Bureaucracies as Innovative Organizations

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Abstract

Bureaucracies create rules and routines that are an important source of organizational capabilities. But these rules and routines also, for a number of reasons, become difficult to change and inhibit organizational innovation. We discuss how an organization in Denver local government, Peak Academy, encourages frontline civil servants to develop innovations. We present the background and content of innovations that have been developed and present an account of how bureaucracies can be innovative, and of what distinguishes innovations by bureaucracies. Many of the innovations we observed are mundane process innovations rather than more dramatic changes in features of programs. We call these "microinnovations." We urge scholars interested in government innovation to give more attention to such innovations, which have hitherto been ignored in the literature.

Innovation in government is an important topic in public administration. This interest grows out of a conclusion that government does not perform as well as it should. If there is a gap between a desired state and the actual state of government performance, almost by definition some kinds of innovation are required to bridge that gap. There is quite a significant literature on this topic (e.g. Borins 1998; Behn 1997; Vigoda-Gadot et al 2005; Doig and Hargrove (eds.) 1987; Frederickson and Johnston 1999; Light 1998).

Much of this literature is about how and why innovation is difficult in government, though some looks at how those difficulties can be overcome. For those believing that innovation is hard in government, an important part of the reason has been presented as being the bureaucratic nature of many government organizations.

A bureaucracy is an organizational form where the organization's behavior is heavily directed by routines -- rules and procedures. For Weber (1968, 198), in a bureaucracy "the management of the office follows general rules, which are more or less stable, more or less exhaustive." The more important the role of rules and procedures, the more bureaucratic the organization.

For defenders of bureaucracy, the routines and procedures that characterize bureaucracies are a key source of an organization's capabilities, the ability to do its work (Cyert and March 1963). Procedures are an important storehouse of accumulated organizational experience (Nelson and Winter 1982; Levinthal and Rerup 2006). They capture organizational memory and "lessons learned" so organizations and people don't need to reinvent the wheel. Procedures, applied repeatedly, allow an organization to learn by repetition over time. Bargh and Chartrand (1999) argue that routines and procedures, by setting up more actions that can be done automatically without our thinking about them, make it easier to economize on scarce attentional resources and save them for when they are

really needed. And the predictability that rules create increase the ability of people to rely on them in going about interactions with others.

Beyond that, a key part of Weber's defense of bureaucracy was that decisions in a bureaucracy follow rules rather than being based on the personal predilections or whims of the official. Bureaucracy thus reduces arbitrariness and is associated with the rule of law. An important reason that government organizations tend to be bureaucratic is that people fear government abuse of power and believe it must be held in check by rules limiting government discretion.

An important feature of bureaucracy is the privileging of rationality. The more bureaucracy develops, Weber wrote (ibid., 216), "the more completely it succeeds in eliminating from official business…all purely personal, irrational, and emotional elements." A related feature of bureaucracy is an important role it assigns to expertise. Learning the rules and how to apply them requires training and expertise. "Office management…usually presupposes thorough and expert training. …Knowledge of these rules presupposes a special technical learning which the officials possess (Weber op. cit: 198). And this is why Weber argues that "the decisive reason for the advance of bureaucratic organization has always been its purely technical superiority over any other form of organization. The fully developed bureaucratic mechanism compares with other organizations exactly as does the machine with the non-mechanical modes of production" (ibid., 214).

Weber writes that "bureaucracy promotes a 'rationalist' way of life. …(It) strongly furthers the development of 'rational matter-of-factness' and the personality type of the professional expert." (ibid., 240) That personality type behaves in a considered way. People do not get "carried away" or "jump off the deep end." They look before they leap; action is preceded by study. To use contemporary government jargon, bureaucracies are "evidence-based." And bureaucracies favor, in the spirit of

Charles Lindblom in The Intelligence of Democracy (1968), changes that don't depart too dramatically from the status quo.

Weber's worries about bureaucracy involved not its technical efficiency but its effects on people living in a very rationalized system. In The Protestant Ethic and the Spirit of Capitalism (Weber 2002) he coined a phrase translated as "the iron cage" to describe bureaucracies that trap individuals in systems based purely on rational calculation, efficiency, and control. Because of bureaucracy's technical superiority as a mode of organization, bureaucratization is likely to grow, despite its stifling of the human personality. Critics of bureaucracy often embrace Weber's iron cage critique. They also often worry that rules and procedures, imposed on employees from above, create employee alienation and dissatisfaction (Gouldner 1954; Adler and Borys, op. cit., 93;).

However, most relevantly to this paper, critics often reject Weber's argument about the "technical efficiency" of bureaucracy or, to use a more-contemporary phrase, bureaucracy's effect on organizational performance.

The criticisms center around what defenders of bureaucracy regard as a strength, its stability and consistency over time. Where defenders see the virtues of regularity, reliability, and predictability, critics see rigidity, inflexibility, and lack of innovation. Where defenders say that bureaucracy allows people to avoid reinventing the wheel, critics say it imposes one size fits all. For them, bureaucratic routines create a problem.

Routines resist change, most fundamentally because organizations devote resources to developing procedures in the first place, making it costly to change them (Hannan and Freeman: 1977: 931). "Inertia in routines is a byproduct of the ability and efforts to accomplish demanded tasks in a repeatable and reliable manner" (Yi et al 2016: 783). Furthermore, changes in routines can upset an existing balance of power within an organization, causing potential losers to resist them, typically more

strongly than winners advocate for them (Hannan and Freeman, op. cit.: 931). Given all this, Cyert and March (1963: 102) note, “The problems associated with continuously redesigning a system as complex as a modern [organization] are large enough to make organizations cautious about change.”

