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A learning approach

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Policy and Causality: A learning approach

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Abstract

This paper argues that understanding causal connections is central to effective policy application and implementation. It makes the case that most approaches to understanding causality are accountability oriented. That is, they tell you if an intervention caused any change but do not identify the mechanisms that led to that change. Consequently, we only know that the policy intervention worked in that setting for those people. Because we do not know what mechanisms led to that success, we do not know if it will work in another setting with different people. The policy maker therefore cannot make an informed decision about how to proceed in future. The paper presents a framework for a learning-oriented approach to causality that focuses on understanding the mechanisms that were successful, with whom and in what context so that the policy maker can determine where else the intervention might work or what other mechanisms or adaptations might be necessary in the new setting. The paper concludes with a discussion of the implications of a learning framework for development programming. It does so through a consideration of an experience on strengthening evidence-based policy in Indonesia.

Key words: Causality, mechanisms, theory of change, complexity, systems, policy, Indonesia

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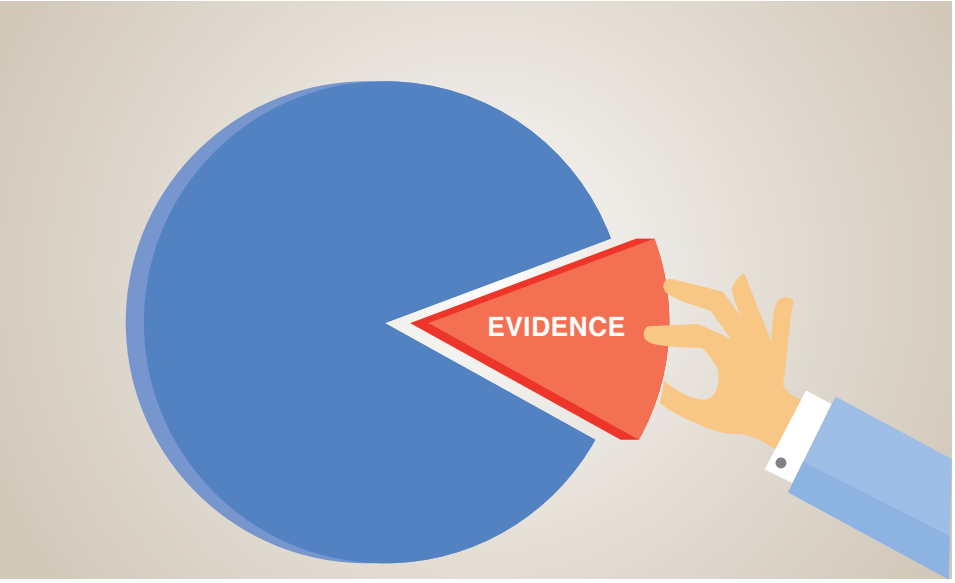


Using science as evidence in public policy is the title of a publication of the US National Research Council (2012) that looks at how to improve the use of science in policymaking. The publication makes the point that understanding causality is an essential component in the use of evidence in public policy. Without a clear understanding of how a policy change happened – the causal connections – we are limited to an experimental approach to policymaking rather than building on what we have learned. Causality helps us to identify the links between policies and their effects.

What we mean by causality and how we understand it are much debated and discussed. In public policy, a lot of the debate is around the merits of randomized controlled trials (RCTs) to identify causal linkages between interventions and outcomes. (*inter alia, Basu*, 2014; Befani, 2012; Cartwright, 1999, 2002, 2007, 2010; Cartwright and Hardie, 2009; Deaton and Cartwright, 2016; Cingolani and de Combrugghe, 2012; Pawson, nd(a), nd (b), 2009, 2013; Pearl, 2009; Weiss, 1972) Some argue it is the only true certainty, the 'gold standard' for identifying causality; others argue that in this complex world, there is no singular identification of cause and no one method that will treat all situations. There is no dispute that when conditions are correct, a randomized controlled trial will indeed be able to tell with certainty whether an intervention caused a result. The argument of those who reject the 'gold standard' label is more that there

are few of these situations and to apply an RCT inappropriately will mislead which could have devastating policy consequences. The argument goes deeper than this though to make the case that what worked in one setting may not be easily transferrable without more learning than the randomized controlled trial encourages.

The fundamental question for a policy maker is, will it work for me and my constituency, and what return do I get? Trying to answer has three parts: how do we know what works? For whom does it work? And in what contexts does it work?

This is important for the policy maker. By knowing these things, the policy maker is in a much better position to judge the merits of a particular policy adaptation: *If I adopt this policy position that appears to have been successful somewhere, will it be successful for my constituency? Who will the policy help? Who might it hurt? Where should the policy be applied and where should we find an alternate approach?* With understanding of the causal connections, the policy maker can more easily monitor the implementation of the policy. Of course, there are always political and personal considerations at play, so we can never assume that a clear causal connection will suffice for action. But, here, we focus on the issues in causality that can better inform decision processes when these align with other decision factors.

The answer to these questions also increases the comfort level of the policy proponent to have that insight into the evidence and to present it with more confidence know who it will help and who not.

This paper will briefly explore approaches to causality to understand the key issues and debates and what they imply in the policymaking environment. The purpose is not an extended treatise on causality but rather to identify what we have learned so far, and what we might use in looking at the use of evidence in the policy process. What frameworks can we test that will help us answer these questions in a way that increases the confidence of researchers and policy makers in their decisions in what is oft described as an increasingly complex and uncertain world? If we think of policy as "a set of principles laid out for the purpose of regulating simultaneously and in a viable mode, a magnitude of interacting relationships" (Jantsch 1975: 6), then we need to think differently about what constitutes a realistic policy; we can no longer think about each policy in isolation but rather about the set of interacting policies that affect a society.

This paper holds to the view that the complexity of our societies today is such that traditional approaches to decision making do not hold and need to be rethought (Aida et al. 1980; Jantsch 1976, 1980; Kauffman 1995; Dumouchel & Dupuy 1983; Gell-Man 1994; Mayne 1999; Patton 2011; Pribram 1985; Prigogine 1980, 1984). As Mitchell (2009: 88) argues, "We need to rethink how we model uncertainty in these systems and rethink the predict-and-act model itself in a complex world."

Finally, the paper will argue that to date, approaches to causality have been largely driven by accountability concerns (Did the intervention work?); what we need to complement that information is a learning approach to causality that is adaptive for complex settings and in particular multi-pronged and multi-faceted interventions (For whom did it work, in what ways and in what contexts?), so that we can better understand where else the intervention might have potential for success.

Building on the review of the causality literature I then propose a framework for a learning approach to identifying causal linkages. The aim is to support programs to build a better understanding of the mechanisms behind the success – and failure – of their interventions, thereby enhancing the potential for future success. The framework will be considered in the context of a project in Indonesia that is focused on enhancing the use of evidence in public policy.

This framework is built from experience with the Knowledge Sector Initiative (KSI) in Indonesia. KSI is a joint programme between the governments of Indonesia and Australia that seeks to improve the lives of the Indonesian people through better quality public policies that make better use of research, analysis, and evidence. (KSI Website)

The Knowledge Sector Initiative summarises this work by articulating six key barriers to a healthy knowledge sector in Indonesia:

1. Insufficient funding and low quality of expenditure on research;
2. Inadequate availability and accessibility of data;
3. Low quality of research and analysis;
4. Inadequate rules and regulations for producing, accessing and using research;
5. Limited interaction between producers and users of knowledge in the policy making process; and
6. Low capacity to demand and use evidence on the part of policy makers.

Building on these barriers, KSI works across the elements of the knowledge sector in a systemic way. It supports improvements in the production of knowledge, supporting policy research institutes to improve their policy research; it works to enhance knowledge demand and use by working with policy making organisations to improve their use of evidence; it works to support better communication of evidence in the policy process to inform public debate and enhance the use of evidence in advocacy efforts; and it works to eliminate the legislative, institutional and organizational barriers that mitigate against effective use of evidence in policy making.

2 What is causality?

Causation I argue is a highly varied thing. What causes should be expected to do and how they do it - really what causes are - can vary from one kind of system of causal relations to another and from case to case. (Cartwright 2007)

The overview article on the website for the Sackler Symposium on causal inference (National Academy of Sciences 2015), makes the point that "causality is a vague and poorly specified construct for complex systems," yet as Richard Shiffrin noted in his introductory remarks to the Symposium, "causality is the primary way humans come to understand what the data imply." Thus, the issue of causality is not a philosophical or academic one. Rather it is of fundamental importance in the very real public policy domain. But the causality question is an extremely difficult one to answer in many cases. There are many approaches and often different answers. And there are some who argue that most research is false (Ioannidis 2005), further complicating the search for useful evidence.

Causality is concerned with understanding the effects or impacts of an action. It is about the answer to the question, what made this happen? And given the importance of context and our knowledge that not everyone is affected equally by a policy intervention, for whom does it work? How and in what contexts does it work?

In our view, causality is about trying to bring evidence to bear on how and why things happen, not only whether or not things happen. The amusingly titled paper by Ray Pawson (nd b), *Reducing Plague by Drowning Witches* makes the important point that what makes intuitive good sense given a certain set of values and beliefs (witches are evil; plague is evil; witches cause plague and must die), does not mean that there really is a causal effect.

There are multiple approaches to defining and assessing causality, but here I will focus on the descriptions by Cartwright and Pawson to illustrate the range of approaches. Both have a particular approach they prefer in most cases but also describe alternate approaches well. Both have a strong focus on understanding the effects of an intervention that defines benefits for who and in what context, increasing the opportunity for further use of the approach in other settings. In exploring a learning approach, this is fundamental. And in exploring a learning approach to causality, this perspective is fundamental.

