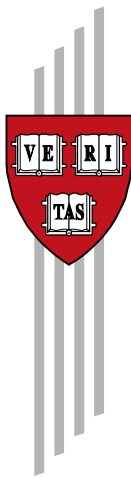


Doing Iterative and Adaptive Work

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Abstract

Many of the challenges in international development are complex in nature. They involve many actors in uncertain contexts and with unclear solutions. Our work has proposed an approach to addressing such challenges, called Problem Driven Iterative Adaptation (PDIA). This paper is the most recent in a series intended to show how one can do PDIA, building on the first paper, “Doing Problem Driven Work”. The current paper addresses a key part of the approach one moves to once a problem has been identified, performing real-time experimental iterations. This is intended as a practical paper that builds on experience and embeds exercises for readers who are actually involved in this kind of work.

Introduction

One of Matt's students was a consultant working on a local government project. He came to Matt with a specific concern, "I have a well thought-out project design, based on a solution my firm adopted in a similar place a year ago, but I cannot get the community in this new locale to support the work." Matt encouraged him to start constructing and deconstructing the problem that warranted his involvement in the community—first on his own and then, when he felt he could state what the problem was, why it mattered, and why it was festering, to engage with the community. He did this, and after a month came back and said that he had learned various invaluable things: first, the community could be mobilized around a problem they cared about—and he had managed to identify such problem with them; second, his initial assumptions of the problem were mostly wrong, and the 'solution' he hoped to introduce would not have been possible or even effective; third, the community members themselves had a bunch of great ideas to work with. Motivated by this experience, he engaged different groups to try some of their own ideas out, and some that he introduced based on his past experience. Altogether, four different work streams emerged with groups trying different 'solutions'. They met monthly to discuss progress, and all four groups adjusted their work based on the cumulative learning. After six months they were focused on only two streams of work, where ideas had been merged together and lessons accumulated into two potential solutions the community was already implementing. The story is not complete, but progress is being made.

As in the example, we believe that good problems mobilize actors to find solutions to complex challenges like the one you have been working through in or prior working paper (on 'Doing Problem Driven Work' (Andrews et al. 2015), partly because such problems point to "feasible remedial action [that] can be meaningfully pursued" (Chan 2010, p.3). The

deconstruction and sequencing work helps to foster such action, allowing reformers and policymakers to think about *where* they should act (where do we have large change space, and where is it limited?), and even *how* (do we build change space or fill extant change space?). The challenge is still to determine ‘*what*’ to do when acting, however.

This is a serious challenge when dealing with complex problems, given that the *what* answers are usually unclear (when we are honest about it we have to admit that we often do not know *what to do* when faced with complex challenges in complex contexts). It is an even bigger challenge when an externally identified best practice ‘solution’ is offered to us, promising the answer but quite likely to lead into a capability trap. This challenge can leave one wondering what to do and how to manage the lure of best practices (or isomorphic pressure to adopt such).

In response to this tension, we propose a core PDIA principle to inform a strategy of finding and fitting the *what* answers in your situation. Put simply, we hold that the ‘*what*’ answers to complex problems do exist and can be found, but must emerge through active iteration, experimentation, and learning. This means that answers cannot be pre-planned or developed in a passive or academic fashion by specialists applying knowledge from other contexts. Answers must be found within the change context through active engagement and learning.

This is not to say that ideas from the outside (and so-called ‘best practices’) should not be considered as potential answers or pathways to building state capability, but rather that even the most effective best practices are unlikely to address all of the problem dimensions needing attention. If completely new to a context, they are also likely to lack the political acceptance required to work effectively, for instance (Andrews 2006, 2012). As such, these ‘answers’ must

still be experimented with and adapted, through a process that empowers the search for “technically viable solutions to locally perceived problems” (Greenwood et al. 2002, p.60).

But what should this ‘find and fit’ process look like?

Why Experimental iterations?

In trying to answer this question, we have been influenced by the literature on incrementalism.

This work is attributed primarily to Charles Lindblom (1959), who referred to the policy-making process as ‘muddling through’ (where groups ‘find’ institutional solutions through a series of small, incremental steps or actions that are gradually introduced to address specific, targeted parts of a problem; as Lindblom (1958, p.301) explains, “A policy is directed at a problem; it is tried, altered, tried in altered form, altered again and so on”). Incrementalism can be linear, where one step leads to the next predicted step and to the next step until a pre-planned solution is fully adopted. This kind of incrementalism will not hold up in the face of the uncertainty of complex challenges, however, given that such challenges seldom allow one to identify many steps ahead. Rather, these challenges demand an iterative incrementalism, where the latter also involves taking small steps to address problems—but where each step leads to some learning about what works and what does not, which informs a next (and potentially different) step to see if an adjusted action works better.¹ The process is thus not perfectly linear, because every step depends on what is learned in the step before—which could be that a radical shift is needed or that the proposed path actually makes sense.

Iteration like this is similar to what some call the ‘try, learn, adapt’ method used by some lean management gurus (Radnor and Walley 2008; Womack and Jones 2010). The hallmarks of

¹ Sabell and Jordan (2015) use the word ‘recursive’ to describe a similar process.

this process are simple: targeted actions are rapidly tried, lessons are quickly gathered to inform what happened and why, and a next action step is designed and undertaken based on what was learned in prior steps. Think of an application in the 1804 journey westwards (discussed in a prior working paper, Andrews et al. 2015a): a team spends three days moving in a westerly direction, and then makes camp, taking time to reflect on the obstacles and opportunities encountered and lessons learned, and then decides on the next step (how long it will be, where it will be, and who it will involve). Iterations like this continue until the problem has been fully addressed (or, using the language of agile software development, ‘requirements have been met’ in the search for a solution).

The process should be seen as experimental, and probably involve acting on multiple potential solution ideas at a time (instead of just one). It can also be accelerated to ensure the change process gains and keeps momentum (to more or less degree, depending on where one is in the change process and what problems, causes or sub-causes are being addressed). Trying a number of small interventions in rapid ‘experiments’ like this helps to assuage common risks in reform and policy processes, of either appearing too slow in responding to a problem or of leading a large and expensive capacity building failure. This is because each step offers quick action that is relatively cheap and open to adjustment; and with multiple actions at any one time there is an enhanced prospect of early successes (commonly called quick wins).

The blend of cheapness and demonstrable success characterize what some might call positive deviations in the process of building state capability, and are important in contexts where change encounters opposition, which is usually the case with government reforms in developing countries. The small steps also help to flush out (or clarify) contextual challenges, including those that emerge in response to the interventions themselves. Facilitating such

positive deviations and contextual lessons is especially important in uncertain and complex contexts where reformers are unsure of what the problems and solutions actually are and often lack confidence in their abilities to make things better.

This approach is quite different to the conventional way state capability is built, where specialists initially conduct studies to decide on a ‘solution’, then design how the solution should be introduced into a context, and then initiate implementation. These are phases in a linear process that we believe yields limited learning or chance for adaptation (whether it is slow or big-bang in nature). An experimental, iterative process, in contrast, has the following characteristics:

- Multiple solution ideas are identified and put into action.
- Experimental, iterative steps progressively allow real solutions to emerge.
- Disciplined, experiential learning and flexibility foster adaptation.

Crawling the Design Space for Multiple Potential Solutions

Many reform and policy initiatives limit themselves to a narrative of two parts when thinking about *what* to do in the face of a problem: there is the status quo, or the way things are currently done in the target context, that those in the context know how to do but has not solved the problem; there are best practices in other contexts that we have seen solve similar problems in those other contexts, but we are not sure how to do in the targeted place and time. Reform and policy change often centers on replacing the internal current practices with external best practices. We believe that there are more options for reformers to work with than just these two, however. A key principle of PDIA is to look for and experiment with multiple alternatives.

We liken the idea to crawling the design space available to policymakers and would-be reformers. Drawing from the ideation stage of design thinking (Gruber et al. 2015; van Manen et al 2015),² the basic strategy here involves requiring change agents to identify at least two ideas for change in the various sub-causal dimensions they are trying to address. The ideas they are looking for will vary in substance, depending on the available change space: new practice ideas might be required where significant change space exists and can be exploited; ideas to improve authority, acceptance or ability will be more pertinent where change space is limited.

Change agents need to identify these various ideas, and then put them into action to foster change. These agents might search for ideas, in different areas of the ‘design space’ shown in Figure 1, which helps to explain our approach. It shows a stylized design space that policymakers and would-be reformers face when introducing new policy and reform ideas in response to a complex problem (or when trying to build state capabilities to address these challenges). There are two dimensions to this space, reflected in the axes of the figure: horizontally, we reflect on whether an idea is administratively and politically possible in the targeted context (have the solutions proved to work in this context, such that the people in the context know how to implement them?); vertically, we consider whether the ideas have proved technically correct (such that they have been seen to solve the problem being considered).

