, but the cycle of technology change dictated by Moore's Law⁶⁴⁴ was far shorter than the cycle of standards development. Standards that required three to four years of collaborative effort before implementation were frequently irrelevant in a world where technology product cycles averaged 18 months. Policy consensus could take even longer, and policies, such as they were, tended to be written in product-specific terms. Communications policy typically applied to telephones, and law enforcement agencies had processes and tools, such as court orders and wiretaps, with which to deal with communications. In computing, however, communications meant networks; but could one wiretap a computer network, or a fiber optic network? If someone erased digital 1s and 0s that couldn't be seen, was property destroyed? Had a crime been committed, and if so, who had the authority to prosecute computer-based crime? Part of the computer security challenge stemmed from its Janus-like character: one face is protection, the other face is enforcement. To this challenge was added the complexity

⁶⁴⁴ Revised in 1975, Gordon Moore's observation/prediction (Moore's Law) states that transistor density in a semiconductor doubles every 18 months. Some have interpreted this to mean that CPU processing power doubles in that time, thus driving product development and marketing cycles.

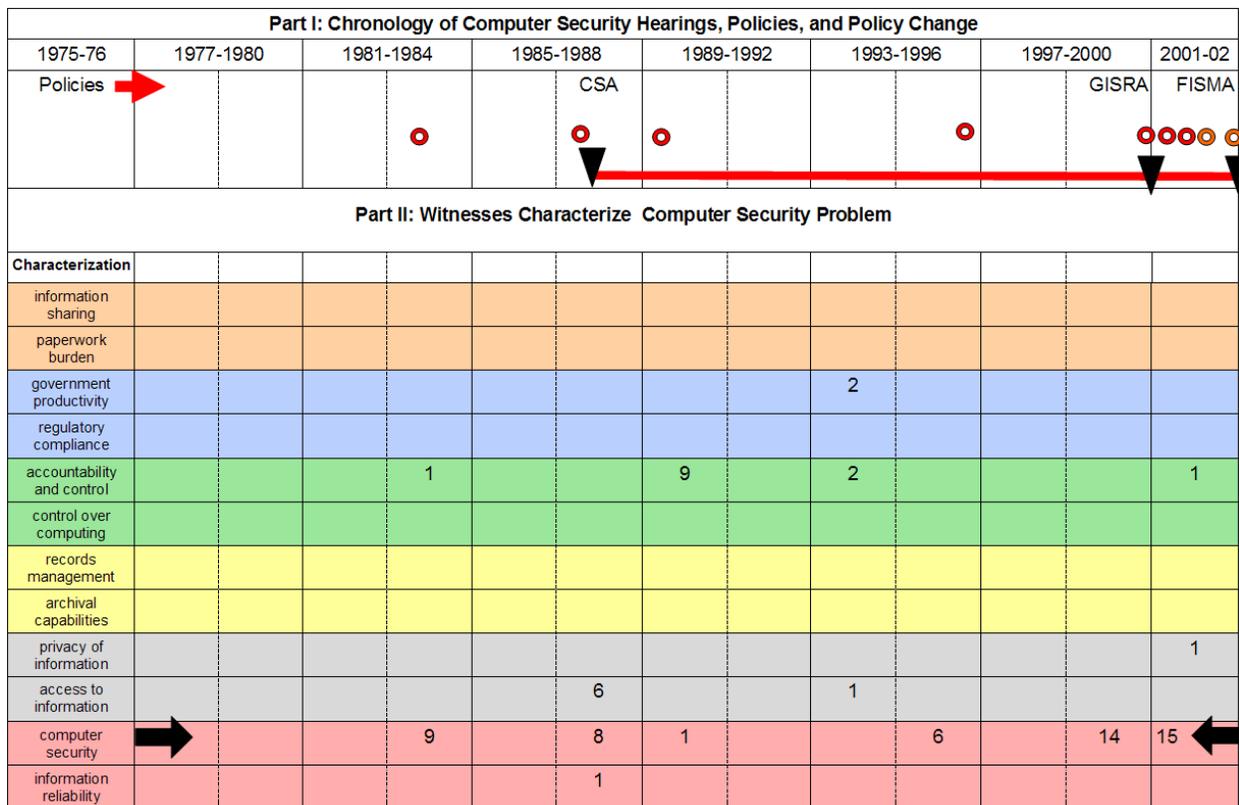


Figure 5.9 Computer Security: Issue Transformation Visualization

of mediating between competing values. Values and the inevitable tradeoffs among values complicated the search for security policies. One could create a secure network, but access would be very limited and information dissemination practically nonexistent. Designing a system for unrestricted access and increased information dissemination would put security as well as privacy at some risk. Mediating between competing values proved problematic.

Some tradeoffs proved more consequential than others. Between 1984 and 1986 a proposal was advanced to bring all computer security efforts together under national security leadership. Competing ideas about computer security, information access, accountability, and information reliability surfaced in the hearings assessing this proposal (see Figure 5.9). Issue transformation resulted in articulating the need for a Federal computer security program in which civilian authority over computer security in non-national security contexts was reaffirmed. The Computer Security Act of 1987 established a computer security program at the National Bureau of Standards. Issue

transformation had moved the content from technology to institutional and programmatic concerns, and the focus from technologists to competing political actors.

