

Explaining National Incident Management System (NIMS) Implementation Behavior

Jessica Jensen, Ph.D. and George Youngs, Ph.D.

North Dakota State University
Department of Emergency Management
Center for Disaster Studies and Emergency Management
Department 2351, PO BOX 6050
Fargo, ND 58108

ABSTRACT

This article explains the perceived implementation behavior of counties in the United States with respect to the National Incident Management System (NIMS). The system represents a massive and historic policy mandate designed to restructure, standardize, and thereby unify the efforts of a wide variety of emergency management entities. Specifically, this study examined variables identified in the NIMS and policy literature that might influence the behavioral intentions and actual behavior of counties. This study found that three key factors limit or promote both how counties intend to implement NIMS and how they actually implement the system—policy characteristics related to NIMS, implementer views, and a measure of local capacity. One additional variable, inter-organizational characteristics, was found to influence only actual behavior. This study’s findings suggest that the purpose underlying NIMS may not be fulfilled; and, confirm what disaster research has long suggested—the potential for standardization in emergency management is limited.

Disasters, by their nature, demand that diverse jurisdictions, organizations, professions, and personnel coordinate their activities. Coordination issues, often quite serious ones, re-appear in disaster after disaster. Yet, in the decades leading up to the September 11, 2001 terrorist attacks no single response management system had emerged, or, more importantly, been adopted in a uniform way across the United States. The 2001 terrorist attacks revealed serious shortcomings in response coordination and created the most significant window of opportunity in U.S. history to re-invent our nation’s emergency management system with the re-invention effort focusing on improving coordination.

The U.S. Department of Homeland Security offered the National Incident Management System (NIMS) as its solution to the coordination challenge. NIMS is a top-down, nationwide policy mandate designed to standardize emergency management structures, processes, and terminology related to preparedness, communications and information management, command and management, resource management, and maintenance across all levels of government and across all private and non-profit organizations involved in emergency management.

DHS presented NIMS in 2004 and has gradually increased the number of implementation activities with which local and state jurisdictions are expected to comply. Compliance is a prerequisite to receive various forms of disaster-related funding from the federal government. Consequently, governmental entities are required to self-report compliance levels within their jurisdiction. Because funding is contingent on compliance, it is expected that such reports would indicate full compliance with implementing NIMS (or, at minimum, significant, ongoing progress toward compliance). This reporting mechanism creates a fox-watching-the-chicken-coup conflict of interests with surprisingly little independent research on the extent to which NIMS has actually resulted in full, on-the-ground implementation nationwide or even whether there is the intent to do so.

The NIMS cannot achieve its potential as “the coordination solution” if there is less than complete support for it and/or less than complete implementation. To date, only three studies (Jensen 2008, 2009; Neal and Webb, 2006)—all case studies—have explored NIMS implementation. These studies consistently hint at implementation issues; but, without nationwide data on both the intent to implement and actual implementation behavior, no conclusions can be drawn about the true breadth and depth of NIMS implementation or the prospects for the system’s implementation in the future.

The present study gathered data on the extent to which counties across the United States intended to implement and actually implemented NIMS in 2009-2010. Specifically, the study surveyed a nationwide, random sample of county-level emergency managers to address the following implementation questions. First, to what extent did counties intend to implement NIMS? Second, to what extent was NIMS actually implemented? And third, if there was variation in implementation intent and behavior, what were the factors responsible for the variation?

The answers to the first and second questions have already been reported (Jensen 2011). In brief, the survey results indicated significant variation in both intent and actual implementation of NIMS across the United States. This variation directs attention to the third research question which will be the focus of the present analysis. In the absence of uniform intent to implement NIMS fully and/or actual full implementation of the system, what factors explain this situation? The discussion below provides a broad framework from which several clusters of factors were identified for examination in the present analysis.

LITERATURE REVIEW

NIMS implementation is a specific example of a larger topic, policy implementation. A plethora of variables relevant to policy implementation have been identified (Goggin, 1986; O'Toole, 1986, 2003), and many valiant attempts have been made to synthesize the identified variables into a model (Brodkin, 1990; Cothran, 1987; Elmore, 1985; Goggin et al., 1990; Love & Sederberg, 1987; Matland, 1995; Sabatier, 1988, 1991; Winter, 1990; Yanow, 1993). While this body of research has yet to form a consensus around a single theory or model (Ryan, 1995; O'Toole, 2000; Schofield, 2001), some consensus does exist around the following three general

categories of implementation-related independent variables: 1) policy characteristics, 2) local structural and situational conditions, and 3) implementer views (Bali, 2003; Goggin et al., 1990; Lester & Stewart, 2000; Matland, 1995; Ryan, 1995). The present study developed a causal model based on these three categories of variables and associated policy research and tested the degree to which the model explained variation in NIMS implementation intent and actual behavior. Finally, a re-examination of the limited NIMS implementation literature revealed that the NIMS case study findings are consistent with this three-category model (Jensen 2010).

Policy Characteristics

A wealth of literature has discussed how various policy characteristics influence policy implementation. The variables most commonly identified are the following five general factors: the policy's underlying theory, its clarity and specificity, the communication of policy objectives and tasks, the policy's associated incentives/sanctions, and the extent of available capacity-building resources for NIMS. Each of these general factors has sub-dimensions. First, the literature suggests that a policy's underlying theory ought to be perceived by implementers as pertinent to its objectives. Specifically, implementers are more likely to implement a policy if the policy is viewed as: a) addressing a significant problem, b) based on accurate assumptions, and c) seeking solutions that address the problem (Goggin, 1986; Ingram and Mann, 1980; Keiser and Meier, 1996; Sabatier and Mazmanian, 1983). Second, the policy literature suggests that policy clarity and specificity affect implementation (Berman, 1978; Bullock, 1980; Helms et al., 1993; May & Winter, 2007; Ripley & Franklin, 1982; Rosenbaum, 1981; Sabatier & Mazmanian, 1983; Van Meter & Van Horn, 1975). Third, the literature indicates that clear communication of the policy's objectives and tasks is important to implementation (Berry et al., 1998; Edwards, 1980; Goggin et al. 1990; Schultze, 1970; Van Meter & Van Horn, 1975).

Fourth, research suggests that a policy's incentives and sanctions affect implementation (Goggin, 1986; May, 2003; Mazmanian & Sabatier, 1983; Thomas, 1979; Van Meter & Van Horn, 1975). Finally, the extent to which capacity to support the policy's implementation is provided—funding, training, technical support, and time for implementation—has repeatedly been shown to be important (Edwards, 1980; Hill, 2003; Hogwood & Gunn, 1984; Keiser & Meier, 1996; May, 2003; Menzel, 1989; Montjoy and O'Toole, 1979; Sabatier, 1991; Schneider and Ingram, 1990). Thus, this study included these five, major dimensions of policy characteristics as well as measures of the specified sub-dimensions associated with each dimension (e.g., for policy capacity: training, funding, technical support, and timeline). Should policy characteristics prove to affect NIMS implementation intent and behavior, the data could potentially be used by the NIC and policymakers to bring about enhanced compliance with NIMS.