Existing practice is the first area of opportunity in the design space—denoted by an ‘A’ in the bottom right corner of Figure 1. We believe there is always some existing practice or capability—whether this is a way of procuring text books, reporting on finances, organizing

² The initial steps of PDIA share a lot with design thinking process, where ideation follows phases in which problems are better understood and constructed, through empathizing and defining (similar to the construction and deconstruction processes discussed here). See the brief poster by UNICEF’s Natalia Adler on design thinking for Doing Development Differently at http://matthewandrews.typepad.com/the_limits_of_institution/2014/10/design-thinking-and-unicef-in-nicaragua-natalia-adler-will-be-presenting-at-doing-development-differ.html.

classroom behavior or managing pharmaceutical stocks in a district clinic. People in the context know this practice, but we also know that the practice has fallen short of solving the focal problem(s). Existing practice provides an opportunity, however, in the lessons it holds about what works in the context (and what does not) and why.

Figure 1. The Design Space: Where Do We Get Ideas From?

Technically correct solutions (we have seen them work)	D. External best practice (to identify, translate, select and try, adapt, and diffuse)						C. Positive deviance (to find, celebrate, codify, and diffuse)
					B. Latent practice (to provoke through rapid engagement, codify, and diffuse)		
					A. Existing practice (to scrutinize, understand, learn from, and potentially improve)		
	Administratively and politically feasible (we know how to do them)						

Initial work to find deficiencies in current practice are thus useful starting points in the finding and fitting process. Common tools to help in this process include gap analysis, program evaluation, site visits, immersion and inspection initiatives (where would-be reformers and

policy makers spend time interacting with existing practice to get a better sense of how it works, where it has failed, and why). Our would-be reformer in Malawi (introduced in the ‘Doing Problem Drive Work’ working paper, Andrews et al. (2015)) could suggest examining current procurement processes to identify exactly where gaps exist, for instance, and then try and close the gaps (See the approach to this in Andrews and Bategeka 2013).

In many cases, existing practice also offers improvement opportunities that could be used to initiate action. These opportunities can be identified by engaging, in the field, with practitioners who often think about improving practices but lack incentives to share their ideas.³ These ideas might emerge when our would-be reformer examines the procurement process in Malawi, especially if she does so alongside local practitioners and asks them if they have thought of ways to make the process work better. Whether the improvements turn out to be successful or not, they are often the quickest form of engagement that one can take in starting the process of addressing problems—and they are also the most immediate arena in which one can force action and learning in the process of building state capability. Existing practice is also the practice that agents in the change context know best, and ‘starting from where they are’ is a potentially empowering way of ensuring these agents develop a properly constructed and deconstructed view of the problem (better understanding why existing practices are not working) and provide local ownership of the find and fit process (see Chapter 8 of Andrews 2013).

The next most accessible area in the design space is what we call ‘latent practice’ (shown as B in Figure 1). This is the set of potential ideas and government capabilities that are possible in the context—given administrative and political realities—but require some focused attention

³ This is central to the work on appreciative inquiry, where authors and practitioners believe that local agents have positive ideas that need to be coaxed to the fore (Bushe 2013, Drew and Wallis 2014, Ridley-Duff and Duncan 2015).

to emerge. This attention could come in the form of Rapid Results type interventions, where groups of affected agents are given a challenge to solve the focal problem (or part thereof) in a defined period—with no new resources (Matta and Morgan 2011; Dillabaugh et al. 2012; Wilson 2013). In the example of Malawi’s corruption and service delivery challenge, one might instruct relevant agents to act in a new way in areas where process gaps have been identified (like establishing a quick way of tracking procurement requests and responses to such). An example of this kind of activity comes from Burundi, where a rapid results initiative focused on empowering officials to come up with creative latent ideas to deliver school textbooks that had been in a warehouse for years (Campos et al. 2013). The officials went through various iterations in working around this challenge, ultimately engaging parliamentarians to deliver the books. The parliamentarians had always been available to do this work, but had never been asked.

These kinds of initiatives can be incredibly motivating and empowering for local agents, who get to see their own achievements in short periods. Ideas that emerge from these rapid initiatives can also become the basis of permanent solutions to existing problems (especially if learning processes are effectively in place, as will be discussed shortly). Latent potential can also be released when change agents construct a Hawthorne-type interaction where the hands-on practitioners are included into some kind of real-world experiment, and one hopes the awareness of being watched leads to behavior modifications and new ideas (Schwartz et al. 2013). These ideas focus on drawing ideas out of existing resources and agents, given the view that novelty is always latent in such agents but needs to be coaxed out (in the the same way that juice is latent in an orange, and needs a good squeeze to be released).

The ‘positive deviance’ domain (denoted by C at the top right corner of Figure 1) is a third area in which change agents can look for policy and reform ideas. Positive deviance relates

to ideas that are already being acted upon in the change context (they are thus possible), and that yield positive results (solving the problem, and thus being technically correct), but are not the norm (hence the idea of deviance) (Marsh et al. 2004).⁴ For example, in every town with high levels of infant mortality, one can identify a household where no children die; they are the positive deviants, doing something that others are not doing but that is effective in addressing the problem in the context. As part of the search for policy and reform ideas, change agents need to find these positive deviants, celebrate them, codify them (determining why they are different), and diffuse the core principles of their success more broadly. The initial ‘finding’ process offers a pragmatic and immediate option with which to initiate any change process, and could involve a search of evidence or practice (where change agents look for positive outliers in a large data set or go to the field and look for positive real-world experiences).

‘External best practice’ is the final idea domain we see as obvious in any design space. This domain (denoted by D in Figure 1) is full of ideas outside of the change context that one has seen to address problems similar to those targeted for attention. These are often the first set of ideas reformers and policymakers look at and suggest. It is also typical for only one idea to emerge at any given time from this domain as well, given a prevalent desire to identify the ‘one best way’ to do things. Many global indicators embed these ideas and encourage their replication across contexts. Actually, there are usually multiple external good or best practice ideas to learn from, and the find and fit process should start by identifying a few of these—rather than settling for one. In the case of Malawi’s corruption concerns, for instance, one could identify ways in

⁴ Marsh et al. (2004) define positive deviance as “an uncommon practice that confers advantage to the people who practise it compared with the rest of the community. Such behaviours are likely to be affordable, acceptable, and sustainable because they are already practised by at risk people, they do not conflict with local culture, and they work.” See other definitions and applications in Spreitzer and Sonenshein (2003, 2004) and Dumas and Maggi (2014).

which Hong Kong's anticorruption commission has dealt with procurement and disbursement gaps, but one could also examine ideas emanating from Botswana and South Africa. Once identified, change agents need to translate the ideas to the change context—ensuring that the best practice ideas can be communicated from their external context into the new change context (explaining why the practice was done and how it was done). This is often much easier to do when the best practices come from similar contexts (and the 'language' of government, society and politics is similar) (Andrews 2012). Once the external best practice idea has been communicated in this translated detail, it becomes a candidate for experimentation in the change context.

We advocate trying more than one new idea at a time in any change context—much as 1804 adventurers would try two routes to get past a mountain they have not yet bypassed (see the 1804 analogy in Andrews et al. 2015a). In some situations, one of the ideas will work significantly better than the other(s) and stand out as the solution to be diffused more broadly into the context. Our research shows that this is not commonly the case, however. In most cases of complex change the process yields positive and negative lessons from each idea—with no individual idea proving to be 'the solution'. These lessons lead to the emergence of new hybrids, or locally constructed solutions that blend elements and lessons from experiments with all of the ideas (Andrews 2015). We see this in the example of Rwanda's municipal performance management system—one of the ISS 'success' cases investigated in the study referred to in Chapter 6 (Andrews 2013). It blends external best practice block grants with new planning ideas and revived old positive deviance practices in the Imihigo contracting mechanism. The system could not have worked if only one idea was employed, and it would not have emerged if Rwanda had not experimented with many different ideas.