Following the Year 2000 challenge, addressing computer security became unavoidable. As the hearings demonstrated, security touched all aspects of computing, and it needed sustained executive attention if computer security efforts were to be successful. Here issue transformation resulted in issue content change, from institutional programs to industry best practices, and it also altered the issue focus by redefining computer security as the responsibility of agency executives. As a result, the Government Information Security Reform Act, a two-year provision passed in 2000, initiated a security framework encompassing computers, networks, and information. Patterned after industry best practices, this risk-based approach required annual assessments certified by agency executives. By 2002 agreement was reached on a permanent information security program incorporating the lessons learned from GISRA. The new Federal Information Security Management Act, part of the E-Government Act of 2002, was signed into law December 17, 2002.

5.1.8 Issue Transformation and Policy Change in the IRM Policy Subsystem

Table 5.3 below summarizes the issue transformation and policy change history of the IRM policy subsystem. The rows highlight the six policy issues, while the columns detail the presence or absence of issue transformation; indicate the type of issue transformation observed; list the presence or absence of policy change; and describe the temporal relationship of issue transformation to policy change in each particular instance. Within each issue area the instances of issue transformation and policy change are sequentially and chronologically arranged.

Allen Putt and J. Fred Springer noted that “Issues gain their attributes through a continuous definition process shaped by the values, goals, assumptions, and understandings of its participants.”⁶⁴⁵ The issue transformation history of the six policy issues comprising the IRM policy subsystem is consistent with Putt and Springer’s observation. In examining Table 5.3 one can observe the “continuous definition

⁶⁴⁵ Putt, Allen D., and J. Fred Springer. *Policy Research: Concepts, Methods, and Applications*. Englewood Cliffs, N.J.: Prentice Hall, Inc., 1989, p. 32.

Issue Transformation and Policy Change Summary				
Issue	Issue Transformation Observed?	Type of Issue Transformation Observed	Policy Change Observed?	Temporal Relationship: Issue Transformation -
Paperwork:	1 – Yes (1979-80)	1 – Issue content and issue focus	1 – Yes (PRA-80)	1 – Preceded
	2 – No (1986)	2 – Not applicable	2 – Yes (PRRA-86)	2 – Not applicable
	3 – Yes (1993-95)	3 - Issue content and issue focus	3 – Yes (PRA-95)	3 – Preceded
	4 – Yes (1995-98)	4 – Issue content and issue focus	4 – Yes (GPEA-98)	4 – Preceded
Management Reform	1 – Yes (1985)	1 – Issue content and issue focus	1 – Yes (A-130-85)	1 – Preceded
	2 – Yes (1993)	2 – Issue content	2 – Yes (A-130-93)	2 – Preceded
	3 – Yes (1994)	3 – Issue content	3 – Yes (A-130-94)	3 – Preceded
	4 – Yes (1995)	4 – Issue content	4 – Yes (A-130-95)	4 – Preceded
	5 – Yes (1995-96)	5 – Issue content and issue focus	5 – Yes (CCA-96)	5 – Preceded
	6 – Yes (1998-00)	6 – Issue content	6 – Yes (A-130-00)	6 – Preceded
	7 – Yes (2001-02)	7 – Issue content and issue focus	7 – No (PMA-01)	7 – Not applicable
	8 – Yes(1999-02)	8 – issue content and issue focus	8 – Yes (E-Gov-02)	8 – Preceded
IT Acquisition	1 – Yes (1983-84)	1 – Issue content and issue focus	1 – Yes (CICA-84)	1 – Preceded
	2 – Yes (1993-96)	2 – Issue content and issue focus	2 – Yes (FARA-94 and FASA-96)	2 – Preceded
Records and Information	1 – Yes (1984-86)	1 – Issue content	1 – Yes (FOIA amendments-86)	1 – Preceded
	2 – Yes (1995-96)	2 – Issue content and issue focus	2 – Yes (E-FOIA-96)	2 – Preceded
Privacy	1 – No	1 – Not applicable	1 – Yes (CMPPA-88)	1 – Not applicable
	2 – No	2 – Not applicable	2 – Yes (CMPPA amendments-91)	2 – Not applicable
Computer Security	1 – Yes (1986-87)	1 – Issue content and issue focus	1 – Yes (CSA-87)	1 – Preceded
	2 – Yes (1998-00)	2 – Issue content and issue focus	2 – Yes (GISRA-00)	2 – Preceded
	3 – No (2001-02)	3 – Not Applicable	3 – Yes (FISMA-02)	3 – Not Applicable

Table 5.3 Issue Transformation and Policy Change Summary

process” by examining the instances of issue transformation and the corresponding instances of policy change. As can be seen, some of the issues are considerably more dynamic than others, and have undergone several cycles of issue transformation. It is also apparent that not every issue shows evidence of issue transformation.