The resistance to changing routines also has an element of individual and organizational psychology. The earliest, and now classic, critique of the effects of bureaucracy on innovation was the 1940 paper by Robert Merton, “Bureaucratic Structure and Personality.” His basic point was that adherence to rules was an important source of bureaucratic effectiveness, but that to achieve the discipline of such adherence, officials need to sentiments that strongly value conformity to the rules (Merton, op. cit: 562-563).

> If the bureaucracy is to operate successfully, it must attain a high degree of reliability of behavior, an unusual degree of conformity with prescribed patterns of action. Hence, the fundamental importance of discipline which may be as highly developed in a religious or economic bureaucracy as in the army. Discipline can be effective only if the ideal patterns are buttressed by strong sentiments which entail devotion to one's duties, a keen sense of the limitation of one's authority and competence, and methodical performance of routine activities. … (I)n order to ensure discipline (the necessary reliability of response), these sentiments are often more intense than is technically necessary. There is a margin of safety, so to speak, in the pressure exerted by these sentiments upon the bureaucrat to conform to his patterned obligations, in much the same sense that added allowances (precautionary over-estimations) are made by the engineer in designing the supports for a bridge.
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> But this very emphasis leads to a transference of the sentiments from the aims of the organization onto the particular details of behavior required by the rules. Adherence to the rules, originally conceived as a means, becomes transformed into an end-in-itself; there occurs the familiar process of displacement of goals whereby "an instrumental value becomes a terminal value." Discipline, readily interpreted as conformance with regulations, what-ever the situation, is seen not as a measure designed for specific purposes but becomes an immediate value in the life-organization of the bureaucrat. This emphasis, resulting from the displacement of the original goals, develops into rigidities and an inability to adjust readily. Formalism, even ritualism, ensues with an unchallenged insistence upon punctilious adherence to formalized procedures. This may be exaggerated to the point where primary concern with conformity to the rules interferes with the achievement of the purposes of the organization.

This produces a “trained incapacity” that makes it difficult to depart from adherence to rules even when it would be appropriate. Trained incapacity refers to that state of affairs in which one's abilities function as inadequacies or blind spots. Actions based upon training and skills which have been successfully applied in the past may result in inappropriate responses under changed condition.

Repetition of routines also makes them psychologically more habitual and thus less open to change. It makes performance of a routine in the same way more automatic and less mindful (Langer 1989). It increases the inertial force of the routines and can put us under their spell. It causes the routines to become taken for granted, meaning they do “not require additional verification over and beyond its simple presence (Berger 1966: 16-17,” which may create problems because we do not question them. (Rear Admiral Grace Hopper, the renowned mathematician and computer programmer, once stated, “The most damaging phrase in the language is ‘We’ve always done it this way’ (Thomas 2017).”) Thus, Leonard-Barton (1992) argues that core capabilities can often become core rigidities.

Another reason why bureaucratic organizations do not innovate is more specific to public organizations and the system in which they operate. In government, rewards for success – because of weak economic incentives for employees and promotion systems – are often minimal, while the penalties for failure, particularly in terms of media attention, can be great. (Behn 1997: 15, Altshuler: 1997: 39, 47) This favors sticking with the tried and true. And since most innovations fail, trying a lot of innovations is a recipe for frequent failure, and would tend towards an equilibrium where innovations become extinct.

When individual situations arise where the rule is not appropriate, applying the rule to that situation anyway will create problems. When the overall environment in which the organization exists is changing and turbulent, individual errors turn to systematic flaws, as the organization inappropriately sticks to what it has done in the past, since the routines resist change. “Given the influence of the

historical environment on the development of beliefs, in rapidly changing environments," Tripsas: 2000, 1148) writes, top managers often have difficulty adapting their mental models, resulting in poor organizational performance." Thus the major problem bureaucracy creates for performance is the lack of innovation it engenders.

In this view, changes in bureaucracy can come about only when an outside shock or crisis disrupts them badly enough. Change is often thought to require a "burning platform" (Kelman 2007: 41). The burning-platform theory argues that because change is hard, people must be made to understand that failure to change is even harder. As often put in presentations by management consultants -- in a reference to what it takes to rouse drilling workers on oil rigs from complacency -- until the platform the workers are standing on is actually burning, people will keep doing what they have always done. This theory is most commonly presented in a business context, where the burning platform is the threat that if change does not occur, the company will decline or even go bankrupt. |

The basic argument of this paper is that, despite the criticism of bureaucracy for rigidity and inability to innovate, bureaucracies can and often do innovate, and they can do so without a shock or crisis. To paraphrase Galileo from a different context, looking at bureaucracies we will observe "and yet it moves." Indeed, we will suggest counterintuitively that bureaucracy may be an organizational form with some features that are especially amenable to innovation.

We will see that many of the innovations we observe are what we will call "microinnovations," a category that has received no attention in existing literature on innovation. So one purpose of this paper is to introduce a new concept into innovation research.

The data in this paper come from Peak Academy, an organization in Denver, Colorado, that works to promote innovations in internal organizational processes in government by frontline employees. Peak Academy was established after Michael Hancock was elected mayor in 2012. Establishing an organization to promote process improvements in city government was one of his

campaign promises, and he said he would introduce Baltimore's "Citistat" performance measurement system in Denver (Behn 2014).