We see similar mixed solutions emerging in the examples discussed in the ‘Doing Problem Driven Work’ working paper:

- Swedish budget and accounting reforms in the 1990s drew on many ideas. Accounting innovations were largely an extension of 1980s reforms and private sector practices that already existed, for instance. Important dimensions of the performance management system emerged from experiments at the local government level, which stimulated new latent ideas and unearthed positive deviants. International best practices were also influential, especially in bringing multi-year budgeting and fiscal rules to the fore. These various ideas were combined over a number of years, establishing a budgeting and accounting system that looks quite different to any other in Europe (or beyond), exhibiting all the hallmarks of a locally effective hybrid.
- Solutions also emerged from various parts of the design space in Nostria’s efforts to better manage judicial demand and supply. The reform team found that most of the ‘missing’ data was already generated by existing systems, for instance, but steps were needed to ensure this data was readily available (which led to practical steps to make the data available). They also found positive deviants in the sector, where some agencies and jurisdictions offered lessons to others in how to produce data and manage resources. They also learned lessons from a neighboring country about how to use standard software packages to analyze data and build budgets. Ultimately, their reform emerged as a blend of all these products, not a pure product in either category.
- As discussed in our prior working paper on Doing problem Driven Work, Mantian officials faced 42 challenges in their effort to promote economic activity in a poor performing sector. They found some solutions in existing policies, programs and

policies, given that a number of the challenges should actually have been resolved by past initiatives. For instance, companies noted that they needed financial help to innovate when in fact government had an active—but unused—innovation fund in place. They also created pressure to foster latent practice, requiring agencies to report monthly on how they had addressed challenges—and pushing relentlessly to ensure that solutions emerged and were then institutionalized. They also experimented with various best practice ideas promoted by international donors, as long as these ideas actually addressed one of the 42 challenges. The reform team maintained a spreadsheet of all the ‘solutions’ it was coordinating, and who was responsible for action in respect of each solution. The ideas in this spreadsheet varied considerably (in terms of where they came from, who they involved, what they involved, and how innovative they actually were). This variation showed how much bricolage goes into producing real state capability (to support private sector development, and beyond).

The message here is simple: finding and fitting solutions to complex problems requires first identifying multiple ideas and then trying these out, in an experimental manner, to allow the emergence of hybrids. The experimentation process needs to offer significant opportunity for learning and adaptation—and what some authors call bricolage (constructing a solution from a diverse range of things, given lessons about what works and does not work in each).⁵ This demands an iterative process which we will discuss next. Before getting there, however, we recommend you use Table 1 to reflect on the various opportunities you have to source new ideas that can help you find and fit solutions to your challenge.

⁵ See, for instance, Christiansen and Lounsbury (2013) and Perkmann and Spicer (2014).

The table essentially asks you to first list the sub-causal dimensions of this challenge and then think about the kind of substance you are looking for in new ideas (are you looking for a new policy idea or a way of expanding change space by expanding authority, acceptance, or ability?). Following this, there is a column in which you are encouraged to describe—in short—at least two ideas you could act upon in two of the design space domains. We encourage you to do the exercise on your own and then with your group, and to try and come up with at least two sets of activities you could quickly initiate to start actively finding and fitting real solutions to your problems.

Table 1. A Basic Strategy to Crawl Your Design Space; Looking for Solution Ideas

Sub-causal dimension of my problem	What substance do we need from any new idea? a. New policy or practice to fit into existing change space b. A way to expand authority c. A way to expand acceptance d. A way to expand ability	How can we work to find ideas in at least two of the following idea domains? A. Existing practice B. Latent practice C. Positive deviance D. External best practice
Sub-cause 1		
Sub-cause 2		
Sub-cause 3		

What do Experimental Iterations Involve?

You should note that Table 1 does not provide a specific solution for your challenge. This will be frustrating for some, given that many new policy or reform processes strive to yield such solution from an early identification process. The solution then becomes the center of a project plan focused on implementation. Plans use mechanisms like logical frameworks to identify the steps required to turn the idea into a reality, locking one into a linear sequence of action designed to

solve the problem. This approach is considered good practice for many in the development world, offering certainty about what will be done, in time and in content.

This approach is not well suited to complex challenges, however, where we do not really know what the solution is, or what surprises we will encounter in the context when we start any new initiative. It would be like the 1804 adventurers pre-identifying the exact route to take between St Louis and the West Coast in 1804, even though no one knew where the West Coast was or if any particular route made sense (to understand the 1804 analogy, see Andrews et al. 2015a). Such an approach often encounters its own limits quickly, when reformers meet with unexpected constraints (like hostile politics or capacity deficiencies, which act like unexpected mountains or rivers that impede their progress). At this stage, reformers and policymakers are seldom equipped to respond to the realities they face, which certainly call for a change in their implementation strategy and probably also require a re-think of the solution they are attempting to introduce. Rigidities in the logical framework approach make such adjustments extremely difficult, however, and often lead to periods where reforms and new policy initiatives simply stagnate (given a lack of flexibility).⁶

A different approach is required when dealing with complex challenges—where policy makers and would-be reformers can try new ideas out, learn what works and why, adapt ideas, and repeat the process until a solution is found. We call this experimental iteration.

This kind of process is driven by the urgency of finding and fitting solutions to specific complex problems. Its aspirational end goal is thus defined by the state one hopes to reach when the problem has been solved (which you identified earlier, in Table 1 of the ‘Doing Problem

⁶ This kind of observation is emerging constantly in development studies. See, for instance, Duncan and Williams (2012), Faustino and Booth (2014), Fritz et al. (2014), and Manning and Watkins (2013).

Driven Work’ paper). Given that chosen problems are complex, however, it does not pretend that there is only one starting point or idea to act upon, but rather that there are many entry points (as you would have shown in Box 4 of the ‘Doing Problem Driven Work’ paper) and multiple ideas to engage at each entry point (as reflected in your thoughts in Table 1). It also does not assume that starting ideas will hold intact as ultimate solutions, and therefore that the goal is simply to provide a linear chart to implement these ideas. Rather, this process provides a structured, step-by-step engagement in which one tests ideas, adjusts the ideas based on test results and lessons, and works progressively towards shaping a solution that actually works.

One should be able to see the characteristics that lead us to call the process experimental (where one is testing ideas that have not yet been finalized). The approach should not be confused with a randomized controlled trial, however, where one tests an idea in a scientific manner, randomizing the context and controlling the messy influences of reality. The experimental approach here happens in a specific context and in the midst of reality, such that results are possible given the mess one is dealing with. The approach is also accelerated and done in real time, with those who will ultimately be the implementers. This gives some assurance that the process—and ultimate policy or reform product—will be locally owned and lead to genuine improvements in state capability.

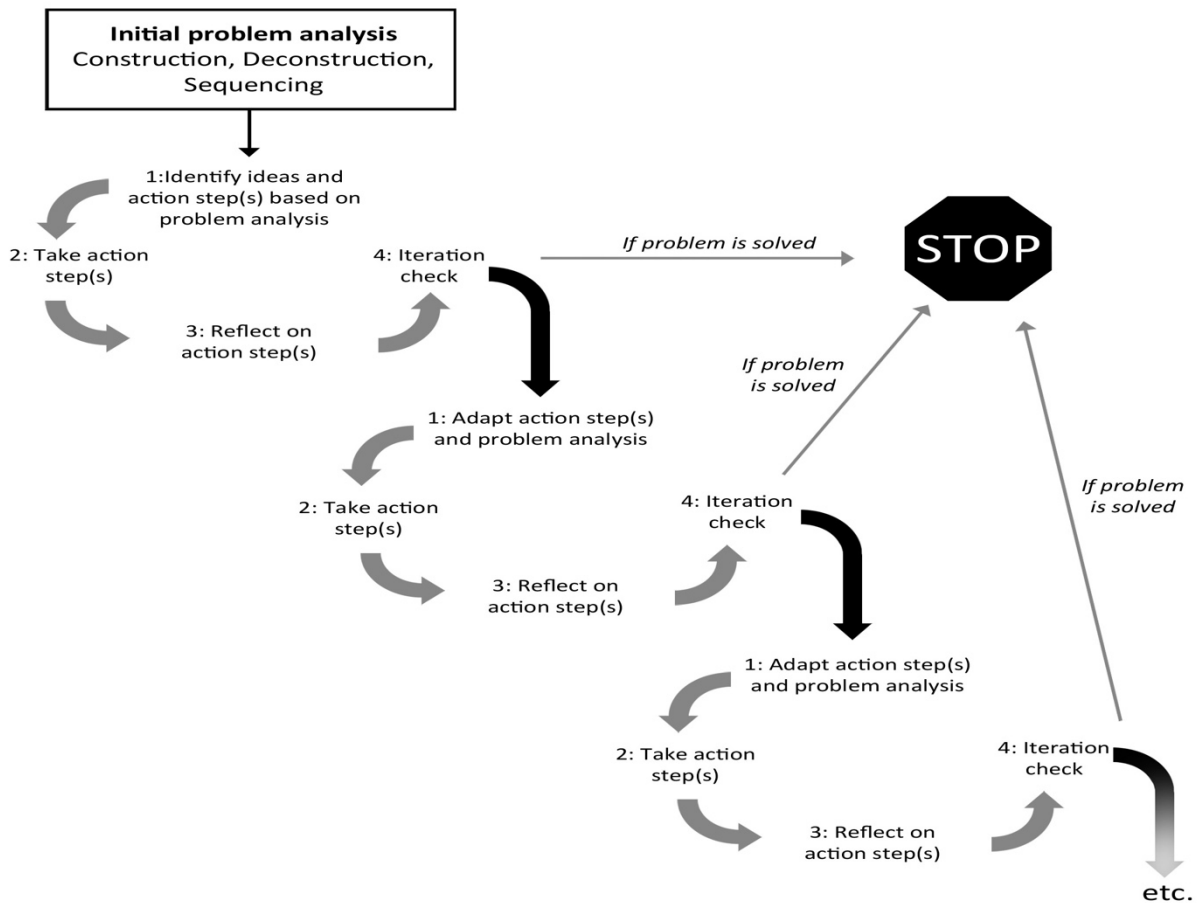
One should also be able to identify the characteristics that lead us to call this process iterative (where one tries an idea out again and again, learning each time, until the idea is properly specified as a functional solution to a nominated problem). Figure 2 shows what the iterative process looks like in its simplest form. The first iteration starts by identifying initial action steps (building on the already-completed problem analysis and idea identification activities). The initial steps should be highly specified, with precise determination of what will

