KNOWLEDGE SYSTEM DEVELOPMENT:

Insights from Indonesia and International Applications

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Knowledge Systems in International Perspective: Experiences From the SEDI Program

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Introduction

This chapter explores the applicability of the Knowledge System Model 2.0 framework (introduced in Chapter 1 of this book) in contexts outside Indonesia by drawing on experiences in the Strengthening the Use of Evidence for Development Impact (SEDI) program. Initially designed as a five-year program (2019–2024) funded by the UK's Foreign, Commonwealth and Development Office (FCDO), SEDI worked to increase the use of evidence by policymakers and promote innovation in increasing evidence-informed policymaking (EIPM) in Uganda, Ghana, and Pakistan.[50] The SEDI program did not set out to explicitly test or apply the framework explained in Chapter 1, but the conceptual framing and findings of its analytical phase and experiences to date in the early stages of implementation have used analogous concepts to help make sense of the complex web of interactions that shape the use of evidence in different policymaking contexts.

The next sections explore aspects of this alignment, including the political dimensions of policy and evidence, the importance of connections between components of the ecosystem, and overlap between system components. The chapter draws out SEDI's focus on "subsystems" that exist within the broader knowledge system. The following section then focuses on how this approach has been operationalized in SEDI's country work before the final section synthesizes insights SEDI's approach may offer for the Knowledge System Model 2.0 framework and future work on EIPM.

[50] In light of the seismic impact of the COVID-19 pandemic on the UK economy, the UK moved to a target of spending 0.5 percent of GNI as ODA in 2021. Following the move to 0.5 percent, SEDI was closed earlier than planned. SEDI was funded by UK Aid from the UK government; however, the views expressed here do not necessarily reflect the UK government's official policies.

Reflections on the Applicability of the Knowledge System Model 2.0 Framework

To better understand policy and evidence narratives in the countries in which they work, SEDI developed an analytical approach that embraced the political nature of EIPM (Parkhurst 2016). This methodology brought together the emphasis political economy analysis (PEA) places on institutions, incentives, and power with a specific focus on evidence and its role in policymaking (Shaxson et al., 2021). This included analysis of structural factors and the formal and informal rules of the game; an exploration of stakeholders (including evidence providers, users, and intermediaries) to understand how relationships and power dynamics influence policy decision-making; and a consideration of the relative interest and commitment of organizations with a remit to use evidence to strengthen or develop their evidence systems.

This approach has a strong consonance with the Knowledge System Model 2.0 framework, with particular alignment around two core principles: (1) to place knowledge systems in a political economy context; and (2) to better understand how system components relate to each other, formally and informally, where those relationships are strong and where they are weak. Both approaches are concerned with what each of these then implies for how different pieces of evidence are regarded in terms of their quality, credibility, and legitimacy, and what they mean for whose voices are strong in the policymaking process and whose are weak. Snapshot examples from each of the SEDI country cases exemplify this alignment.

Knowledge Systems Are Deeply Embedded in Political Economy Contexts

Pakistan, Uganda, and Ghana are very different places with diverse political and economic histories. Understanding those contexts is a precondition for influencing and strengthening knowledge systems and understanding how and why evidence is used (or not) for policymaking, whose evidence is considered, and how it is considered. In Pakistan, the policymaking process is subject to several forms of elite capture that reinforce the power of certain actors over others and over key decisions relating to Pakistan's economy, society, and politics (Ahmed, Ahmed et al., 2021). While there are signs that the hold of elites may be loosening in some areas, the influence of elite factions—including the nexus of politicians, the military, the judiciary, and the bureaucracy—permeates all stages of a policy cycle, with significant implications for the role of evidence within each stage.

The political setup at the federal level often includes representatives of large business concerns with roots in agriculture and manufacturing

businesses. There are vast incentives for large firms to have representation in Cabinet and other government committees. For example, governments routinely allow several owners of large-scale businesses to become part of the Cabinet without taking the route of competing in general elections. With space shrinking for civil society to engage in dialogue and policy debate in Pakistan, the space for knowledge producers external to government structures is becoming more constrained (Khan et al., 2020). Some civil society actors are able to navigate this through careful management of relationships but, broadly speaking, openness and contestation of evidence are limited. The situation has been further complicated by the creation of quasi-state-sponsored research and advocacy institutions that compete with independent civil society actors and universities for human and financial resources in the space of knowledge production.

Uganda has had a tumultuous history marked by various forms and degrees of political violence and instability, which have had a profound influence on state-society relations. State and political elites dominate society (Rubongoya, 2007) in a "weak dominant party-political settlement," with strong clientelist networks centered on the president and his immediate circle (Bukenya & Muhumuza, 2017). Institutional arrangements are, however, in a state of flux as a result of a transition to a programmatic approach under the National Development Plan III (Republic of Uganda, 2020). This shift, reconstituting sectors into 18 programs, implies several changes to government planning, program design, implementation, budgeting, and reporting, and offers important opportunities for deeper systemic changes that promote and strengthen evidence use.