Local Structural and Situational Characteristics

The second block of factors focuses on local county structural and situational characteristics. These characteristics include elected leadership, existing implementation capacity, inter-organizational relationships, and characteristics of the policy implementer. Once again, the present study included each of these dimensions along with each dimension's multiple indicators. First, the leadership of elected officials often affects policy implementation (see for example: Ewalt and Jennings, 2004; Fernandez et al., 2007; Hill, 2003; Jennings and Ewalt, 1998; Keiser & Soss, 1998; Langbein, 2000; May and Winter, 2007; Mazmanian and Sabatier, 1989; Riccucci et al., 2004; Van Meter and Van Horn, 1975). "At issue is the strength and consistency of the signal that elected officials at all levels provide to implementers" (May and Winter, 2007, p. 4). Second, local resource capacity (e.g., financial and human) also has been found to affect policy implementation capacity (Bali, 2003; Berry et al., 1998; Brodtkin, 1997;

Hagen, 1987; Hill, 2003; Lipsky, 1977, 1980; Lundin, 2007b; Pessó, 1978; Van Meter and Van Horn, 1975; Winter, 2001). Third, inter-organizational relationships are relevant to policy implementation (Bardach, 1998; Lundin, 2007a,b). Important aspects of inter-organizational relationships include trust (Bardach, 1998; Lundin, 2007a), goal congruence (Ewalt & Jennings, 2004; Lundin, 2007a; Meyers et al., 2001; Powell et al., 2001; Van Meter and Van Horn, 1975), , coordination (Agranoff, 1991; Grubb and McDonnell, 1996; Jennings, 1994; Jennings and Ewalt, 1998), relationships between implementing organizations (O'Toole 1997), and resource interdependence (Benson, 1982; Lundin, 2007a; Rhodes, 1988; Scharpf, 1978). Finally, characteristics of the policy implementer (described by Lipsky, 1980 as “street-level bureaucrats”) affect the implementer’s authority (Andrews et al. 2007) and ability to implement policy. These characteristics include “knowledge and opportunities to learn” (Hill, 2003: 278), tenure, prior training, education, and age (Hedge et al. 1988).

In the present study, “policy implementer” uniquely refers to county-level emergency management and managers. County emergency managers are charged with coordinating and reporting on county-level NIMS implementation but frequently do not have the authority to compel organizations and agencies to participate (Jensen, 2009; McEntire, 2007)). Therefore, factors other than legal authority, such as those specified by Hill (2003) and Hedge et al. (1988), presumably become important to implementation. Additional factors were suggested by two of the three NIMS case studies, that is, local disaster characteristics (Jensen 2008) and local emergency manager characteristics such as disaster experience and perceived risk (Leifeld 2007). The present study incorporated these unique, county-level, emergency management characteristics along with the policy literature’s list of local structural and situation

characteristics (i.e., perceptions of elected leadership, implementation capacity, and aspects of inter-organizational relationships).

Implementer Views

The third and final set of potentially explanatory factors suggested by the policy literature is implementer views (see for example: Bali, 2003; Berman, 1978; Bowman et al., 1987; Edwards, 1980; Elmore, 1978, 1985; Hjern et al., 1978; Lipsky, 1971; May, 1993, 1994, 1995; May and Burby, 1996; Sabatier, 1986). A wealth of literature suggests that the attitudes, motivations, and predispositions of implementing agencies are related to implementation-centered dependent variables (see for example: Bali, 2003; Berry et al., 1998; Bullock and Lamb, 1984; Elmore, 1987; Fernandez et al., 2007; Goggin, 1986; Goggin et al., 1990; Hedge et al., 1988; Kaufman, 1973; May 1993, 1994, 1995; May & Burby, 1996; May and Winter, 2007; Mazmanian and Sabatier, 1989; Sabatier and Mazmanian, 1979; Schneider and Ingram, 1990; Stoker, 1991; Van Meter and Van Horn, 1975). Similarly, policies employing network theory indicate that the attitudes, motivations, and predispositions of *all* of the implementing agencies are relevant (Benson, 1982; Kickert et al., 1997; Klijn and Koppenjan, 2000; Koppenjan and Klijn, 2004; Rhodes, 1988; Scharph 1978). Attitudes reflect the extent to which implementing agencies “like” the policy (May and Winter, 2007; Van Meter and Van Horn, 1975). As McGuire (2009: 57) stated, “implementers who are favorably disposed to a policy will seek to give its fullest force, whereas those who oppose it will engage in delay, obfuscation, or other foot-dragging strategies”. Motivations are the underlying reason(s) implementing agencies implement the policy and can be calculated, normative, and/or social in origin (Winter and May, 2001). Finally, predispositions reflect the extent to which implementing agencies have opinions about the role of the federal government in policymaking and the appropriateness of federal

policies in general (Hedge et al. 1988). Measures of NIMS-related attitudes, motivations, and predispositions were included in the present study as multiple dimensions of implementer views.

The above three sets of variables—policy characteristics, local structural and situational characteristics, and implementer views—were all expected to affect NIMS implementation intent and behavior based on the policy literature discussed above as well as the very limited NIMS implementation literature. These factors, along with implementation intent and behavior, were measured in a nationwide survey of county emergency managers. Counties are often the closest, on-the-ground level of government directly responsible for emergency management (unless one or more sizable communities within a given county have their own emergency managers). Thus the survey questions focused on county emergency managers' views of countywide intent to implement and actual implementation of NIMS (i.e., collective implementation by all of the emergency management-related organizations outside the county emergency manager's office) as well as asking questions specifically about the county emergency managers' characteristics, and office structure. This approach is consistent with the focus of NIMS on system coordination, not just the coordination efforts of individual emergency managers, and consistent with DHS's reporting requirements that similarly ask emergency managers to assess overall implementation behavior of multiple entities within their jurisdictional arenas.

METHODS

Sample

A systematic random sample of 355 counties, stratified by state, was selected from the population of counties nationwide (N = 3,066, National Association of Counties). The point of contact for each selected county was the county emergency manager. The participation rate was

37 percent and included respondents from 46 states. The margin of error is approximately ± 5 percent at a 95 percent confidence level.

Procedures

Following IRB approval, data were collected via a self-administered, confidential questionnaire. A standard internet survey software tool (Survey Monkey.com) was used to deliver the questionnaire January, 2010; and, 169 were successfully completed. Unfortunately, technical, software-based problems soon emerged (see Jensen, 2011 and 2010 for more detail on the technical problems) that the software provider was unable to solve. At this point, the questionnaire was immediately re-formatted as a mail survey following Dillman's (2007) format suggestions for mail surveys, and all selected county emergency managers who had not yet responded to the internet survey received the mail survey. A reminder email was sent to all emergency managers two weeks following the initial mailing (Dillman 2007), and additional survey packets were sent upon request. Another 186 surveys were received. No statistically significant differences ($p \leq .05$) by format type were found using independent-sample t-tests comparing the mean responses across all Likert-scale questions. Thus, the data were combined, and analysis began the second week of March 2010.

