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Performance Management Routines That Work? An Early Assessment of the GPRA Modernization Act

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Abstract: *The Government Performance and Results Act (GPRA) of 1993 provided a well-studied framework for U.S. federal performance management initiatives. In the aftermath of the update of GPRA in 2010 with the GPRA Modernization Act, the authors offer the first systematic scholarly assessment of the new legislation. Managerial use of performance data was an explicit goal of the Modernization Act, an objective that eluded prior federal reforms. The Modernization Act established a new series of performance routines to encourage performance information use. The analysis shows that as federal managers experience those routines, they are more likely to report using performance data to make decisions. Specifically, routines centered on the pursuit of cross-agency priority goals, the prioritization of a small number of agency goals, and data-driven reviews are all associated with higher rates of performance information use. The authors also find that managers in better-run data-driven reviews report greater use of performance data.*

Practitioner Points

- Organizational change is difficult; if a governmental reform is going to achieve its desired goals, it needs to establish organizational routines that generate the desired behavior.
- Performance management reforms typically create routines of data creation and dissemination; prior analyses suggest that such routines do little to increase the desired behavior of performance information use.
- As federal managers experience the routines established by the Modernization Act—routines of goal coordination, goal clarification, and data-driven reviews—they report higher performance information use.
- It is not just the creation of routines that matters but also the quality of implementation: better run data-driven reviews are associated with higher performance information use than poorly run reviews.

In the United States and elsewhere, government-wide performance reforms persist despite a poor track record. Most countries in the Organisation for Economic Co-operation and Development (OECD) claim to have some sort of performance system in place (OECD 2013), but the OECD generally categorizes such systems as presentational—that is, formal processes are in place to collect and disseminate data, but data are rarely used. A recent meta-analysis of 49 empirical studies of performance reforms from 2000 to 2014 concluded that performance reforms generally have a small impact, with some positive exceptions occurring for specific practices such as benchmarking (Gerrish 2015).

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story of failure. While it is methodologically difficult to connect such government-wide reforms to improved performance, the variable of performance information use offers a more tractable behavioral indicator of whether reforms are having their desired effects (Moynihan and Pandey 2010). Using this standard, the U.S. Government Accountability Office (GAO) (2014b) points out that the aggregate reported level of performance information use does not seem to have changed significantly at the agency level since passage of the Modernization Act. By contrast, our analysis offers reason for optimism. We suggest that the Modernization Act put in place a series of routines that established organizational conditions for greater use of performance data.

In late 2010, Congress passed the GPRA Modernization Act (known as the Modernization Act or GPRAMA). It is tempting to label the Modernization Act as another chapter in a

We find that routines centered on the pursuit of cross-agency priority goals, the prioritization of certain agency goals, and data-driven reviews are associated

with higher rates of performance information use. We also find that the quality of the implementation of data-driven reviews is associated with higher performance information use. We detail these routines in the sections that follow. After discussing data, methods, and results, we conclude by speculating that the Modernization Act is working differently from previous performance reforms precisely because it seeks to learn from people’s experience under those reforms.

Reforms as Routines

Performance reform initiatives in the U.S. federal government in the last 20 years fit a general pattern of dashed expectations. The Government Performance and Results Act (GPRA) of 1993 required agencies to engage in systematic strategic planning and performance measurement. The now-defunct Program Assessment Rating Tool (PART), introduced by President George W. Bush, classified the effectiveness of all federal programs based on a mixture of performance data, evaluations, and other information. While both initiatives had their champions, they have also been subject to sharp criticism. For example, GPRA and PART have been described as at odds with the disaggregated design of U.S. government (Frederickson and Frederickson 2006; Radin 2000). PART was further criticized for a partisan pattern of implementation (Lavertu, Lewis, and Moynihan 2013), undercutting government attention to policy making (White 2012) and failing to interest Congress (Heinrich 2012; Moynihan 2013).

Although some of the assessments of GPRA and PART point to the unanticipated consequences, the most damning fact is that the reforms failed to meet their own basic goal of making the use of performance data a norm. Policy makers reached such judgments (Moynihan and Lavertu 2012, 593–94; OMB 2001; Zients 2009), spurring a desire for a new approach to performance management.

In this article, we take a reforms-as-routines approach, with routines defined as “generative systems that produce recognizable, repetitive patterns of interdependent actions, carried out by multiple actors” (Pentland and Feldman 2008, 235). We assume that we can better evaluate reforms if, first, we conceptualize them in terms of the organizational routines they create and alter and, second, establish whether these routines result in behavioral change. This analytic strategy reflects a claim from the study of organizations: routines structure how employees experience their work (March and Simon 1958).

The observable nature of routines makes it feasible to both distinguish them from and logically connect them to behavior (Feldman and Pentland 2003). But whether routines actually generate the intended behavior is an empirical question (Becker 2005). In some cases, organizational reforms can establish compliance exercises or establish visible artifacts that disguise the absence of behavioral change (Pentland and Feldman 2008).

Performance management reforms can be classified as meta-routines, that is, routines that structure micro-routines, usually in the name of regularizing creativity and improvement efforts (Adler, Goldoftas, and Levine 1999). GPRA and PART established routines centered on the creation and dissemination of data. Involvement in these routines facilitated passive use of performance data to comply with reporting requirements, but not more purposeful use

of performance data to make management, program, or resource allocation decisions (Moynihan and Lavertu 2012).