The four-cell matrix below, Table 5.4, shows the possible combinations of issue transformation and policy change in the research results. The twenty-one cases described in Table 5.3 fit into the cells of the matrix as shown. Seventeen instances of issue transformation and 20 instances of policy change were identified from witness testimony during the policy subsystem’s 28 years. Sixteen instances of issue transformation resulted in policy change, and in each of these cases, issue transformation preceded policy change. Four additional instances of policy change were noted that did not involve issue transformation, at least insofar as was discernible

		Issue Transformation?	
		Yes	No
Policy Change	Yes	16	4
	No	1	Policy Stasis

Table 5.4 Issue Transformation and Policy Change Matrix

from the evidence collected. The first instance of policy change with no discernible issue transformation was passage of the Paperwork Reduction Reauthorization Act of 1986. As noted earlier, this policy change was enacted as part of the Omnibus Drug Supplemental Appropriations Act of 1987; with no hearing record, information about this policy change was found in the information sciences literature.⁶⁴⁶ Two instances of policy change without issue transformation were associated with the issue of privacy. In these privacy cases, the policy changes were more procedural than substantive; an enabling process was put in place to facilitate ongoing computerized matching while providing privacy protections – and then adjusted to make the process work more effectively. The final instance of policy change with no issue transformation occurred with the passage of the Federal Information Security Management Act of 2002. Here,

⁶⁴⁶ McClure, Charles R, Ann Bishop, and Philip Doty. “Federal Information Policy Development: The Role of the Office of Management and Budget.” In McClure, et. al., *United States Government Information Policies: Views and Perspectives*. Norwood, NJ: Ablex Publishing Corporation, 1989, pp. 51-76.

policy changes pioneered by the 2-year term of the Government Information Security Reform Act of 2000 were enhanced, made permanent, and passed as part of the E-Government Act of 2002. The third cell of the matrix shows there was a single instance in which issue transformation occurred without a related policy change (due primarily to the tight definition of policy change). The final cell of the matrix, the intersection of no issue transformation and no policy change is labeled policy stasis. However, policy stasis was not the norm, as five of the six issues had at least two instances of policy change; only one issue – privacy – showed no indication of issue transformation.

These results provide the basis for drawing some summary conclusions about issue transformation within the IRM policy subsystem and about the relationship between issue transformation and policy change. In the paragraphs that follow, eight conclusions concerning issue transformation that were drawn from this study, together with three conclusions about policy change are offered and discussed.

First, policy issue transformation is a real policy phenomenon. Although policy issues have been discussed by various policy scholars, and some have even alluded to the changing nature of policy issues, no other research or study could be found that explicitly explored the notion of issue transformation or offered any in-depth examination of policy issues and their transformation, and their role in policy processes and policy change. This study posited a definition of issue transformation, developed a research framework to search for evidence of issue transformation, and identified 17 instances of issue transformation, 16 of which lead to documented policy changes. This study documented the existence and the effect of issue transformation; issue transformation changes the operative definition of policy issues which then affects policy change. This study contributes to the literature on policy issues, provides the first dissertation-length study of issue transformation, and documents the effect of issue transformation on policy change.

Second, policy issue transformation results from conscious and concerted human efforts to effect policy change. These efforts are made by policy actors and coalition members working within the policy subsystem, and by policy actors external to the policy subsystem. While the efforts of coalition members produced significant results, one should not underestimate the resources and effectiveness of policy actors external

to the policy subsystem – in both enabling and inhibiting issue transformation and policy change. Policy issue transformation also leverages the “art of the possible” and human beings “fascination with the new” in pushing for change, changes that in the IRM policy subsystem frequently included new governance capabilities afforded by a variety of innovations in applying information technology to the processes of governance. This observation suggests that the definition of “values” within the ACF requires some flexibility to include information technology as an element of strategy for achieving ACF “core values” – certainly as an element of the secondary aspects of the belief structure, and very possibly as a component of the policy core as well.⁶⁴⁷

Third, policy issue transformation can be detected and tracked. By analyzing the public record, particularly the statements of witnesses testifying at hearings, insight was gained into efforts to change an issue’s definition. Significantly, all but one instance of issue transformation identified in this study resulted in policy change. The approach pioneered here, using the changing definition of the problem to signal issue transformation and impending policy change, in concert with the focus on coalition values, provides a useful means to detect and track dissatisfaction with the policy status quo and assess the seeds of policy change. In the presence of powerful institutions and absent effective coalitions, tracking changes in an issue’s definition may provide a more useful indicator of impending policy change than relying exclusively on values signals from weak coalitions.

Fourth, policy issue transformation typically signals policy change. This conclusion underscores the linkage between issue transformation and policy change, and demonstrates the policy relevance of longitudinal policy research for understanding policy change and policy subsystem dynamics. Especially noteworthy, it seems, is the extent to which the themes found in issue transformation efforts were reflected in the newly changed policies. Such linkages suggest that issue transformation may be an integral aspect of policy change. This conclusion also supports the “policy change as learning” thesis of Sabatier and Jenkins-Smith and others, and suggests that issue transformation also plays a role in policy learning.

⁶⁴⁷ Sabatier and Jenkins-Smith, *Theories of the Policy Process*, p. 133. This point may be relevance to certain coalitions and technology aficionados. For example, Borsook, in *Cyberselfish*, discusses the cyberlibertarian values orientation of Silicon Valley.