As responsibilities shift from individual ministries to leading bodies (the ministry designated to coordinate implementation of a program), new relationships are being explored and established, and agencies are looking to renegotiate control over resources and increase power, influence, and prestige. Institutional reform of this magnitude will take years to embed, but already these negotiations have been heavily influenced by the prevailing political settlement.[51] This means it is not at all clear whether these reforms will generate incentives for the emerging constellation of policy actors to embrace EIPM, diversify sources of evidence, or otherwise change the relationship between knowledge and politics.

[51] For more background on the concept of political settlements, see Khan (1995) and di John and Putzel (2009).

In Ghana, the realities of policymaking are heavily influenced by a "duopolistic competitive clientelist political settlement." Electoral competition between the two leading parties is intense, with a high-stakes, winner-take-all system contributing to an alternation of power that shortens time horizons and contributes to disrupted and fragmented policies. Power is exercised and maintained through the executive's extensive and increasing use of political appointments to positions in the bureaucracy, which furthers the polarization of society on partisan grounds (Gatune et al., 2021). The extractive nature of the political ruling elite consistently undermines the prospects for building a broad political consensus on a national development agenda. As a result, "the national interest has become fragmented along party lines, with the result that each new administration has followed its own short-to-medium-term development agenda" (Abdul-Gafaru, 2017).

Though on paper Ghana has a clear approach to policymaking, in reality the process, including the use of evidence, is shaped by these political dynamics, especially the interests of the ruling elite, party financiers, and well-organized groups. Pervasive partisanship constrains the role of nongovernmental evidence producers in policy formulation and hampers uptake of their research, with knowledge producers often perceived (or cast) as partisan "friends" of the opposition and "enemies" to the sitting government (Menon et al., 2021).

The Complexity of Knowledge System Components, and Relationships Between Them

Chapter 1 of this book provides a broader review of the evolving understanding of knowledge systems. We do not repeat that here, but SEDI's experience in the three countries considered in this chapter points to three aspects that emerge as particularly salient: (1) the centrality of relationships, (2) managing heterogeneity, and (3) understanding multiple roles. We consider each of these in the following sections.

The Centrality of Relationships. SEDI's analysis identified a variety of familiar issues related to technical capacity, staffing, and funding that affect the way knowledge system components function. However, it also pointed to issues arising from relationships between those components. In some cases, common challenges could be identified, such as a "lack of trust and limited institutional platforms affect[ing] government engagement with external agencies producing evidence in the three countries" (Menon et al., 2021). These findings resonate with EIPM work on knowledge transfer and gaps between the "two communities" of knowledge producers and users (Parkhurst, 2016). But within

individual cases, it becomes clear just how complex these relationships can be. As an illustration, Figure 19 provides an overview of SEDI's analysis of relationships among different actors involved in family planning policy in Uganda. The reader need not be concerned with the detail of this mapping but rather observe the complex web of relationships (a feature noted for its contributions to the resilience of a knowledge system; Stewart, Dayal et al., 2019), and also how those relationships vary in quality, direction, and intensity.

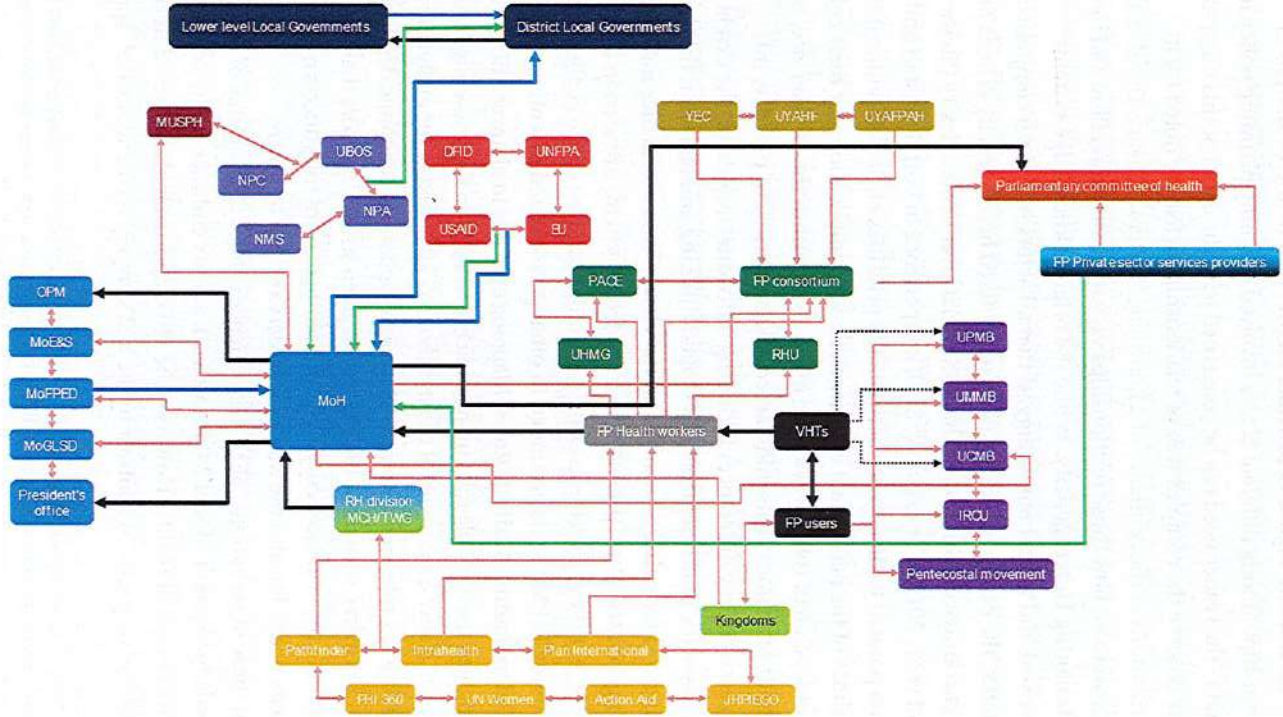
Managing Heterogeneity. While the original knowledge systems framework did not set out to suggest that all actors in a given component were the same, the extent to which SEDI encountered heterogeneity echoes findings that encourage exploration of this additional layer of complexity (Stewart, Dayal et al., 2019). For example, SEDI's experience in both Pakistan and Ghana pointed to divergence between the priorities of elected political leaders and those of the permanent civil service—with implications for their collective and independent roles as evidence users. Even within the civil service, the demands of senior versus mid-career officials varied. In practice, this manifested in key differences including individual mandates, the extent to which specific political ideologies shaped thinking and behavior, the degree of openness to receiving evidence, and the view of whose evidence matters. Such findings may be unsurprising once knowledge systems are seen in a political context, but they nevertheless imply an understanding of the challenges of improving EIPM that is grounded in often personalized incentives.