In her work, Cartwright (2003) describes a range of approaches to the identification of causality that are in use, including probabilistic causality (e.g., bayes-net methods, Pearl 2000); modularity (which call for each variable to be independently assessed, Hausman and Woodward 2004); invariance (within modularity, strengthens in linear cause-effect relationships the predictability of causal relationships); natural experiments (the opportunity to test out an experiment in a natural setting) (Rosenzweig & Wolpin 2000); and causal process theories (which are useful where there is no simultaneous cause and effect) (Collier 2011). All of these, including Lewis' classic counterfactual theory of causation, are covered in numerous sources such as Hulswsit (2002), Collins, Hall and Paul (2004), and the wide-ranging Oxford Handbook of Causation (Beebee, Hitchcock and Menzies 2009) that covers theories and perspectives on causality from the early Greeks to the present day.

In her review, Cartwright notes that these accounts all have merit in specific situations, but that not one of them is universal. She further makes the point that, "A notion of causality geared to conditions that obtain in an experimental setting – whether it occurs naturally or is contrived by us – is not likely to fit well for a large variety of commonly occurring systems that other accounts will count as causal" (Cartwright 2003: 10). In her review of these approaches, Cartwright systematically reviews the strengths and weaknesses of each, drawing the conclusion that each has its merits and each has its drawbacks. She argues that there are no common features that cut across these approaches, and that ultimately "there is a variety of different kinds of causal laws that operate in a variety of different ways and a variety of different kinds of causal questions we can ask." (Cartwright 2003: 12). This opens up a very different approach to understanding causality because we no longer need to seek a universal perspective on causality; nor do we have to defend one approach as better than any other: the issue is, best in what context?

So what happens to rigour? Do we then simply accept the causal arguments that fit our points of view? Cartwright notes that logical consistency plays a key role here. Clarity in your logic, what you establish as the axioms or assumptions, must be followed in making the case for a causal connection using whatever model of causality that you employ. In Evidence-Based Policy (2012), Cartwright and Hardie make the case that you need to be able to build an "argument pyramid", that is a conclusion that rests on several major premises, each of which has sub-premises (i.e., a theory of the intervention or a theory of change). This allows you to assess the degree of confidence in your conclusion – are there sub-premises missing or for which you are not fully confident? In effect an argument pyramid is a way to structure qualitative information that presents a coherent, logical and compelling argument for a causal claim. When evidence about a key premise to your conclusion is missing, your position is weak, your causal pyramid will not hold up, and your ability to claim a causal relation is doubtful.

Cartwright (2002) stresses the particular over the universal and proposes the need for "thick

causal concepts" that are rather more detailed and descriptive than the causal formulae that will be discovered in many economic studies of causality. The point of thick causal concepts is that they explore why things happened the way they did so that you have much more detail about the mechanisms that were at play, how they reinforced each other, why they were successful (or not) with a particular population and in a particular setting. But more than this, the point of digging into the detail is not to stress the uniqueness of each situation, but in fact to build a better base of knowledge about why things happen in order to help build general theories that can then be more realistically tested and adapted in other settings.

Pawson's approach is somewhat similar to Cartwright's (Pawson nd(a), nd(b), 2009, 2013). Like Cartwright, for complex settings he adheres to an approach that requires a theory of change in an intervention as its starting point. In the international development field, current approaches to building theories of change tend to see these developed often by the evaluation team and sometimes after an intervention has launched. This is not the approach advocated by either Cartwright or Pawson. They both hold the view that developing a theory of change is the responsibility of the program team (with whatever assistance they need) prior to the launch of the intervention. The point they both make is that an intervention should be based on an hypothesis about why it might work – a theory of change. That hypothesis should be made explicit in the design of the intervention. Of course, anyone launching an intervention has a theory of change in mind, but if the theory and the mechanisms it will employ are not made explicit, it is much harder to assess progress, harder to ensure that the right data is being collected along the way, and even harder to make the causal connections. Being explicit opens the opportunity for learning as you test your hypotheses against the realities of implementation and develop some propositions about causal connections between policy and its effects. This is therefore foundational to a learning approach to causality.

The approaches we raise here make some assumptions. The first is that we are dealing with complex systems in which future action cannot be simply determined based on experience. The second is that systems are constantly evolving and ongoing adaptation will be necessary. The third is that the challenges we are dealing with are 'wicked problems'. Wicked problems are problems that are resistant to solution, have many highly interdependent elements, are unstable and require incremental approaches to addressing them (Australian Public Service Commission 2012).

Pawson proposes three major streams of causal connection which are discussed below.

Successionist Causation

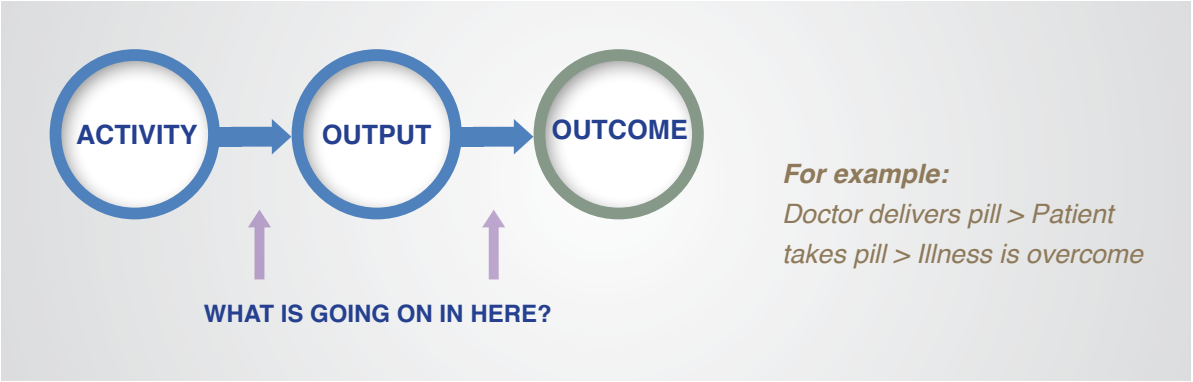
The first is successionist causation. This is essentially the linear model of causation, in which an intervention causes an effect:

Activity → **Output** → **Outcome**

This is the most commonly understood approach, and assumes that you can separate out one intervention against a variable and determine if any causal relationship exists. Sometimes this can be done such as in a drug trial. Randomized controlled trials are a method of choice in this situation.

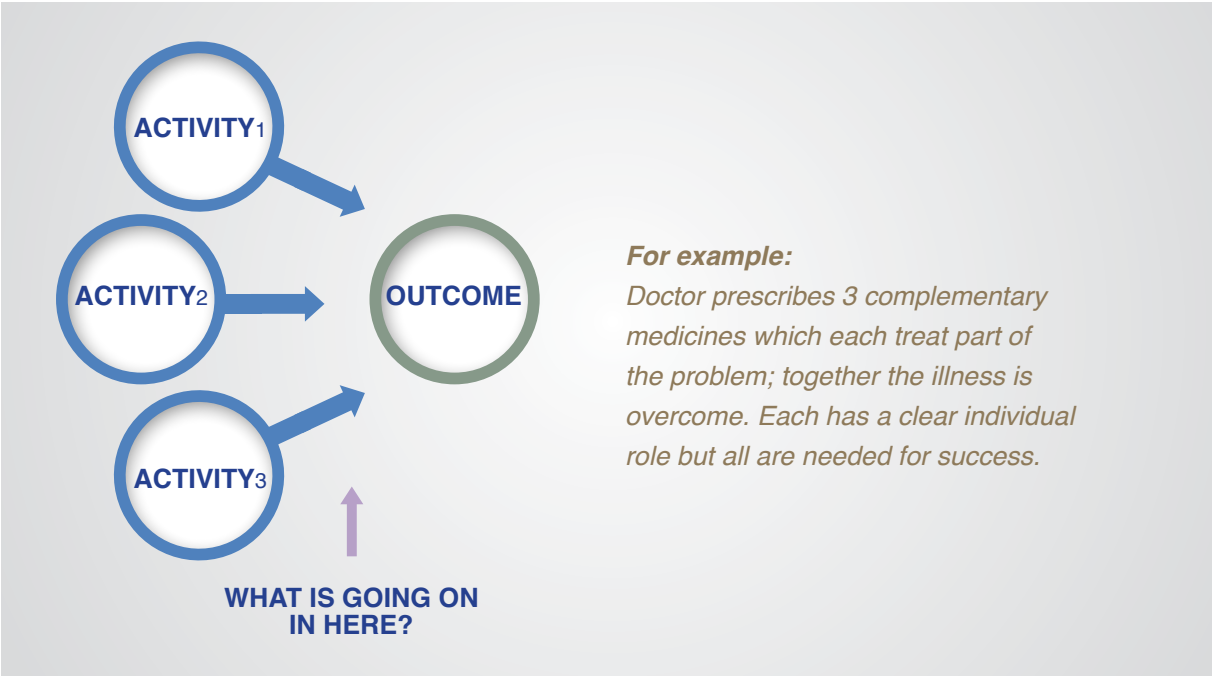
The challenge is that this approach does not tell you what is going on in the process – why does the activity lead to an output? How does this contribute to the outcomes? It can only tell you that the activity has a causal connection with the outcome or it does not.

Figure 1: Successionist causation



There can also be some recognition that there may be more than one intervention or activity that leads to a change:

Figure 2: Successionist causation



The approach also help to isolate the activities and determine which if any are really spurious causes that can be eliminated. But it still leaves you unclear on the process: as I note in Figures 1 and 2, what is going on in the arrows, the connections between activities, outputs and outcomes?