Fifth, policy issue transformation precedes policy change. In each instance where both issue transformation and policy change were identified across the 28 years of this study, issue transformation preceded policy change. Not a single instance was found in which policy change happened in advance of a related issue transformation. Based on these findings, and the presence of issue transformation themes in the changed policies, one can logically conclude that issue transformation not only precedes policy change, but in numerous cases, facilitates or paves the way for policy change. The initial indications of issue transformation can typically be detected and identified in the few months or few years preceding an identified policy change.

Sixth, Issue transformation appears to be an intermediate or transition phase between the end of one policy cycle and the beginning of the next policy cycle dealing with that issue. Given that issue transformation preceded policy change in each instance where both were present, and given the presence of key issue transformation themes in the revised policies that eventually emerged, one could reasonably conceptualize, as does Kronenberg, this period of issue transformation as an intermediate or transition phase linking the end of the traditional policy process construct with its beginning.⁶⁴⁸ This notion is addressed in more detail in the next section.

Seventh, issue transformation can occur without policy change. Despite the linkages already noted between issue transformation and policy change, it appears that issue transformation can occur independently and without policy change. A single instance provides the basis for this tentative conclusion; this situation occurred as the result of an external event, the President's Management Agenda, being launched during the summer of 2001. This case demonstrated the potential of external events to initiate change in the policy subsystem, and also confirmed that external events can be used to trigger issue transformation.

Eighth, issue transformation alters the content, or substance, of the policy issue. It may also alter the issue's focus, the intended recipient of the policy action, and frequently alters both the issue's content and focus. While content changes were the most prevalent type of change in the policy issues, twelve of the seventeen instances of

⁶⁴⁸ Kronenberg, *Chaos and Rethinking the Policy Process*, p. 260

issue transformation yielded changes to both the content and the focus of the policy issue. This conclusion supports the earlier proposition that issue transformation may be an integral aspect of, and transitional phase leading to policy change

As for conclusions about policy change, the following three conclusions are offered. First, policy change, and especially substantive policy change, typically follows issue transformation.⁶⁴⁹ In each instance of policy change where issue transformation was also present, issue transformation preceded policy change (16 of 20 instances of policy change). The suggestion in Chapter 3 that issue transformation “may be necessary, but not necessarily sufficient” for policy change to occur appears to be a reasonable reflection of the reality observed in this research. This observation presents the flip-side of issue transformation conclusion five, above.

Second, policy change can occur without issue transformation. In the study, four instances of policy change occurred absent issue transformation. As already discussed above, two of these instances involved computer matching policy changes that were primarily procedural, involved little new policy substance, and were non-controversial. The other two cases, the PRRA of 1986 and FISMA of 2002 involved provisions inserted into other bills; the PRRA to skirt traditional legislative processes, and the FISMA to speed passage of a non-controversial measure. This, of course, is the flip side of issue transformation conclusion seven, above.

The third conclusion about policy change presents the flip-side of issue transformation conclusion four, above. Policy change may be influenced by or result from issue transformation. As the earlier discussion of causality notes, causality and/or influence are difficult to prove. However, where the key ideas surfaced during issue transformation also appear in the revised policy, a strong influence of issue transformation upon policy change exists. As suggested earlier, *the degree to which ideas surfaced during issue transformation resurface as policy changes is an expression of the influence of issue transformation upon policy change*. This may, in fact, be a useful test of causality and a heuristic indicator of the influence of issue transformation upon policy change.

⁶⁴⁹ Here, substantive policy change is contrasted to procedural policy change – a distinction equivalent to the difference between “what” and “how.”

While the generalizability of research results was not a priority in this undertaking, these insights should be useful to researchers and scholars interested in the policy topics of issue transformation, problem definition, and policy change. The conclusions regarding issue transformation and policy change should also be useful, especially in research using the advocacy coalition framework.

5.2 Contributions To and Extensions of the Advocacy Coalition Framework

Sabatier and Jenkins-Smith's advocacy coalition framework provided the constructs and theoretical perspective for conducting this research. Although the ACF is a robust and time tested framework, the authors acknowledge there are areas in which additional elaboration, refinement, and testing would be helpful. This section comments on the use of the ACF in this research. Specifically addressed here are three areas, in which this research 1) extends the concepts of the ACF; 2) contributes to known gaps in the ACF; and 3) validates ACF constructs and components. This discussion begins with extensions to the ACF.

This study produced five extensions and/or contributions to the concepts of the advocacy coalition framework. First and foremost, the study defined, identified, and documented the existence and the effect of issue transformation and determined its role and relationship as a precursor to policy change. It reached beyond the concept of values to posit a means for operationalizing policy change within the values of an individual or coalition. Issue transformation changes the predominant view of a particular issue and is a likely precursor to policy change. The study detailed how issue transformation is pursued through the actions of coalition members and other policy actors – not only through values – but by changes in the way the issue is perceived and described or framed. The ability to redefine a policy issue, in terms of its substance and the objects of policy action, provides additional policy options without compromising either individual or coalition values.

Secondly, issue transformation was identified as an influencing, and possibly a causal agent in policy change. As discussed in the previous section, a measure of the extent of influence of issue transformation upon policy change is the degree to which the ideas, problem definitions, and solutions advanced during issue transformation

reappear in the changed policies. This measure holds so long as issue transformation precedes policy change; this study has shown that to be the typical direction of the issue transformation - policy change relationship.