Understanding Multiple Roles. Mapping exercises in all three SEDI countries highlighted the multiple roles many stakeholders play in the knowledge system. Figure 20 shows a summary of the stakeholders identified in the analytical phase as playing key roles in the knowledge system supporting economic development policy in Ghana, with those highlighted in green straddling more than one function in the evidence ecosystem. This multiplicity of roles affects not only capacity needs, but also the way stakeholders are seen by others.

In these observations, SEDI's experience echoes key features of the Knowledge System Model 2.0 framework and its embrace of the complexity and messiness of reality. However, the SEDI approach also differed in some important respects. In contrast to the KSI's largely sector-agnostic[52] approach

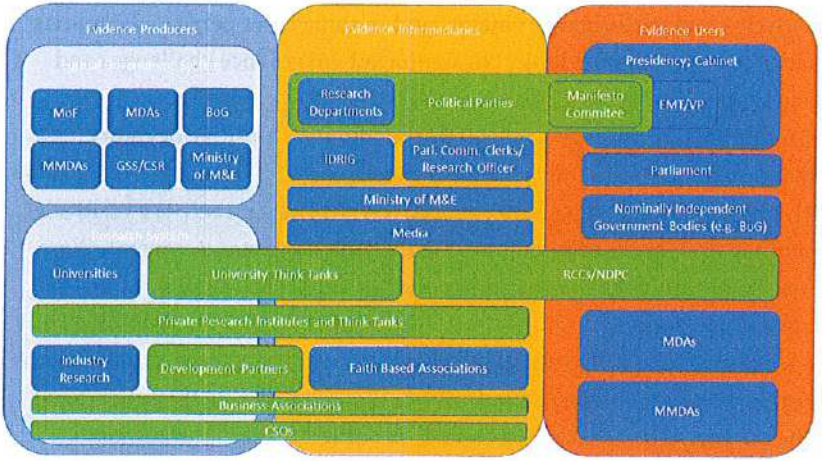
[52] By "largely sector-agnostic" we refer to the fact that most of the reforms pursued in Phase 2 aimed to influence knowledge-to-policy processes across a wide variety of sectors. For example, reforms targeting research financing did not specifically aim to influence education financing, health financing, or other specific sectors, but rather sought to influence underlying institutions that shape research financing across sectors.

Figure 19. Social network analysis of family planning in Uganda



Source: From Ahaibwe et al. (2021). Reprinted with permission.

Figure 20. Evidence system for economic development in Ghana



Source: Adapted from Gatune et al. (2021). Copyright 2021 by SEDI. Adapted with permission.

during its second five-year phase, SEDI aimed to use an initial analytical phase to support a process of sector selection that would identify subnational spaces where SEDI could influence sustainable changes in incentives and capacities for EIPM. As a result of the emergence and impact of COVID-19, sector selection was delayed and then eventually dropped as a formal process in favor of letting SEDI be responsive to government requests related to evidence use. What remained unchanged from the initial thinking is the recognition that focusing on the national level can mask important variations in the way evidence is used (or not) in support of policymaking and, perhaps more importantly, the factors that contribute to such variations and shape the potential for catalyzing change. This is reviewed in the next section.

Why Subsystems? The Roots of SEDI's Approach

From its initial design, SEDI's approach was informed by the experience of the UK Department for International Development-funded Building Capacity to Use Research Evidence (BCURE) program, with which some SEDI partners had been involved. Among the lessons from that experience was the conclusion that "BCURE had greater success in catalyzing the key mechanisms where partners located an entry point in a sector or government institution where there was existing interest in evidence, clear incentives for reform, and a mandate for promoting evidence use" (ITAD, 2018).