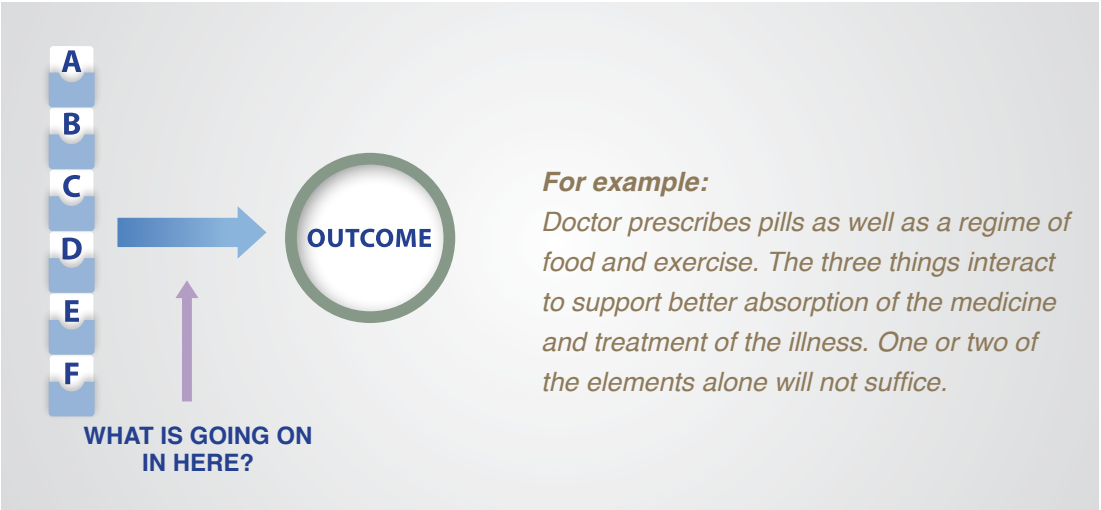
Configurational Causation

A weakness commonly identified in successionist causation is that often in society it is sets of factors that lead to change rather than individual factors that can be easily separated one from the other. This is called configurational causation. The distinction here is that while in successionist causation, even where there are multiple activities involved, each one can lead to the change in some form and each can be specified in its own right, whereas in configurational causation, it is the combination, the set of factors, that is important. They cannot be disentangled one from the other and treated

individually. Rather, as in a system, we are trying to identify the critical components that work together to lead to the policy outcome we are seeking. In Figure 3 below, are all of A-F part of achieving the outcome or is it actually a sub-set of A-F that is important? The key to future success is in teasing out what is essential so that resources can be deployed to meet the goal, without unnecessary expenditures of time and money on non-essential components of the intervention.

This approach helps in identifying key attributes that work together in different contexts to generate change. Qualitative Comparative Analysis is a method developed to address this challenge (Rihoux and Raigin 2009). It requires the development of a theory as a starting point and leads to the identification of which set of attributes are most important in each setting. A subset of the attributes identified in the initial theory will lead to some kind of change in certain settings; as well the same subset of attributes may lead to a different change in another context.

Figure 3: Configurational causation



It is a major shift in approach and takes more of a systems view. But it is still focused on identifying the key attributes (A-F) rather than on how the attributes contribute to change (the ubiquitous arrows). So, we know significantly more than with successionist causation but we are still speculating after the fact about the mechanisms at play. And it is in the mechanisms and their interaction with the context that we can identify how to use this success in future interventions. The attributes (the boxes) are indeed important but it is the "how" that is found in the arrows that helps us figure out which attributes work, in what ways and where.

This leads us to Pawson's third and preferred approach to looking at causal attribution in complex settings.

Generative Causation

The third approach to causal analysis that Pawson discusses is generative causation. Generative causation starts from a full theory of what happened and why. It looks at the mechanisms for change rather than the attributes of change that the theory suggests (See Figure 4). The mechanisms address the "why": what is it that makes an intervention successful in a particular context and with a certain group of people? Why are they willing to engage in the intervention (see the treatment example below) and how do we understand the mechanisms that support change and apply them elsewhere? Once identified, generative causation then tests these mechanisms. This is a key difference with the first two accounts which use analysis after the fact to come up with a theory that matches the evidence. What Pawson argues is that this can

leave significant holes in explanation: because we have not thought about the possibilities in advance it is more likely that we will miss collecting data on some of the key factors and mechanisms involved in the change. As a result, we are only positing causality based on the incomplete data that we have collected. This in effect is the logic behind a theory of change: that in order to make the best possible progress and to be able to know whether or not i) you are making progress and ii) your theory holds, you need to be explicit before you start about what it is that will create the change you seek to achieve. Generative causal models then are the models that best fit the needs of a theory of change approach for intervention in a complex policy environment.

In a generative approach, the mechanisms are powerful because they are explanatory; they explain why things turn out as they do and they are key to the theory of change. They answer the question left hanging in the other two approaches – what is going on in the arrows between activity and outcome? They are about explaining the choices that people and organizations make that result in things turning out as they do.

For example, when someone chooses to take a medical treatment, there are mechanisms behind that, just as there are mechanisms behind the choice to not continue treatment. Importantly this is about more than the medical effectiveness of the treatment (which has itself been assessed in a randomized controlled trial), but about the mechanisms behind the decisions a patient makes to continue treatment, stop altogether or make modifications to suit his or her own lifestyle. People make choices for a range of reasons. Some reasons are individual (e.g., dietary restrictions are not acceptable to the person under treatment); some reasons are interpersonal (e.g., a lack of social support from family and friends, differing opinions among medical professionals); some reasons are organizational (e.g., discomfort with the regulations and regimes that need to be followed as part of treatment, getting time from work for regular medical follow-up may be difficult, etc.); and some reasons for not following through on treatment are infrastructural (e.g., getting a bus to the treatment centre from home is indirect and time consuming and may conflict with work or family commitment schedules). Understanding these choices is what allows us to test ways to improve the success rate in treatment. Understanding the mechanisms requires an understanding of the contexts because how mechanisms act and react are dependent on contexts. Contexts rather than context, because context has to be thought about at the four levels noted above: personal, interpersonal, organizational, and infrastructural (or institutional). And at each level, there are social, political, economic, technical and environmental constraints and

Figure 4: Generative Causation
Source: Pawson. 2006: 22

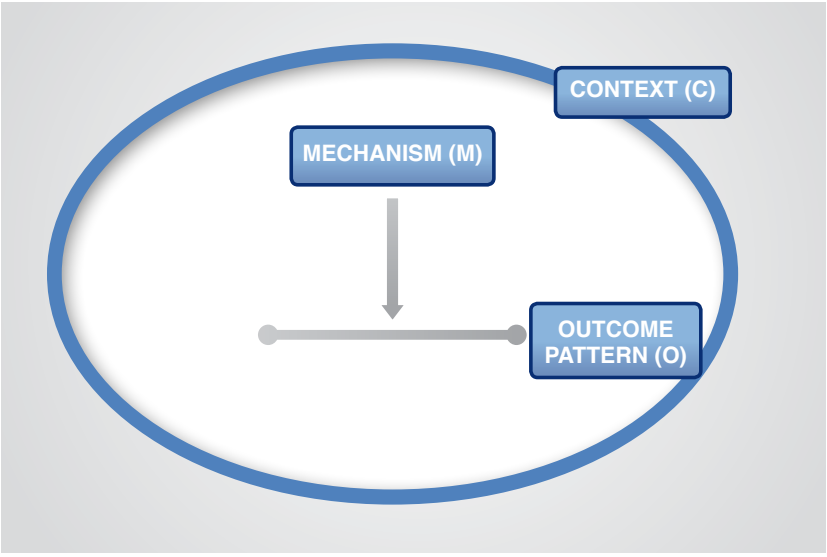


Figure 5: Decision context map

Decision/Action Levels	Constraints and Opportunities				
	Social	Political	Economic	Technical	Environmental
Institutional / Infrastructural					
Organizational					
Interpersonal					
Personal					

opportunities (see Figure 5). Pawson calls these "*capacitated, constrained, collective, contested* choices that constitute the basic mechanisms of social explanation" (Pawson nd (b): 15). Understanding how these choices get made is the key to being able to re-use the intervention effectively in other settings, because this is how you can identify what works for whom, and in what contexts. Knowing the treatment actually works is essential (successionist causation). But knowing how and why calls for a learning-based approach to causality. A learning approach is based in generative causation because it is about identifying the mechanisms that act in contexts to generate an outcome. As Funnell and Rogers note (2011: 248), this "approach to causal mechanisms includes attention to both agency [individual choice and action] and structure [socio-political contexts]." It is in understanding this that we can apply the mechanisms in other settings.

A key opportunity in assessing causality in this way and also in the way Cartwright suggests (thick causal connections and evidence pyramids), is the ability to re-use the evidence for the design of future interventions. In both models, it is easy to treat each situation as unique, that we start each time *tabula rasa*. But both Cartwright and Pawson are concerned with generalizability and with building on past experience to learn for the future. Both call for an explicit theory of change as a starting point for an intervention and as the starting point for assessment. As we collect assessments and look across them, the findings from a number of assessments will begin to build more general theories of change that can then be applied to new settings. This allows a theory to grow over time, become more explicit and refined and, as a result, serve an increasingly wide range of interventions. But this calls for systems to manage and share findings across multiple assessments rather than making them accessible in a dispersed manner, something akin to a Campbell Collaboration (which focuses on systematic reviews looking at attributes; see www.campbellcollaboration.org) but for systematic reviews of theories of change that is focused on mechanisms of change.

This rather broad and necessarily brief sweep across the literature on causality does not pretend to depth in exploring the various approaches. It presents the main approaches using two lead authors and focuses primarily on the approaches that appear to have the most relevance to the policy maker and to the development of a learning approach, who needs to know not only whether or not something worked, but what can s/he reasonably expect to happen if the same intervention is tried again somewhere else. Causal accounts in this situation need to give

the policy maker enough information about the contexts and mechanisms that were at play in order to figure out how to apply the intervention for maximum success in another jurisdiction.

We now turn to the point made in the introduction, that the question now is looking at how to build a learning approach to causality to support the use of evidence in policy arenas.