Creating and sharing data are, of course, necessary precursors for the use of performance data. But the poor record of prior systems suggests that routines of data creation and dissemination are not sufficient. In this respect, GPRA and PART offer a case in which the design of routines was necessary but not sufficient to motivate the desired behavioral change (Pentland and Feldman 2008). We examine whether the routines created in the Modernization Act have fared any better. The next section explains the Modernization Act, details the three routines it established, and explains the logic behind their creation. Table 1 summarizes the three routines we study, while figure 1 fits these routines within the causal logic of a reform-as-routines framework.

The GPRA Modernization Act

Although the Bush administration had argued for the importance of performance information use, this emphasis became even more pronounced under the Barack Obama administration (Metzenbaum 2014; OMB 2009; Zients 2009), as did dissatisfaction with the status quo. The GAO (2005, 2008) noted the lack of progress in the use of performance data and submitted reports and testimony to Congress on potential improvements. There was also a general sense from congressional staff that neither GPRA nor PART information were being widely used (Frisco and Stalebrink 2008; Moynihan 2008).

The Obama administration chose to discontinue PART but maintained some Bush-era innovations. Executive orders established Performance Improvement Officers and Chief Operating Officers in each agency, positions placed into statute when the Modernization Act was passed.

In some respects, the Modernization Act also maintained or slightly modified many of the basic routines of GPRA. Strategic planning was moved from a five- to a four-year time frame to align with the presidential calendar. The requirement for an annual agency

Table 1 The Purpose of New Performance Management Routines in the Modernization Act

New Routine	Implied Critique of Prior Approach	Modernization Act Solution
Cross-agency priority goals	Little attention to need for collaboration	Routine of goal coordination: identify crosscutting goals and agencies’ contributions
Agency priority goals	Too many goals erode goal clarity, fail to engage leaders or followers	Routine of goal clarification: require leadership commitment to small number of visible goals
Quarterly reviews	Vast amount of performance data, but no routines to compel organizational actors to examine these data	Routine of data-driven reviews: require quarterly reviews of performance information

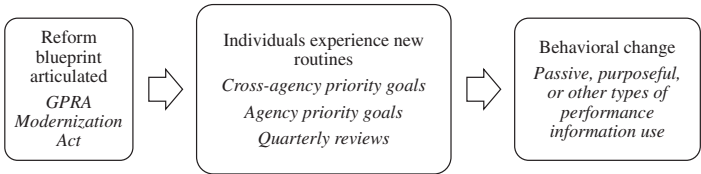


Figure 1 Causal Logic of Reforms as Routines

performance plan remained. The act sought to better integrate measurement and strategic goals and created a new process of annual agency performance reviews by the U.S. Office of Management and Budget (OMB), with the potential for remedial action if an agency consistently failed to achieve goals. In addition, the act created three new routines, which are explained in the following sections.

Cross-Agency Priority Goals: Routines of Goal Coordination

The Modernization Act called for a substantive government-wide plan featuring crosscutting goals, which the OMB has labeled “cross-agency priority goals.” Agency plans must identify how they contribute to these goals. Each cross-agency priority goal has a goal leader assigned to it (in practice, this leader is often a White House official sharing duties with an agency representative) and is subject to quarterly reviews. OMB staff are directed to ensure that the different agencies use common indicators that contribute to cross-agency priority goals and to consider management challenges that might weaken these goals. The goals were intended to be numerically small and long term (revised or updated every four years), a nod to the difficulties of coordinating different agencies as they move toward accomplishment of challenging objectives. Cross-agency priority goals could also include a mixture of explicit policy objectives and management-focused changes. One example of a current cross-agency priority policy goal is “More than double Federal government consumption of electricity from renewable sources to 20% by 2020 and improve energy efficiency at Federal facilities as part of the wider strategy to reduce the Federal Government’s direct greenhouse gas emissions by 28% and indirect greenhouse gas emissions by 13% by 2020 (2008 baseline).”

This routine of goal coordination addresses a fundamental governance challenge. Governmental routines are structured around agencies, but many pressing goals are the responsibility of multiple agencies (ACUS 2013). While managers may understand that crosscutting goals are important, hierarchical directives prioritize organizational goals. The problem is equivalent to a central problem of managing networks: how to direct attention toward collective goals rather than organizational outcomes (Provan and Lemaire 2012). The Modernization Act’s reliance on specifying collective goals and identifying shared responsibilities toward those goals is consistent with practices to overcome this problem in a collaborative setting (McGuire 2006).

By instituting routines of goal coordination, the Modernization Act explicitly breaks with traditional implementation of performance systems, which tend to maintain or even reinforce organizational boundaries. Traditional routines of data creation are largely organization centered, without systematic attention to how multiple agencies might work on the same or overlapping goals. While GPRA had required a government-wide plan, in practice, this plan became a subsection of the president’s annual budget proposal, without in-depth or sustained attention to crosscutting goals. OMB Deputy Director Jeff Zients struck a similar note in testifying before the Senate: “Too often in the past targets have been internal and process oriented. Similarly, achieving broad government outcomes often requires contributions from

multiple actors across different agencies and often inside and outside of government. Goals and measurements must support coordination across these organizational boundaries” (2009, 2–3).