be done by whom in relation to all chosen ideas, and pre-determined start and end points that create time boundaries for the first step. We propose working with tight time boundaries at the start of this kind of work, so as to establish the foundation of an action-oriented work culture; and to build momentum.⁷ The boundaries help to define when action steps begin (stage 2 or each iteration), when the action stops and reflection begins (stage 3), and when the iteration-check will take place (stage 4 of each iteration).

The action step stage should be easily understood. This is where our Malawian reformers might take action to try some ideas out (initiating a field visit to examine existing practice, or starting a rapid results initiative to deliver text books, or trying out a new reporting mechanism that has been seen to work in South Africa). Stage 3 reflection involves stopping after taking this action and, in a group discussion, asking three questions: what was achieved? what was learned? what is next? Stage 4 is called an iteration check, where those involved in the work report to their authorizers on progress and lessons learned, and assess whether they have solved the problem (or sub-causal dimension) they have been focused on. If the answer is yes (the problem is solved), then there is no need to iterate further and the challenge becomes one of stopping and diffusing the solution. If the answer is no, however, the group moves into a second iteration—adapting its ideas based on lessons learned and going through the same stages again. The group will move closer to a workable solution as it passes through more iterations, with more complex challenges requiring more iterations than other challenges.

⁷ See Andrews (2015a).

Figure 2. The Iterative Process in Simple Form



Iterative experimentation like this mitigates the risk of making too many assumptions about proposed solutions, or about the context in which one is working. Every step provides an opportunity to test assumptions and tease out any lessons about what works with specific ideas in specific contexts. It is a process that many are using in other fields, and that development experts are increasingly considering for application in the face of complex challenges. We see many successful reforms adopting such process as well, including the Swedish public budgeting reforms discussed earlier in this working paper (and the ‘Doing Problem Driven Work’ paper). Accounting innovations in Sweden were particularly subject to an experimental process, starting in the 1980s when various local governments were encouraged to try using private sector

accounting methods. Their efforts were labeled ‘pilots’ but were more reflective of the experimental iterations described in this section: the local governments applied specific tools in defined periods, stopped and assessed lessons learned in these efforts, and then adapted the tools for another application. Observers note that this kind of iteration continued for most of the 1980s and yielded useful and use-able accounting innovations that could be scaled up for implementation in the early 1990s.

Experimental iteration like this was also used to foster change in the other two examples of state capability building we have been referencing. One set of activities in Nostria focused on sourcing judicial demand and supply data from existing sources (remembering that their work began after a failed five-year project that intended to introduce a new electronic case management system). This is a stylized version of the first few iterations:

- The team identified potential opportunities in finding existing data and specified a first step, requiring all team members to identify existing data in their organizations and report on this at a team meeting the next afternoon.
- The next afternoon they all came with written descriptions of existing data. After listing the existing data, the team reflected on what had been learned. Lessons were simple but impressive: we have more data than we thought; it was quite easy to identify what we had; the real problem is that we do not share it. Reflecting on these lessons, the team agreed that the problem was not yet solved and more iteration was needed. It identified a next step: each member should bring her data to a team meeting, the next day. The list of available data and next step decision was shared with a senior official who was overseeing the group, to ensure continued support.

- The next day only half of the team members had data to show, and these data took the form of (generally) unusable reams of paper. The team reflected on this, given prompting questions: What was achieved? What was learned? What is next? Lessons centered on the political and bureaucratic walls team members encountered when trying to access data to share, in their relevant organizations (including the judiciary, prosecution, and ministry). Their superiors simply did not allow the sharing (even though these authorizers had committed their support to the initiative). The team members agreed that these walls had been up for a long time and were a key reason for the failure of prior efforts to establish case management systems. The next step, they argued, was to engage the political authorizers whom they had assumed were supportive of the work and ask for explicit permission to share. This required a new and more aggressive strategy to explain the grave—and shared—nature of the problem with the authorizers (which the team had assumed was already well communicated but now agreed could be presented more aggressively. Team members immediately proposed a strategy for this, and agreed to meet again two days later to compare results.
- Two days later the full team returned, with each member carrying an old clunky laptop. Their superiors had jointly agreed that all data could be shown to the full group but had to be kept in files in each laptop. This was not the best mode of sharing, of course, but was a step ahead of where the team had been two days previously. Team members thus opened their laptops and began looking for their files, all of which were in Excel. Only half of the group managed to find the files on their own, however, and it became very obvious that the others could not work in

Excel (even though their official titles related to being in statistical or budget agencies). In reflecting on this step, the team noted that more effective sharing modalities were needed in the future (and decided a course of action to persuade authorizers of this). They also noted the need to strengthen their own analytical abilities, and started discussing options in the design space: they could approach the World Bank to host a workshop (as best practice, perhaps), or ask the civil service commission for help (existing practice), or they could see if their more capacitated team members could teach the others (building on their own positive deviants). They agreed that the latter option was quicker, cheaper, and more accessible. A workshop was planned for the next week, with one of the team members identified as the primary instructor.

- The workshop took place a few days after it had been intended (given common logistical and time management difficulties). It was a very inspiring event, where peers empowered peers with new knowledge (and were themselves empowered with new confidence). The team members' superiors all attended the closing of this workshop, and even invited the media to attend (and take photographs). This led to interesting lessons for the team, which agreed that it had more authority and ability to act and now knew more about what was needed. Half of the team members felt that they could share all their data more effectively now, and committed to do so before the next meeting. All team members agreed that meetings should be regular and at consistent times, and scheduled such for the beginning and end of each week, for the next six months.

- There were many more iterations, some of which led to backwards instead of forwards and many of which generated difficult lessons. After seven months of these iterations the team produced an Excel spreadsheet with enough data to analyze national and provincial demand and supply and identify input gaps (where judges were needed, for instance). They could build a budget that showed why new inputs were needed, which led to a stronger request with the Ministry of Finance. The team was already thinking about the limitations of Excel, however, and had enrolled in a course on Access (a database software) with the goal of transferring their data to this platform in the coming year.

A similar process was adopted in Mantria. The core team met every few days for the first few weeks of their engagement, taking steps to identify ideas and responsible actors in all 42 challenge areas on the fishbone diagram. They built significant momentum in so doing, and after a month they had developed an innovative spreadsheet detailing what was being done in all challenge areas and who was responsible. Every meeting would involve a full analysis of what was being done in each area, what was learned, and what was next. Given the many actors involved in addressing all these challenges, the team instituted a monthly schedule to ensure everyone was able to check in and report. The check ins often led to vibrant discussion, sometimes involving the responsible actors in different areas (who were invited to engage). For instance, the coordinating team sometimes learned that responsible actors needed more authority (or pressure) to act, and sometimes needed support with new ideas, and sometimes tried ideas that did not work out—so the ideas had to be changed. After nine months of iterating, the team was able to show that all 42 challenges had been effectively addressed. They could also point to evidence they had been collecting that showed the sector was growing and providing more

employment. This pointed to real progress in getting to the ‘problem solved’ goals set at the start, which led to a slow down in the experimental iterations. Interestingly, however, other groups across government were starting to use adapted versions of the coordination spreadsheet that proved so useful in this work. This was itself an expression of expanded state capability.