Peak Academy characterizes itself as promoting what they call "lean management," an approach emphasizing process improvements seeking a reduction of waste. Lean management is an outgrowth of "total quality management" or TQM (Hackman 1995), a quality-improvement effort involving "collecting data, using statistics, and testing solutions by experiment" (312). In TQM, dedicated teams map processes, brainstorm solutions, and track progress

During the George H.W. Bush administration, the federal government made a push to promote TQM principles. Many civil servants were trained in TQM, and many agencies set up TQM teams. A Federal Quality Council was established. But at the beginning of the Clinton administration in 1993, TQM was abandoned in favor of the "reinventing government" movement, as a new Democratic administration sought to brand their own efforts. TQM has since disappeared from the federal government. The leaders of Peak Academy were unaware that TQM had been tried before in government.

Lean management draws heavily on the so-called "Toyota production system," a key feature of which is the central involvement of front-line workers in process improvements; in Toyota plants, workers were empowered if they saw a process problem to stop the assembly line. Denver learned about lean management because it (including teaching the Toyota production system) was being used at a local hospital. An important thing that attracted them to the Toyota production system was that it didn't have requirements tor statistical analysis as were part of "lean six sigma," another process improvement effort, because most of the city workforce is blue collar and don't know much math.

Peak Academy began training people in process improvement techniques in 2012, a year after Hancock was elected, and at the same time it established two levels of certifications they gave

participating employees, “green belt” and “black belt,” both using six sigma nomenclature. Each had a training requirement and a process innovation requirement. A green belt required four hours of training, black belt four days. The other requirement for both was preparation of an innovation written down in a Peak Innovation Form taught in training, which will be discussed further below. For an employee to be certified, the innovation did not need to be successful, but it needed to be attempted.

Peak Academy provided a one-sentence description of the innovation respondents were going to discuss. Thus the specific innovations I examined were provided me by Peak Academy, not volunteered by the innovators themselves, though they grew out of innovations the employee had decided to work on.

Peak Academy shares with the Toyota system that process improvements that are undertaken by employees with little or no involvement by managers. A difference is that improvements done by the people in this research were led by an individual employee rather than a process improvement team, though we will see that sometimes the innovator consulted and worked with others inside the organization.

DATA

Our data come from one organization chosen for convenience. A colleague who teaches and researches on public management at a major public policy school told me about Peak Academy when we were discussingthe idea of research on innovation in bureaucratic organizations. Peak Academy agreed to cooperate with my research and sent out an email introducing 51 civil servants who had recently taken Peak Academy training. They were a mixture of non-managers and first-level managers. The largest group worked in procurement and personnel (human resources), others were analysts and people who managed internal processes. A few managed processes by which members of the public

sought permissions from the city. None were people working on public-facing service delivery, public safety, or regulatory enforcement.

The organizations in the sample are all fairly old-line, largish ones that are mostly inward- rather than outward-facing – all characteristics associated with greater bureaucracy. Kalleberg, Knoke, Marsden, and Spaeth (1996), in what they described as the only probability sample of American organizations ever conducted, found that public organizations have more formalized and centralized personnel systems that those of private and for-profit organizations. Analysts of red tape in government have found that personnel and purchasing rules tend to be highly formalized and often constraining in government (e.g., Bozeman and Feeney, 2011). Persons involved in providing permissions and responses to applications, and who work on internal processes in government, should tend to experience needs and pressures to adhere to bureaucratic rules. They need to demonstrate compliance with rules, and justification supporting their decisions. They will often work in settings that involve incentives to create "administrative burdens" rather than to create improved and streamlined processes (Herd and Moynihan, 2019). The kinds of work people were doing should be kept in mind in thinking about our responses.

Each person was sent an email to solicit their cooperation with an anonymized interview discussing the innovation they had worked on that Peak Academy had identified. After two followup emails, 24 responses were received 24 responses agreeing to participate in the research. Interviews were generally conducted on Zoom and then transcribed. After the interviews, there was a followup with a small number of additional questions by email to obtain further information.

To get at least some information from a much wider sample of organizations, the data to be presented here were supplemented by a survey sent to all federal career managers in the career Senior

Executive Service that included a few general questions about innovation in their organization. This will provide some data from the federal government as a whole.

With only one organization where we undertook most of the research, testing hypotheses about how common innovation in bureaucracies in government is, or about what encourages and discourages it, was impossible. However, in an important sense there is not an N of just one. 24 people were spoken with and could present 24 different stories. And respondents worked for different organizations within the city government and had different kinds of jobs. We can see commonalities and differences in how respondents went about innovating and the kinds of innovations they undertook and thus look at patterns.

In the interviews, after getting information about the respondent's job responsibilities, questions were asked such as

- "What were you trying to do with this change?"
- "How did you become aware of or interested in this problem? How long before you actually developed the change you are describing?"
- "Did you or others in the organization study the problem before you began thinking about solutions? How did you or they study the problem? What did you learn?"
- "How did you develop the idea for dealing with this problem?"
- "Did you end up using the first solution you came up with?"
- "Was pursuing this idea a hard sell in your organization or not so hard? What kind of authorization if any did you need before you started working on it? What was the immediate reaction of the boss you took the idea to?
- "When you began implementation, did you pilot or roll out?"

- “Was the approach taken in your Peak Academy training consistent with values and culture you already had as a member of your organization, or did it challenge those values and culture?”

(For reasons of time, not all questions were asked of all respondents.)

RESULTS

What were the features of the innovations respondents developed? When asked to describe their innovation, the examples respondents presented fit into three more or less equal buckets, though some examples fit into more than one bucket. The innovations: 1) standardized, 2) streamlined, and 3) saved time/money or improved quality. Standardizing means establishing rules or procedures about how to do a process. Streamlining means taking the various steps into which a process is divided and eliminating or consolidating some. Saving means spending less time and/or energy on a given step, or producing more output from given inputs.