3 Accountability, learning and causality

The argument is made here that causality needs to be re-thought to be more relevant to policy making. Until now, the focus on thinking about causality has primarily been on accountability. That is to say, we have been focused on the question, did the intervention work, and we gathered evidence to answer that question. This is important and is not to be diminished. We need accountability for actions that are taken; we need to know if interventions are successful or not. For this we often use experimental methods, such as randomized controlled trials (in the development field, see in particular the Abdul Latif Jameel Poverty Action Lab for use of randomized controlled trials in the evaluation of development interventions), and quasi-experimental methods such as regression-discontinuity designs (Lee & Lemieux 2010). This perspective which is central to medical trials to understand cause-effect relationships in medical interventions, is the original perspective on evaluation that proposes RCTs as the 'gold standard' in impact evaluation. (A randomized controlled trial is an approach to examining causal relationships that is rigorous and precise. Under the right conditions, it allows to make a clear claim about causal connections between an intervention and an outcome. But do achieve this it requires precision in the intervention – it can be clearly separated from other interventions – and an opportunity for a counterfactual – or comparator population that did not receive the intervention.) But it should be clear that what they are telling us is that the intervention worked in a specific place at a specific time (Cartwright 2012). Accountability perspectives

on causality do not address how it might work (or not) somewhere else, because they do not expose the mechanisms and their interactions with contextual factors that made it work. They look back and largely give you a yes or no answer – which for accountability purposes is the main thing that you need. From this perspective, they are a look at the past not a guide to the future. Those who conduct the studies may speculate about the mechanisms that drove success and extrapolate to other contexts but they are speculating (i.e., guessing) rather than building on evidence.

It may be the case that sometimes in public policy that is all we want to know: did the intervention work or not? In this case, a traditional impact evaluation[1] can be valuable as it will likely give some indication of the level of success of the intervention in a particular case. This is an accountability approach that is useful to policy makers in making the case after the fact that they have made the 'correct' choice and to be able to defend that choice. But it does not help them to understand the mechanisms that were involved in the success. Nor does it tell them that the intervention will be successful in future or in a different place. Consequently, they cannot transfer it effectively to use in other, different settings.[2] As Cartwright and Hardie note, an impact evaluation carried out as an RCT can tell you clearly that an intervention worked in a particular setting at a particular time, but "they do not tell you why that is relevant to what you need to bet on getting the results you want here [i.e., another setting]." (2012: ix). The policy maker looking for confirmation and evidence of success (in that setting) can make effective use of the study to demonstrate past success. Using it for future considerations is a quite different matter.

The policy maker who is puzzling with how to make use of an apparently successful intervention in another community, another province, another sector, does not have the information necessary to move ahead with confidence. S/he does not have the information about why the policy worked, who was positively affected by it (and who was negatively affected), and what conditions were at play in the physical, institutional and socio-economic environments that made it successful. In other words, the policy maker does not have a grasp on the mechanisms that helped create the success. And these mechanisms are, i) dynamic - they change over time; ii) heterogeneous - constrained by context thus looking different in different contexts; and iii) made up of multiple interacting components - which also change the intervention over time. (Sridharan 2015) Further, as Mitchell (2009: 99) notes, "since science is an ongoing process of discovery, our assumption should be that we will need routinely to update our policy relative to what we discover."

To date, causality has been treated largely as identifying if something worked, not where, for who and in what context. It focuses on a point in time when in fact the setting is dynamic; It does not deal well with heterogeneity but rather focuses on averages; and it tends to look at interventions discretely rather than at the relationships among actions and events. This does not tell us much about how we can use that treatment except in precisely the same conditions and with precisely the same population. Because conditions change and populations are not the same from place to place, in the policy realm, we are more interested in the factors and conditions at play and the relationships among them that made the intervention successful. Absent that knowledge we cannot make informed use of the evidence. The rest of this paper will focus on considerations for a learning approach to causality.

In sum, the issue here is not the wholesale rejection of accountability or learning when we look at causality. The issue is clarity of what you are trying to discover. If we are seeking to understand **if** an intervention had a causal influence, then we can use an accountability approach. If, however, we want to understand

1 Of course, not all impact evaluations are carried out using randomised controlled trials. Multiple methods can be used. The point here is that we are focused on the past, not on the present and the future.

2 I hesitate to say 'replicate' here because social interventions cannot be simply duplicated in a new place as each place has its own unique characteristics. This is precisely why it is important to understand the mechanisms.

how, in what ways, for whom and in what contexts effects were seen – that is the **mechanisms** of influence – then we need a learning oriented approach that will help us go deeper into what happened in the intervention and embraces the dynamic context within which new policies will be implemented that can make use of the findings. The starting point is the question we need to answer rather than the method we will use. Below we unpack what a learning approach to accountability implies.

Understanding the factors behind policy implementation was given a tremendous boost in the 1973 publication of: *Implementation: How great expectations in Washington are dashed in Oakland; or, why it's amazing federal programs work at all* (Wildavsky and Pressman 1973). This account of policy implementation failure gives us insights into the challenges in establishing causal links in policy processes, especially when we come to the implementation phase of that policy. This study tried to understand why policies were failing when they were rolled out. The authors make the case that implementation of federal policies in the US was stymied by a complex set of rules and approvals to ensure consistency in application that virtually guaranteed failure. That failure was in part due to the challenges of inter-agency cooperation and coordination, but also because Oakland is not Washington, is not New York, is not rural Wyoming, and so on. Based on a policy working somewhere, there was an attempt (and it continues in many ways) to apply the same policy everywhere and expect the same results. The book illustrates the role of the heterogeneity of place in policy implementation failure. Effectively it demonstrates that we are learning the wrong things if we want to apply the policy intervention in another setting with a different group of people. All we really learned is how we could apply it again with the same population in the same setting.

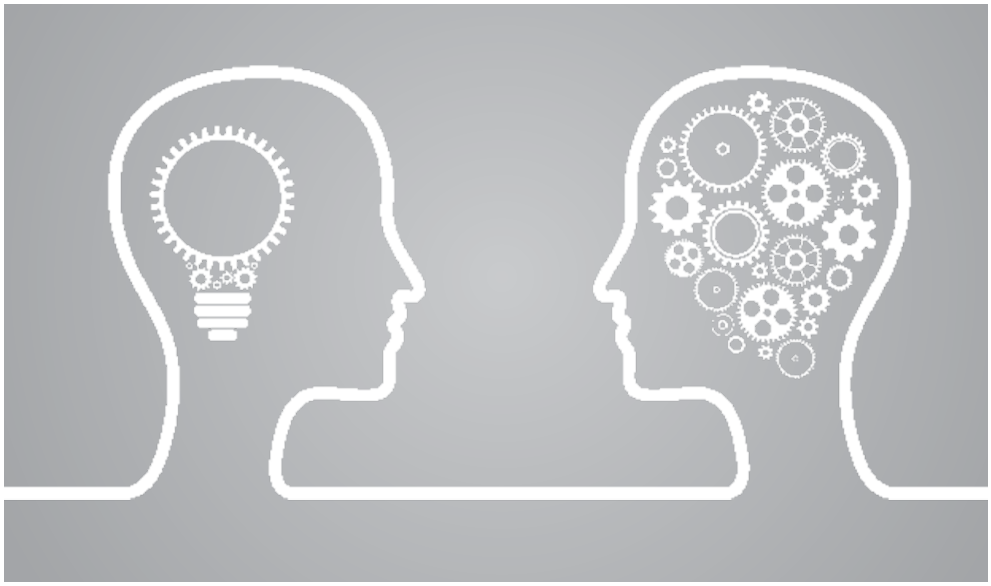
To move past this challenge, and to be truly relevant to policy making, identifying causality needs to move into the learning space so that we can use what we find to improve and adapt successful policies to new contexts. As Cartwright and Hardie (2012) note, if we only know if the policy was effective in a location (or it failed), we do not know enough to learn for the future. We need to know much more about who it worked for (and who it did not), and where it worked (and where it did not). It is the fine grain that matters rather than averages, particularly if we are concerned with reaching marginalized populations such as the ultra-poor. A learning approach to causality takes you beyond what works, to understanding why, where and for whom it works.

The model for evidence-based policy (morphing into evidence-informed policy) is a medical one, where the criteria for bringing a new drug to market are stringent and fairly clear cut (gaming the system does occur but is usually discovered). You must be able to demonstrate that the treatment (drug or therapy) is directly linked to curing a specific condition and that the harm it might cause is significantly outweighed by the benefits to the individual and to society. Testing is a rigorous, multi-stage process, including a randomized controlled trial at stage 3, before the treatment is declared effective or not. This one-to-one relationship is relatively easy – not easy in and of itself, but easy compared with testing the many-to-many relationships that hold in many social programs. In the medical test, we can double blind (i.e., the person dispensing the treatment does not know if it is the actual treatment or a prophylactic), to eliminate unintended bias. But in the social sphere, we cannot blind. So, we have to introduce methodological innovations. And these innovations need to take account of a host of conditions. Evidence in social policy must dance with values, the quirks of human decision making, and with politics in ways that are very different from medical research. It is this that makes social policy so challenging and causality claims so difficult. This challenge is compounded particularly when we attempt to break them down into logic models that require a limitation on the number of intervening variables and a logical consistency that is inconsistent with human behavior.

We need to be clear that what we are trying to understand is **how** the activity or policy

leads to the output and the outcome. We need to understand the ubiquitous arrow that fills log frames and theories of change. We know what the activity is, and usually how well it was conducted and what its direct outputs were. We can trace through to its outcomes in that arrow. But what we really need to know about is what is going on in those neat little arrows (or lines connecting the boxes) that lead from activity to outcome. What leads us to believe this will all happen? What are the changes that are happening in how people behave, in what they do that allow the output and the outcome to be achieved? And what is stimulating those changes?

4 Factors in a learning approach to causality



The explanation is pursued by creating and testing theories of how and in what contexts causal mechanisms operate. (Pawson nd(b): 22)

Learning about what causes what means building propositions about what mechanisms are working in what contexts and testing these propositions. In that sense, generative causation does not look at whether or not the programme "works" but at understanding the context in which the intervention takes place, how individuals and organizations respond to the intervention, what causes that reaction and how then an intervention can be repeated or modified to improve the chance for success. The programme is the vehicle for change; the mechanisms are the causes. As propositions are solidified and clarified, they can be applied in other settings. This is the strength of generative causation. Theories endure, but are also meant to be improved and changed as conditions change, and as they are applied elsewhere.