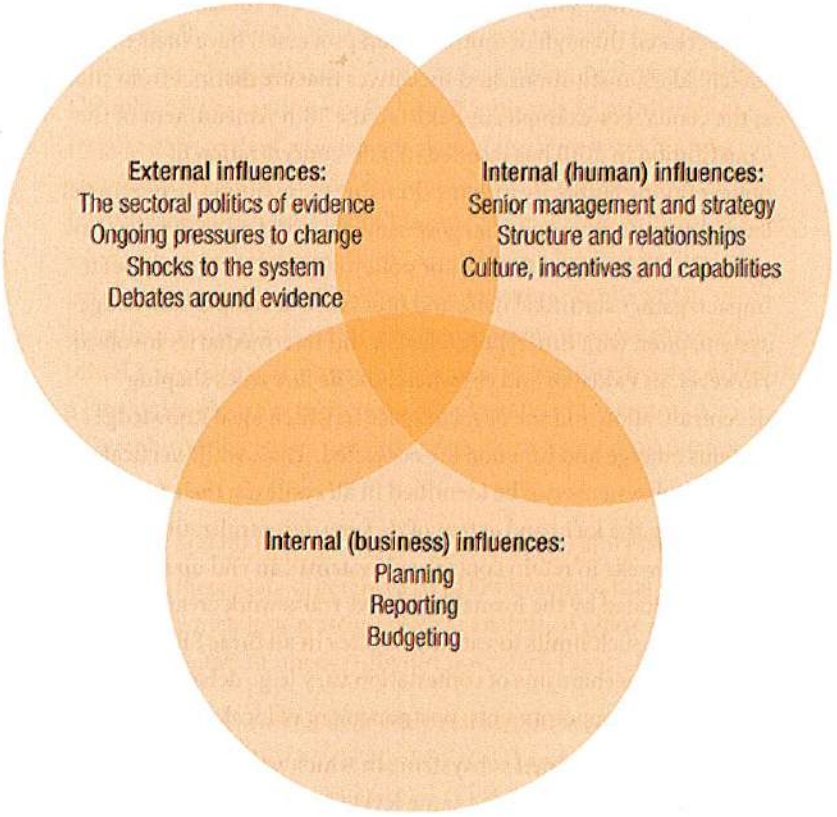
This conclusion speaks to an issue that has been of interest in public sector reform work for several decades: understanding how and why pockets of relatively good performance emerge, and in some cases persist, in contexts that are often otherwise subject to significant governance challenges and often disappointing performance. Such pockets have since been referred to by various terms, including "pockets of productivity," "positive deviants," "islands of efficiency," and "islands of effectiveness" (Daland, 1981; Andrews, 2013; Evans, 1998; Crook, 2010, respectively). However, there is a relatively simple shared recognition that even within the same macro context, there often exists significant variation in policy processes or the performance of public organizations.

Shaxson et al. (2016) extend this thinking to EIPM, taking the level of the organization as a middle ground. Rather than considering the generalized concepts of "productivity," "efficiency," or "effectiveness," the authors encourage us to see how individuals (often the focal point of evidence-based policy training interventions in the past) operate within a broader organizational context. By exploring the numerous components that make up that context (Figure 21), the authors are able to clarify the way in which these shape the form and extent of evidence use. There is substantial common ground shared with factors identified as influencing the emergence of pockets of productivity in the public sector reform literature (e.g., Leonard, 2008). In both, there is a combination of forces that encompass internal managerial and administrative variables, while also clearly identifying an external political dimension. There is a recognition of the importance not just of formal structures, but also of informal norms, culture, and personalities—and crucially, potential for these components to vary across organizations or parts of government.

In summary, at least three propositions are clear:

1. While policymaking takes place within a broader context, it does not take place in a single monolithic system; rather, specific decisions are made, and actions taken in formal and informal subsystems that can be identified across multiple dimensions and linked to one another in sometimes unpredictable ways.
2. Those subsystems can and do display differences in practices and performance, even within an organization.
3. There are internal and external factors that appear to influence that practice and performance.

Figure 21. The components of the wider institutional context for evidence-informed policymaking



Source: From Shaxon et al. (2016). Copyright 2016 by Overseas Development Institute. Reprinted with permission.

The following section explores whether and how these three propositions have played out in SEDI's experience.