One example of innovations that involved standardization included developing common procedures for how to fingerprint corpses. Previously, autopsy techs had prepared a body for fingerprinting based on convenience for them, taking whichever arm or position of the arm that was closest and most-accessible. But this meant that more often than not the body was in an inconvenient position for the fingerprinter, who then had to spend time rearranging it and hope that nothing happened during rearranging. Often the techs had also developed over time their own idiosyncratic ways of doing the process.

As the respondent stated, “We'd be working, we'd realize inconsistencies with our workflow or our processes. And we started talking like, "Hey, this is how I do it." "Well this is how I do it." And then from there it was, "Well we need to be on the same page, how do we do that?" They sat down as a

group and decided on a standard procedure. The new procedure specified that a certain finger of the right hand be cut in a certain way. This made the procedure faster and more reliable.

A second standardizing (and streamlining) innovation involved developing a series of standard letters sent to people whose applications for a kind of parking permit were turned down explaining what they needed to do to correct the problem, rather than composing each letter from scratch.

> I simply created a Microsoft Outlook Template with a standardized rejection response. It shaved an average of 2 minutes and 30 seconds off of every rejection process. There was now a shortcut on everyone's taskbar. Simply click and a formatted standardized rejection email was created.

A third standardizing innovation involved developing a manual of procedures for obtaining and using a city-provided credit card. The innovator stated that the problem was that "nothing was in one spot. Everything was just kind of everywhere."

> I was answering questions and finding things for everybody that really should have been in one spot. If they had a question about an accounting code, I was having to research it and they didn't have any of that. Or if I needed to get them a form, I had to go find it and send it to them. There was just a lot of, it was a lot more time consuming and it was taking away from what else I could have been doing. It was just so much wasted time and I was like something else has got to change here. We've got to do something else. It was in a sense kind of a waste of my time. I was helping them, but it seemed like I was constantly helping people with the same issue over and over and over again.
>
> So I made a book where each chapter was something different, so there were then the accountability rules and then it was the how-to's. Then what I did was created literally a picture book, and this is how you verify your procurement cards. So then it was I took our accounting program and I literally, for every click of my mouse, I took a picture and then I made a description so that they could follow along on their own if they couldn't reach me." We worked out plans of how things should go, flow charts. We've really just made it so that everybody is on the same page.

One respondent worked at something called the Give Center, which provided items that indigent recipients needed for everyday use that had been donated by members of the public. He was the only person working full-time on this, but several people had occasional duties.

> We wanted to standardize the role of my position, like the front desk of the Give Center in order to maintain consistency, and the best customer service for our external and internal customers.

The non full-time employees of the Give Center often did not know the rules for what kinds of items people were eligible to receive and when different ones were available for pick-up. Nor did recipients. And donors didn't know when they could donate. The respondent developed sets of frequently asked questions for recipients and donors, and another set for the occasional staff, that codified all these procedures.

A second bucket of innovations involved streamlining processes by reducing the number of steps or the time allotted to individual steps. One reduced the number of steps the applicant had to take to get a billboard approved in the Denver Theater District. The person in charge of the system said to himself, "Instead of having to do the design review and the permit review separately, let's think of a way to combine them so it's just one application for the applicant." Under the new system, as soon as an applicant submitted the application to the permitting review system, the permitting services personnel send it to me for review rather than going the normal referral process that we had in our permitting system, which had to go to a supervisor and then get assigned to me, and then back to the supervisor and then back to development services, it's now just direct link between myself and the permitting services personnel."

A different example involved the form businesses filled out to be certified for a minority preference contracting program. "In the past we needed to answer 50 questions. I reduced them to 24 questions. I eliminated unnecessary and redundant questions."

Another streamlining innovation involved reducing the time animal control officers had to wait to pick up a stray or injured animal dropped off at a local animal clinic, from where they would be taken to the Denver Animal Shelter. In the existing system, when the officer arrived, the clinic often had trouble locating the animal, and the officer spent sometimes an hour or hour and a half sitting in the lobby while staff at the clinic tried to locate the animal. They changed the procedure so officers gave

only 10 minutes for the clinic to locate the animal. After ten minutes the control officer left to return to patrol (the officers patrolled rather than having a fixed office, but the patrol area for an officer would be right near the clinic). They told the clinic to call back when they located the animal. This put pressure on the facilities themselves to speed up their processes."

Why didn't the change happen sooner? "I was not in charge at the time," the person responsible for the change says. "My leadership at the time didn't really care that it was causing delay for the line level staff. I felt my time would be more valuable spent on real work than sitting around, which is why I made the proposal."

The third bucket involved changes that made work more effective -- saving time, or improving processes or quality. One of these involved filling in eligibility forms for a minority business contracting program. Applicants needed to fill out the owner's balance sheet.

> In the past, we copied the information from the statement that was submitted with a certification application. We needed to type all numbers from the submitted statement and verify. I suggested having the statement built into the application platform. Then the analyst could just come in, view and verify the information. We would not need to type anything down from the beginning on a spreadsheet. This eliminated the errors made by applicants. It took us about one hour before, now it takes two minutes to review, analyze, and process this step.

This got expanded over time to developing templates for different kinds of certification or denial letters.

A second innovation under this bucket involved scheduling drivers to be tested for their proficiency at driving city dump trucks so they could be authorized to do so. In the existing system, the city scheduled four people for each one-hour time slot available and took four road crew members off their regular jobs to go to the test site. The city had only two trucks, however. They scheduled four to come on the view there would be on average of two no-shows. If two of the four showed up for the two trucks, everything would be all right. But if all four showed up (or three of four), there wouldn't be enough trucks for all of them and testers would have to wait (along with the extra test takers). If only one showed up, one of the trucks would need to stand idle and unused. The idea of inviting four test

takers per slot had developed a very long time earlier (the person I spoke with had no idea why) and had been taken for granted for many years. A new boss for the operation realized the system was wasteful. He made a small change in the procedure -- only one person was scheduled for each slot, not four. The city dramatically reduced the number of no-shows by talking with those being tested in the few days before they were scheduled to remind them about coming.