Simply introducing cross-agency priority goals may elevate attention to performance data in decisions. But there are other theoretical logics for why cross-agency priority goals may matter. First, the content of the goals may appeal to employee prosocial motivations in a way that operational goals do not. Cross-agency priority goals reflect visible, ambitious, and profoundly important governance outcomes of high relevance to the public and public employees. Performance information use increases when individuals believe these data help employees make a difference to society (Moynihan, Pandey, and Wright 2012a). Second, by articulating a collective objective, identifying other actors pursuing the goal, and requiring interaction among the actors, cross-agency priority goals may increase the use of performance information by establishing a sense of collective enterprise and shared norms. Research suggests that as individuals learn that others are engaged in a shared effort toward common goals, their behavior becomes more goal congruent (Shteynberg and Galinsky 2011), and Kroll (2015) finds that performance information use increases as managers perceive this behavior as a social norm shared by their direct peers.

Hypothesis 1: Routines of goal coordination are associated with the use of performance information for decisions.

Agency Priority Goals: Routines of Goal Clarification

The Modernization Act also required agency leaders to identify “agency priority goals.” No more than five can be identified per agency, and accomplishment of the goals is intended to be feasible within two years. As with cross-agency priority goals, each goal has a goal leader and is subject to quarterly reviews.

Why require an agency to explicitly prioritize a small subset of goals that would likely otherwise appear in a performance plan? Goal-setting theory proposes that as organizational goals are clarified, employees are more motivated by and attentive to goals (Locke and Latham 2002). Prior research shows that quantified goal clarity is associated with greater performance information use (Moynihan and Pandey 2010). A basic problem for public organizations is that they inherently pursue multiple and possibly conflicting goals (Chun

and Rainey 2005). Performance systems may not resolve this problem if they generate vast amounts of data. Boyne (2010) suggests that the beneficial effect of quantified goals erodes as the number of metrics becomes unmanageable. By establishing agency priority goals, the Modernization Act put in place a mechanism to differentiate the relative importance of goals and thereby improve goal clarity.

A second rationale for agency priority goals was to foster leadership commitment to performance management. There is significant evidence that leadership matters to the use of performance data (e.g., Behn 2014; Dull 2009). But how to generate leadership commitment when time and attention is at a premium and political appointees have short durations? By requiring leaders to participate in setting a small

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number of time-limited goals, the authors of the Modernization Act hoped to boost leaders' engagement with performance management in a time frame consistent with the average duration of political appointees. This underlying logic was articulated in testimony to a Senate oversight committee by Deputy Director Zients: "It is critical that senior agency leaders 'own' the overall performance management process and their agency goals and measurements. Secretaries and Deputies will be charged with the setting of agency goals, will be held responsible for performance against those goals and their related measurements and will be expected to be actively engaged in all aspects of the performance management process" (2009, 2). Consistent with Zients's argument, managers who identify themselves with their goals and are highly committed to their indicators are also more likely to use performance data (Kroll 2014). In turn, this commitment should foster others' use of performance data.

Hypothesis 2: Routines of goal clarification are associated with the use of performance information for decisions.

Quarterly Reviews: Routine of Data-Driven Reviews

The Modernization Act requires that significant goals are subject to quarterly meetings to review progress. For agency priority goals, the quarterly reviews are to involve the agency head, the Chief Operating Officer and Performance Improvement Officer, and relevant goal leaders. Where appropriate, they are also supposed to include relevant officials from outside the agency.

The turn to quarterly reviews reflects the critique that performance systems had established routines of data creation and dissemination but lacked routines that encouraged organizational learning (Moynihan 2005). A compelling example of data-driven reviews came from CompStat meetings for policing in New York and from its successors at different levels of government, including some federal agencies (Behn 2014; Hatry and Davies 2011; Metzenbaum 2009). The adoption of such reviews assumes that requiring people to regularly meet and talk about goals increases the likelihood that managers will use performance data.

Hypothesis 3a: Involvement in data-driven reviews is associated with the use of performance information for decisions.

We also examine whether the quality of data-driven reviews makes a difference. Scholars who have observed these reviews in action describe a variety of practices that are hypothesized to make them more effective. The most comprehensive accounts come from Behn (2014) and Hatry and Davies (2011). They outline a series of principles for effective data-driven reviews, summarized in table 2 (see also Moynihan 2005).

While these principles have been observed in different settings, they are based on qualitative observation of a select and likely unusual group of cases, and they have not been subject to systematic large-*N* analysis as to their effects on the use of performance data. Therefore, we see substantive value in examining whether variation in the implementation of data-driven reviews matters for performance information use in a context in which such reviews are mandated.

Hypothesis 3b: Well-run data-driven reviews will generate higher performance information use than poorly run reviews.

Table 2 Principles of Well-Run Data-Driven Reviews

Meetings take place on a routine basis
Focus on important goals
Agency leaders are involved and seen as committed
Multiple levels of employees facilitate learning and problem solving
Need appropriate and timely information
Need staff and technological capacity to analyze data
Quality data (reliable, accurate, valid, disaggregated to the right level, comparative) facilitates analysis
Follow-up on issues raised in prior meetings
Positive reinforcement
Constructive feedback
Reviews establish process of analysis

Notes: Principles are those identified in Behn (2014) and Hatry and Davies (2011) that correlate with survey questions. Each principle aligns, in the order listed, with the list of statements in the "quality of data-driven review" measure in the appendix (e.g., "Follow-up on issues raised in prior meetings" aligns with "My agency has a process in place for following up on problems or opportunities identified through these reviews").

Analytic Strategy

We employ an analytic approach similar to that of Moynihan and Lavertu (2012), which is to utilize self-reported involvement in routines as the primary independent variables and measures of performance information use as the dependent variables.