Measures

The survey included three sets or blocks of measures—policy characteristics, local structural and situation characteristics, and implementer views—and each block included multiple indicators. Fortunately, the data justified collapsing many of the indicators into indexes that greatly simplified the final data analysis. These indexes along with a number of stand-alone measures were used in two multiple regression analyses, one for implementation intent and one for implementation behavior.

The measures associated with each of the three sets of policy factors were presented together (Dillman 2007). Prior to each set, survey respondents were reminded to answer the questions with their entire county in mind.

Evaluate the extent to which *your county or equivalent entity* would agree or disagree with the provided statements. In other words, how would you *characterize the OVERALL perception* of all of the groups in your county that are supposed to implement NIMS (e.g., law enforcement, fire services, emergency medical services, public works, hospitals, schools, Red Cross, Salvation Army, etcetera)?

The above request may be considered challenging, but it was not a new request for most respondents. As noted earlier, the task is consistent with NIC reporting requirements.

Policy characteristics included measures of the following five groups of policy characteristics (Appendix A): a) the validity of underlying theory behind NIMS, b) the clarity and specificity of NIMS, c) the communication of policy objectives and tasks, d) the incentives and sanctions associated with NIMS, and e) the capacity-building resources associated with NIMS. Overall, these five broad categories plus multiple associated sub-dimensions resulted in 15 indicators covering a broad sweep of characteristics that the literature has found to be related to implementation. In addition, each of the 15 indicators was measured with two, paired statements. The two, similarly worded questions per indicator were distributed haphazardly within the policy characteristics cluster of questions. A 5-point Likert scale followed each statement (1 = “Strongly Disagree”, 3 = “Neither Agree or Disagree”, and 5 = “Strongly Agree”) along with the options, “NA” for “Not Applicable” or “DK” for “Do Not Know”. The goal of this breadth of measurement was to produce a policy characteristics index with a solid,

substantive foundation. Thus, after dropping two of the statements using Cronbach's Alpha as a guide, a highly reliable policy characteristics index was achieved ($\alpha = .91$, $N = 222$).

The local structural and situational characteristics block of measures included the following five subgroups: a) emergency management leadership by state emergency management administration and by local elected officials, b) county emergency management capacity, c) inter-organizational relationships, d) individual-level characteristics of the county emergency manager, and e) the county's experience with disasters. First, indicators of perceived emergency management leadership focused on both state and local leadership (Appendix B). Identical leadership-related statements were paired for "state department emergency services," and for "the [leadership of] elected official(s) in my jurisdiction with authority over emergency management." The same response format was used for these questions as was used for the policy questions. A highly reliable state leadership index was achieved following the elimination of 2 of the original 7 state leadership statements ($\alpha = .92$, $N = 286$), and a highly reliable local, elected leadership index was achieved from the original 7 item index ($\alpha = .93$, $N = 302$). Second, perceived local capacity indicators included both description and perception questions. The local county description questions asked managers to report on human and financial capacities. Human capacity questions assessed the size of the manager's staff and the staff's status (i.e., full-time, half-time, less than half-time). In addition, managers were asked whether the county relied on volunteers for the majority of their fire and/or emergency medical services. Financial capacity questions asked for the size of emergency management program's budget and the amount of preparedness funding the program had received, or expected to receive, during the current fiscal year. The nature of the descriptive questions ruled out their combination as an index.

The local capacity questions assessed the manager's views of countywide human capacities and financial capacities. The human capacity statements read, "My county has enough personnel to fulfill its needs" and "My county has enough personnel to implement NIMS." The financial capacity statements read, "My county generates enough funds to pay for its needs" and "My county generates enough funds to pay for implement NIMS." All four statements were followed by the same 5-point, agree/disagree Likert scales described earlier.

Third, a subgroup of 12 statements measured perceptions of the inter-organizational context within the county (Appendix C). The statements covered a wide range of issues related to NIMS implementation including the following: a) goodness-of-fit between NIMS and organizational cultures; b) trust; c) working relationships; d) coordination; e) goal congruence; and f) resource interdependence. Following the deletion of 3 items, a reliable inter-organizational relations index was created ($\alpha = .76$, $N = 291$).

Fourth, a variety of demographic and career-related questions examined county emergency manager individual characteristics. These questions covered age, gender, education, disaster experience, number of presidential disaster declarations the manager had experienced in a professional capacity, years as a county emergency manager, and nature of manager's organizational position (i.e., full-time or part-time, dedicated 100% to emergency management or multiple roles associated with their position including emergency management). These questions came at the end of the survey and represented the only questions that focused specifically on the emergency manager himself or herself rather than the manager's county.

Fifth, two county disaster characteristics were measured—the county's recent history of presidential disaster declarations (if any), and the manager's perception of the extent to which the county, as a whole, expected that a declaration-triggering event could occur in the near

future. Specifically, emergency managers were asked the following: a) how many presidential disaster declarations (PDDs) their county received since 1/1/2000; and, b) their county's perception of the likelihood that a disaster worthy of a presidential disaster declaration will occur in the near future (next 5-10 years). This second question was followed by a 1-5 Likert scale (1 = "Not at All", 3 = "Somewhat Likely", 5 = "Very Likely", NA = "Not Applicable", and DK = "Do Not Know").

Collectively, these five subgroups (leadership, county capacity, inter-organizational relationships, county emergency manager characteristics, emergency management program characteristics, and county disaster characteristics) provided a comprehensive review local structural and situational characteristics of the context within which NIMS was being implemented.

Finally, managers were asked to evaluate their county's overall attitudes, motivations, and predispositions with respect to NIMS implementation (Appendix D). The statements focused on perceived countywide liking of NIMS, motivations for implementation, and the extent to which managers perceived the county as predisposed to comply. Once again, county emergency managers were provided 1-5 Likert scales to identify the extent to which they agreed or disagreed with each of the statements. After dropping one statement (see note to Appendix D), the remaining statements were combined to create a highly reliable index of implementer views ($\alpha = .87$, $N = 293$).

Two dependent variables were identified in the policy literature for analyzing policy implementation—behavioral intent and actual implementation behavior (Jensen 2011). See Appendix E for a list of the statements used. Each of these statements was followed with a Likert scale with values from 0-5 (0=not at all, 1="Minimally", 3="With Modest Modification", 5="As

Designed”, NA=“Not Applicable”, and DK=“Do Not Know”). These statements were combined to create two indexes with very high reliability scores (i.e., $\alpha = .94$, N=294 and $.96$, N=295 for intent and behavior, respectively).