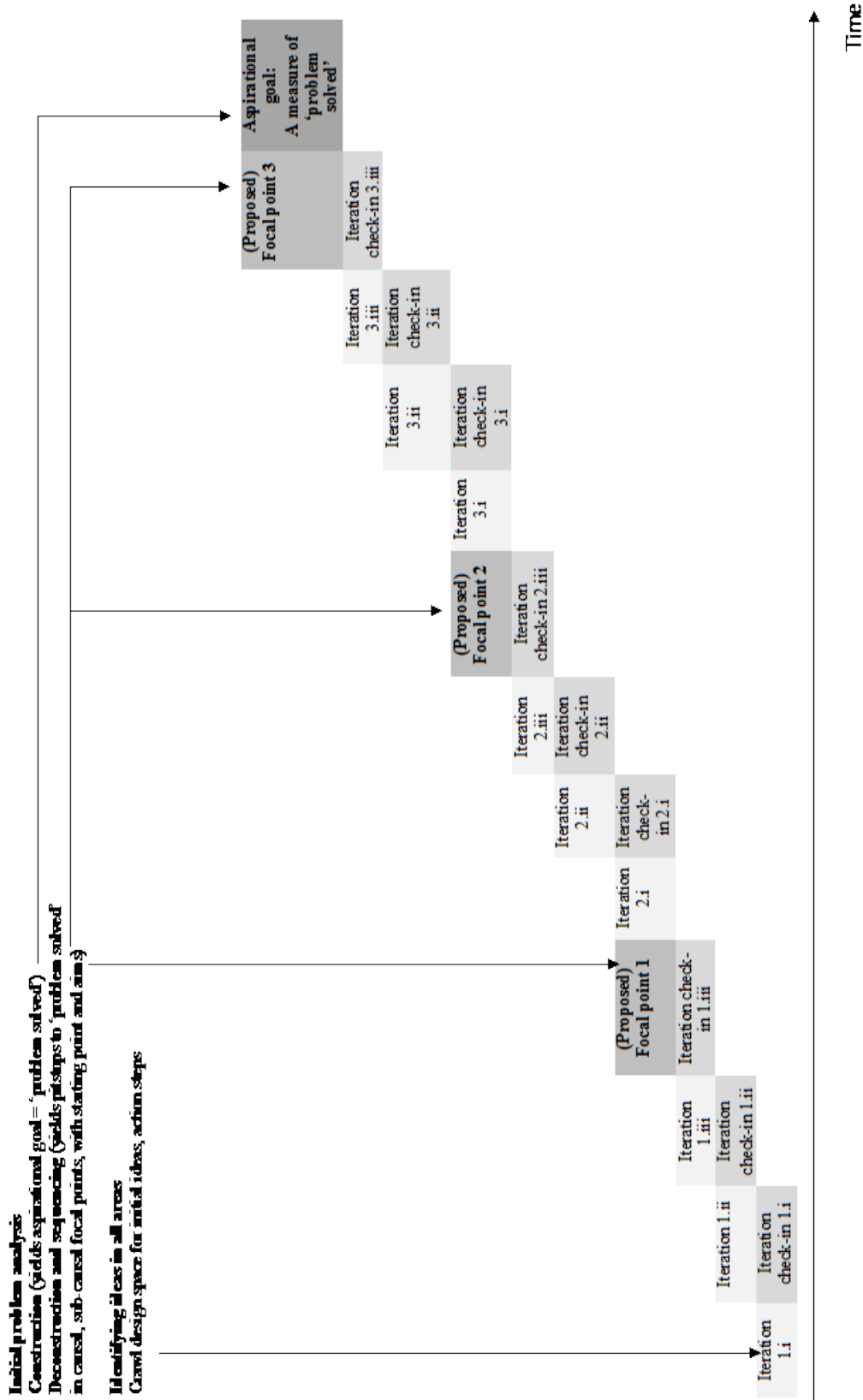
These examples should show that experimental iterations are not necessarily slow or slow to produce results. We believe, actually, that the iterations need to be rapid and aggressive to build momentum and team spirit and to ensure continued and expanded authorization (which we discuss more in forthcoming working papers). The examples should also show that this work is not haphazard and informal. It actually requires a lot of structure and discipline, and needs formal sanction and support. The examples should also show that these approaches yield many results in the short, medium and long run. The staggered nature of these results—which are often surprises—ensure that the process has continued claims to legitimacy (which is vital when trying to foster contested state building initiatives that require bureaucratic and political support). Finally, the examples show that experimental iteration yields opportunities to learn that are crucial when pursuing wicked hard challenges. These lessons are often not forthcoming in more conventional linear project processes, which means that contextual difficulties commonly go unidentified and un-treated and ultimately undermine project success. This was evident in both Nostria and Mantia, where past projects had failed because of a failure to learn and adapt to difficulties encountered in early iterations.

Although the benefits of experimental iteration seem very apparent, many development organizations make it difficult for staff to pursue such approaches, given the rigidity of logframe and other linear planning methods. We often hear that funding organizations demand the structured, perceived certainty of a logframe-type device and will not allow projects to be too

adaptive. In response to this concern, we propose a new logframe-type mechanism that embeds experimental iteration into a structured approach to make policy or reform decisions in the face of complex challenges. Called the SearchFrame, it is shown in Figure 3.

The SearchFrame facilitates a transition from the problem analysis into a structured process of finding and fitting solutions. An aspirational goal is included as the end point of the intervention, where one would record details of ‘what the problem looks like solved’. In the Malawi example, we would include an aspirational target relating hoped-for decreases in corruption-related losses and improvements in service delivery in key sectors. Beyond this, key intervening focal points are also included, based on the deconstruction and sequencing analyses. These focal points reflect what the reform or policy intervention aims to achieve at different points along the path towards solving the overall problem. More detail will be provided for the early focal points, given that we know with some certainty what we need and how we expect to get there. For instance, the first focal points for Malawi might include ‘all disbursement loopholes are identified’ and ‘weaknesses in disbursement are fully identified’ and ‘we know what abilities are missing to address the diversion of resources by local officials’. These are the focal points driving the action steps in early iterations, and they need to be set in a defined and meaningful manner (as they shape accountability for action). The other focal points (2 and 3 in the figure) will reflect what we assume or expect or hope will follow (perhaps reading something like ‘we will close disbursement loopholes’ and ‘disbursements will reflect budgeted plans’). These focal points will not be rigid, given that there are many more underlying assumptions, but they will provide a directionality in the policymaking and reform process that gives funders and authorizers a clear view of the intentional direction of the work.

Figure 3. The ‘Search Frame’ as a Logframe Alternative for Complex Challenges



SearchFrame reflections en route to Focal Point 1	SearchFrame reflections en Route to Focal Point 2	SearchFrame reflections en Route to Focal Point 3
Assumptions we have made	Assumptions we have made	Assumptions we have made
Lessons we have learned	Lessons we have learned	Lessons we have learned
Adjustments we have made	Adjustments we have made	Adjustments we have made

The SearchFrame does not specify every action step that will be taken, as a typical logframe would. Instead, it schedules a prospective number of iterations between focal points (which one could also relate to a certain period of time). Funders and authorizers are thus informed that the work will involve a minimum number of iterations in a specific period. Only the first iteration is detailed, with specific action steps and a specific check-in date. Funders and authorizers will be told to expect reports on all of these check-in dates, which will detail what was achieved and learned and what will be happening in the next iteration (given the SearchFrame reflections shown in Figure 3). Part of the learning will be about the problem analysis and assumptions underpinning the nature of each focal point and the timing of the initiative. These lessons will feed into proposals to adjust the SearchFrame, which will be provided to funders and authorizers after every iteration. This fosters joint learning about the realities of doing change, and constant adaptation of assumptions and expectations.