Data

This article uses GAO data from two surveys taken in 2007 and 2012–13, addressed to a random, nationwide sample of mid- and upper-level federal managers in the 24 agencies covered by the Chief Financial Officers Act of 1990, stratified by agency and management level. In 2007, the sample included 4,412 people from a population of approximately 107,326 mid- and upper-level managers, with an average response rate of 70 percent. In 2013, the sample included 4,391 managers from a population of 148,300, with a 69 percent response rate. The surveys were limited to career managers. While it would be desirable to also study the role of political appointees, GAO reports find that career managers play a dominant role in the performance process—they make up the majority of goal leaders, and appointees are recommended to have deputy goal leaders who are career officials (GAO 2014a).

We measure performance information use at the individual level utilizing the nine items listed in table 3. A factor analysis extracted four distinct types of data use: performance measurement, program management, problem solving, and employee management. Although all four types are correlated, we treat the four factors separately to explore whether Modernization Act routines, like GPRA and PART routines, vary in terms of their relationship between passive use (the performance measurement factor) and purposeful use (program management, employee management, and problem solving). (For a similar approach, see Moynihan and Lavertu 2012.)

Specific measures of the three routines that make up the independent variables are provided in the appendix. The measure of quarterly reviews used for hypothesis 3a does not require physical presence at an actual review, merely that the individual's work is subject to such reviews, therefore representing a relatively demanding test of the effect of the reviews.¹ To test hypothesis 3b (column 4 in table 5), which examines the quality of data-driven reviews, we limit the analysis to those who responded that their programs are subject to

Table 3 Types of Performance Information Use

Item	Mean (SD)	Factors (Cronbach's alpha)			
		(.92)	(.93)	(.90)	(.85)
For those program(s)/operation(s)/project(s) that you are involved with, to what extent, if at all, do you use the information obtained from performance measurement when participating in the following activities?					
Performance measurement (passive use)					
Developing or refining program performance measures	3.45 (1.12)	0.09	0.09	0.75	-0.01
Setting new or revising existing performance goals	3.55 (1.10)	0.09	0.01	0.75	0.09
Program management (purposeful use)					
Developing program strategy	3.56 (1.07)	0.75	0.07	0.13	0.01
Setting program priorities	3.67 (1.05)	0.84	0.05	0.06	0.02
Allocating resources	3.63 (1.06)	0.60	0.17	0.02	0.14
Problem solving (purposeful use)					
Identifying program problems to be addressed	3.71 (1.03)	0.20	0.69	0.07	0.02
Taking corrective action to solve program problems	3.70 (1.05)	0.13	0.70	0.07	0.08
Employee management (purposeful use)					
Setting individual job expectations for the government employees I manage or supervise	3.69 (1.03)	0.05	0.03	0.08	0.73
Rewarding government employees I manage or supervise	3.59 (1.08)	0.02	0.04	0.01	0.77

Notes: The observations (factor analysis based on $n = 4,253$) are pooled for 2007 and 2013. Agreement with the items is measured using a five-point Likert scale.

quarterly reviews, as they are the only ones likely to be able to have valid information on the quality of these reviews.

Method

One goal of this article is to facilitate transparent comparisons between the Modernization Act and prior reforms; therefore, we include equivalent controls from prior analyses of GPRA and PART (Moynihan and Lavertu 2012). To further illustrate the differences in the effects of reforms, some analyses (table 4) use pooled regression models that include the Modernization Act and PART. The pooled models essentially combine two regressions for two different time periods, setting PART to 0 in 2013 and the Modernization Act to 0 in 2007 and controlling for year. The advantage of the pooled models is that they offer more reliable standard errors based on a constant sample

size, eliminating the possibility that differences between PART and the Modernization Act are a function of the different sample sizes.²

Because the individual routines are significant correlated (coefficients range between 0.21 and 0.47), in table 5, we estimate the effect of each routine separately in order to understand its effect in isolation and to minimize the possibility of a Type II error. To provide a measure of the cumulative effect of these routines for the pooled models in table 4, we group them into a single fourth independent variable that we label *GPRAMA*. Multicollinearity does not appear to be a problem in any of the models, with variance inflation factors consistently under 3. We employ ordinary least squares analysis and cluster standard errors at the agency level.³

GAO reports suggest that aggregate performance information use at the agency level has not changed over time (GAO 2005, 2008, 2014b). Because we use data common to these reports, it is important to understand how our analysis differs. First, we address and model different questions. Unlike the GAO, we examine the association between routines created by the Modernization Act and performance information use. We focus on the individual level, whereas the GAO examines agency-level scores. Our approach is premised on explaining variation in within-year samples, whereas the GAO compares aggregate scores across time. Our approach implies a causal theory, while the GAO does not. Indeed, the GAO has not labeled the Modernization Act as failing, even if policy makers might be tempted to do so based on the GAO reports. Drawing inferences from cross-time comparisons based on Likert scales and different samples of managers is problematic because respondents may not base their assessments on some absolute unchanging scale of performance information use but instead compare their level of use to current peers. Such peer- and context-based evaluations are a well-established problem in assessing self-reports of health, for example (Grol-Prokopczyk, Freese, and Hauser 2011). This explanation would be consistent with the remarkable stability of aggregate levels of performance information use from 1997 to now, even as performance systems have evolved significantly. If this pattern is the case, it furthers the argument for exploring variation within years to understand performance information use, as we do here.