Limitations

The key limitation of the present study is its reliance on the perceptions of county emergency managers to report county-wide, NIMS implementation intent and behavior. The task required respondents to mentally review and integrate their knowledge of the behavior of diverse organizations across an entire county and to speculate about the intent of those organizations. We have argued that this is not an unreasonable task. Prior to this study, most respondents had had four or five years of experience in working with county organizations to incorporate NIMS and a similar number of years in reporting county-wide behavior to FEMA. In fact, it is reasonable to suggest that the implementation rates reported in the present study may be less subject to social desirability bias than those formally reported to higher authorities (Jensen 2009). Finally, we have argued that the perceptions of county emergency managers, whether accurate or not, are of value in their own right as predictors of how they will likely approach NIMS in the future. Nevertheless, it remains an empirical question, and an important one, for further research to determine, first-hand, the extent to which county emergency managers’ perceptions of county-wide activities and intent, as related to emergency management in general and NIMS in particular, are accurate.

RESULTS

The independent and dependent variables measured in the present study served a dual purpose. First, they individually provided data on the typical county emergency manager and

emergency management office in the United States. Little or no nationwide information currently exists on many of these measures. Second, these measures provided the opportunity to determine the extent to which the selected independent variables collectively and comparatively explain variation in behavioral intent and actual implementation of NIMS. Descriptive statistics are presented first.

Descriptive Statistics

Descriptive statistics from the present study fall into following four groups: a) the managers' demographic and career data; b) county characteristics, capacities, leadership, and inter-organizational relationships; c) managers' perceptions of their county's NIMS-related attitudes and behaviors; and d) managers' views of the extent to which entities throughout the county intend to and actually do implement NIMS. Together, these descriptive measures provide a multi-layered, generalizable picture of county emergency managers, their counties, and managers' views of their counties' NIMS-related attitudes and behaviors.

First, county emergency managers were asked a number of questions about themselves and their careers. The typical manager was male (70%), over fifty (58%), had at least a bachelor's degree (79%), had spent nine years as a county emergency manager ($M = 9.41$, $SD = 8.50$), and had participated professionally (e.g., as a manager, a firefighter, etc.) in three or fewer presidentially declared disasters (56%). Managers' positions typically included additional county responsibilities beyond emergency management (54%). This 54 percent held on average a total (including their management position) of three county positions (Mean = 2.8, $SD = 1.3$). The additional positions included 9-1-1 administrator, safety director, communications director, veteran's administrator, animal control officer, floodplain manager, fire marshal, coroner, and others. Some managers (24%) held positions outside of their county job (e.g., with a school,

private business, hospital). In sum, the typical manager was male, older, educated, experienced on the job, not that experienced with major disasters, and presumably very busy.

Second, county emergency managers were asked a variety of questions about their counties' characteristics, capacities, leadership, and inter-organizational relationships. Three-quarters of the counties represented by the respondents had 59,000 or fewer people ($M = 76,615$; $SD = 195,763$). A sizable minority (42%) of the emergency management programs had only one employee—the emergency manager himself/herself—23 percent of whom were part-time. Roughly half of all counties relied on volunteers for the majority of their fire services (57%) and/or for the provision of emergency medical services (47%). Including personnel costs (salary and benefits), most county programs had budgets of \$82,000 or less for the current fiscal year (53%), and the majority had received or were going to receive Homeland Security preparedness funding of \$40,000 or less (58.1%).

County emergency managers' perceptions of their counties' capacities generally resonated with the above facts. Using the previously described, 5-point, Likert scales, county emergency managers disagree with the following statements: a) "My county has enough personnel to fulfill its needs" ($M = 2.36$, $SD = 1.16$); b) "My county has enough personnel to implement NIMS" ($M = 2.75$, $SD = 1.25$); c) "My county generates enough funds to pay for its needs" ($M = 2.07$, $SD = 1.07$); and d) "My county generates enough funds to pay for implementing NIMS" ($M = 2.21$, $SD = 1.21$). Managers viewed their state leadership positively ($M = 4.14$; $SD = .81$; $N = 286$) but held an essentially neutral view of their locally elected leadership ($M = 2.98$; $SD = .97$; $N = 302$). Similarly, managers' views of the inter-organizational relationships within their counties fell on the midpoint of the index ($M = 3.16$; $SD = .69$; $N = 291$). In sum, these data on county characteristics, capacities, leadership, and inter-

organizational relationships suggest that in 2009/2010 the typical county emergency manager worked in a modest-sized county that was simply OK in terms of capacities, leadership, and relationships—neither flush with resources nor in crisis mode.

Third, respondents were asked to report on their perceptions of their county's NIMS-related attitudes and behaviors. These perceptions were measured with the policy characteristics and implementer views indexes. Both index means fell midway on the 5-point index scales ($M = 3.16$, $SD = .58$, $N = 222$; and $M = 3.02$; $SD = .75$; $N = 293$; respectively) revealing a generally neutral response to questions measuring perceptions of the associated items.

Fourth, managers were asked to respond to measures of our two key dependent variables, NIMS implementation intent and behavior. The means for both the behavioral intent and actual implementation indexes indicated that the average county intends to implement and actually implements NIM—not as the system is designed—but after modestly modifying its components ($M = 3.59$, $SD = 1.04$, $N = 294$; $M = 3.24$, $SD = 1.15$, $N = 295$; respectively). The mean for intent was slightly higher than the mean for actual implementation behavior suggesting that the average county intends to implement NIMS in keeping with its design to a greater degree than it is able (see Jensen 2011 for a more detailed analysis of these descriptive results). Furthermore, the sizable standard deviations for each index indicate considerable, nationwide variability in NIMS-related behavioral intent and actual behavior. It is this variability that the present study wishes to explain in order to better understand what drives implementation intent and actual behavior.

Before proceeding, however, it is worth noting that the means and standard deviations for behavioral intent and actual implementation are strikingly similar raising the question of whether the two dependent variable indexes were really measuring distinct phenomena. Pearson's pairwise correlations of substantively similar items within each index were highly correlated and

statistically significant as were the two indexes (see Table 1). However, t-tests comparing the means of substantively matched items and comparing the two indexes found all of the means to be significantly different. Thus, it is reasonable to argue that the close association of these two indexes reflects the actual close association of intent and behavior (Preston, Ritter, and Wegner 2011) and not that the two indexes are measuring the same phenomenon.

Regression Results

The review of the policy and NIMS-related literature suggested that three sets of policy implementation variables—policy characteristics, local structural and situational characteristics, and implementer views—would be related to implementation behavior (i.e., behavioral intent and actual implementation). The overall and relative impacts of these sets of variables on NIMS implementation intent and behavior were examined using hierarchical, stepwise multiple regression analyses. While two of the three sets of variables, policy characteristics and implementer views, reduced to single indexes, the third set of variables—local structural and situational characteristics included a variety of indicators that could not be combined. Thus, both hierarchical and stepwise procedures were used to enter measures into the multiple regression analyses for implementation intent and behavior. Hierarchical regression permitted the inclusion of the indicators within the local structural and situational characteristics variable set as a theoretically distinct block. This left the question of how best to enter indicators within this block. In the absence of a theoretical rationale to control order of entry, the empirical procedure, stepwise entry, was used to allow indicators within the block to enter the final multiple regression equations based on the relative empirical contributions of each indicator (Cronk 2012).