We believe this kind of iterative process is both well suited to addressing complex problems and meeting the structural needs of formal project processes. As presented, it is extremely information and learning intensive, requiring constant feedback as well as mechanisms to digest feedback and foster adaptation on the basis of such. This is partly because we believe that active discourse and engagement are vital in complex change processes, and must therefore

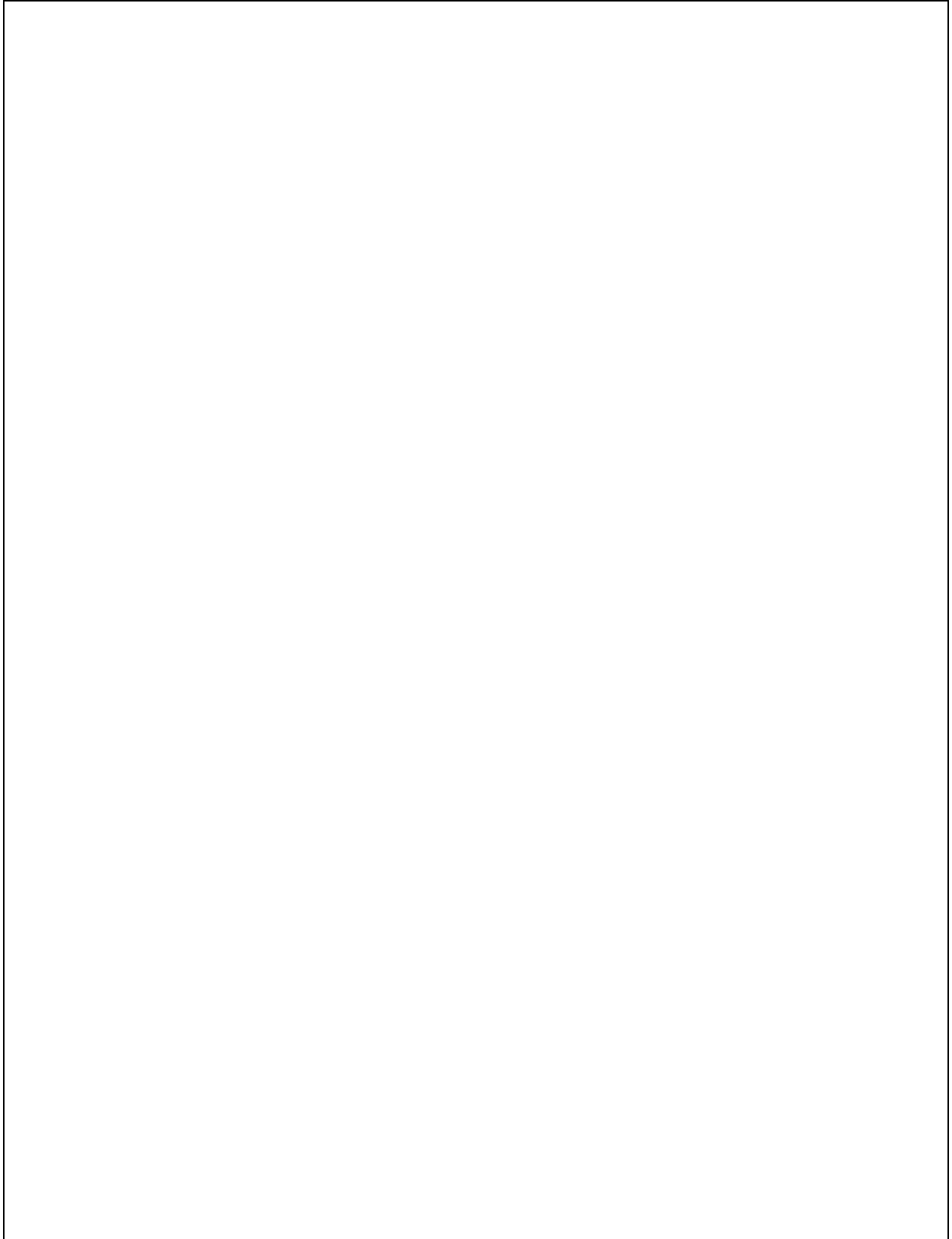
be facilitated through the iterations.⁸ We turn to some ideas about this learning in the next section. Before getting there, however, we propose that you stop and think about how experimental iteration might work in helping you find and fit solutions to your challenge. We have two exercises to help you in thinking about this. The first, centered on Table 2, requires you to detail action steps in response to the ideas you wrote down in Table 1, and provide time boundaries for a first iteration. The second, asks you to think about building a SearchFrame to use in communicating the intended path you would propose to funders or other authorizers (showing them what the search framework looks like, as of now, in your head). Box 1 is provided to give you the chance to draw the SearchFrame out (as is done in Figure 8.3), given the work you have done in past exercises.

⁸ See Marsha et al. (2015) and Babineau and Lessard (2015) who found that organizational change in Canada's health sector depended on building acceptance among those undergoing change, which depended largely on creating active and agile dialogic processes. Other reading we found useful in describing the importance and process of iterative reform include Tsoukas and Chia (2002), Feldman. and Pentland (2003), Abdollahi et al. (2015) and Dyba and Dingsoyr (2015).

Table 2. Structuring your First Iteration

Subcause	Idea	Action step(s) (what, by whom, and when start)	Date to reflect (and who will be involved)	Date of Iteration check (and who will be involved)	How will we know if aim is reached?	When to start next iteration (if needed)?

Box 1. The SearchFrame for My Find and Fit Process



The Importance of Intense and Applied Learning

Complex challenges are commonly rife with unknowns, where information is deficient and knowledge is limited. This is the reality with many of the challenges in building state capability, especially in development: all we know in many situations is that capability is lacking; we do not know why it is lacking or what it will take to build necessary capability. This poses real constraints on most management strategies used in capacity building initiatives, which typically require designers and implementers to know more than they do know (or could know). This is a sure-fire recipe for failure in policy, programs and projects. What is worse, when project fail, the designers and implementers of these policies, programs and projects often do not know why their initiatives failed after the fact, given the continued lack of information and knowledge.

We believe that capable states actually need information and knowledge, and that efforts to build state capability should thus center on ensuring an expansion of know-how. That is why every effort to build state capability needs to embed learning as a key element.

We saw this clearly in a research project that tried to explain why some health sector reforms build capacity whereas others did not (Andrews 2013, chapter seven). One of the factors that set successful efforts apart was something we called ‘flexibility’, a characteristic involving learning and being able to respond to lessons. This was high when policies, programs and projects: (i) produced evidence of ongoing assessment of progress and results (not just periodic accountability-based monitoring and evaluation); (ii) ensured constant feedback on how well key problems were being addressed, what lessons were being learned, and what issues were being encountered; (iii) created opportunities to adjust project content, given lessons from ongoing assessments; and (iv) showcased the ideas emerging from learning and incorporated these into project activities during implementation. We found that the average ‘flexibility’ score

for more successful projects was 2.72, compared with 1.06 in the less successful group (where 0 is the lowest and 4 the highest). This reflects the tendency of more successful projects to facilitate learning and ensure responses to lessons being learned—in real time.

Many readers might contend that this kind of learning is common in development, and point to Randomized Control Trials (RCTs) and evaluations as ways in which learning is now institutionalized. The learning we are advocating differs with the learning generated by these tools, however. RCTs provide potential lessons about the theoretical validity of an idea in a controlled setting, whereas ex post evaluations provide rear view lessons from already completed initiatives. Both cost significant amounts and (generally) yield lessons to specialists working outside of the implementation context (in a more theoretical domain). In contrast, we are talking about learning lessons about the usability of ideas and validity of assumptions in specific contexts, learned by agents engaged in doing the work in these contexts, and learned quickly with the aim of feeding back into the process as design and strategy adaptations.⁹

The prior discussion of experimental iteration provided examples of this learning in practice. In the Nostrian case, for instance, early lessons centered on the availability of data in the justice sector, capacity constraints of statistical experts, and limits to organizational authority. These lessons were gathered in sessions by the team involved in the reform, who were encouraged to reflect on experiences and observations they made while taking actions (given

⁹ We point to a variety of readings reflecting on this kind of learning in different organizational contexts, like Gertler (2003), Klein et al. (2015), Krause and O'Connell (2015), Kruger et al. (2015), Lam (2000), Le and Raven (2015), Liu and Armstrong (2015), Liu and Maula (2015), and Yenyurt et al. (2015). We particularly like Pulakos et al. (2015, p.51) which addresses the importance of iteration and experiential learning in results management reforms in governments. In reflecting on successful reforms, the authors of this piece write, "Central to the intervention is that organizational members need to intentionally practice and solidify effective Performance Management behavior through a structured, on-the-job, experiential learning intervention that yields meaningful behavior change."

three questions; ‘what was achieved?’ ‘what was learned?’ ‘what is next?’). This reflective activity allowed what some call experiential learning, in groups, and led immediately into adjustments to reform ideas and strategies.