The framework will build on the mechanisms identified in *Knowledge to Policy* and extend these through other studies, among others, Patton et al. (2007), Patton (2011), Andrews (2013), Armstrong (2013), Weyrauch et al. (2016), Waddell (2010 & 2016), and Georgalakis et al. (2017). Below I outline the key principles that guide the approach, the main

elements to consider and the key characteristics of a learning approach to identifying causal connections.

Causal Principles

Based on the review above we follow the causal principles identified by Cartwright and Hardie (2012: 52). They identify three causal principles that hold for a learning-based approach to predict whether or not a policy will work:

1. "The causal principles that underwrite policy prediction are not universal;
2. "Few causes work on their own; causal factors work together in teams;
3. "There are generally a number of distinct teams at work in any situation, each making its own contribution to the effect."

Key Elements in a Learning Approach

Four key elements are identified in the development of a learning approach to causality.

1. *Clarity of Vision around the change to which you intend to contribute*
   This is not an abstract sense of vision as 'a better world' but a vision about who will be doing what differently, what changes will be enacted if you are successful (Earl et al. 2001).
2. *Clarity of Mission around what you will be doing to move towards the vision*
   Any policy intervention can never address the full scope of a vision. Therefore it is critical to define precisely what you will be doing in the intervention to contribute to the change you want see (Earl et al. 2001).
3. *Setting a clear theory of change*
   A theory of change identifies the mechanisms for change and is the centerpiece of a learning approach to causality. As argued by Cartwright earlier, clarity of the logic of your argument underpins your ability to identify whether the mechanisms you have identified contribute to change and whether or not you can make causal linkages. This means identifying key boundary partners (the individuals, groups or organizations with whom you will work directly) as well as the key activities you will support, and understanding the relationships among the actors and activities and their contexts.
4. *Using the learning*
   The ability and agility to not only monitor but also to make adjustments based on findings is the final key element of a learning approach to causality. As Doris Lessing noted (1987: 16), "There is no such thing as my being in the right. . . because within a generation or two, my present way of thinking is bound to be found . . . quite outmoded by new development." Change is ongoing (and usually does not take a generation or two), and the ability to recognize and adapt is essential. This calls for new approaches not only by the intervenor but also by the institutions that circumscribe their ability to act.

Characteristics of a learning approach to causality

The main characteristics of a learning approach to causality are summarized in Figure 6 and contrasted with the characteristics of an accountability approach. The characteristics are discussed is some detail below.

Figure 6: Characteristics of accountability and learning approaches to causality

Characteristics of Approaches to Causality	
Accountability	**Learning**
• Proof Oriented	• Future Use Oriented
• Intervention Focused, not concerned with priors	• Builds on prior knowledge
• Uses scientific knowledge	• Embraces multiple forms of knowledge
• Focus on averages/low variation	• Focus on variation
• Theory-free	• Theory-based
• Experimental methods preferred	• Mixed methods
• Precise	• Balanced
• Assumes symmetry	• Assumes asymmetry
• Little concerned with context (which has been frozen based on parameters)	• Takes account of dynamic political and institutional environments

1. Future Use Oriented

   The point of a learning approach is to use the learning for improving interventions. If the only question is about whether or not the intervention worked, a learning approach – which takes more time and hence more resources – is not needed. A learning approach answers a question we have about whether and how to use the intervention, or some elements of it, in the future. For use, we need to understand not only what works, but as discussed earlier, for whom and in what contexts. Few if any interventions are universally good. They tend to benefit some groups more than others. Even when an intervention sets out to benefit a particular group if it does not have the right theory of change it will not succeed. For example, the 'Have a Heart Paisley' program in Scotland set out to improve the health services and ultimately health outcomes for the poor. What the evaluation uncovered is that the program was effectively accessed by some poor people, but its intent to reach the poorest of the poor failed. The locations for access and the information for access was daunting for that group. As the program was not monitoring for this until the evaluation at the end they were not able to correct for it during the program. (Blaney et al. 2004) This means that a learning approach is not used if the only question is whether a policy intervention succeeded or not, with little concern for what we might use from this experience in future. As such it is the first point of clarity in determining whether or not to put the effort into a learning oriented approach.

2. Builds on prior knowledge

   Unlike an accountability approach, which takes each intervention as unique and is not concerned with priors that may affect the program, a learning approach takes account of prior knowledge. It considers what we already know when building the theory of change and considers prior knowledge in understanding what happens in the intervention. This means asking how this intervention builds on past experience and when looking at causal connections, embracing the evolutions introduced over time.

3. Embraces multiple forms of knowledge

   Knowledge is not only scientific knowledge.

There is evidence to suggest that other forms of knowledge influence public policy. In a study of ten cases of the use of local knowledge in public policy in Indonesia, Nugroho, Carden and Antlov (forthcoming) identify three forms of knowledge – scientific, professional and local. Scientific knowledge is what we usually think of as having influence. Professional knowledge which is based in think tanks and the bureaucracy is also identified as having influence. The cases of local knowledge demonstrate influence on public policy through advocacy as well as use of the arts. In its framework for assessing research quality, the International Development Research Centre includes 'engaging with local knowledge' as an important (sub-dimension of research legitimacy (Ofir et al. 2016). This means seeking out the knowledge in communities as well as the professional and scientific knowledge that guides policy development and implementation and being open to the differences this might imply for implementation in different regions.

4. Focuses on variation

   A learning approach to causality assumes that the effects of an intervention will likely be different in different segments of the population and in different locations, unlike an accountability approach which tends to mask variation by presenting averages – the Have a Heart Paisley program mentioned above thought it was doing well because the averages it was collecting showed significant improvement and success of the intervention on average. But it hid the problematic data about its key population of interest. A focus on variation means identifying and taking into account the different segments of a population that may be affected by a policy intervention as well as the different settings in which a policy intervention will apply. Tracking the differential effects is an essential component to policy implementation and adjustment. The concept of Gender Equity and Social Inclusion reflects this characteristic as an effort to ensure interventions address the gender implications as well as implications for minorities.

5. Is theory-based

   A learning approach assumes that you have carefully and clearly thought through how you expect the intervention will make a difference so that you can test whether or not it has indeed done so. This means that the design team must take the time to build a theory and the monitoring tools to assess progress. This is one of the most challenging elements in building any learning-based system because it requires active engagement of the design team and the time to build a theory that is robust. And it calls for consistent data collection. Colleagues noted a few years ago (Barreto-Fernandes and Ndiaye 2006:)

   > *Being busy creates a mindset that is not conducive to innovation and creativity. Without interaction, there is no innovation. Time to discuss, reflect and generate new ideas is the ransom that outcome mapping demands for innovation.*

   This means that the theory is not a box-checking exercise, but actively drives the action and reflection that is needed for successful policy development. Implementation calls for clarity about why you are doing what you do so that you can build a clear model of what effects the policy intervention should have. This model is the basis for understanding whether or not there are causal connections between the policy intervention and progress or change in any group affected by that policy.

6. Uses mixed methods

   In a learning based approach a multiplicity of methods is needed. There is no preferred method, no singular gold standard. Rather the ultimate test is whether form follows function: is the tool the best one to use

to gather the evidence that is needed? Qualitative and quantitative methods are relevant and are used in the measure best suited to the question at hand. The implication here is that no one person is likely to embody everything that is needed, so openness to engagement of the necessary expertise should be considered.

7. Focuses on Balance

   A learning approach to causality gives up some precision in favour of balance. This point here is that change is not absolute and immediate. Rather it is a slow, mediated process in which decision makers are always balancing evidence with values, perceptions, habits and other demands. As Pawson notes (2013: 43), "Minds tend to be changed slowly so the volition map should also sketch the pathways of persuasion, the sequence of choices a subject has to make." Therefore, a precise answer is sometimes less useful than an ability to balance the evidence with the other pressures and demands on the policy maker at a given point in time. Policy makers do not have the luxury of time in decision making. Further, they are constrained in the choices they can make. An incremental approach that considers the constraints and opportunities surrounding the policy decision has more potential for significant effect than an exacting assessment and conclusion that is not useable. The trend to talk about 'working politically' is a manifestation of this characteristic (Young & Marpaung 2017).

8. Assumes asymmetry

   As noted above, causality is 'a highly varied thing' (Cartwright 2007). The notion that knowledge is asymmetric is used to describe the idea that theory can never be proven; that is, it is always open to new proof that the theory is false, or over time the theory becomes false because of other changes taking place. It rejects the simple A causes B approach described above (see Figure 1). Thus, evidence is temporal and we need to remain open to the notion that our assumptions will not hold indefinitely, that new information will come to light that changes how events interact and affect each other. A learning approach to causality is never looking for definitive proof, but rather for the best possible explanation. As Pawson (2013) points out, this also leads us to the importance of building on prior knowledge and learning from past policy implementation as part of understanding if a new intervention will have the desired – or opposite – effect.

9. Takes account of dynamic political and institutional environment

   An accountability approach carries out its assessment at a specific point in time and bases its findings on the conditions that prevailed at that point. Given how quickly things can change in a dynamic policy environment, it often happens that the results are not seen as relevant to the future because conditions have changed so much – a new political party is in power, an economic or environmental disruption has taken place, and so on. These changes can severely limit how much of the data we can use from an accountability-oriented study that assumed the parameters would remain largely unchanged. The learning-oriented intervention is not seen as an end point, but as a step on the journey. This means that while we need to learn from past interventions to inform new ones, we can only do that successfully if we take account of the evolutions that are taking place in the institutional and political environments in which policy is being made.