Engaging With Multidimensional Systems in Practice: SEDI Experience

Policymaking, Including the Role of Evidence Therein, Does Not Take Place in a Single Monolithic System, but in Subsystems that Can Be Identified Across Multiple Dimensions

As demonstrated in the examples given earlier and in other chapters in this book, it is clear that national factors can and do shape the space for EIPM. However, these are not necessarily deterministic because they do not account for

variations *within* that national system. We identify at least three dimensions[53] in which variation in knowledge system components can be observed:

1. Vertically defined subsystems in which spaces at subnational levels (often created through decentralization processes) have their own stakeholders, institutions, and incentives that are distinct from those at the center. For example, in Pakistan the 18th Amendment of the Constitution in 2010 has resulted in a de-concentration of policymaking authority in some domains to (mainly) the provincial level. Accordingly, provincial governments have had to develop new systems and processes to monitor policy implementation, evaluate impact, gather statistical data, and otherwise develop a knowledge system, often with different producers and intermediaries involved. However, in Pakistan and elsewhere, the *de jure* rules shaping decentralization and the *de facto* space in which local knowledge systems emerge and function are contested. Thus, while vertically defined subsystems can be identified in all contexts, their form depends on the form and extent of *de facto* decentralization. Where the center seeks to retain control, subsystems can end up more limited than envisioned by the formal legislative framework creating them. We observe such limits to varying degrees in all three SEDI countries, though the mechanisms of contestation vary (e.g., debate over specific powers, use of appointments, postponement of local elections).[54]
2. Geographically defined subsystems in which variation exists across different jurisdictions at the same level (e.g., where sufficient autonomy and discretion at subnational levels allows different practices to emerge in different parts of the country). In Ghana, for example, decentralization reforms enacted since the 1990s have delegated significant roles in planning, budgeting, and delivery of some services to 261 metropolitan, municipal, and district assemblies (MMDAs). There are *de facto* limitations to this autonomy, but differences in the knowledge systems supporting

[53] "Horizontal" and "vertical" are borrowed from the decentralization literature (Rondinelli et al., 1989), but the third dimension is proposed here to account for cases in which subnational entities differ from each other.

[54] While most of KSI Phase 2 took a sector-agnostic approach, the program did include a small knowledge-to-policy pilot project exploring the dynamics of subnational knowledge systems in South Sulawesi. Lesson learning from that pilot is ongoing and will provide a useful complement to the findings in this book.

these policy functions can be observed across the country, including between north and south, and between rural and urban, as well as in some highly individualized cases.

3. Horizontally defined subsystems emerge across different parts of the bureaucracy (e.g., different ministries, agencies, or departments). Uganda, Ghana, and Pakistan have 32, 28, and 34 ministries respectively, each of which leads part of the bureaucracy and exercises control over specific areas of policy. As noted earlier, the institutional arrangements in Uganda are in a state of flux, but some form of horizontal distinctions (e.g., between leading bodies, or between program areas) will no doubt emerge. While SEDI identified vertical and geographic subsystems in some cases, its initial sector orientation and subsequent experience have resulted in a particular focus on these horizontally defined subsystems, although specific issues can cut across departmental mandates.

Subsystems Can and Do Display Differences in Practices and Performance

SEDI set out to interrogate differences in EIPM practices that might exist in the countries in which it operated, with the analytical phase and the early stages of implementation uncovering just how stark these differences are.

1. In Ghana, SEDI worked to develop partnerships with two key ministries—the Ministry of Health (MoH) and the Ministry of Employment and Labour Relations (MELR). Both ministries operate within shared national dynamics. Nevertheless, the way in which knowledge is produced, communicated, and used within these two different subsystems varies. SEDI's health sector analysis pointed to core actors' prioritization of evidence use throughout the policy cycle: utilization including knowledge-driven, problem-solving, and interactive models (see Weiss, 1979, in Parkhurst, 2016, for this typology of models). The District Health Information Management System (DHIMS) database, used to collect, collate, and report on all routine health services from the public sector, provides a credible source of data for decision-making in the sector (Gatune et al., 2021). Within MELR, while government flagship projects, like One District One Factory (1D1F), Planting for Food and Jobs, and the Nation Builders Corps (NABCO) program, create demand for monitoring

and tracking the job creation outcomes, evidence use is often more political or tactical (Weiss, 1979, in Parkhurst, 2016). Funding and logistical challenges have made it difficult for district and regional authorities to adequately feed the Labor Market Information System (LMIS) being piloted, thus affecting the quality of evidence (Gatune et al., 2021).

2. In Pakistan, while most national ministries have units mandated to generate evidence to inform policy decisions, actual practice varies significantly. For example, while child labor affects the lives of millions in Pakistan and the Government of Pakistan is a signatory of multiple international treaties that address the issue, challenges persist in defining what exactly constitutes child labor, the availability of data on the extent of the problem, and the implementation of the policies and legislation that have been passed to address it. Limited incentives among influential elites (e.g., the politicians, military, and bureaucracy, as well as powerful business families and religious clan heads) exist to remedy this. In contrast, the knowledge subsystem for trade and economic development includes much stronger links to think tanks and advocacy organizations, including those representing traditional elites and, in recent years, an emerging cohort of small and medium enterprises that has coalesced in chambers of commerce and business associations. This has helped to diversify voices and create opportunities to work with the grain, partnering with government agencies on their own agenda to strengthen the capabilities to demand and use evidence.

3. In Uganda, power and influence mapping identified key differences between the knowledge systems for the humanitarian sector and for family planning. These maps not only identified different constellations of actors, as might be expected in different policy areas, but also different balances of international, national, and subnational actors, and different levels of influence or evidence orientation of the same actor when they appeared in different sectors. The Uganda Bureau of Statistics (UBOS), for example, is an important evidence actor in both the humanitarian and family planning sectors but enjoys higher levels of influence in family planning (Ahaibwe et al., 2021).