Third, this study brings information technology into the discussion as an external (or system) event. This study has shown that various information technologies were strong enabling forces, facilitated issue transformation, and provided the means by which to realize a number of key policy changes. Some of the key technologies that directly affected the IRM policy subsystem and influenced policy choices include microcomputers, storage technologies, networks and communications technologies, fiber optic transmission and switching capabilities, the Internet, the World Wide Web, and electronic commerce technologies. Numerous applications are now standard tools of governance: word processing, spreadsheets, databases, e-mail, and presentation graphics are tools of the trade. Other IT artifacts that contributed less positively to the IRM policy subsystem and policy change include hackers, crackers, and software pirates. To the extent that various technologies, and not just information technologies, are relevant to a policy subsystem they should be incorporated within the analysis.

Fourth, this study contributes to the ACF by chronicling the initiation of a policy subsystem. As a theory of policy change, the ACF presumes the presence of certain policy artifacts. For example, in its definition, “the concept of a policy subsystem needs to focus on the group of people and/or organizations interacting regularly over periods of a decade or more to influence policy formulation and implementation within a given policy area/domain.”⁶⁵⁰ Unexamined until now is how and/or why a “group of people and/or organizations” begins its interactions. Every extant policy subsystem has a beginning, a critical confluence of events, individuals, ideas, and policy opportunities. The beginning of Chapter 4 outlined the confluence of events, technologies, and problems documenting a “pre-policy subsystem environment,” and established a context environment for policy subsystem formation. Told as a narrative with “memory waypoints,” this story provided the historical foundation for understanding how and why these six concerns (later the six key issues) became the focus of a policy subsystem. These “initial conditions” framed the policy subsystem’s central problem, advanced

⁶⁵⁰ Sabatier and Jenkins-Smith, *Theories of the Policy Process*, p. 135.

preferred values, and promoted ideas for its resolution; they embraced certain policy actors and excluded others; and they established the context and terms of initial policy agreements and disagreements. Understanding the “In the beginning . . .” of a policy subsystem is an important part of policy learning.

The fifth contribution of this study to the ACF was in providing a case study that included each phase of the policy subsystem maturity model. Few studies of this length are available, and fewer still document the initial conditions leading to the formation of the policy subsystem. In covering the entire subsystem maturity model, this study successfully used the criteria for determining a mature policy subsystem, and successfully employed the concept of the policy cycle to document the policy subsystem’s maturity. This study validated the ACF’s policy subsystem maturity model.

This study contributed to a known gap in the ACF, the need for “scenarios of, and the factors affecting subsystem development over time.”⁶⁵¹ In chronicling the 28-year development of the policy subsystem, the nascent and mature policy subsystem concepts were tested and found to be useful constructs. The notion of the nascent policy subsystem spanning at least one complete policy cycle of formulation / implementation / reformulation, was especially helpful in creating a narrative structure for the study.⁶⁵² This scenario began with a pre-policy environment, included the legislative initiation of the policy subsystem, and then detailed the maturation of the policy subsystem. In detailing this scenario, however, some interesting questions and concerns surfaced. For example:

- a) What factors influence the maturity process of coalitions? Coalitions within the IRM policy subsystem initially formed rather slowly as documented in Chapter 4. One possible reason might be the influence of a maturity process internal to the subsystem, in which coalitions mature over time. However, the presence of strong external influences, such as changes in the administration, may also influence coalition formation and maturity. One must ask the obvious question: To what extent did the external environment, that is, the presence of a strong-willed and single-

⁶⁵¹ Ibid., p. 153.

⁶⁵² Ibid. The attributes of a mature policy subsystem are discussed on pp. 135-136, and the notion of a policy cycle was discussed on p. 119.

mindful Reagan administration, either advance or impede the formation of advocacy coalitions?

- b) What role do institutions play, if any, in a policy subsystem, and how are overlapping institution/coalition roles rectified? Institutions provide the “home” for the “governmental authorities” such as the Office of Management and Budget; institutions also provide a “home” for some of the coalition members. Institutions and their members play key implementation roles in executive branch initiated policy change (such as OMB Circular A-130), and factor significantly in implementing external initiatives such as the Clinton administration’s National Performance Review or the Bush administration’s President’s Management Agenda. An agency official, who happens to be a coalition member, may find himself or herself in conflicting roles in dealing with the “governing authorities.” For example, an agency official testifying before Congress must have his or her testimony “cleared” through both the agency and OMB prior to the hearing. To what extent does this executive authority, vested in the institutions of government, inhibit the range of opinions and options available to a coalition and expressed during a hearing?
- c) Do the institutions of governance inhibit the formation of coalitions? Two cases where coalitions might have been expected yet did not form are the basis for this question: the case of IT acquisition professionals, and the case of the Chief Information Officers. Both cases pose quite similar situations, in that one might expect that the domain expertise possessed by these groups has policy relevance, both of the groups worked participatively together over significant periods of time, and both groups were active in achieving significant, values-driven policy changes. That neither of these identifiable groups coalesced into a coalition is intriguing, and forms the basis for questioning whether the institutions of government, organized as bureaucracies, use the processes of governance to impede the formation of coalitions?