A third innovation in this bucket involved establishing a lactation room for new mothers in the municipal building. This respondent spent a lot of time working on the details of the innovation and was clearly invested in it. (At the time, she had a young child and had recently completed nursing herself.)

> Well, I had a lot of people complain to me about it, and nobody knew where to go with it. Every time somebody would tell me that it was an issue. Before I had a kid, I was always like, it seems like that's the facilities' problem. We had talked a little bit to facilities, but it just never really went anywhere, and they had so much other stuff going on. We finally had a facilities manager who had a daughter who was going through it all and was very sympathetic, and he was also about to retire. He was like, I want this to be my legacy. So that kind of spurred the idea of like, okay, this is the time.

There were two existing room spaces, but users had to use a key to get in, which was often in use when somebody wanted it.

> Facilities actually had locks already that could be locked from the inside, that they could just reuse. If the door was locked, it meant the room was in use, if unlocked the employee could go inside and lock it. They offered to change the locks for us, so we didn't have to buy any new locks. That cut out the whole step of actually having to find somebody with a key. Then I worked with our tech services team to put all of the rooms on Microsoft Outlook so that people could reserve them.

They also began having people set up times for room appointments online.

> Another Denver employee who had just started at the city came from an organization where you use Outlook to book all the rooms, and he was like, "Why don't we just do this?" So he had actually just switched over all of our conference rooms to be on Outlook. So I was like, "If he can do that for all the conference rooms, why can't we do that for the lactation room?"

They still wanted some basic equipment to make the rooms nicer.

> For all the kind of nice stuff, we basically used wellness funds that we got through our insurance provider. There are restrictions on the things that they let you spend the wellness funds on. But one of the things they let us spend money on was fitbits. We had

> an agency that wanted to buy fitbits. So we purchased fitbits with wellness funds, and then sold fitbits to an agency that wanted them and could use the money we got for the fibits to buy a bulletin board, a refrigerator, shelves to store pumps, and pieces like that to make the room nicer.

A fourth innovation was to create a "visual nudge" scoreboard (based on the material taught in Peak training) so that when employees walked into the office for work, the first thing they see was a big whiteboard with the workload awaiting them that day.

> Previous to this training, my efforts were verbal. I would discuss the issues with coworkers but it fell on deaf ears. The scoreboard was the perfect answer because it gave my coworkers a visual depiction of what I was trying to convey to them. They could now see how imbalanced our workflows were, and it immediately had an impact on how they approached the job. What it did was make people think about prioritizing – "What do we need to tackle first? What is most pressing?' It quietly and effectively changed our work product for the better.

Some innovations in this third bucket, like the lactation room, were among those that involved the largest changes to existing procedures and were the most complicated to design. Others seemed the least significant and the most obvious to an outsider. Two of the organizations had actually been sending documents out by post rather than email, and the innovations involved switching to email – an indication of how organizations can become slaves to routines, to continue doing things in ways they always have if they don't think about it. Asked why the change had not occurred earlier in their organization, the innovator answered, "It wasn't changed earlier because no one thought to change it until I simply asked 'why' we did it the way that we did." This was the same thing that had happened with schedule tests for truck drivers, discussed earlier. These examples illustrate the role of repetition in making existing practice taken for granted.

Another respondent noted he "got tired of sending status emails to my project manager. The status email included line level updates on items I was working on. Writing the email consisted of me copying and pasting the updates the office had already been receiving as part of in a vendor-provided tool in our status tool into the body of the email they would send.

> We already had a license to this tool but weren't using it. I learned initially about the update features by explorative clicking in the system. I then Googled for more information when I stumbled upon it. This produced a significant reduction in hours across the project of my time copying/pasting data and sending daily emails.

For a certification application that another respondent was working on,

> In the past, we copied the information from the statement that was submitted with the application. We needed to type all numbers from the submitted statement and verify. I suggested having the statement built into the application platform. Now we analysts just come in, view and verify the info. We do not to type anything down from the beginning on a spreadsheet. It took us about 1 hour before, now it takes 2 minutes to review, analyze and process this step. This also eliminates the errors made by applicants.

In one case, the innovation seems obvious, but it made more of a difference: state law required that prospective foster parents be fingerprinted within 90 days of being certified for adopting. Historically, parents had presented themselves at the beginning of the adoption process, but usually certification took longer than 90 days, so they had to get fingerprinted a second time. The innovation was to move fingerprinting to the time when the parents began adoption preparation home study, 60 days before the adoption would occur.

Finally, one innovation in the third bucket involved outsourcing an activity previously performed in-house, another bringing in-house something that had been outsourced.

DISCUSSION

Discussions in the business world have often emphasized innovations growing out of flashes of brilliance and reflecting heroic, wildly ambitious goals, what Collins and Porras (1994) call "BHAG's" (big hairy audacious goals). Observers of innovation in government worry that trivial, insignificant changes may too loosely be characterized as innovations: Lynn (in Altshuler and Behn 1997, 7) argues,

> Innovation must not be simply another name for change, or for improvement, or even for doing something new lest almost anything qualify as innovation. Innovation is properly defined as an original, disruptive, and fundamental transformation of an organization's core tasks.