The use of hierarchical regression in the first step of each regression procedure not only permits the blocking of variables for entry, it requires the researcher to specify the order of the blocks for entry. Just as there is little theoretical rationale for ordering the entry of indicators within the local structural and situational characteristics block of measures, there is also little theoretical rationale for the larger question of how best to enter the three broader sets of variables. Thus, the present study again relied on an empirical rationale for inclusion with entry of variable sets based on the overall relative size of significant, pairwise Pearson correlation coefficients (t -test, $p \leq .05$) between indicators and each of the two dependent variables. All of the independent variables that were not significantly correlated with the dependent variable indexes were excluded from these analyses.

Next, the correlations among the remaining independent variables were examined for multicollinearity. Typically, multicollinearity is not considered to be an issue unless a pairwise correlation coefficient between any two independent variables exceeds .85 (Munro 2001); and, none of the pairwise correlations among the remaining independent variables exceeded this figure.

Finally, the three sets of independent variables were entered in an order consistent with their relative importance as suggested by the zero-order correlation results. The order proved to be the same for both dependent variables. The implementer views block (i.e., the implementer views index) was entered before the policy characteristics block (i.e., the policy characteristics index), and the local structural and situational block was entered last. The local structural and situational characteristics block, included a large number of measures (e.g., both indexes and individual variables) with zero-order correlations with NIMS implementation intent and

behavior, but the size of these correlations were consistently modest and clearly suggested that this block should be entered in third place.

Separate multiple regression runs were conducted for implementation intent and behavior. The initial runs reveal that listwise exclusions of missing data left more than half of the study's respondents from the online survey. The missing data were generally associated with eight policy characteristics questions that were uniquely problematic in the original internet version of the survey (Jensen 2011). To compensate for this issue, missing cases for these eight policy characteristics were replaced with the means for the variables in question.

The subsequent multiple regression analyses enabled us to address three questions fundamental to an improved understanding of NIMS implementation intent and behavior. First, to what extent do the selected independent variables collectively explain variation in implementation behavioral intent and actual implementation, respectively? Second, what is the relative importance of these independent variables? Finally, do the models for behavioral intent and actual implementation differ in meaningful ways?

The final behavioral intent model (Table 2) explains both a statistically significant and substantively significant amount of variance in NIMS implementation intent ($F_{(3, 144)} = 33.27$, $R^2 = .40$, $p = .004$). Explaining 40 percent of variation in the dependent variable is a surprising result for this initial effort at modeling NIMS implementation intent and suggests that the general policy literature from which much of the guidance came in identifying potentially key blocks of independent variables is of value in pursuing an understanding of NIMS implementation.

Within model, the policy characteristics index was the most predictive "block." Implementer views came second, and only one variable from the local structural and situational

characteristics block proved to be significant—sufficient countywide personnel for implementing NIMS.

The pattern of significant zero-order correlations between independent variables and actual implementation behavior was very similar to the pattern previously discussed for implementation intent (Table 2). Specifically, all of the independent variables from the intent model were also in the actual behavior model with two additions (i.e., whether the county depends on volunteers for the majority of its fire services and county expectations of the likelihood of a disaster in the near future). The overall actual behavior model results were also similar. The final model proved to be both statistically and substantively significant for implementation behavior ($F_{(4, 127)} = 24.65$, $R^2 = .43$, $p = .015$). In addition, all of the variables that have a statistically significant impact on behavioral intent also have a statistically significant impact on actual implementation, and the relative importance of the variables is the same in both models. However, the actual implementation model has an additional significant relationship involving a variable in the local and structural characteristics block, perceptions of inter-organizational characteristics (Table 2). The final result is a model that again explains a substantial amount of variance, 43 percent, in the dependent variable. Thus, the policy literature has given us a robust, implementation model that is generally applicable, with one exception, to both behavioral intent and actual implementation related to NIMS.

DISCUSSION

Jensen (2011) detailed substantial nationwide variation in county emergency managers' perceptions of their counties' NIMS implementation intent and behavior. Ideally, such variation would not exist. The overriding goal of NIMS is to standardize the practice of emergency

management. Thus, it is critical to identify the factors that explain this variation. With guidance from the limited NIMS literature and the extensive policy literature, the present study empirically documented the importance of policy characteristics, implementer views, and to a much lesser extent, local structural and situational characteristics as factors that collectively explained a substantial portion of the variation in county-level NIMS implementation intent and behavior nationwide.

Both the NIMS and policy implementation literature suggested a positive relationship between perceptions of policy characteristics and implementation behavior (Barrett and Fudge, 1981; Edwards, 1980; Ewalt and Jennings, 2004; Jensen 2008, 2009; Linder and Peters, 1987, 1990; May, 2003; Meier and McFarlane, 1998; Neal and Webb, 2006; Sabatier and Mazmanian, 1989; Schneider and Ingram, 1990; Van Meter and Van Horn, 1975). The findings of this research confirmed that perceptions of NIMS's policy characteristics are indeed related to behavioral intent and actual implementation behavior.

It was critical for counties to believe that NIMS had the potential to solve real emergency management problems; that NIMS was clear and specific; that incentives and sanctions were not only provided but likely; and, that capacity building resources (e.g., time to implement, technical support, training, etc.) were provided just as the literature had suggested. When counties believed that the policy characteristics related to NIMS were present, then they intended to implement NIMS and actually implemented NIMS in a manner most consistent with the policy's intent (i.e., as designed) and vice versa.

The main reason this finding is important is that while the federal government cannot alone control what counties perceive about the policy characteristics of NIMS, the actual policy characteristics related to the system were, and are, partially controllable. The federal

government can make changes in the policy's underlying theory, clarity and specificity, incentives and sanctions, and/or capacity-building research in an effort to bring about more standardized implementation of NIMS within U.S. counties. Of course, counties need to perceive that changes have been made and that the changes are positive. Moreover, counties nationwide would have to perceive the changes similarly and positively to see an increase in standardization in actual implementation behavior across the United States. While it seems somewhat unlikely that all counties will ever be on the same page in their perceptions of the policy characteristics related to NIMS, the policy characteristics/implementation relationship does show that there is a role for the federal government in positively influencing NIMS implementation behavior in the future.

The NIMS and policy literature also suggested that implementer views were important to consider when evaluating implementation behavior (see for example: Bali, 2003; Berry et al., 1998; Bullock and Lamb, 1984; Elmore, 1987; Fernandez et al., 2007; Goggin, 1986; Goggin et al., 1990; Hedge et al., 1988; Jensen, 2008, 2009; Kaufman, 1973; May, 1993, 1994, 1995; May and Burby 1996; May and Winter, 2007; Mazmanian and Sabatier, 1989; Neal and Webb, 2006; Sabatier and Mazmanian, 1979; Schneider and Ingram, 1990; Stoker, 1991; Van Meter and Van Horn 1975). The findings of this research support the literature. The explanatory power of implementer views on implementation suggests that not all counties think NIMS is well-suited to their jurisdiction. Rather, the influence of views on implementation intent and actual behavior suggests that those counties who were modifying the system and not implementing the system as designed were doing so because they believed that something needs to be changed about the system to make it a better fit for their county.