This study validated a number of key ACF constructs and components, but raised several questions in addition to those already discussed. As noted, the policy subsystem notion offers a very effective “unit of analysis” from which to study information resources management as a policy entity, and provides the central construct

for crafting the virtual reality Policy World. Also useful for studying policy subsystem development was the maturity model that provided a conceptual device for structuring the study and for organizing the research.

The recommended use of public hearing records as a basis for ACF-oriented research opened up an unparalleled and underutilized research resource, especially for studies that cover a considerable period of time. Congressional hearings were a great help in providing information on the beginnings of IRM in the Federal government. With little scholarly work available on this formative period of IRM, except that found in the library sciences discipline, hearing transcripts provided a much needed source of information. Alternative research sources such as archives, presidential libraries, or agency records each provide a piece of the needed information, but require incredible investments in time and effort. Using hearing records as the primary source, however, can also be somewhat limiting. For example:

- a) In chronicling the struggle over IRM priorities during the period 1989-1992, Garson narrates a brief history of IRM-related events, almost none of which was part of any hearing record. The lack of hearings from this period give the perception of political indifference; Garson's account reveals a protracted political struggle between the administration and Congress, with OMB Director Richard Darman characterized as "giving little thought to the utility of IRM,"⁶⁵³ an attitude shared by many executives throughout both business and government at that time. Such attitudes contributed to the rise of management reform, as evidenced in the Chapter 4 discussion of Y2K and computer security, as the leading IRM policy issue for at least a decade.
- b) The exclusive use of Congressional hearings creates the appearance of bias toward viewing policy change as limited to legislated policy change. This study countered that perception by defining policy change to include, on equal footing, both legislative and executive policy change, i.e., new and amended legislation and OMB Circulars. But while the Congress maintains extensive public records of legislative initiatives and their disposition, no corresponding executive branch compilation of historical information of similar depth and breadth is available. Since the advent of the White House presence on the World Wide Web in the mid-1990s, the OMB web

⁶⁵³ Garson, *Computer Technology and Social Issues*, pp. 297-301

site has provided the most comprehensive compilation of administration policies. However, as many discovered on January 22, 2001 after the Bush administration removed the Clinton administration's OMB web presence and waited several weeks to replace the essential content, governance is past the electronic "tipping point" and can no longer function effectively in a manual, paper-based environment. While biasing the study in favor of the Congress is not an acceptable research practice, waiting weeks for a new administration to establish its web presence and disseminate information about government, as occurred in 2001, is also unacceptable.

- c) The exclusive reliance on hearings may also bias researchers and readers toward viewing the legislature, and especially committee chairs, as appearing more influential than they really are in setting the policy agenda. In historical settings, and in the absence of a comparable source of executive branch perspectives, it is difficult to strike a balance between competing viewpoints. One approach used in this study that helped mitigate this situation was coding each issue on which witnesses testified (up to three maximum), without regard to the formal hearing agenda. As seen when looking at issue transformation in management reform, witnesses were concerned about management reform well before a hearing was convened to discuss the issue. Similarly, as discussed in section 3.3, concern over the perception of bias resulted in not coding the remarks of the committee chair or any other member of the committee – only the remarks of the witnesses were coded. When tabulated, the coded testimony of the 91 hearings and 431 witnesses included: 18 members of Congress; 41 appearances by GAO representatives; 28 appearances by OMB representatives; and 105 appearances by officials of executive branch agencies. This result is counterintuitive given the starting premise. Despite the challenges and concerns noted, the advocacy coalition framework and the research approach recommended by Sabatier and Jenkins-Smith provided a sound foundation and structure for examining policy change over long periods of time.

5.3 Contributions of this Study to Policy Theory and Policy Research

This study has focused on details, on “pixelating” or magnifying a policy perspective until the details of policy interactions come into view. It is now appropriate to locate those details within the broader community of policy theory and research beyond the advocacy coalition framework, and connect the idea of issue transformation to other traditional views of policy endeavors.

Detecting issue transformation, the key goal of the study, was successfully accomplished. Over the course of 28 years and across the six policy issues tracked, issue transformation was identified in 17 instances within the IRM policy subsystem. In five of the six issues tracked, issue transformation was found. The policy issue of paperwork, for example, underwent issue transformation three times. Examining the issue of management reform uncovered eight instances of issue transformation during the 28 years of the study. While one might expect significant redefinition of a policy issue focused on management reform, these eight instances of issue transformation stimulated seven separate but related policy changes. Two of the policy changes were legislative in nature (two new statutes passed) while the other five policy changes were executive branch policy changes (a new OMB Circular and four changes to an existing OMB Circular).

The findings of this study show that issue transformation is neither an event, nor an infrequent policy phenomenon. Rather issue transformation should be thought of as an evolutionary reinterpretation or redefinition of a policy problem. Instances of issue transformation typically alter both the existing issue content – the “what” – and the issue focus – the “who.” Altering either the “what” or the “who” of a policy issue is a noteworthy redefinition of the issue; altering both, as was frequently the case, constitutes deliberate and significant efforts to meaningfully redefine policy issues – efforts involving policy conflicts – and effect policy change. The definition of issue transformation developed for this study, and validated by the study, attempts to capture the essence of these policy disputes:

Issue transformation is the abrogation of existing policy agreements and issue definitions in favor of a significant and contentious reappraisal of policy goals and

means; issue transformation is an interpretation of complex and dynamic policy interactions – it is an evolution, not an event.