Figure 7: Guiding factors in building a learning approach to causality

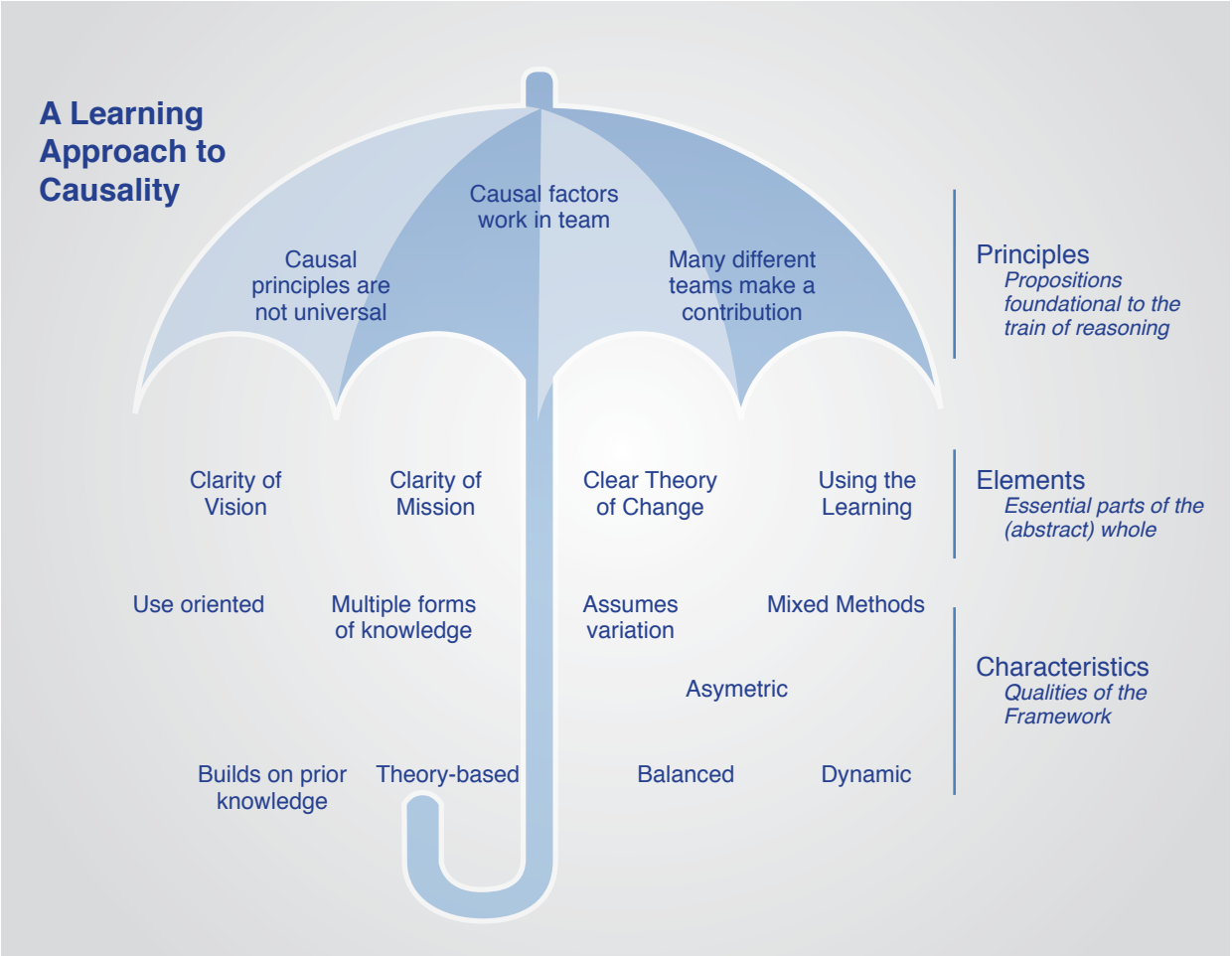


Figure 7 summarizes the principles, elements and characteristics of a learning approach to causality. Using this framework, we will turn to understanding the core mechanisms using the example of a study of the influence of research on public policy conducted by the author (Carden 2009).

4 A Framework for a Learning Approach to Causality

Knowledge to Policy (Carden 2009), looks at 23 cases of the influence of research on public policy. The cases were diverse, from agriculture, health systems, education, international trade and finance, resource management, and information and communication technologies. The study identified four key mechanisms in successful knowledge to policy undertakings – forging strong relationships; building networks and coalitions; effective communication strategies; and building the necessary institutions. These mechanisms emerged consistently across the successful cases, but were manifest in a variety of ways. How these mechanisms are used is highly contingent on the four things that make up the elements of the learning approach to causality: a clear vision and mission (the intent) with a clear theory of change (how the intent is to be fulfilled); and a solid understanding of the context in which the learning will be used to create change. Each of these mechanisms is discussed in turn. This will be followed by a discussion of what these mean in the context of a large-scale and long-term project in Indonesia, the Knowledge Sector Initiative (described on page 3). This is not meant to represent the universe of mechanisms nor does it tell you how and to what degree each mechanism is present in any intervention. It is but one set of mechanisms that emerged consistently across a series of 23 cases. Testing it against real projects will contribute to specifying it more and may suggest some additional mechanisms to be considered.

The Mechanisms

In many respects, the four mechanisms will come as no surprise to anyone who has thought about how policy influence happens. What is interesting is how consistently they emerged, and how differently they were manifested in different contexts. It is in understanding these differences that we find value in these mechanisms.

1. Building Relationships

   Relationships are key in affecting change and this is an area in which researchers are frequently challenged. They relate best to the data rather than other people and organizations but success in policy influence depends on being able to recognize the relationships that are needed to influence change. What researchers who succeeded recognized was that there were different types of relationships that mattered in different situations. In some, relationship with the affected community was the most important because it helped the community advocate for change. In others, it was direct relationships with policy makers that matters. In still others, especially where political instability reigned, it was relationships with bureaucrats that mattered the most. In still others, it was about the researchers being able to team up with others who were better at building relationships. The researchers who were most successful figured out the political terrain in which they operated and were honest about their own strengths and weaknesses, so that they could identify the inflection points in the system. They were also successful at building relationships of trust with their key interest groups.

2. Building Networks and Coalitions

   Few issues can be addressed by one piece of research or one organization. Issues are too complex for that and so networks among researchers become important. The ability to share research and work together on influence is also something that does not come easily to some researchers – the culture in research is often to demonstrate the uniqueness of your findings and specialization of your knowledge. Working in a network around an issue is a mind shift for many, but a transition that has been successfully made by many researchers. Coalitions, by which I mean networks that transcend the research community to include sometimes advocacy or community organizations, sometimes government are harder. Independence of findings is critical to researchers and many fear that joining a coalition will lead to pressure to dilute their findings or even hide some findings. This is a very real risk that needs to be addressed head-on in any given situation and serious thought needs to be put into what coalitions could work and which would undermine the evidence. Again, a solid understanding of the political context is part of making those choices.

3. Effective Communications

   Research!America (see link in references) was set up in the 1980s as an advocacy group to promote the role of research in improving health in the USA. One of their big efforts in the 1990s was to deliver courses to researchers on how to present their research in compelling ways. The researcher approach of presenting the hypothesis, related studies and their findings, the methodology, the limitations, the details of the study, etc., eventually getting to the findings, was getting in the way of getting good evidence to policy makers who had neither the time nor the technical knowledge to wade through the details in order to find the nuggets.

   This is a continuing challenge for researchers and the most successful that influenced policy in the Knowledge to Policy cases were those who developed good communication skills – and again, who were able to identify what communication style to use and who to try to influence in their particular situation: policy makers themselves, media, community groups, industry. In some cases, informal communication and private

discussions were the most important tools; in others, it was a very public splash that brought the community into the conversation in active ways; in others, it was engaging with and educating the media on why the issue mattered.

4. Building Institutions

   In some cases, there was as gap in institutions to deliver the change. Here, the researchers had to be able to recognize the gap and address it in some way. For example, in Indonesia, the support for carrying out research is weak and a research culture is not supported. This is manifest in a number of ways. One is low funding for research. The Knowledge Sector Initiative supported efforts that were nascent at the time the program was launched, to create an Indonesian Science Fund that would be based on a competitive, peer-reviewed, multi-year research funding system (Brodjonegoro and Greene 2012; Young and Marpaung 2017; Presetiamartati, Carden and Sugiyanto forthcoming). The Fund is modest in its early stages, but it is the creation of the institution that is essential. With that in place, there is a home for new funding for research. Some issues like this one call for new organizations. Others simply need an adjustment to the existing institutional structures – for example, in one case, the formal integration of evidence into the health planning system helped with a significant improvement in resource allocation in health care in Tanzania (Carden 2009: 132-137). In still another case in the same book, looking at how to clean up the Dnipro River in the Ukraine, the project not only revitalized the scientific research institution, it also created the necessary connections with government and the private sector that were necessary to launch an effective clean-up operation.

Weak institutional infrastructures can limit the potential for use of the best evidence. Successful efforts to use evidence kept that issue front and centre in their thinking.

Using the Framework

A framework is a basic conceptual structure, in this case for thinking about learning-oriented causality. A framework is not a tool but rather must be adapted to use in different contexts. This calls for embellishing the tool with some details that relate to the interventions or programs under consideration. But some guiding questions to consider what should be addressed at each level of the framework can be helpful if we are going to make causal claims.

These questions are intended to help explore whether or not the intervention or programme has developed an approach that allows it to claim thick causal concepts (Cartwright 2002: 14) that allow a claim of causal connection.