If there were a desire to see NIMS implemented as designed, or in a more standardized fashion, then addressing the policy characteristics related to NIMS will not be enough by itself. The federal government will also have to make an effort to change county views. Ideally, time and resources would have been dedicated to building buy-in and commitment in counties across the United States prior to the system's mandate; yet, engaging counties in implementing NIMS is still possible. The role of implementer views in explaining implementation behavior suggests that there is an opportunity to appeal to counties and generate buy-in, enlist motivation, and overcome any existing predispositions against state or federal government in an effort to bring about more standardized (i.e., as designed) implementation of the system.

Bringing about a change in views will be a challenge. A shift will have to take place in the attitudes, motivations, and predispositions of many of the counties across the United States. And, facilitating a shift in views would not simply involve the local county emergency manager. The views of one, several, or potentially all organizations expected to participate in emergency management using NIMS would need to be aligned in support of NIMS to see a shift in implementation behavior. Furthermore, this shift in views would have to take place within all counties that had negative views in order to see standardized implementation of the system.

The federal government could take significant measures to reach out to counties to see counties' views change, but, ultimately, the counties themselves, and the individual organizations within the counties, will always determine their own views. These challenges facing the federal government make it unlikely that implementer views will ever be completely supportive of NIMS implementation in all counties in the United States. Thus, it is unlikely that we will see the standardization of NIMS implementation to the degree required for the system to fulfill its ambitious purpose both because implementer views are a strong predictor of

implementation intent, and it is unlikely that implementer views will ever be perfectly aligned across the United States.

The final variable predictive of both intent and actual NIMS implementation behavior—local capacity—highlights the challenges facing NIMS in creating a consistent nationwide framework for emergency management. Local capacity reflects county perceptions of whether the county had enough personnel to implement NIMS. Specifically, the issue is whether a county thought it had enough personnel to implement the system with all of its component parts, structures, and processes. The answer to that question varied across counties. When the answer was negative, then county implementation intent and behavior tended to be lower and vice versa.

It is intriguing that only one small part of local structural and situational characteristics was found to explain both behavioral intent and actual behavior. Other variables from within the local structural and situational characteristics group were eliminated from the regression equation including the leadership of the state and elected local officials, emergency management program budgets, the number of staff of the programs, and county perceptions of their financial capacity. With the exception of state and elected local officials, these aspects of local structure and situation theoretically could have been addressed by providing additional financial resources to local county governments to ensure that more counties implemented NIMS as designed; yet, the regression analysis revealed that the issue is not one of financial capacity, or leadership for that matter.

The significance of this finding could be interpreted in more than one way. It could be interpreted to indicate that counties believed there are too many components, structures, and processes to implement NIMS as designed given the number of personnel they have. It could also be interpreted to indicate that counties did not understand how to implement the system with

limited personnel. Both interpretations point to specific issues related to NIMS that can be addressed. Were either interpretation true, the federal government could potentially address the problem by altering the system (i.e., simplifying or reducing the structures and processes required to implement the system as designed) or by changing training related to the system to better convey the flexibility of the system and its components (assuming that there is more flexibility in the system than counties realize).

In sum, three variables explained both behavioral intent and actual NIMS implementation behavior. Regression analysis revealed that one additional variable, inter-organizational characteristics, uniquely played a role in explaining actual NIMS implementation behavior. This finding is significant for several reasons.

Neal and Webb (2006) and Jensen (2009) both suggested that inter-organizational characteristics were negatively impacting NIMS implementation. The policy literature had also suggested that inter-organizational characteristics were important in understanding implementation behavior. The findings of the present research support the literature in that the culture of the organizations involved in implementing NIMS (Jensen, 2009; Neal and Webb, 2006), the trust among those organizations (Bardach, 1998; Lundin, 2007a), the quality of their working relationships (O'Toole 1997), goal congruence regarding implementing the system between organizations involved (Ewalt and Jennings, 2004; Lundin, 2007a; Meyers et al. , 2001; Powell et al., 2001; Van Meter and Van Horn, 1975), and the lack of organizational barriers to implementing NIMS (Hill and Hupe, 2002, 2009; Jensen, 2009; O'Toole, 1988) make a critical difference in how actual implementation is approached within jurisdictions.

The role of inter-organizational characteristics in predicting actual implementation behavior provides an explanation for the difference between implementation intent and actual

NIMS implementation behavior observed in this research. While the implementation intent of counties and the actual implementation behavior of counties were closely related, a slight and statistically significant difference was observed between intent means and behavior means with intent means being higher. The inclusion of one unique factor, inter-organizational characteristics in the model for actual behavior, provides a compelling explanation for the slight difference in intent and behavior means.

Actual NIMS implementation behavior reflects the on-the-ground context in which NIMS implementation occurs, and it is within this context that the variable of inter-organizational characteristics emerges. Policy characteristics, implementer views, and personnel to implement NIMS could all be conducive to the implementation of NIMS; yet, if inter-organizational characteristics are not conducive to the system's implementation, then no matter what jurisdictions intend, their actual, on-the-ground implementation behavior can be negatively impacted. Unlike the other independent variables found to be predictive of implementation behavior, the variable related to inter-organizational characteristics is largely, if not entirely, controlled at the local level. There is very little that the federal government can do to directly influence this variable or how it influences the implementation of the system.

CONCLUSION

This research suggests that federal efforts to bring about change are likely to reach a certain threshold beyond which continuing effort would be in vain. County emergency managers' nationwide report considerable variation in the extent to which they perceive their counties intending to implement and actually implementing NIMS. Based on these data, complete, or even nearly complete, standardization does not yet exist, and should not be assumed

to exist in future large-scale disasters. Furthermore, the importance of factors such as implementer views and inter-organizational relationships suggests that achieving standardization will be a difficult and slow task. One of the primary challenges facing emergency management is that the diversity, complexity, and interdependence of the United States makes it both desirable and important that a system like NIMS work while at the same time being a key reason why policies predicated on standardization are met with perhaps insurmountable obstacles. Large-scale disasters happen where the most effective and efficient response requires the quick integration and joint effort of organizations, jurisdictions, and levels of government to address the impacts and needs related to the incident. In these situations, the absence of an organizing mechanism such as NIMS would be noticed when organizations, jurisdictions, and levels of government attempt to separately address the impacts and needs related to the incident with their own, individualized emergency management system or no system at all, as appeared to be the case during Hurricane Katrina (Neal and Webb 2006).