If one looks at the innovations discussed in Borins (1998) that won Kennedy School of Government innovations in American government awards, they are often original and disruptive changes in existing programs. One winner set up a process for quickly locating and foreclosing unused land where taxes were overdue to assemble parcels into units for housing or redevelopment. Another involved a program for four-to-nine year olds predicted to be at later risk of delinquency that works with the childrens' families to change their behavior. A winner that was a program for victims of domestic abuse imposed strict sanctions on abusers such as confiscation of weapons and drug abstinence orders enforced by constant testing, as well as keeping a probation officer in constant contact with the abuser.

By contrast, many of the innovations that our respondents chose to pursue are at the very opposite end of the spectrum. They are often what may be called "microinnovations" – undramatic, mundane, and process oriented. These improvements did not involve changes in the features of programs the innovators were working on (program design, eligibility, outreach, or other program policies). Lynn would almost certainly not classify them as innovations at all. Indeed, readers seeing the above description of innovations may ask with Lynn, "Were these really innovations?"

Borins refers to the innovation award winners he discusses as "local heroes." Heroes doesn't seem like a good description of innovators encountered in this research. They, and their achievements, generally appear more humble; Peak Academy has democratized innovation to allow it to be done by ordinary civil servants, not heroes.

We asked our Peak contact whether people were specifically directed not to pursue program but only process innovations. No, we were told. "But for our new innovators, it's better to focus on a smaller scope," an innovation closely related to their daily job rather than something more abstract and conceptual. This is probably the kind of innovation most would come up with naturally and that would in the normal course of events dominate a universe of innovations.

These were the kind of simpler improvements Peak Academy calls "just do it" that an individual can accomplish by their own efforts.

However, our point of contact did state that some civil servants – possibly especially those involved in direct service delivery to the public, of whom our sample had almost none -- were interested in innovations in the features of programs.

> We often have folks start down the path of those ideas, but then they may hit a roadblock, don't get enough support, their boss tells them to scale it back, etc. So we encourage starting small first and then working up to larger system changing innovations after building some success and credibility. We still take their big ideas into account and will sometimes work with their supervisor or leadership team to give them additional support for the idea.

(If Peak staff worked with an innovator, the innovation was not included in the list given me.) It is possible that had we had more respondents involved in public-facing service delivery, we would have heard examples of innovations in program features.

March (1991) makes a much-noted distinction between exploratory learning and exploitative learning. The former involves "refinement of an existing technology," the latter "invention of a new one" (ibid. 72). The benefits of exploitation are "positive, proximate, and predictable," those of exploration are "uncertain, distant, and often negative" (ibid. 85). Exploitation provides more predictable if more modest gains, while exploration promises frequent failure though also the potential big upsides of major gains. These bureaucratic innovations sacrifice big upsides for modest gains.

We should consider the development of bureaucratic innovation as involving what Cyert and March; see also Posen et al (2018)); Rerup and Feldman 201) refer to as "problemistic search." Cyert and March is best-known as a critique of optimizing synoptic decision-making models in microeconomics and as emphasizing how bureaucracies do not change, but instead are bound by standard operating procedures. However, Cyert and March present problemistic search as a theory of change. When there

is a problem, the organization searches for a solution, though not in the fashion postulated in microeconomic models. They search occurs in the vicinity of current practice. And search comes to an end when the organization develops an acceptable solution. They do not scan and consider all possible alternatives, as the neoclassical economic theory they were criticizing suggested. But neither do they stand passive and fail to change at all. Solutions thus tend to be incremental changes from current practice. Compared with the neoclassical economics concept of optimizing, problemistic search and its counterpart idea "satisficing" (Simon, 1947) seem insufficient and even lazy. But compared with no search at all, it looks more attractive. And, though not emphasized by Cyert and March, the results of problemistic search often become new ways of doing things in the organization rather than one-time adjustments that are then abandoned. These are bureaucratic innovations.

Microinnovations are definitely more like exploitative learning and problemistic search. Compared with exploratory learning or optimizing, these can easily seem unimaginative. But similarly compared with no learning they look better.

Given all the barriers to innovation in bureaucracies discussed earlier, are there reasons other than a strong external shock that bureaucracies might innovate? In an influential paper entitled "Organizational Routines as a Source of Continuous Change," Feldman (2000) argued that routines often can endogenously (i.e. without an outside shock) change in organizations. The way a routine is actually performed in an organization, she suggests, often spontaneously varies, and this variation provides raw material for changes in routines over time. She discusses this process in the context of three organizational routines for all of which she observes changes over a year.

This is an intriguing argument. However, it would seem that natural variation would be as likely to produce random changes in the vicinity of existing routines rather than their purposeful evolution. Instead, my reading of her paper is that what drove changes was a straightforward and recurring

phenomenon in organizations -- some dissatisfaction about dysfunctional results of the existing routine. Borins' study of innovation award winners shows that the most common impetus to the innovation (ibid., Ch. 3) was dissatisfaction with the organization's existing performance, with an external crisis in third place (half the frequency of performance dissatisfaction). In the Denver innovations, we saw no examples of an outside shock driving the innovations. The innovations come from inside the orgnizations, and hence in that sense are like the endogenous changes Feldman discussed. But they are more purposive than the almost random changes Feldman discusses.