The Knowledge Sector Initiative

Let us turn now to look at what this framework would tell us about the role of the Knowledge Sector Initiative (KSI) in improving the policy environment in Indonesia. The program has a theory of change that it has adapted since the program began in May 2013 (Knowledge Sector Initiative 2017), and it will be adapted again for phase 2 of KSI, which starts in July 2017. In order to lead to the goal of a 'capacity to development effective and socially accountable policies that meet priority needs', and recognizing that it has to make choices about the highest opportunities for change KSI pursues several strands of activity. These will be outlined briefly here and then an example extracted in more detail to illustrate the use of the framework:

1. Working with selected policy research institutes, KSI focuses on building strong and trusting working relationships with those institutes. KSI provides core financial as well as technical support to help the institutes: i) improve the quality of their research; ii) strengthen the operating capacities of the organizations; iii) help improve their ability to communicate research effectively to policy makers and other interested parties such as advocacy organizations and the media; and iv) help the strengthen their networks both with other institutes as well as with other

Figure 8: Guiding questions for a learning approach to causality

Guiding Questions for a Learning Approach to Causality		
Key Elements	Clarity of Vision	Is the vision long term, ultimately realizable but beyond the reach of the intervention? Does it clearly indicate the desired future behaviours and state?
	Clarity of Mission	Does the mission clearly indicate what role the intervention will play, and how?
	Theory of Change	Does the theory of change articulate the mechanisms that will be employed in the intervention and include an hypothesis on how they are expected to work?
	Using Learning	Does the program strategy or theory of change indicate how learning will be integrated to the intervention? Is there evidence of learning?
	Collective considerations	Are the key elements logically consistent and aligned with each other? Are the linkages clear? Are there processes in place to sustain the linkages and to use the learning that emerges?
Key Characteristics	Use-oriented	Is the intervention clear on how it expects it will contribute to change?
	Builds on prior knowledge	Does the intervention take account of past interventions and consider what modifications these might suggest?
	Multiple forms of knowledge	Does the intervention consider formal (scientific), professional (bureaucratic, religious, think-tank), and local knowledge in design and implementation?
	Theory-based	Does the program demonstrate a clear theory of action?
	Assumes Variation	Does the program permit difference in diverse settings?
	Balanced	Does the intervention take account of constraints and opportunities in its pace of intervention?
	Asymetric	Does the intervention recognize differential impacts on different populations?
	Mixed Methods	Does the intervention use methods fit for purpose?
	Dynamic	Does the intervention consider the dynamic political and institutional environment in its implementation and its modifications over time?
Mechanisms	Building Relationships	Does the theory of change indicate clearly the relationships that need to be built or strengthened? Are key relationship considerations missing? Does it indicate how relationships will be built or strengthened?
	Building Networks	Does the intervention work with other actors both within its sector and across sectors? Does the intervention indicate the role the team will play in building, strengthening or sustaining networks? Are there key network or collective action opportunities ignored?
	Communications	Does the intervention indicate who it will communicate with and how?
	Building Institutions	Does the intervention take account of potential institutional changes that might be needed for the desired future to be achieved?
	Collective considerations	Does the intervention present a clear and logical argument? Can the team effectively articulate the logic? Is it clear how and with what actors the mechanisms will be used? Is there coherence and logic in the choices that are made? Does the intervention address the relevant social, political, technical, and legal contexts?

sectors (government, CSO, private sector) to expand their opportunities for influence.

2. Working with selected government ministries, departments and agencies, KSI seeks to strengthen their understanding of and ability to use evidence in the policy making cycle, in particular to commission and make use of evidence generated by Indonesian policy research institutes. It does this by building strong relationships with its partner agencies, creating and supporting opportunities for interagency consultation and dialogue, both across ministries but also with knowledge producers and intermediaries. It also supports the partners to strengthen knowledge management systems and policy analysis skills.
3. Working with selected intermediary organizations (i.e., advocacy organizations, media,) KSI works to strengthen their understanding of and ability to use evidence as part of their influence and informing strategies. (This component of the program was significantly scaled back because of a major budget cut to the program, so no examples will be drawn from this work.)
4. Finally, the diagnostic studies leading up to the design of KSI (among others, Karetji 2010; Sherlock 2010; Sherlock and Djani 2015), identified critical constraints to the production and use of evidence within Indonesian policy research institutions. Addressing these barriers is seen as fundamental to success in building a healthy knowledge sector. KSI strategy was to build working relationships with institutions and individuals with potential to influence these barriers, hone in on the barriers where change appeared to have some support, build alliances in support of the change, create opportunities for dialogue about the issue to raise awareness and promote action, and provide financial and technical support to pursue change.

This brief outline of the theory of change does not do justice to the richness that hides behind each of these four strands of work. It gives you a sense of what is going on in the arrows, but lacks richness and depth. In order to establish causal relationships, we need to build up the richness and depth so clear lines can be seen and the case made. We will develop several examples here and then discuss the implications for future assessment of causal connections – because the learning is the key point here to improve in future. But we can see within these brief descriptions, the four mechanisms outlined on pages 20-22 at play across all parts of the KSI programme:

- the importance of building strong relationships;
- networks for action;
- strong communication skills; and
- institution building to create change.

The illustration of the framework for causal analysis presented below describes an intervention in area 4 described above. It is an intervention in the inadequate rules and regulations for producing accessing and using research. The example concerns the procurement regulation. This regulation affects the production of research as well as limiting the organizations from which government departments and agencies can commission research.

Building on strong diagnostics of the Indonesian knowledge sector and its limitations (Karetji 2010; Sherlock 2010), the Knowledge Sector Initiative was designed to address barriers as one strand of its work (Government of Australia 2012). Recognizing that the regulatory and institutional barriers could make other elements of the knowledge sector unattainable (such as the need for higher quality policy research), the relative importance of these barriers quickly gained prominence of place in the project's agenda. There are many more issues than could be dealt with at once, so a strategy was needed to identify viable and valuable starting points.

The Knowledge Sector Initiative is an international initiative; it therefore does not intervene directly in the policy process but rather works with and through local institutions and organizations, both governmental and non-governmental. The KSI approach to determining what issues to address (and how) follows an

approach described by Faustino and Booth (2014) as development entrepreneurship. Consistent with a learning approach to understanding causality, development entrepreneurship means the intervention to create change has a clear objective that is technically sound, politically feasible and can be sustained over the long term. A development entrepreneurship intervention works politically and demonstrates flexibility to respond to opportunities and adapt to changing conditions; it works within the constraints of the resources available. The intervention identifies and works with the people and organizations who can contribute to the reform effort because they have the experience, knowledge, reputation and willingness to engage; finally, it identifies and networks in other individuals and organizations who can be supportive and influential in creating change.

Annex I illustrates the evolution of relationships and networks around a particularly thorny and problematic procurement regulation that limited not only the participation of non-profit organizations in government sponsored research, it also limited the nature of research the government could directly commission and limited reimbursement for researchers at a level that discouraged any strong researchers from applying. As well as undermining the building of a basic research environment, this undermines the development of evidence to inform policy. More specifically it undermines the development of policy research in Indonesian research institutes. Many government ministries and agencies do demand research and do use research (see for example the 2015 - in Indonesia.) But the limited resources as well as the restrictions on who government ministries and agencies can commission, result in the outsourcing of the policy research agenda to international agencies, both bilaterals and multilalterals. The ability to fund the government's policy research agenda is then dependent on the donors' policy research interests and priorities.

For the knowledge sector, this was clearly an issue of central importance. If the KSI mandate to strengthen the policy research capacity and contribution of local policy research institutes is to be realized, this regulation must be addressed. The procurement legislation was the same for research as for all other government procurement. In 2015, there was momentum building to address numerous problems in procurement processes. The National Public Procurement Agency falls under the auspices of the Ministry of National Development Planning (Bappenas), KSI's government counterpart. When KSI was advised of the plans for consultation on the procurement legislation with a view to updating it, the programme raised the special challenges faced in research procurement. This was acknowledged and integrated into the consultations as described below. The social network analysis in Annex follows the evolution of KSI engagement in the procurement issue over 18 months from June 2015 until December 2016. (Engagement on the issue continues as regulations have still to be put in place to implement the change.)

With the active engagement of the National Procurement Agency (BKP), the National Development Planning Agency (Bappenas), which is also KSI's government partner agency, coordinated a series of consultations on the regulation in June 2015. This presented an opportunity for the project to highlight to Bappenas the special procurement challenges for research. KSI was requested to provide some policy analysis and guidance which it did in two ways, through a diagnostic study (Sherlock and Djani 2015) on barriers to the development of the knowledge sector and, importantly through engagement of some of its partner policy research institutes. As the social network analysis in Annex I illustrates, this was followed by the involvement of the Ministry of Research, Technology and Higher Education in the procurement discussions. KSI identified two key directors in this Ministry to advocate for the change, one of whom was a former academic. By the third stage of analysis, agreement was reached that a special chapter of the legislation on the procurement of research was needed. Two KSI-supported policy research institutes, Seknas Fitra (National Secretariat of the Indonesian Forum for Budget Transparency)

and Article 33 began to play more significant roles in the process. Two other policy research institutes KSI supports became active at this stage and would take on larger roles over time.

About six months into the process, the fourth stage, the range of actors broadened and the roles of KSI partners increased. As well as the representatives of the Government of Australia in Jakarta, a wider range of universities, the Rector's Forum, government agencies such as the Ministry of Finance and the technology agency (BPPT), a consultant and additional policy research institutes were brought into the discussion.

In the first half of 2016 (Fifth stage), legislation was drafted by the core of the network (represented by the larger circles) with strong leadership from the Ministry of Technology, Research and Higher Education, which had by then become the key player in the exercise. The Procurement Agency (LKPP) put it to the Office of the President for signature. The second half of 2016 (Sixth stage) was the period of awareness building of the change and expansion to a broader public as well as to other organizations that would benefit from the new regulation. KSI maintained a strong connector and facilitation role throughout the process but left the drafting and meeting leadership to the Indonesian agencies.

The next stage will involve supporting the development of accompanying regulations that will support implementation. This will continue into the next phase of KSI.

Analysis

The Knowledge Sector Initiative's theory of change for promoting change in this regulation was built around relationships. The theory was that if the program could identify the key agencies and individuals who could influence the legislation, provide support for those groups and individuals to meet and develop policy options, support expansion of the network of agencies and individuals involved, it would support change in a key barrier to locally generated policy research.

Here we can clearly see the core mechanisms of KSI at play (relationships, networks, communications and institutional change). Relationships take the highest priority soon followed by the development of networks and communicating widely about the issue to promote other actors to be involved, such as other universities and policy research institutes outside the KSI orbit of support, all leading to a key change in how the procurement agency handles the procurement of research. Relationships came partly from existing relationships – KSI partners, KSI's government linkages – and partly from the development of new relationships, with other policy research institutes, universities, government agencies – to build on the momentum that was generated. Networks were formed around the issue to create space to draft legislation, to promote the issue and to promulgate the need for it and the new legislation as it began to emerge. Membership in the networks evolved over time. Some early entrants moved on to the other issues; some later participants became key players in fostering the change. Networks remained fluid and no formal structures were in place amongst the players.