The self-reported nature of the data introduces the possibility of common source bias. But there are reasons to believe it is not a

Table 4 Pooled Regression Models of PART/Modernization Act Comparison (2007 and 2013 samples)

Predictors	Performance Measurement	Program Management	Problem Solving	Employee Management
GPRAMA	0.14** (5.10)	0.15** (5.49)	0.12** (4.08)	0.13** (4.24)
PART	0.08** (3.52)	0.03 (1.33)	-0.01 (-0.33)	-0.01 (-0.38)
Measurement problems	-0.03 (-1.16)	-0.07** (-3.02)	-0.06** (-2.48)	-0.11** (-5.09)
Missing link to action	-0.15** (-8.53)	-0.15** (-6.41)	-0.18** (-6.96)	-0.12** (-4.69)
Discretion	0.10** (5.80)	0.07** (3.12)	0.07** (3.09)	0.07** (5.06)
Political conflict	0.04^ (1.97)	0.09** (5.04)	0.08** (5.03)	0.07** (4.02)
Leadership commitment	0.08* (2.74)	0.10** (3.03)	0.09* (2.73)	0.06^ (2.06)
Learning routine	0.11** (5.74)	0.12** (5.69)	0.11** (4.88)	0.13** (7.34)
Accountability to results	0.12** (6.69)	0.17** (7.17)	0.17** (6.13)	0.20** (9.70)
Resources	0.18** (7.42)	0.15** (6.76)	0.16** (7.23)	0.15** (7.46)
Senior executive status	0.08** (5.33)	0.02 (1.53)	0.02 (1.17)	0.01 (0.86)
2013	-0.08** (-3.50)	-0.07* (-2.39)	-0.08* (-2.49)	-0.14** (-4.66)
<i>n</i>	3,189	3,189	3,189	3,189
Adjusted R^2	0.32	0.32	0.30	0.32

Notes: Standardized beta coefficients are reported; standard errors are adjusted for 24 agency clusters; related *t*-statistics are reported in parentheses.

^ $p < .1$; * $p < .05$; ** $p < .01$.

severe problem. Prior work suggests that performance information use seems less vulnerable to common source bias than variables that carry a higher social desirability bias (Meier and O'Toole 2013). Despite more than two decades of reform rhetoric emphasizing the importance of performance information use, the mean of this variable has remained steady (GAO 2008, 2014b), undercutting a concern that managers feel compelled to report artificially high scores.

The possibility that those who are selected into the routines we test also have a predisposition or responsibility to use performance information points to the potential issue of selection bias. We cannot exclude that possibility—indeed, to some degree, a well-designed reform *should* target those whose responsibility is to use performance data. If such a selection bias exists, we would expect it to be a relatively constant feature of performance reforms. However, it does not appear to be a large enough factor to create significant relationships between the type of independent variable we study and purposeful use of performance data for prior reforms (see Moynihan and Lavertu 2012 and the PART variable in table 4). Controlling for senior executive status may partially address this issue, as more senior managers are expected to be involved in cross-agency priority goals, agency priority goals, and quarterly reviews. Perhaps the most persuasive rebuttal of selection concerns is that the “treatment” group, which received exposure to Modernization Act routines, and the “control” group, which did not, vary considerably depending on the routine: 60 percent report any involvement in agency priority goals, 40 percent in cross-agency priority goals, and 24 percent in quarterly reviews.⁴ Therefore, there is considerable variation between the groups rather than a single group driving the results.

Results

Before we present tests of each of our specific hypotheses, we first present a model that offers a sense of the cumulative effect of the Modernization Act. In table 4, the GPRAMA variable is a summary of involvement in cross-agency priority goals, agency priority goals, and quarterly reviews. Those who score high on the GPRAMA

index are therefore involved in all three of these routines. To provide a sense of the nature and relative magnitude of the effect, we create a pooled regression model with 2007 data and include similarly scaled measures of involvement in PART and other previously tested predictors of performance information use. Given that our controls have been previously examined, we do not discuss them in detail beyond noting that their effects are consistent with prior work (e.g., Dull 2009; Moynihan and Lavertu 2012).

The results show that the GPRAMA index is consistently associated with all types of information use. The direct contrast with PART is instructive. PART is associated with passive use of performance data for measurement purposes but not purposeful use. This pattern suggests that the Modernization Act is related to performance information use in a way that PART was not. Because the coefficients are standardized, we can compare the relative size of the effects of the GPRAMA index with other predictors of performance information use. The most substantive barrier to use is difficulties in drawing causal inference between measures and decisions (the *Missing Link to Action* variable). The factors most strongly associated with the use of data are a sense that employees are held accountable to results, resource adequacy, and the existence of informal learning routines in which employees talk to their supervisors about performance data. While any such comparisons are approximate because of correlations between items, the findings suggest that the effects of GPRAMA routines are substantive and in the same range (although at the lower end) of the largest predictors of performance information use.

Table 5 offers a more detailed breakdown of the effect of Modernization Act routines. This table provides essentially the same analysis as table 4 but with 2013 data only, and it separates the GPRAMA index into the three Modernization Act routines (each row represents a different model). This allows the reader to observe the effect of each routine on each type of performance information use. We include all of the controls included in table 4, although we do not report them in the table to conserve space.