The drivers of innovation, whether in firms or in government, are rather straightforward. The first is dissatisfaction with some feature of the organizational status quo. Kelman (2007) argues that such dissatisfaction can exist even in organizations (in this case government procurement bureaucracies) generally regarded as enamored of the status quo. (Here there was dissatisfaction with requirements for complex and tedious procedures even for simple purchases.) Second, the dissatisfaction must be great enough to overcome inertial forces that favor continuing old routines. Third some employees must feel a motivation to work to make things better. We noted earlier that in business market pressures are typically seen as providing incentives that motivate change, but that such incentives are often seen as being absent in government. What at least partly substitutes for the lack of market pressures for innovation in government are two things, one specific to government and one general. The force for innovation in government specifically is public service motivation (Perry and Wise 1990) which drives many in government to seek to serve the public. The more-general forces motivating innovativeness in response to dissatisfaction are intrinsic motivation "based on interest and enjoyment of the work itself" (Grant: 2008: 49) and a personal desire to achieve (Maslow 1948). These motivators may improve performance in general and organization-related innovation in particular. We should also note that, though these bureaucracies had many routines, which makes change more difficult, their behavior was

by no means fully bound by routines. There was, though these were bureaucracies, lots of discretion in deciding what to do, which opens up room for innovation.

The preconditions for innovation just mentioned are decently common in government. However, the literature on innovation in government is almost exclusively about innovative individuals, (sometimes of organizations with a more innovative overall culture). Most of it involves specific change initiatives in some area or areas involving the organization that get attempted at some point in time. But organized, ongoing efforts to promote innovation in a government organization in general such as Denver's are vanishingly rare. The closest other example is probably Gore's reinventing government initiative, which sought to promote innovativeness in general rather than being one specific initiative to change one specific element of government. (However, reinventing government did promote a specific vision of an approach to innovation, i.e. reducing rules and increasing freedom for frontline employees, which did not occur in Denver – as noted, many of the innovations in Denver actually involved adding to rules and procedures for a process rather than eliminating them.)

With his focus on individual innovators, Borins emphasizes the role of career managers in promoting innovation, not senior leaders. But for all that it is cliché, the best conclusion is that what made Denver special in terms of a longterm organizational commitment was "leadership." Purposive, organized, and ongoing innovation would almost surely never have gotten a foothold in Denver without the mayor creating and then nurturing Peak Academy in the first place. The mayor didn't just create Peak Academy and quickly move onto something else, as political executives often do. The interest of the mayor's office lasted over time. Peak Academy is special and very unusual because this kind of sustained interest by senior officials is special and very unusual. Note that total quality management quickly collapsed when the George H.W. Bush administration ended and the new Clinton administration showed no interest. What the Clinton administration did with reinventing government was probably the most successful government innovation effort ever because Vice President Gore stuck with it for eight

years (Kettl 1998). When Gore left and George W. Bush came in, reinventing government was abandoned and disappeared (in favor of the Program Assessment Rating Tool, which was a performance measurement and not an innovation effort).

A second important unusual distinguishing feature of Peak Academy was that the organization, and ultimately the mayor, set up a concrete incentive for participation in training and in developing an innovation, namely the green and black belt certifications (the terminology came from "lean six sigma," a specific process improvement technique). One element of this that promoted continuity (though it is unlikely this was why this feature was developed) is that these two certifications required attending two training programs, over time.

Importantly, bureaucratic innovation has many features in common with bureaucracy in general. Like bureaucracy in general, it is rational, methodical, and deliberate. Like bureaucracy in general. It does not proceed by great leaps of imagination. To use another Weber phrase, this time about politics, bureaucratic innovation may be characterized as "a strong and slow boring of hard boards" (Weber, op. cit.,128). As with the results described by Cyert and March and Lindblom, bureaucratic innovation departs only incrementally from existing routines. Peak Academy suggests that in developing their innovations people "stick in their lane," itself a term taken from a traditional bureaucratic culture that represents an incremental approach very different from the mantra of "breaking down silos" or "move fast and break things" common to more heroic approaches to innovation.

Ironically, what was innovative about bureaucratic innovation was sometimes that it made existing processes more bureaucratic, introducing new rules or procedures that had not been present before. This was particularly the case for innovations that standardized processes seen as problematic because they previously were more haphazard and variable.

Bureaucratic innovation also uses the tools of bureaucracy -- particularly routines and templates -- to guide the innovation process itself. Innovation in bureaucracies can use what Adler et al 1999 call "metaroutines" – "routines for changing other routines." Nelson and Winter (op. cit., 132) note the existence within organizations of "routinized arrangements for producing innovations. Metaroutines can lay out the standardized steps one goes through in an innovation process and/or standardized problem-solving procedures. They "routinize the creative process" (ibid., 45). Bureaucracies can also develop a series of standard templates reflecting different specific innovative techniques, which constitute a sort of instruction manual or cookbook for different categories of innovation.

Training plays a central role in guiding bureaucratic innovation (Hackman op.cit, 315). Peak Academy training teaches people metaroutines about how to organize a process to innovate. It teaches people to start by learning about the process they are trying to improve through doing a gemba walk (Japanese for "a real place"), a technique adopted from Toyota process improvements, which involves observing a process as it actually happens in the place where the work is being done. Then the training teaches people to do a process map of the current process as a flowchart that takes the process from beginning to end. Once a process has been mapped, the training material is designed to help Identify "root causes" of problems and possible solutions. The main tool for that, Peak Academy teaches, is to examine what they call the "eight wastes" (such as defects, unnecessary motion, and waiting between steps in a process). The training material also includes a one-page "Peak Innovation Form" where people estimate savings projected for their innovation. Learning about these forms is included in green belt and black belt training.

Finally, for solutions the Peak Academy training gives people templates of specific examples of categories of solutions. These include streamlining -- eliminating or shortening steps in the process that take time but don't add value (Hammer and Champy 1993) -- developing "standard work" ("standard procedures and documentation that will mature your process and help train team members") and

“mistake proofing” (redesigning a process to make it idiot-proof -- examples the material gives are auto turnoff features on an iron and clearance warnings in a garage). Once a group of possible solutions have been developed, the training tells participants to prioritize ideas in a two-by-two “impact-effort” matrix to prioritize which to work on such as high impact-low effort (“quick wins”) and high impact, high effort(“major projects). Peak training material suggests an “experiment phase” for new ideas, to “test in small-scale, real-world scenarios.”