Factors that Appear to Influence Practice and Performance

What underlies these observed differences between knowledge subsystems? Serious efforts to review the factors that influence the emergence and persistence of islands of effectiveness point to a diverse set of hypotheses that include features endogenous to the organization (e.g., managerial strategies and organizational attributes), and those that concern the wider political context (Leonard, 2008). The relative contributions of each of these is hardly a settled matter, and SEDI was not in a position to draw a conclusion; however, we can observe several factors that appear significant in shaping knowledge subsystems in the SEDI country cases and helping to understand differences between them.

Endogenous Organizational Features

SEDI experience suggests that formal institutions can and sometimes do contribute to EIPM. Perhaps the clearest example of this is the use of the Common Management Arrangement (CMA) in Ghana's health sector. The CMA defines roles and responsibilities of key stakeholders and sets out modalities for collaboration and coordination to achieve the Medium-Term Health Development Plan. While an institutional framework to promote collaboration and coordination between evidence producers and users in the country is generally absent, the CMA is a notable exception in supporting evidence-informed discussions throughout the policy process and differentiating EIPM dynamics and opportunities for reform in the health sector from those of other sectors (Gatune et al., 2021). Such institutions are certainly not guaranteed to function effectively. Other examples evidence the lackluster impact of some formal institutional mechanisms intended to support EIPM (such as Ghana's commissions of inquiry), many of which appear tokenistic or have been circumvented.

At the same time, the factors that drive performance (or not) in an organization are a factor not only of incentives and sanctions enforced by the official authority structure or formal management arrangements, but also informal pressures:

> from people's relationships with their colleagues or their work group, their professional peers, from a staff association or trade union; and . . . from the atmosphere and expectations set up by their immediate bosses or line managers—in short, from the organizational culture (Crook, 2010, p. 495).

This issue of culture, and indeed *multiple cultures* of evidence that coincide and collide with one another, has been observed as a key feature of

organizations in other contexts including South Africa and the UK (Shaxson et al., 2016) and appears to be so in the SEDI context as well.

In Uganda, the Office of the Prime Minister (OfPM), while a national body with cross-government responsibilities, nevertheless has its own norms and incentives that demonstrate the salience of organizational culture. The Monitoring and Evaluation (M&E) Directorate, housed in the OfPM

> has itself acted as a champion, spearheading the institutionalization of evidence use within the government over the past several years. The team benefited from strong high-level support from the M&E Directorate's Commissioner, who has been a champion of evidence-informed decision-making for a number of years, having collaborated . . . on several international capacity development initiatives related to evidence. (Ahmed, Birabwa et al., 2021, p. 21).

However, while individuals can play important roles as facilitators (or blockers) of subsystems based on combinations of personal mandate, competence with evidence, relationships, and political alignment, culture is not simply a matter of champions or individual capacities, but of the establishment of broader norms and expectations (e.g., regarding standardized reporting, utilization of participatory approaches, etc.). In Ghana, that is evident in the health sector, where strong expectations regarding evidence use among health sector professionals, many of whom have professional training and association memberships, reinforce positive norms. Although those individuals are scattered across different organizations, they share an identity as part of a cadre of specialized and relatively evidence-minded professionals.

"External" Political Factors

There is also evidence that nominally "external" or shared processes, institutions, and underlying political economy factors impact differently on different parts of the system. SEDI's experience in Pakistan demonstrates the way in which these factors can shape the EIPM space.

SEDI's work in Pakistan coincided with the arrival of a new political party in power (*Pakistan Tehreek-e-Insaaf* (PTI)) that presented itself as prepared to rethink economic policy and management. As a new administration, PTI needed to define its agenda and develop a new trade policy within weeks of taking office after the 2018 elections. During the election and in the early days of taking office, the PTI political leadership was open to new ideas and testing out-of-the-box solutions, including immediate improvements in the use of

existing knowledge. SEDI analysis identified several political factors that help to explain why this window emerged:

- Government interest was driven not just by the constitutional mandate provided to them once in office, but also by its commitment to export competitiveness as set out in PTI's manifesto. In other words, trade was not just another area of government operations, but one on which PTI had campaigned and needed to deliver quick wins.
- PTI's political imperative aligned with the interests of other influential policy actors, including government stakeholders such as the Central Bank of Pakistan, which was pushing for higher export receipts; as well as nongovernment actors, including a strong private sector constituency willing to engage with the government on various aspects of trade reform.
- Finally, the new administration arrived amid difficult economic conditions, including balance of payments challenges. In this moment of macroeconomic crisis, a bailout of US$6 billion was agreed with the International Monetary Fund (IMF) in 2019, under which the government committed to quarterly, monthly, and weekly reporting on select indicators. The objective of the reporting exercise is to keep the IMF informed and provide evidence that the program remains on track. This mechanism may strengthen the demand for macroeconomic data and analysis within policy institutions but has also placed the administration in a reactive posture and may limit space for investments in EIPM.[55]