Experiential learning like this (which might also be called ‘action learning’) is the process of learning through experience, or by doing. It involves the learner actively in a process of trying something and then reflecting on experience, where the learner is both source and user of emergent knowledge; as compared with many other approaches where the learner is a passive recipient of knowledge (and does not even have to use it). Such learning is not common in many organizations, and must thus be consciously encouraged and practically facilitated (Bamford et al. 2015, Senge 2014, Unertl et al. 2016). Facilitation involves routinizing moments of reflection for groups involved in the find and fit process (as is done in the experimental iterations) and providing reflective questions for these moments (to coax relevant lessons out of agents). The questions can be general (as in the Nostrian example above) or specific (where we would sometimes ask questions like ‘what did you learn about your level of authorization?’ or ‘what did you learn about the usability of the idea you were experimenting with?’). The facilitation process should also ensure that lessons are visibly and practically used to adapt the next steps in any experimental iteration (such that those in the reform group can actually see the impact of their experience). In this respect, it is important to incorporate measures to ensure that lessons are appropriately reliable. Reflecting team discussions are useful in this respect (where one asks questions like, ‘Does anyone disagree with that lesson?’ or ‘Is there any supporting or differing experience to share?’). This kind of reflection can help to triangulate and interpret experiences from individuals to the group, increasing both reliability of the lesson and buy-in to whatever implications the lesson has for group behavior.

Interestingly, we find that routinized and regular lessons are often seen as positive products of the PDIA process. Political authorizers in particular see the value of lessons that help them ‘see’ more effectively in any policy or reform engagement. In a sense, this is like the value of a team of adventurers mapping out the territory from St Louis to the west coast in 1804 (to better appreciate the 1804 analogy, see Andrews et al. 2015a). Taking time to stop, reflect, learn and record the lessons about any new route allows others to follow the route immediately, with less hassle and uncertainty, which gives authorizers a greater scope of influence. Ultimately, the accumulated lessons lead to a situation where complex problems like going west in 1804 are tamed, becoming simple 2015 go west challenges.

Learning like this is not, however, common in many efforts to build state capability. Furthermore, many risk averse politicians and career bureaucrats may resist this kind of learning—and the experimental process it involves—before you can even get it going. Resistance often reflects a view that this kind of learning lacks legitimacy, or that it will be undisciplined or ineffective (or is just too difficult to do in hierarchical rule based organizations).¹⁰ This view needs to be countered by an explicit and disciplined strategy to foster such learning. This strategy helps to provide structure to the reflection activity shown as stage 3 in each the iteration cycle (see Figure 2). It should specify when the learning will happen in the iteration (creating the time boundary), what the key learning questions will be, who will be involved, and how lessons will be used. These questions are included in Table 3, which we have left otherwise blank to help you think of a learning strategy in your find and fit process. In filling

¹⁰ We do not think that this kind of work is impossible in any context, although there is evidence showing that it may be more difficult to introduce in certain contexts. Bamford et al. (2015) find, for instance, that contextual pressures (like the appetite for change and cost of learning can lead to only partial adoption of this kind of iterative learning). See also Lam (2000) and Gerlter (2003).

the table out, reflect on the challenge you have been discussing and the experimental iteration process you described previously. What are the questions you think are most appropriate to ask? Who would need to be engaged? How regularly would you engage these agents? How would you use the lessons learned?

Table 3. Fostering Experiential Learning in Your Find and Fit Process

Key questions	Your answers
What are the questions you think are most appropriate to ask?	
Who would need to be engaged?	
How regularly would you engage these agents?	
How would you use the lessons learned?	

Where Does This Leave You?

We have presented the thinking behind PDIA in many different countries, and in most contexts the ideas we share are well received. The find and fit strategy here is considered common sense by many people we have presented to and worked with. Some actually tell us they found the approach useful and interesting but not new. At the same time, however, they will tell us that the

approach is not possible in their organization. ‘It may be common sense’ someone once said, ‘but common sense is the least common of the senses.’

The most common reason why people tell us they cannot do PDIA is simple; ‘I will not get authorization for this kind of work.’ This reason is particularly common when talking with government officials in developing countries and officials working in development organizations (like bilateral agencies, the World Bank, regional development banks, or the OECD). We are told that managers and politicians in these contexts will not support an experimental process that will likely lead to failure before it generates success. They do not believe that their supervisors will see ‘lessons’ as results, and end up saying that they would love to work in this way but simply do not see it happening.

You may be in a similar situation as you finish the current working paper. You may think that the ideas presented here seem sensible but very different to what you normally do in your organization. They must, therefore, come across as unlikely to be supported. We do not want to leave you here, however, and we do not want you to leave your thinking here either. The examples provided here—from Sweden to Nostria and Mantia—are real world situations in which learning and experimentation were central to reforms in hierarchical, politically contested contexts where authorizers were also more adept to supporting easy pathways to solutions. The find and fit process we are describing here was possible in those contexts, however, and could be possible in your context too. It depends on how well you manage your authorizing environment, which is what we turn to in our next ‘doing PDIA’ working paper.

References

- Abdollahi, M, Arvan, M. and Razmi, J. 2015. An integrated approach for supplier portfolio selection: Lean or agile? *Expert Systems with Applications*, 42(1), pp.679-690.
- Aghion, P. and Tirole, J. 1997. Formal and real authority in organizations. *Journal of Political Economy*, 105(1), pp.1-29.
- Andrews, M. 2012. The logical limits of best practice administrative solutions in developing countries. *Public Administration and Development*, 32(2), pp.137-153.
- Andrews, M. 2013. *The Limits of Institutional Reform in Development*. New York: Cambridge.
- Andrews, M. 2015a. Explaining Positive Deviance in Public Sector Reform. *World Development* 74(10), pp.197-208.
- Andrews, M. 2015b. Doing Complex Reform Through PDIA: Judicial Sector Change in Mozambique. *Public Administration and Development*, 35(4), pp.288-300.
- Andrews, M., Pritchett, L., and Woolcock, M. 2013. *Escaping Capability Traps through Problem Driven Iterative Adaptation (PDIA)*. *World Development* 51(11), pp. 234-244.
- Andrews, M., Pritchett, L., and Woolcock, M. 2015. Doing Problem Driven Work. *Harvard Kennedy School Working Paper 73*.
- Andrews, M., Pritchett, L., and Woolcock, M. 2015. Building (Real) State Capability. *Harvard Kennedy School Working Paper 74*.
- Bamford, D., Forrester, P., Dehe, B. and Leese, R. 2015. Partial and iterative Lean implementation: two case studies. *International Journal of Operations & Production Management*, 35(5), pp.702-727.

- Booth, D. 2011. Aid Effectiveness: Bringing Country Ownership (and Politics) Back In. *Overseas Development Institute Working Paper 336*. London: ODI.
- Campbell, D. 2012. Public managers in integrated services collaboratives: What works is workarounds. *Public Administration Review*, 72(5), pp.721-730.
- Campos, J.E., Randrianarivelo, B. and Winning, K. 2013. Escaping the Capability Trap: Turning 'Small' Development into 'Big' Development. *World Bank Policy Research Working Paper 6717*. Washington, D.C.: World Bank.
- Chan, N. 2010. Narrative Change and Its Microfoundations: Problem Management, Strategic Manipulation, and Information Processing. Paper presented at the Workshop in Political Theory and Policy Analysis, Indiana University-Bloomington, April 3, 2010.
- Chandler, D. and Hwang, H. 2015. Learning From Learning Theory A Model of Organizational Adoption Strategies at the Microfoundations of Institutional Theory. *Journal of Management*, 41(5), pp.1446-1476.
- de Búrca, G., Keohane, R. and Sabel, C. 2014. Global experimentalist governance. *British Journal of Political Science* 44(3), pp. 477-486
- Dillabaugh, L., Lewis Kulzer, J., Owuor, K., Ndege, V., Oyanga, A., Ngugi, E., Shade, S., Bukusi, E. and Cohen, C, 2012. Towards elimination of mother-to-child transmission of HIV: the impact of a rapid results initiative in Nyanza Province, Kenya. *AIDS research and treatment*, 2012, pp.1-6.
- Drew, S. and Wallis, J. 2014. The use of appreciative inquiry in the practices of large-scale organisational change. *Journal of General Management*, 39(4), pp. 3-26.

- Dumas, M. and Maggi, F. 2015. Enabling process innovation via deviance mining and predictive monitoring. In *BPM-Driving Innovation in a Digital World* Springer International Publishing, pp. 145-154.
- Duncan, A. and Williams, G. 2012. Making Development Assistance More Effective Through Using Political-economy Analysis: What Has Been Done and What Have We Learned?. *Development Policy Review*, 30(2), pp.133-148.
- Dyba, T. and Dingsoyr, T., 2015. Agile project management: from self-managing teams to large-scale development. In *Software Engineering (ICSE), 2015 IEEE/ACM 37th IEEE International Conference on IEEE 2*, pp. 945-946.
- Faust, J. 2010. Policy experiments, democratic ownership and development assistance. *Development Policy Review*, 28(5), pp.515-534.
- Faustino, J. and Booth, D. 2014. *Development Entrepreneurship: How donors and leaders can foster institutional change*. London: Overseas Development Institute.
- Feldman, M. and Pentland, B. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative science quarterly*, 48(1), pp.94-118.
- Frosch, D. and Kaplan, R. 1999. Shared decision making in clinical medicine: past research and future directions. *American journal of preventive medicine*, 17(4), pp.285-294
- Gertler, M. 2003. Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *Journal of economic geography*, 3(1), pp.75-99.
- Glouberman, S. and Zimmerman, B. 2004. Complicated and complex systems: What would successful reform of Medicare look like? In Forest, P., Marchildon, G. and McIntosh, T.