Peak Academy training helps break the spell of the inertial forces of routines. The analysis people do of current processes and the questions people are taught to ask by considering the eight wastes both promote mindfulness and counteract forces encouraging people to take existing routines for granted. The importance of training for Peak Academy suggests a prescriptive conclusion from this research: training is an important way bureaucratic organizations create organizational capabilities for innovation.

We asked our respondents a number of other questions about the innovation process in their organization. Some (but not most) discussed seeking out or testing ideas for solutions with colleagues.

> I talked to my coworkers about what they thought would be effective solutions. And I also talked a lot with some of the people in Peak about what were good data points to measure to see where the gaps were. And then I talked to my supervision about whether they thought that my proposed solution was something that we could actually implement, because obviously I'm not the decision maker there.”

A respondent whose innovation was a handbook for hiring managers said it was developed

> through focus groups and reaching out to the people that had the most pain points of the process. And then those people that used the manual really well, we were able to figure out what kind of tool would be most effective.

Second, of those asked, none said the innovation was hard to sell to their boss (though a few said it was a hard sell to some co-workers). “My supervisor basically, was just like, ‘It's been needing to be done, do it.’ I didn't have to check in on things with her.” “Did you have to get a sign off from

somewhere in your management chain?" I asked. "No," was the answer. "I have complete authority to do anything like this."

Finally, we also asked two respondents the question, "Was the approach taken in your Peak Academy training consistent with values you already had in the organization, or did it challenge those values?" Both said it challenged their older values at least to some degree.

In summarizing our findings, we may note the conclusion that if there are sources of dissatisfaction, and some people motivated to do a better job, then we should not be surprised that innovations occur in government. Beyond that, contrary to the standard view, innovation may even turn out be particularly likely in bureaucracies in government. Bureaucratic organization helps create organizational capabilities in general, and such capabilities can include capabilities for innovation, in the form of metaroutines for organizing innovation processes and templates for innovative techniques. These may better enable innovation than trying to innovate from scratch, which is what the common view of innovation by flash of brilliance often recommends. And we have seen how training provided by bureaucratic organizations can help overcome sources of inertia in routines that inhibit innovation.

In assessing bureaucracies as innovative organizations, it is necessary to ask the "compared to what" question. It is easy to see the microinnovations Denver employees are undertaking as unimportant. For most employees, however, the alternative to taking on and implementing microinnovations is not to pursue BHAG's but not to get involved in any innovations at all. These bureaucracies are delivering small but real improvements in how government works. When one talks to employees involved in these microinnovations, one often hears enthusiasm in their voices – they themselves frequently used the honorific "innovation" to describe what they were doing and felt they were part of something that was making a difference at work.

How common is the kind of bureaucratic innovation we have seen here? As noted, there are few organizational units in government that are, like Peak Academy, self-consciously dedicated to ongoing promotion of innovation. But if we think about efforts by individuals or teams to pursue innovation in their organizations, or about specific change initiatives in some area or areas involving the organization, the number would doubtless be notably larger.

Because our research only involved only Peak Academy, we wanted get information from other organizations about the prevalence of innovation. With the help of Professor David Lewis, who was working on a different and larger project, I undertook a brief survey of members of the federal senior executive service. In that survey, respondents were asked: "How many times in the last 3 months has somebody who works with you in [your agency] made an innovative suggestion for improving internal processes or procedures?" (N=777) 9.5% said 0, 18.7% said 1, 32% said 2-4, putting the percentage of those where there had been up to 4 suggestions at 52%. An additional 13% of respondents reported 5-9 suggestions, an additional 17% 10-19, and an additional 6.7% over 20. There was thus more than an insignificant number of organizations that reported a large number of suggestions.

Respondents were also asked the fate of the most-recent suggestion**.**

not accepted	11.%
Partly accepted, partly not	26 %
Accepted with changes	46 %
Accepted completely	17 %

Then they were asked about the following two statements:

The work environment at [my agency] supports the development of new and innovative ideas.

Strongly disagree	5%
Disagree	11%
Neither agree nor disagree	16%
Agree	43%

Strongly agree	25%

In my job, coming up with ideas for how to do the job better is:

Discouraged	5%
Neither encouraged nor discouraged	18%
Encouraged	77%

In all, even allowing for the likelihood of biased over-reporting, there appears to be a significant amount of innovativeness in government.

Finally, we asked about whether the person who made the most-recent suggestion was "a more diligent employee than average." "Something of a rebel," "Highly respected in the organization," "Very meticulous in their work," "Something of a loner," and "More skilled than most at what they do" (Respondents could check as many boxes as applied.) The two most common replies diligent and respected, followed fairly closely by skilled and meticulous. Loner and rebel got almost no responses.

Many bureaucracies will not be innovative. Above all, some government organizations may lack the motivational raw material to spark innovation. But a lesson here is that If motivation is present, bureaucracy may provide tools to ease innovation's path. Thus, we should expect, more often than many assume, innovative bureaucracies to be part of the landscape of government. Indeed, we can go further and suggest, even more contrary to common assumptions, that bureaucratic organizational forms may especially enable (a kind of) innovation in government.

Finally, our innovations were skewed towards microinnovations. We suspect that microinnovations are a far more important part of the universe of innovation than the literature, which ignores them, suggests. They deserve to be added to our innovation arsenal, and to get dramatically more attention from scholars.

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