To be clear, this does not mean progress on EIPM is now guaranteed. Pakistan has negotiated 22 bailout programs with the IMF since 1958, and macroeconomic imbalances have been a frequent characteristic of Pakistan's economic growth since the 1970s. Similar openness was also observed in the other two parties that had come to power since 2008 before closing down as the next election approached and constituency issues took primacy. The political economy dynamics that have contributed to these persistent

[55] International influence of knowledge subsystems can take a variety of forms. The role of the IMF in Pakistan sketched earlier is one example, but so too is the long-term presence of development partners in the health sector in Ghana. That presence influenced not only technical aspects of knowledge production and use, but also politics: with a multi-actor participatory process helping safeguard against direct or overt influence from political parties. Even without an intentional presence in a country or sector, international conventions and development goals can shape expectations and practices for knowledge generation and use—for better or worse—but Pakistan's experience with conventions on child labor demonstrates these effects should not be assumed to be automatic.

challenges have not disappeared. However, in the view of the SEDI team, these features provided a window of opportunity, at least in the short term, that did not exist in all domains of knowledge and policy.

Implications for Efforts to Improve EIPM

These highlights from SEDI's experiences paint a picture in which important differences, rooted in endogenous and exogenous factors, effectively create multiple knowledge subsystems. Each subsystem has identifiable knowledge system components in their own unique configuration, and is embedded within its own political dynamics, even within a shared macro context. Thus, we find the Knowledge System Model 2.0 framework usefully progresses our understanding of EIPM, particularly when applied in a multidimensional way. Its attention to the political economy of knowledge and policy, indispensable at the macro level, is equally important for understanding the challenges and opportunities offered by subsystems. Similarly, the implications for understanding cultures of evidence, and the emphasis on a more nuanced understanding of the diversity within—and relationships between—the various components, are useful steps forward for understanding both macro knowledge systems and subsystems. How then should reformers approach this multidimensional reality?

Systems or Subsystems: A False Choice

The recognition that knowledge systems operate at more than one level raises interesting questions about how to support EIPM. One option might be to look at the pros and cons of macro and subsystem approaches and attempt to choose between them. Cross-country evidence such as that from BCURE suggests that there are several plausible impact pathways, including support to a single ministry and work at a government-wide scale. However, prioritizing one or the other would be speculative at this point as we lack conclusive evidence about which level of intervention is more likely to be consequential, and because, as noted earlier, national context and political history determine the shape of the layered and interlocking systems (ITAD, 2018).

A better alternative is to see systems and subsystems as complementary. It is clear that national-level institutions matter. These are characterized by diverse political settlements that clearly shape not only the actors, institutions, and incentives that comprise the knowledge system for each country, but also opportunities and constraints for reform. Where subsystems

exist, they tend not to have total control of policy, even in areas where they have some formal or legislative power and discretion. At the same time, the public sector reform literature warns against "overambitious, best-practice-based general PSR [public sector reform] programmes" (Crook, 2010). The disappointing history of large-scale, top-down, comprehensive public sector reform programs should give some pause to reformers considering similar efforts to transform an entire national knowledge system.

There is a practical middle ground in which reformers can work with certain parts of the broader knowledge system, without that being (mis) understood to mean aiming to "fix" the whole system. *Systemic* does not necessarily mean *system wide*. In SEDI, the program made reference to "dancing with the system" or even with a particular subsystem, to progress and strengthen EIPM, but not aiming for an idealized end state. Such an approach, with a combination of interventions across multiple levels of engagement (Stewart, Langer et al., 2019), can still work toward transformational changes that acknowledge important differences across agencies, ministries, and subnational governments, while avoiding more transactional one-off or substitution roles.

In practice, such an approach would have at least two benefits, whether reformers are local individuals and organizations, international development programs, or combinations of these. First, emphasizing the complementarity of system-wide institutional reform and subsystem approaches helps us to deal intelligently with questions about reform ambitions and attempts to effect change "at scale."[56] Typical programming assumptions when we work on the national level include the belief that impacts will be felt evenly and consistently across the system, including subsystems. When we work within subsystems, the operating assumption is often that pilot learning or the demonstration or spillover effects through formal or informal channels will result in impact at scale. Yet in practice, systemic reforms often do not demonstrate consistent impact due to subsystem attributes, as was the case with the adoption of policy analysts in Indonesia, discussed in Chapter 3.

Similarly, reforms targeting subsystems may not scale to other subsystems if differences in practice and space for reform within those

[56] Subsystems such as a powerful ministry or a large province can have tremendous reach such that "going to scale" may not be a principal consideration. There is risk that without necessary changes in the wider ecosystem, changes at the level of individual ministries or agencies may fail to be routinized or sustained (ITAD, 2018). However, the islands of effectiveness literature demonstrates that reformed (and unreformed) practices in subsystems can be surprisingly durable in some cases.

subsystems are the product of underlying factors untouched by reform. Complementarity encourages those working at either level to be clear about the intended scale of outcomes and impact, and about different potential routes to achieve those objectives, including any assumptions built into the theory of change.