There are many reasons why emergency management relevant entities develop their own systems. These reasons include the unique hazards, risks, vulnerabilities, experience with hazard events, and other contextual variables (e.g., politics, economic situation, values, norms, priorities) that counties can face. Yet, in situations where responding entities utilize different systems or no system at all, communication can be hampered, leadership thwarted, efforts duplicated, safety of first responders overlooked, coordination unapparent, etcetera. NIMS is designed to allow emergency management relevant entities to simultaneously merge into a system of structures, process, and terminology that facilitates incident management. But, success of the system in the situations for which it is designed depends on the simultaneous merging of relevant entities and if we have some counties not/minimally implementing, others implementing

the system after modifying it, and some fully implementing NIMS, then the variance in response structures that characterized emergency management prior to NIMS inception can be expected to continue.

This research has shown that it is unlikely that the purpose of NIMS is being, or can be, met (i.e., to bring about a standardized consistent approach to emergency management across the United States). Yet, as stated in Jensen (2011: 17),

it is important to highlight what this research is not saying with respect to the causes of concern. Nothing in this research suggested that the fulfillment of NIMS purpose is unlikely because county emergency managers are not doing their job well or even that counties are not behaving as they should with respect to NIMS implementation. This research also has not suggested that NIMS, as a system, is somehow fundamentally flawed.

Instead, this research has identified variables that explain much of the variance in implementation behavior in counties across the United States. It has also identified that the variables operate in a local context that makes the efficacy of NIMS limited and the status quo with respect to the system's design and implementation unacceptable if the system is being relied on to act as an organizing mechanism for emergency management nationwide.

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Table 1. Pearson correlations of all independent variables with dependent variables.

Independent Variables	Intent Index		Behavior Index	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Block: Policy Characteristics				
Policy index	.54	.000	.51	.000
Block: Local Structural and Situational Characteristics				
<i>Sub-block: Perceived Leadership and Inter-Organizational Characteristics</i>				
State leadership index	.23	.000	.25	.000
Elected leadership index	.49	.000	.47	.000
Inter-organizational relations index	.42	.000	.46	.000
<i>Sub-block: County Capacity</i>				
EM: staff size	-.15	.007	-.10	.044
EM: size of full-time staff	.09	.079	.10	.044
Volunteers for majority of fire services?	.08	.104	.10	.041
Volunteers for emergency medical services?	-.08	.099	-.05	.202
EM's budget size	.06	.150	.09	.079
HS/FEMA preparedness funding	.11	.037	.15	.011
<i>Sub-block: Perceptions of County Capacity</i>				
County has enough personnel for needs	.14	.012	.15	.007
County has enough personnel for NIMS	.39	.000	.41	.000
County has enough funds for needs.	.14	.009	.14	.010
County has enough funds for NIMS.	.28	.000	.29	.000
<i>Sub-block: EM's Characteristics</i>				
Age	.03	.287	.07	.115
Gender	-.01	.435	-.01	.450
Education	.02	.403	-.02	.372
EM's years as county EM	-.07	.129	-.02	.396
EM's PDDs	.02	.373	.07	.127
Have other county positions	.06	.162	.07	.117
No. of other county positions	-.04	.307	-.10	.119
Employed outside county	.07	.124	.07	.125
<i>Sub-block: Disaster characteristics</i>				
No. of recent PDDs in county	.07	.142	.08	.082
County disaster expectations	.09	.065	.12	.026
Block: Implement Views				
Implement views index	.60	.000	.62	.000

Note. With one exception, the N's for the correlations range from 203 to 295 based on pair-wise deletion. The exceptions are the Ns for number of county positions among those who have other county positions (152 and 156) due to a skip pattern.

Table 2. Hierarchical regressions of both implementation intent and behavior on selected independent variables (significant results only).

Independent Variables	B	β	<i>t</i>	<i>p</i>
Implementation Intent				
Constant	-.80 (2.86)		-0.28	.780
<u>Block: Policy Characteristics</u>				
Policy index	0.17 (0.04)	0.35	4.27	.001
<u>Block: Implementer Views</u>				
Implementer views index	0.28 (0.10)	0.24	2.78	.006
<u>Block: Local Structural and Situational Characteristics</u>				
Personnel to implement NIMS	1.29 (0.44)	0.21	2.94	.004
Implementation Behavior				
Constant	-8.36 (3.49)		-2.40	.018
<u>Block: Policy Characteristics</u>				
Policy index	0.15 (0.05)	0.29	3.25	.001
<u>Block: Implementer Views</u>				
Implementer views index	0.25 (0.12)	0.20	2.13	.035
<u>Block: Local Structural and Situational Characteristics</u>				
Personnel to implement NIMS	1.29 (.513)	0.19	2.52	.013
Inter-organizational characteristics	0.24 (.098)	0.19	2.46	.015

Note. Standard errors are in parentheses. The adjusted R^2 statistics for intent ($N = 145$) and behavior ($N = 128$) were .40 ($SE = 5.80$) and .43 ($SE = 6.27$), respectively. The independent variables originally chosen for inclusion in the above hierarchical regressions, but subsequently excluded from both analyses, were the following: a) state leadership index; b) elected leadership index; c) ___ has enough funds for NIMS; d) use of volunteers for majority of fire services; e) HS/FEMA preparedness funding; f) EM—size of full-time staff; g) EM’s view of county’s disaster expectations; h) EM—staff size. The independent variable, inter-organizational characteristics, was also excluded from the intent analysis. The next variable poised to enter the intent analysis was “state leadership index” ($\beta = 0.14, p = .063$) and the behavior analysis “elected leadership index” ($\beta = 0.15, p = .051$).

Appendix A. Likert-scale statements measuring policy characteristics

Dimensions	Indicators	Policy Characteristics Statements
Underlying Theory	<i>Problems</i>	<ul style="list-style-type: none"> • Our county has experienced similar issues to those associated with communication and coordination in the response to the September 11, 2001 terrorist attacks at the World Trade Centers. • NIMS helps our county address issues we are having related to emergency management.
	<i>Severity</i>	<ul style="list-style-type: none"> • Prior to NIMS our county thought its problems related to managing disasters were severe.
	<i>Effectiveness</i>	<ul style="list-style-type: none"> • There is a great need for NIMS. • NIMS helps our county address emergency management issues effectively. • Without NIMS emergency management in our county would suffer.
Clarity and Specificity	<i>Clear Objectives</i>	<ul style="list-style-type: none"> • The objectives of NIMS in each component are clear. • The objectives of NIMS in each component are difficult to understand.
	<i>Specific Tasks</i>	<ul style="list-style-type: none"> • The tasks that must be completed in our county related to each component of NIMS are clear. • Our county understands what tasks we must complete to achieve the objectives of each component of NIMS.
Communication of Policy	<i>Objectives</i>	<ul style="list-style-type: none"> • The federal government has communicated the objectives of the NIMS for each component clearly. • *When the federal government communicated the objectives of NIMS they were difficult to understand.
	<i>Tasks</i>	<ul style="list-style-type: none"> • The compliance measures issued by the National Integration Center have been specific for each NIMS component. • *The federal government has not clearly identified the tasks that must be completed to achieve compliance in each component of NIMS.
Incentives/Sanctions	<i>Incentives</i>	<ul style="list-style-type: none"> • There are incentives to implement NIMS. • There are rewards for achieving NIMS compliance.
	<i>Value of Incentives</i>	<ul style="list-style-type: none"> • The incentives provided for achieving NIMS compliance are highly valued. • It is worth implementing NIMS just because of the incentives provides for compliance.