Issue transformation typically precedes, and frequently facilitates policy change. The findings show that policy change is also a continuing and dynamic policy activity, and that addressing a policy problem is not a one-shot affair. Rather, addressing a policy problem is more like beginning a continuing quest to fine-tune policy approaches within an evolving and dynamic policy environment. Policy problems in this view are never truly “solved, or fixed;” rather, at various times an accommodation has been reached that reduces policy conflict to acceptable levels, and delivers an acceptable policy solution – at least for a period of time.

This dynamic view of policy activities, when inserted into traditional policy process constructs, can help to inform our understanding of policy processes and public policies. As noted in Chapter 2, Kronenberg has advanced an approach to reformulate the traditional policy process by inserting a new “issue transformation phase” into the conventional view of the policy process. In *Chaos and Re-thinking the Public Policy Process*, he argued for inserting a new phase, “issue transformation,” into the process construct. “Issue transformation is my concept of the emergent policy advocacy and dynamic social behavior ‘at the edge of chaos’ for a given policy process. A central consequence of its operation is that it is an interface process linking what we tend to think of (simplistically) as both the beginning and the end of the policy process. . . . It is the ill-bounded, formative set of behaviors and interactions that may lead to changes in the political support for current policy and to the consideration and emergence of support for other policy arguments and approaches, and even to redefinitions of the ‘problem’ to be solved.”⁶⁵⁴ While Kronenberg conceptually examined the notion of issue transformation, the results of this study confirm his line of thinking and his definition of issue transformation as “emergent policy advocacy and dynamic social behavior.” As to the assertion that revising traditional policy process constructs can improve policy processes and public policies, Kronenberg draws on his own experiences. “Furthermore, issue transformation reflects the practical experience of the policy maker and policy staffer in the operational world of policy-making, who must treat

⁶⁵⁴ Kronenberg, *Chaos and Rethinking the Policy Process*, p. 260.

the factors that are at work in agenda-setting as problematic.”⁶⁵⁵ The results of this study provide supporting evidence and resoundingly substantiate that observation.

As a research endeavor this study is unusual. First, in its length, this study provides a detailed chronology of a policy subsystem that spans 28 years – an extraordinarily long time for a policy study. Here, the advocacy coalition framework was indispensable in helping to structure the study by using the policy subsystem maturity model and the concept of a policy cycle. These constructs provided the structural and temporal backbone that organized and synchronized the presentation. A direct contribution resulting from the study’s length was an appreciation of the role of time in policy activities, and a renewed appreciation of political timing in achieving policy goals.

Second, this research provided valuable insight into the complexity of policy activities, and into the interactions among policy issues and across policy domains. Here again, the advocacy coalition framework, and its unit of analysis – the policy subsystem – helped focus the project and reduce the level of complexity by characterizing influential events in terms of either external or subsystem interactions. By focusing on the policy subsystem as the unit of analysis, the researcher is better able to establish and maintain appropriate boundaries for the study, and to isolate and examine important interactions with the external environment, with other policy subsystems, and with other issues. Viewing information technology as an external influence helped separate the technology and policy components of information resources management policies, and showed that the trend toward IT-enabled governance results from policy decisions, not technological determinism as some might claim.

Third, a great deal of time and effort was devoted to chronicling the rise and integration of information technologies, primarily personal computers and the Internet, as an external influence on the IRM policy subsystem. As this chronology unfolded, the realization dawned that these technological innovations were being infused into the institutions of government primarily to achieve the classic aims of public administration – namely economy and efficiency – without reference to the values of public administration. Borrowing models from the business community, our “fascination with

⁶⁵⁵ Ibid.

the new” drove expedient policy choices that previously were made on the basis of community values. The “tipping-point” of technology-mediated government occurred probably around 1986; public administration, as a discipline and as a practice, however, remained largely on the sidelines during this transformation. Only recently have public administration scholars and practitioners begun to assess the impact of information technology-mediated governance. As a scholarly community we are only beginning to grasp and wrestle with the implications of the transformation called e-government on the institutions, authority, and theories of governance.

Fourth, this research and the above observations resulted in the realization that the “problem solving” approach to public policy is fundamentally flawed, and understates the complexity and dynamics of most policy challenges. As this research has uncovered, policy problems do not remain solved. While a few key characteristics of the original problem persist other attributes of the problem reappear in new dynamic contexts. Many solutions to problems seem to exhibit a half-life; that is, the effectiveness of the solution tends to decay over time. Rather than focusing on solving a problem, policy scholars and practitioners might think more strategically, focusing on “policy maintenance,” and develop a sensitivity to changes in the environment so that one might adjust policies in response to the dynamics and complexity of the policy environment.

Fifth, this research encompassed a degree of complexity requiring visualizations to organize and present the essence of the storyline and to organize and present the evidence of issue transformation. A key property of visual information is its multi-dimensionality, the ability to synthesize and portray a great deal of relational information in a relatively small space. A direct contribution of the visualization approaches used in this study was the ability to illustrate continuity: of public policies across several administrations; through several changes in Congressional leadership; and through key periods of information technology evolution and its application in governance.