Table 5 Regression Models of Performance Information Use (2013 sample)

Dependent Variable: Performance information use for...	GPRA Modernization Act Routines (independent variables)				
	Cross-Agency Priority Goals	Agency Priority Goals	Quarterly Reviews	Review Quality	Adj. R ² /n
Performance measurement (passive use)	0.17**	—	—	—	0.35/1,006
	—	0.15**	—	—	0.37/1,232
	—	—	0.06**	—	0.35/1,536
	—	—	—	0.28**	0.41/493
Program management (purposeful use)	0.16**	—	—	—	0.39/1,006
	—	0.15**	—	—	0.38/1,232
	—	—	0.09**	—	0.37/1,536
	—	—	—	0.28**	0.42/493
Problem solving (purposeful use)	0.14**	—	—	—	0.33/1,006
	—	0.11**	—	—	0.35/1,232
	—	—	0.08**	—	0.35/1,536
	—	—	—	0.28**	0.40/493
Employee management (purposeful use)	0.15**	—	—	—	0.37/1,006
	—	0.09**	—	—	0.35/1,232
	—	—	0.06**	—	0.35/1,536
	—	—	—	0.29**	0.42/493

Notes: Standardized beta coefficients are reported; standard errors are adjusted for 24 agency clusters but not reported. All models control for the following nine control variables: Measurement Problems, Discretion, Learning Routine, Accountability Routine, Missing Link to Action, Leadership Commitment, Political Conflict, Resources, and Senior Executive Status. However, their coefficients are not reported because of space constraints.

*p < .05; **p < .01.

The first three columns in table 5 provide evidence that is consistent with hypotheses 1–3a: routines established by the Modernization Act consistently show significant positive relationships with the use of performance information. The model fit coefficient, adjusted R^2 , indicates that each routine explains a very similar portion of variation in each of the types of use (± 2 percent). These findings suggest that the routines associated with the Modernization Act foster information use and that goal coordination, goal prioritization, and review routines make equivalent contributions. The fourth column offers insights into the quality of the review routines. We find support for hypothesis 3b, which proposes that well-run data-driven meetings have a stronger association with performance information use than poorly run meetings. The review quality specification explains the most variation in data use across all models (40 percent to 42 percent).

Supplementary analyses show little differences in outcome. There is no substantive difference in running, as an alternative to the pooled model in table 4, two separate models for 2007 and 2013. As noted, because the Modernization Act routines are conceptually connected and empirically correlated, it is difficult to estimate their unique effect, and so we estimate them separately (in table 5) or as part of an index (table 4). If we include the three routines in the pooled model (essentially, combining tables 4 and 5), each individual routine is separately significant. If we include all three routines in the same model, this increases collinearity, but we still see cross-agency priority goals and data-driven reviews being statistically significant, while agency priority goals fall from statistical significance. Including the cross-agency priority goals and review variables in the same analysis means that the effects of agency priority goals are estimated, while involvement in cross-agency priority goals and quarterly reviews are set to their means, which does not seem to be equivalent to estimating the overall effect of agency priority goals. However, one theoretical reason for this effect is that agency priority goals are the most widely diffused routine, including the majority of the sample, making it likely that the proportion of respondents most deeply involved in the routine declines, and the overall relationship with desired behavior becomes weaker. Full results for these analyses and table 5 are available from the authors upon request.

Discussion

We find that the Modernization Act is associated with the purposeful use of performance data to manage programs and employees and identify and solve problems. This finding is intriguing given that prior evaluations did not find similar effects for earlier reforms such as GPRA or PART (Moynihan and Lavertu 2012). Indeed, our analysis explicitly compares the Modernization Act with PART, finding that the latter is only associated with passive use of performance data to set and refine program goals but not purposeful use. We also find that the impact of the Modernization Act on performance information use is substantive if compared with the effects of potential control variables. When examining the individual contributions of agency priority goals, cross-agency priority goals, and data-driven reviews, the results show, again, that all three routines are significantly related to purposeful data use.

We estimate the effect of data-driven reviews even while controlling for other types of informal learning routines. The results offer another interesting insight. Such informal learning routines remain significant even with the introduction of formal data-driven reviews. Formal and informal performance-oriented learning routines do not necessarily compete with one another but can be complementary, spurring greater performance information use at different levels (Behn 2014).

Our findings corroborate claims that the quality of data-driven reviews matters (Behn 2014; Hatry and Davies 2011; Moynihan 2008): review routines encourage greater performance information use if, among other factors, agency leadership participates, capacity to analyze performance data is created, follow-up mechanisms are put into place, and managers who meet their goals are recognized. The general lesson that how routines are implemented matters is likely to be true for other routines established by the Modernization Act beyond the quarterly reviews.

The results also speak to the basic problem of goal ambiguity in public organizations (Chun and Rainey 2005). Our results show that agency priority goals foster performance information use because they direct attention to a limited number of key objectives and indicators, thereby helping managers juggle conflicting interests and deal with information overload. At the same time, we cannot know whether there are unobserved detrimental effects to such processes. Performance routines serve to reduce goal ambiguity by resolving fundamental underlying tensions in a task or by discouraging goal displacement.

Conclusion

The Modernization Act rests on a relatively modest reform agenda—it largely avoided promises of revolutionizing governance, and there is little evidence that Congress has developed a newfound interest in performance data. But by setting the more modest goal of increasing performance information use among managers, the act created a clear purpose around which routines could be designed. Our analysis provides evidence that the routines that emerged from the Modernization Act are indeed associated with greater use of data. Unlike the routines established by GPRA and PART, Modernization Act routines compelled greater interaction with internal and external actors and were designed to communicate expectations that managers consider the meaning of data and its implication for organizational action.