Capacity Building Resources	<i>Sanctions</i>	<ul style="list-style-type: none"> • There are consequences for failure to implement NIMS fully in our county. • There are consequences for failure to implement NIMS.
	<i>Likelihood of Sanctions</i>	<ul style="list-style-type: none"> • It is likely that we will be caught if we do not implement NIMS. • The federal government will withhold preparedness funding if we fail to implement NIMS.
	<i>Training</i>	<ul style="list-style-type: none"> • Adequate training in NIMS has been available. • The training we have received in NIMS helps us to implement the system.
	<i>Funding</i>	<ul style="list-style-type: none"> • The federal government has provided funding to implement NIMS. • We have received enough funding to implement NIMS.
	<i>Technical Support</i>	<ul style="list-style-type: none"> • Technical support is available if we have questions about NIMS implementation. • Any issues or concerns we have about implementing NIMS are answered by the National Integration Center, FEMA Regional NIMS Coordinators, and/or our state's NIMS Point-of-Contact.
	<i>Timeline</i>	<ul style="list-style-type: none"> • Since NIMS was first mandated, the implementation activities that had to be completed for compliance with NIMS each fiscal year have been realistic. • There has been enough time to implement NIMS and achieve compliance.

*These two items were dropped from the policy characteristics index to maximize that index's reliability.

Appendix B. Likert-scale statements measuring the perceived leadership of respondents' state, emergency management administration and of respondents' local elected officials.

Leadership Statements

- *Our state department of emergency management/services is aware of NIMS.
- Our state department of emergency management/services believes NIMS is important.
- Our state department of emergency management/services believes NIMS is a solution to emergency management problems.
- Our state department of emergency management/services perceives the goals of NIMS as consistent with state goals.
- Our state department of emergency management/services perceives NIMS implementation as a priority for our state.
- Our state department of emergency management/services perceives NIMS implementation as a priority for the state *vis a vis* other state priorities.
- *Our state department of emergency management/services follows-up on NIMS implementation within the state.

Note. Each of the above statements beginning with a focus on state-level managerial leadership in emergency management was paired with matching question that began with a focus on “the elected official(s) in my jurisdiction with authority over emergency management.”

*These two items were the items dropped from the state leadership index in order to maximize index reliability.

Appendix C. Likert-scale statements measuring inter-organizational relationships.

Dimensions	Inter-organizational Relationship Statements
Trust	<ul style="list-style-type: none"> • All of the emergency management relevant organizations within our county trust each other. • Some of the emergency management relevant organizations in our county do not trust one another.
Goal Congruence	<ul style="list-style-type: none"> • Implementing NIMS is a common goal the emergency management relevant organizations in our county share. • The emergency management relevant organizations in our county agree that implementing NIMS is a priority.
Cultural Values	<ul style="list-style-type: none"> • NIMS fits with the culture of the emergency management relevant organizations in our county. • *The way the emergency management relevant organizations within our county normally operate conflicts with NIMS.
Working Relationships	<ul style="list-style-type: none"> • The emergency management relevant organizations in our county work well with one another. • Some of the emergency management relevant organizations in our county do not have good working relationships.
Barriers to Coordination	<ul style="list-style-type: none"> • Some emergency management relevant organizations within our county that refuse to participate in NIMS. • There are some organizations within our county that do not want to change how they traditionally have done things in order to implement NIMS.
Resource Interdependence	<ul style="list-style-type: none"> • *Emergency management relevant organizations in our county depend on one another for resources. • *Some of the emergency management relevant organizations in our county need the resources of other organizations in the county to participate effectively in emergency management.

*These three items were dropped from the inter-organizational relationships index to maximize that index's reliability.

Appendix D. Likert-scale statements measuring implementer views.

Dimensions	Indicators	Implementer Views Statements
Attitudes		<ul style="list-style-type: none"> • Our county likes NIMS.
Motivation	<i>Calculated</i>	<ul style="list-style-type: none"> • *Our county does not like anything about NIMS. • The benefits of implementing NIMS outweigh the costs for our county.
	<i>Social</i>	<ul style="list-style-type: none"> • NIMS is worth implementing because it is useful. • Our county implements NIMS to earn the respect of the state and federal government.
	<i>Normative</i>	<ul style="list-style-type: none"> • Our county implements NIMS because it makes us better able to serve the people in our community. • Our county believes it is its duty to implement NIMS. • My county would implement NIMS even if implementation were not linked to receiving preparedness funding.
Predisposition		<ul style="list-style-type: none"> • My county believes the federal government can make policies that are appropriate for my community. • My county believes that federal policies and mandates can improve how our county responds to disasters.

*This item was dropped from the implementer views index to maximize that index's reliability.

Appendix E. Likert-scale statements measuring dependent variables

Dimensions	Implementer Views Statements
General	<ul style="list-style-type: none"> • ...<i>intends</i> to implement NIMS... • ...<i>actually implements</i> NIMS...
Daily Basis	<ul style="list-style-type: none"> • ...<i>intends</i> to implement NIMS on a daily basis... • ...<i>actually implements</i> NIMS on a daily basis...
Small-scale Events	<ul style="list-style-type: none"> • ...<i>intends</i> to utilize NIMS in small-scale events... • ...<i>actually implements</i> NIMS in small-scale events...
Preparedness	<ul style="list-style-type: none"> • ...<i>intends</i> to implement all of the mandated compliance measures related to the <i>Preparedness</i> Component... • ...<i>actually implements</i> all of the mandated compliance measures related to the <i>Preparedness</i> Component of NIMS...
Resource Management	<ul style="list-style-type: none"> • ...<i>intends</i> to implement all of the mandated compliance measures related to the <i>Resource Management</i> Component... • ...<i>actually implements</i> all of the mandated compliance measures related to the <i>Resource Management</i> Component of NIMS.
Communication and Information Management	<ul style="list-style-type: none"> • ...<i>intends</i> to implement all of the mandated compliance measures related to the <i>Communication and Information Management</i> Component... • ...<i>actually implement</i> all of the mandated compliance measures related to the <i>Communications and Information Management</i> Component of NIMS...
Command and Management	<ul style="list-style-type: none"> • ...<i>intends</i> to implement all of the mandated compliance measures related to the <i>Command and Management</i> Component... • ...<i>actually implements</i> all of the mandated compliance measures related to the <i>Command and Management</i> Component of NIMS...

Note: The statements, all began with the lead-in “My county...”.