This research suggests the need for follow-on study to understand the implications of the developments outlined in the chronology. Events since 2000, in particular, pose challenges and opportunities for public administration as a community of scholars and practitioners. Additional research and study should be devoted to

understanding the impact of information technology-mediated approaches to government and governance. Understanding the challenges posed to public institutions, modes of organizing, and approaches to administering government using extant and emerging technologies should warrant a high research priority. Secondly, additional study is needed by both the public administration and public policy communities on e-government. While e-government holds the promise of transforming government as we know it, what are the consequences of implementing e-government on public institutions, on forms of organizing public endeavors, on democratic values, and on constitutionally-based governance?

In a less lofty vein, the evidence of issue transformation collected during this research should be examined using nonparametric statistics. To what extent might issue transformation be a predictor of policy change? Can the content of new policies be predicted by applying nonparametric statistical approaches to analyzing problem descriptions provided by witnesses at hearings? Can the approach used to detect issue transformation in this research be successfully transferred to other policy subsystems?

One of the most obvious, and promising areas for future research is exploring the policy learning potential of Policy World. As an exploratory research vehicle, Policy World's humble goal is to generate at least as many questions as it answers.

5.4 Contributions of Policy World

Policy World presents a visual alternative for examining and interacting with policy artifacts, and expands the discussion of policy phenomena into the visual spectrum. It is the first virtually reality-based examination of a public policy topic in a dissertation-sized study; it may also be the first public policy VR world – period. Having already experienced some of the pleasures and a greater measure of the pain of being a “first,” this section focuses on what Policy World might contribute to the public policy, public administration, and information resources management communities.

In his article “Computers, Visualization, and the Representation of History,” historian David J. Staley critiques his field for its near-total reliance on text as a means of documenting history. “For academic historians, serious history is written history. But why can't the past be depicted visually? Many visual representational forms exist

already: film, museums, Chautauqua presentations, dramatic recreations. Academic historians, if they consider these other representations of the past at all, tend to confine them to the background of our discipline. These might be fine for schoolchildren or museum patrons or history buffs, but a professional historian would never design one of these visual displays as a substitute for a conference presentation, a journal article, or a monograph.”⁶⁵⁶ Staley’s critique could be applied equally to the policy sciences, to public administration, and to a number of other disciplines.

Instead of lining up words in sequential order to depict policy activities, many of which are not sequential at all, Policy World creates visual depictions of policy activities and artifacts. Instead of the 2-dimensional planar medium of words on paper or on screen, Policy World situates the viewer in a multi-dimensional environment of desktop augmented reality. The vocabulary of public policy is instantly multiplied and expanded in 3 dimensions, enriched with color, light, and sound, and translated through transparency, movement, and interactivity.

Policy World opens in a venue familiar to many. A brief exploration reveals that the virtual world is a scale-altered version of sections of downtown Washington, D.C. Buildings, monuments, and typical sights such as the Capitol, the White House, and the Washington Monument are present. As in policy activities, providing a familiar and appropriate context prevents disorientation, increases acceptance, and turns tentativeness into engaging discovery. Visual experience sets the context for experiential learning that is theoretically based and relevant to the policy world of public administration and information technology professionals.

Beyond the experience, Policy World visually represents the research presented in this textual document. In extending and enriching the available mechanisms for policy discourse and learning, Policy World is experimental research, designed to explore possibilities, and probe the limits of visual representation. It is a proof of concept, demonstrating that policy phenomena can be represented in ways other than

⁶⁵⁶ Staley, David J. “Computers, Visualization, and the Representation of History.” In *Historically Speaking*, April 2003, pp. 40-42.

the printed word. As Goodsell demonstrated, the concept of political authority is represented in the architecture of civic space.⁶⁵⁷

The public administration community has long acknowledged a need for including information resources management in its curricula. As this study of IRM policy demonstrates, information technology is increasingly favored as the mechanism for pursuing the traditional public administration values of economy and efficiency in governance. The Expanded Electronic Government initiative in the Bush administration's President's Management Agenda highlights the need for, and the importance of a cadre of practicing public administrators who understand governance, policy, and information technology. Policy World is also extensible, and just as the IRM policy subsystem is an evolving policy artifact, Policy World is intended to be an online reflection of the evolving world of information resources management and e-government. To the extent that it can contribute to educating future public administrators, Policy World proudly carries the responsibility of nascent expectations.

In closing his critique of historians' reliance on text, Staley contemplates the future. "A historical work is a representation, not the thing represented. Why, then, do historians choose one form of representation (the written word) over the many other forms of representation? Digital visualizations provide historians useful and evocative possibilities for representing the simultaneity, multidimensionality, and holistic structures of the past. I envision a day when dissertation committees – and journal editors and academic publishers – accept a visualization in lieu of a written document."⁶⁵⁸

Professor Staley, that day is virtually here!

⁶⁵⁷ Goodsell, *The Social Meaning of Civic Space*.

⁶⁵⁸ Staley, *Computers, Visualization, and the Representation of History*, p. 42.