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The Modernization Act was designed to primarily engage the senior and mid-level managers who make up our sample, not all employees. For those managers, exposure to these new routines is associated with the use of performance data, but it does not necessarily follow that exposing all employees to the same routines would generate equivalent effects. That said, we constructed our measures of routines to be deliberately broad, including those who might not have directly participated in the routine itself but whose program the routine affected. This result suggests that routines can leverage behavioral effects not just by direct exposure but also through indirect effects. Over time, the proportion of employees exposed to these routines will increase,

but only if the federal government decides not to toss a performance framework that appears to be working.

A new president may be tempted to look for another approach or to simply deprioritize the Modernization Act. This would be a mistake: the key policy implication of our study is that the Modernization Act should be given more time. Indeed, perhaps the best policy choice a president can make is to further invest in the implementation of existing routines. We find that the quality of routines—not just the routines themselves—matter. Routines do not implement themselves, meaning that the quality of new routines depends on deliberate effort. Thus far, a relatively small number of OMB staff, including those who staff the Performance Improvement Council, deserve enormous credit for finding ways to communicate what Modernization Act routines mean, how they can be implemented, and how to make them meaningful.

Some credit may also rest with goal leaders, or new positions put in statute by the act, such as Chief Operating Officers, Performance Improvement Officers, or even agency leaders. We cannot verify how their actions mattered, and researchers can better address this question, bearing in mind that some of the effects of leadership may be indirect, through other variables such as culture (Moynihan, Pandey, and Wright 2012b). Research could also verify whether the general patterns we observe continue to hold, as the effects of the routines we identify may change over time. As it stands, the GAO provides the primary assessment of different aspects of the Modernization Act (e.g., GAO 2014a).

If the Modernization Act represents a better approach to performance management than its predecessors, how was the cycle of failure broken? What can we learn about the design of managerial reform? A complete answer is beyond the scope of this article, but there are some intriguing and overlapping possibilities. One is that GPRA was embedded in statute. It could not be easily dismissed by a new president. If path dependency shapes policy design, then a policy needs a stable starting point to build from. GPRA provided that. The routines of data collection and dissemination it established may not have been sufficient to spur performance information use, but they were a necessary precursor to the routines created by the Modernization Act. It has also helped that performance management has not become yesterday's reform but retains a strong appeal. Policy makers continue to ask questions about whether the current performance system is working, and if not, why not, rather than simply dismissing the effort. Policy makers also benefited from (and encouraged) the intellectual capital of experts inside and outside of government. Collectively, this benefit has generated a fertile context for trying to understand how to better design performance systems, a context that informed the Modernization Act.

For other governments looking at the latest iteration of the U.S. federal system, it will certainly be tempting to designate the Modernization Act as a best practice to emulate. Indeed, there is nothing specific to the U.S. system about the types of routines adopted or the types of problems they seek to address. From this perspective, the three routines we examine could be usefully

considered in any context in which governments seek to foster coordination around crosscutting goals, prioritize among lots of performance goals, and compel organizational actors to review performance information (although such problems may be less present in more unified forms of government). But for potential adopters, we offer two notes of caution. First, adopters should avoid emulating an entire performance system and instead focus on specific performance routines that are expected to result in specific behavioral changes. This emphasis allows for a grounded causal reasoning that is frequently absent in public management reforms, as well as for clear hypotheses that can be tested later to assess the reform's effect. Second, as we note earlier, the Modernization Act arose from an adaptive incrementalism in which policy makers made changes

based on assessments of what had gone wrong in the past and new ideas (some of which were adapted from elsewhere), but not on the wholesale adoption of another system. The introduction of performance routines should similarly be informed by an understanding of the existing context, including the detritus of past reforms and how new routines will interact with that context.

For researchers, we believe the article points to the value of a reforms-as-routines approach. A classic analytical problem in the field of public administration is how to assess broad government-wide management reforms (Pollitt 2000). Because such reforms are rarely implemented in a way that allows for experimental tests, researchers must make inferences based on less than perfect causal designs. The alternative is that clearly important reforms are left unexamined by scholars, who instead focus on empirical questions that lend themselves to cleaner causal inference but often have less external generalizability or direct policy relevance. The reform-as-routines approach offers a meaningful analytical alternative that requires specification of how reforms are constructed into routines, how routines are experienced, and how this experience alters behavior (if at all). Ultimately, this approach is especially telling if there is persuasive evidence that the behavior in question is associated with a desired outcome, such as better performance.

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Notes

1. The structure of the survey meant that all managers who indicated on one item that they were unfamiliar with quarterly reviews then skipped a question on whether their programs were subject to quarterly reviews. To conserve observations, we assume that those unfamiliar with reviews are not involved in the reviews, setting their response to 0 for this question. If our inference is incorrect (people who have not heard of the reviews are still subject to their influence), we reduced the precision of our estimates but in ways that disfavor our results rather than make them more likely.
2. To run pooled models, missing values had to be conserved for the PART and the Modernization Act variables in order to allow cross-wave comparisons.
3. There are some minor differences in method compared with Moynihan and Lavertu (2012)—we use the full range of all GPRAMA and PART variables, not

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dichotomous measures; we cluster standard errors at the agency level instead of using agency fixed effects; and we estimate the underlying factors behind performance information use scales rather than the actual ordinal scales. These differences reflect marginal methodological preferences, and our results are robust to either approach.