- (Eds.), *Romanow Papers: Changing Healthcare in Canada*, 2(31). Toronto: University of Toronto Press.
- Gruber, M., De Leon, N., George, G. and Thompson, P. 2015. Managing by design. *Academy of Management Journal*, 58(1), pp.1-7.
- Hong, K., and Kim, Y. 2002. The Critical Success Factors for ERP Implementation: An Organizational Fit Perspective. *Information and Management* 40, pp.25–40.
- Khanna, R., Guler, I. and Nerkar, A. 2015. Fail Often, Fail Big, and Fail Fast? Learning from Small Failures and R&D Performance in the Pharmaceutical Industry. *Academy of Management Journal*, Published online March 2, 2015.
- Kingdon, J. 1995. *Agendas, Alternatives, and Public Policies*. 2nd edition. New York: Harper Collins.
- Klein, L., Biesenthal, C. and Dehlin, E. 2015. Improvisation in project management: A praxeology. *International Journal of Project Management*, 33(2), pp.267-277.
- Krause, G. and O'Connell, A. 2015. Experiential Learning and Presidential Management of the US Federal Bureaucracy: Logic and Evidence from Agency Leadership Appointments. *American Journal of Political Science*. Published online October 20, 2015.
- Kruger, J., Kruger, D. and Suzuki, R. 2015. Assessing the Effectiveness of Experiential Learning in a Student-Run Free Clinic. *Pedagogy in Health Promotion*, 1(2), pp.91-94.
- Lam, A., 2000. Tacit knowledge, organizational learning and societal institutions: an integrated framework. *Organization studies*, 21(3), pp.487-513

- Le, Q. and Raven, P. 2015. An Assessment of Experiential Learning of Global Poverty Issues Through International Service Projects. *Journal of Teaching in International Business*, 26(2), pp.136-158.
- Levy, B. 2014. *Working With the Grain: Integrating Governance and Growth in Development Strategies*. New York: Oxford.
- Li, M. and Armstrong, S. 2015. The relationship between Kolb's experiential learning styles and Big Five personality traits in international managers. *Personality and Individual Differences*, 86, pp.422-426.
- Lindblom, C. 1958. Policy analysis. *American Economic Review* 48, pp. 298–312.
- Lindblom, C. 1959. The Science of “Muddling Through.” *Public Administration Review* 19(2), pp. 79–88.
- Lindblom, C. 1979. Still Muddling, Not Yet Through. *Public Administration Review* 39, pp. 517–526.
- Liu, Y. and Maula, M. 2015. Local Partnering in Foreign Ventures: Uncertainty, Experiential Learning, and Syndication in Cross-Border Venture Capital Investments. *Academy of Management Journal*, Published online May 2015.
- Marsh, D., Schroeder, D., Dearden, K.A., Sternin, J. and Sternin, M.,2004. The power of positive deviance. *BMJ: British Medical Journal*, 329(7475), pp.1177-1179.
- Marshak, R., Grant, D. and Floris, M. 2015. Discourse and Dialogic Organization Development. *Dialogic Organization Development: The Theory and Practice of Transformational Change*, p.77-93.

- Matta, N., and Morgan, P. 2011. *Local Empowerment through Rapid Results*. *Stanford Social Innovation Review* (Summer), pp. 51–55.
- McCay, B. 2002. Emergence of Institutions for the Commons: Contexts, Situations, and Events. In E. Ostrom (Ed.). *The Drama of the Commons*. Washington, DC: National Research Council, pp. 361–399.
- Nowlin, M. 2011. Theories of the policy process: State of the research and emerging trends. *Policy Studies Journal* 39(1), pp.41-60.
- Oborn, E., Barrett, M. and Exworthy, M. 2011. Policy entrepreneurship in the development of public sector strategy: the case of London health reform. *Public Administration*, 89(2), pp.325-344.
- Ostrom, E. 1990. *Governing the Commons*. Cambridge: Cambridge University Press.
- Ostrom, E. 2008. Design Principles of Robust Property-Rights Institutions: What Have We Learned? In K. G. Ingram and Y.-H. Hong (Eds.). *Property Rights and Land Policies*. Cambridge, MA: Lincoln Institute of Land Policy, pp.25–51.
- Pache, A. and Santos, F. 2013. Embedded in hybrid contexts: How individuals in organizations respond to competing institutional logics. *Research in the Sociology of Organizations* 39, pp.3-35.
- .
- Perkmann, M. and Spicer, A. 2014. How Emerging Organizations Take Form: The Role of Imprinting and Values in Organizational Bricolage. *Organization Science* 25(6), pp.1785-1806.

- Pritchett, L., Woolcock, M. and Andrews, M. 2013. Looking like a state: techniques of persistent failure in state capability for implementation. *The Journal of Development Studies* 49(1), pp.1-18.
- Pulakos, E., Hanson, R., Arad, S. and Moye, N., 2015. Performance management can be fixed: An on-the-job experiential learning approach for complex behavior change. *Industrial and Organizational Psychology* 8(01), pp.51-76.
- Radnor, Z. and Walley, P. 2008. Learning to walk before we try to run: adapting lean for the public sector. *Public Money and Management* 28(1), pp.13-20.
- Ridley-Duff, R. and Duncan, G. 2015. What is critical appreciation? Insights from studying the critical turn in an appreciative inquiry. *Human Relations* 68 (10), pp.1579-1599
- Sabel, C. and Jordan, L. 2015. *Doing, Learning, Being: Some Lessons Learned from Malaysia's National Transformation Program*. World Bank Competitive Industries and Institutions Program. Washington, D.C.: World Bank.
- Schwartz, D., Fischhoff, B., Krishnamurti, T. and Sowell, F. 2013. The Hawthorne effect and energy awareness. *Proceedings of the National Academy of Sciences* 110(38), pp.15242-15246.
- Senge, P. 2014. *The Dance of Change: The Challenges to Sustaining Momentum in a Learning Organization*. New York: Crown Business.
- Senge, P. and Kim, D. 2013. From Fragmentation to Integration: Building Learning Communities. *Reflections* 12(4), pp.3-11.

- Spreitzer, G. and Sonenshein, S. 2003. Positive deviance and extraordinary organizing, In Cameron, K., Dutton, J. and Quinn, R. (Eds.) *Positive Organizational Scholarship*. San Francisco: Berrett-Koehler, pp.207-224.
- Spreitzer, G. and Sonenshein, S. 2004. Toward the construct definition of positive deviance. *American Behavioral Scientist* 47(6), pp.828-847.
- Unertl, K., Holden, R.J. and Lorenzi, N. 2016. Usability: making it real from concepts to implementation and end-user adoption. In *Healthcare Information Management Systems* (pp. 165-175). Springer International Publishing.
- van Manen, S., Avard, G. and Martínez-Cruz, M. 2015. Co-ideation of disaster preparedness strategies through a participatory design approach: Challenges and opportunities experienced at Turrialba volcano, Costa Rica. *Design Studies* 40, pp.218-245.
- Waddock, S., Meszoely, G., Waddell, S. and Dentoni, D. 2015. The complexity of wicked problems in large scale change. *Journal of Organizational Change Management*, 28(6), pp.993-1012.
- Wang, D. and Ap, J. 2013. Factors affecting tourism policy implementation: A conceptual framework and a case study in China. *Tourism Management* 36, pp.221-233.
- Wilson, D. 2013. *Toward a Science of Organizational Change: Rapid Results, Polycentric Governance, and Evolution*. Available at:
<https://www.prosocialgroups.org/sites/default/files/Rapid%20Results%20October%208%202013.pdf>

Womack, J. and Jones, D. 2010. *Lean Thinking: Banish Waste and Create Wealth in your Corporation*. New York: Simon and Schuster.

Yeniyurt, S., Townsend, J., Cavusgil, S. and Ghauri, P. 2015. Mimetic and experiential effects in international marketing alliance formations of US pharmaceuticals firms. *International Business Strategy: Theory and Practice* 40, pp.301-320.