We can also see development entrepreneurship at play from the very beginning in seizing an opportunity to build on a larger initiative within the National Planning Agency to address the larger questions of revisions to the procurement legislation to profile the specific knowledge sector program and then put technical and financial resources to supporting a change. It is arguably a change that is sustainable long term without continuing external input.

KSI argues that it played a key role in this process without claiming ownership of the process. Using the framework developed earlier in this paper, KSI can claim a causal connection between its efforts and the outcome that was achieved. If we look at the initiative against the framework, we see strong consonance with the core elements as outlined in the table below.

In summary, on the key elements of a causal approach to learning, the procurement initiative demonstrates strong fulfillment of these although some aspects related to theory of change and use (specifically related to procurement) are not articulated on paper.

The procurement intervention has the characteristics of a learning approach as detailed in the table below, and the mechanisms are clearly visible even though these were not articulated in this way at the beginning of the intervention. This table is based on evidence presented in Jackson et al. (forthcoming) and Prasetiamartati et al. (forthcoming) as well as interviews with the team.

Figure 9: Change in the Procurement Regulation: Causal Analysis

Change in the Procurement Regulation: Causal Analysis		
Key Elements	Clarity of Vision *Is the vision long term, ultimately realizable but beyond the reach of the intervention? Does it clearly indicate the desired future behaviours and state?*	The KSI vision has always been about strengthening the use of locally generated evidence in public policy in Indonesia. This is a long-term vision. The program was originally envisioned on an eighteen-year time frame (but published with a fifteen-year time frame). The vision is clear that high quality policy research will be generated by Indonesian policy researchers, that government demand for and use of that evidence will be significantly increased, that intermediaries, such as the media and advocacy organizations will make more use of evidence in their interventions, and that the barriers to a healthy knowledge sector will be eliminated.
	Clarity of Mission *Does the mission clearly indicate what role the intervention will play, and how?*	At the mission level overall in KSI there was some lack of clarity. When we look at the specific intervention on procurement legislation there was strong clarity on the role of KSI as a connector and facilitator around an important issue. KSI identified a skilled program officer to play a central role in building the connections and networks and the project set aside resources to support the effort.
	Theory of Change *Does the theory of change articulate the mechanisms that will be employed in the intervention and include an hypothesis on how they are expected to work?*	The mechanisms that KSI would employ would never spelled out as mechanisms *per se*. KSI did have an hypothesis to test which broadly addresses the four mechanisms that were outlined above in the description of KSI operations. In the case of procurement, there was a clear understanding of what was needed to foster change and a solid understanding of the importance of both support to an initiative and soft advocacy from those who would be affected by the change.
	Using Learning *Does the program strategy or theory of change indicate how learning will be integrated to the intervention?* *Is there evidence of learning?*	Learning is demonstrated where the procurement team made a number of adaptations in their approach as new players became involved and some of the original proponents of the change fell away. KSI clearly indicates it is a learning oriented program and that it maintains the flexibility to seize opportunities as they emerge.
	Collective considerations *Are the key elements logically consistent and aligned with each other?* *Are the linkages clear?* *Are there processes in place to sustain the linkages and to use the learning that emerges?*	If we look across the aspects of the procurement intervention we see strong links and connections. The KSI intervention made use of several KSI team members, but was very much led by one person so that there were not confusions in role or action. The linkages between government agencies, policy research institutes and universities were maintained with separate discussions when needed and collective meetings at key points. The linkages that are necessary to support implementation are in place.

Change in the Procurement Regulation: Causal Analysis		
Key Characteristics	Use-oriented *Is the intervention clear on how it expects it will contribute to change?*	The choice of procurement as a point of intervention was based on a clear diagnostic of its role and the barriers it imposed on the development of the knowledge sector. The intervention is clear that opening up the space for Indonesian policy research institutes to contribute to policy is a key aspect of a healthy knowledge sector.
	Builds on prior knowledge *Does the intervention take account of past interventions and consider what modifications these might suggest?*	The intervention builds on diagnostic studies conducted in 2010 and 2015 (Sherlock 2010; Sherlock and Djani 2015).
	Multiple forms of knowledge *Does the intervention consider formal (scientific), professional (bureaucratic, religious, think-tank), and local knowledge in design and implementation?*	The intervention made most use of scientific study and professional knowledge of bureaucrats and policy researchers. The intervention recognized the importance of community engagement especially as the change is introduced, though it is largely the scientific and professional knowledge communities that will benefit the most from the change.
	Theory-based *Does the program demonstrate a clear theory of action?*	The intervention team demonstrated a clear theory of action in the actions they put in place to generate the appropriate political, bureaucratic and policy research communities.
	Assumes Variation *Does the program permit difference in diverse settings?*	This first stage of the intervention is broad and general. The question of variation will be addressed in the next step, in developing appropriate regulations for implementation.
	Balanced *Does the intervention take account of constraints and opportunities in its pace of intervention?*	From the first intervention to take advantage of a broader concern with procurement legislation KSI seized the opportunity to promote the need for special consideration for research. The intervention has operated at the pace at which government makes decisions.
	Asymetric *Does the intervention recognize differential impacts on different populations?*	In this particular intervention, it is not clear this aspect applies. Its main impacts are: 1) consulting is replaced by research and 2) donor funded research is replaced by locally generated research. These are seen as positive in the development of a healthy knowledge sector. The legislation is silent on content of the research that is procured.
	Mixed Methods *Does the intervention use methods fit for purpose?*	The intervention made use of methods that met the needs of the program.
	Dynamic *Does the intervention consider the dynamic political and institutional environment in its implementation and its modifications over time?*	The intervention was highly attuned to the political and institutional issues on which success depended. The program officer had a clear mandate to monitor and manage for those issues.

Change in the Procurement Regulation: Causal Analysis		
Mechanisms	Building Relationships *Does the theory of change indicate clearly the relationships that need to be built or strengthened? Are key relationship considerations missing?* *Does it indicate how relationships will be built or strengthened?*	While mechanisms were not spelled out, the theory of change was clear on the key actors, the relationships (or lack thereof) among them and on processes of networking that could be used to strengthen the linkages that were needed for success.
	Building Networks *Does the intervention work with other actors both within its sector and across sectors?* *Does the intervention indicate the role the team will play in building, strengthening or sustaining networks?* *Are there key network or collective action opportunities ignored?*	The intervention started by working with the KSI partners. As the initiative evolved we see clear evidence of expanding the players to include others who could play a central role in achieving success. The team was clear that its role was a facilitation and support role and to provide technical advice as needed. Given progress to date and lack of opposition it would appear all key networks were engaged.
	Communications *Does the intervention indicate who it will communicate with and how?*	The intervention maintained active and ongoing communications with the key players and built opportunities for them to communicate directly with each other.
	Building Institutions *Does the intervention take account of potential institutional changes that might be needed for the desired future to be achieved?*	The legislative change suggests that the Ministry of Research Technology and Higher Education may be more actively involved in ensuring that the legislation is followed, a role they have not had to play in the past.
	Collective considerations *Does the intervention present a clear and logical argument?* *Can the team effectively articulate the logic?* *Is it clear how and with what actors the mechanisms will be used?* *Is there coherence and logic in the choices that are made?* *Does the intervention address the relevant social, political, technical, and legal contexts?*	A clear case is presented for a focus on this intervention. The team is clear on its value and the approach. There is coherence in the steps that were followed and the intervention successfully addressed the relevant contexts, resulting in a successful change to the legislation. The ultimate success of this effort will depend on success with the implementing regulations in Phase II of the Knowledge Sector Initiative.

5 Conclusions

This is only one illustration of this framework to assess causality taking a learning perspective. It is limited by the fact that the framework was not applied at the beginning of the intervention as it is intended, but of course the framework did not exist at that point.

It demonstrates the relevance of the framework as one which permits a project or program to claim causal influence without claiming singular influence. It recognizes the specific role that KSI played, and as such acknowledges that the roles of other were also important to the success of the intervention. KSI did not control all aspects related to changing the procurement legislation but this presentation of the case argues that they played an important – and causal – role.

It is a fairly simple illustration and one the author knows well which further simplifies the exercise. Normally one would be looking at an intervention as an external agent and would rely on documents that clearly articulated the vision, mission and theory of change at the beginning of the program. So, like most evaluation frameworks, it is more useful if applied at the start of an initiative so that the changes can be tracked in more detail and more learning is directly integrated into the process.

This framework is a planning device so the questions are framed as planning questions. The responses here are based on action, not a clearly articulated

plan, as that was not sought at the beginning of the intervention. In terms of external review of a program, clear articulation of the elements in advance is crucial. An external evaluator does not have the depth of knowledge the author holds on this intervention so would not be able from the evidence be able to determine a causal linkage.

Here I return to a theme on the importance of documentation and careful reflection on a program that was so well expressed by colleagues building their understanding of a particular approach to evaluation:

> *Being busy creates a mindset that is not conducive to innovation and creativity. Without interaction there is no innovation. Time to discuss, reflect and generate new ideas is the ransom that outcome mapping demands for innovation.* (Baretto-Fernandes and Ndiaye, 2006)

Learning does not happen by itself. It takes effort and it takes time. It requires documentation and a modesty about what can be accomplished in any period of time.

This paper presents a framework that argues that causality is a many splendored thing. It cannot be captured by one method, by one approach. Causal contributions are made in a multitude of ways by a multitude of different actors. This is an approach that suggests that claiming a causal contribution celebrates rather than negates the contributions of others.

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The Knowledge Sector Initiative (KSI) is a joint program between the governments of Indonesia and Australia that seeks to improve the lives of the Indonesian people through better quality public policies that make better use of research, analysis and evidence.
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