A second benefit of engaging at multiple levels is that it offers significant scope for iterative learning and problem-solving. Where experiences in subsystems can reveal binding constraints in the knowledge system, this provides an attractive alternative to design that follows generic best practice. The key, however, is the relationship between these components. International development modalities and design present some challenges for effective learning. Development partners (and their contracted implementing partners) who tend to work in program structures may need to intentionally explore how sector-based programs can feed information about constraints observed in their work to colleagues working on national systems. For reformers not bound by program modalities, it will still be crucial for those working in particular subsystems to keep one eye on the bigger picture to better understand where the challenges they face might be best addressed by broader institutional reform. Those working at the macro level need to be attentive to how to build networks within specific subsystems to ground their work, develop their strategies, and understand their impact.

Grappling With Variation

Beyond the suggestion that systems and subsystems are most usefully viewed as complementary parts of an integrated whole, what guidance can we give to reformers engaging with subsystems? SEDI's experience is shorter in comparison to that of a long-running program like the KSI, but insights emerging from this work speak to several practical concerns, which we consider in the following discussion.

Operational Choices Face Trade-Offs

Given the multiple factors identified as shaping knowledge subsystems and the space for reform, reformers choosing to target changes to a subsystem will inevitably face trade-offs. To work with the ministry with a history of EIPM reforms or the one that is lagging? To work with the department headed by an EIPM champion or the one in which mid-level civil servants appear to be the driving force for change? Even with subsystem analysis, the implications may not be clear immediately.

While SEDI's analysis identified Ghana's health sector as having a more established culture of evidence, in implementation it proved more difficult to identify champions for EIPM than was the case in MELR, where the team identified a mid-level partner with previous EIPM experience who was able to build support from the Chief Director and Minister. This interesting and perhaps counterintuitive insight suggests opportunities for reform may be significant where existing cultures of evidence use may not be as strong. Indeed, identifying motivated parties wanting to work on improved practices can depend on them recognizing a weakness or a problem that matters to them (for more on this question, see Andrews et al., 2015). In contrast, the team in Pakistan has been able to build on the momentum and interest identified in its analysis of trade issues with the Ministry of Commerce, while choosing not to proceed in the area of child labor based on the pervasive challenges identified. Practically then, analysis of subsystems may be as useful for informing *how* to engage as for making decisions about whether to do so.

If Variation Arises From Technical and Political Factors, So Too Should Reforms

If the differential impact of politics is one of the exogenous factors accounting for variation in practice and performance across different knowledge subsystems, we must accept from the outset that a toolbox comprising only technical fixes is unlikely to be sufficient (Leonard, 2008). However, if reformers are able to understand the technical and political dimensions of EIPM, and are equipped with the skills and space to pursue strategies that incorporate both, they are better equipped to develop approaches and theories of change that will be appropriately tailored to the constraints and opportunities of a given subsystem. Viewing knowledge reforms through such a lens will leave reformers far less likely to be disappointed when apolitical technocratic interventions fail to generate the desired changes.

Dynamism Matters, so Reformers Must Be Dynamic Too

While in some respects the attributes that shape knowledge subsystems and the space for reform are durable (e.g., it is rare for organizational culture to shift overnight), in other ways the structure of subsystems and their characteristics can be dynamic, interconnected (likely contributing further dynamism), deeply political, and ultimately unpredictable, with the situation evolving even as reformers intervene. The devolution process in Pakistan and the shift to a programmatic approach in Uganda are both generating renegotiations of control and influence, with the potential for important

changes in relationships and in the needs of the knowledge ecosystem. This adds an additional layer of complexity for EIPM reformers who already face choices with significant operational trade-offs. However, if reformers have the flexibility to react to changes in their environment, such uncertainty can create room for maneuver in the face of an unsupportive status quo.

Leverage Relationships and Invest in Them Too

Multidimensional systems with links between the levels offer interesting opportunities to leverage relationships at the subsystem level. Where SEDI's national partners had strong preexisting relationships from prior work, those formed the foundation for early implementation. Where relationships had to be built, it has taken some time to build that foundation in an often crowded and fragmented space. Leveraging those relationships has not been without its challenges. Existing relationships arguably came with greater pressure to deliver, and initial desires to work on quick wins to build new relationships risked putting important objectives on the back burner. These are challenging dynamics when program budgets and interactions with funders can be unpredictable, but such relationships are increasingly identified as crucial to effective EIPM support (Stewart, 2018; Stewart, Langer et al., 2019).

Conclusion

Increasing practical experience with support to EIPM in programs like SEDI and the KSI, and emerging understanding of knowledge systems continue to reveal a complex reality in which the political is as important as the technical, the informal as important as the formal, and relationships as important as capacity. While this can feel messy and overwhelming at times, the conceptual thinking, frameworks, strategies, and tactics outlined in this book better equip reformers, development practitioners, and researchers to engage with this challenge. Extending this understanding through a multidimensional approach to knowledge systems encourages us not only to acknowledge the fact that rarely are the challenges reformers face simply of generic technical capacity, but also to see the potential for pockets of opportunity in otherwise challenging contexts, and to allow for and explore differential impacts of high-level reforms.

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