4. For cross-agency priority and agency goals, we counted managers as involved if they were, on average, at least “to a small extent” involved in the three items that make up each index. As indicated in note 1, we have to make some assumptions to estimate the percentage of managers whose programs have been subject to quarterly reviews because of the structure of the survey.

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Appendix Independent Variables

Variable	Operationalization	2007		2013	
		<i>n</i> (Range)	Mean (SD)	<i>n</i> (Range)	Mean (SD)
Involvement in cross-agency priority goals $\alpha = 0.77$	(After listing of existing cross-agency goals): To what extent, if at all, do you agree with the following statements as they relate to one or more of the cross-agency priority goals listed above? I have been involved in creating the cross-agency goals; The program(s)/operation(s)/ project(s) I have been involved in contribute to the achievement of one or more cross-agency priority goals; I have collaborated outside of my program(s)/operation(s)/project(s) to help achieve the cross-agency priority goals.	—	—	1,545 (1–5)	2.52 (1.04)
Involvement in agency priority goals $\alpha = 0.73$	(After listing of agency priority goals) To what extent, if at all, do you agree with the following statements as they relate to [agency name] priority goals? I have been involved in creating my agency's priority goals; The program(s)/operation(s)/ project(s) I am involved with contribute to the achievement of one or more of my agency's priority goals; I have collaborated outside of my program(s)/operation(s)/project(s) to help achieve one or more of my agency's priority goals.	—	—	1,995 (1–5)	2.91 (1.04)
Involvement in quarterly reviews	To what extent, if at all, do you agree with the following statements as they relate to [agency name] quarterly performance reviews? Overall, the program(s)/operation(s)/project(s) that I am involved with has been the subject of these reviews.	—	—	2,721 (0–5)	1.27 (1.80)
Involvement in well-run data-driven reviews: review quality $\alpha = 0.92$	To what extent, if at all, do you agree with the following statements as they relate to [agency name] quarterly performance reviews? These reviews are held on a regular, routine basis; These reviews focus on goals and objectives that are aligned with my agency's strategic and performance plans; Agency leadership actively participates in these reviews; These reviews include staff with relevant knowledge needed to facilitate problem solving and identify improvement opportunities; My agency has the performance information needed for these reviews; My agency has the capacity to analyze the information needed for these reviews; Performance information for these reviews is communicated in an easy-to-understand, useful format; My agency has a process in place for following up on problems or opportunities identified through these reviews; Program managers/supervisors at my level are recognized for meeting performance goals discussed at these reviews; Discussion at these reviews provides a forum for honest, constructive feedback; The reviews have led to similar meetings at lower levels	—	—	673 (1–5)	3.60 (0.85)
GPRA, $\alpha = 0.62$	Additive index of cross-agency priority goals, agency priority goals, and quarterly reviews, rescaled to five-point scale	—	—	1,287 (0–5)	2.41 (1.01)
PART	To what extent, if at all, have you been involved in any PART-related activities? (this includes any involvement in preparing for, participating in, or responding to the results of any PART assessment.)	1,160 (1–5)	2.60 (1.26)	—	—
Measurement Problems $\alpha = 0.86$	Based on your experience with the program(s)/operation(s)/project(s) that you are involved with, to what extent, if at all, have the following factors hindered measuring performance or using the performance information? Difficulty determining meaningful measures; Different parties are using different definitions to measure performance; Difficulty obtaining valid or reliable data; Difficulty obtaining data in time to be useful; Difficulty distinguishing between the results produced by the program and results caused by other factors	2,534 (1–5)	2.92 (0.96)	2,365 (1–5)	2.83 (0.96)
Discretion	Agency managers/supervisors at my level have the decision making authority they need to help the agency accomplish its strategic goals.	2,886 (1–5)	3.20 (1.09)	2,717 (1–5)	3.18 (1.08)
Learning Routine	The individual I report to periodically reviews with me the results or outcomes of the program(s)/operation(s)/ project(s) that I am responsible for.	2,892 (1–5)	3.54 (1.17)	2,704 (1–5)	3.50 (1.19)
Accountability to Results $\alpha = 0.85$	Agency managers/supervisors at my level are held accountable for the results of the program(s)/operation(s)/ project(s); Agency managers/supervisors at my level are held accountable for agency accomplishment of its strategic goals.	2,856 (1–5)	3.87 (0.89)	2,682 (1–5)	3.81 (0.91)
Missing Link To Action	Difficulty determining how to use performance information to improve the program	2,726 (1–5)	2.46 (1.15)	2,558 (1–5)	2.45 (1.11)
Leadership Commitment	My agency's top leadership demonstrates a strong commitment to achieving results.	2,829 (1–5)	3.94 (0.98)	2,669 (1–5)	3.78 (1.08)
Political Conflict	Difficulty resolving conflicting interests of stakeholders, either internal or external.	2,686 (1–5)	2.73 (1.22)	2,489 (1–5)	2.72 (1.18)
Resources $\alpha = 0.84$	My agency is investing the resources needed to ensure that its performance data are of sufficient quality; My agency is investing in resources to improve the agency's capacity to use performance information.	2,381 (1–5)	3.14 (0.99)	2,167 (1–5)	3.08 (0.98)
Senior executive status	What is your current grade level? (0 = others, 1 = Senior Executive Service or equivalent)	2,937 (0–1)	0.20	2,762 (0–1)	0.19