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# HOW DO GOVERNMENT DECISIONMAKERS ADOPT EDUCATION INNOVATIONS FOR SCALE?

## IMPLICATIONS FOR NATIONAL-LEVEL EDUCATION POLICYMAKING IN LOW- AND MIDDLE-INCOME COUNTRIES

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# EXECUTIVE SUMMARY

Provision of quality, inclusive, and equitable education remains one of the biggest challenges for low- and middle-income countries (LMICs). Two hundred and sixty million children are currently out of school and as many as 8 out of 10 children in low-income countries are functionally illiterate by their 10th birthday. COVID-19 has intensified this, with early data suggesting the pandemic may have wiped out 20 years of education gains. Despite the efforts of global, national, and local actors, education improvement is moving too slowly and unevenly to address the magnitude of the need.

For years, initiatives and innovations have been implemented and tested around the world to address this learning crisis. While many have demonstrated success at small scale, the majority have been unable to attain large-scale and sustainable impact, have failed to produce robust results, or have fallen short of the system-wide change needed to achieve Sustainable Development Goal 4. Though the reasons for these challenges are many, we know that education is complex and cannot be separated from the entrenched ecosystems in which it takes place. Scaling in education is not simply about increasing the reach of an innovation; it requires expanding, deepening, and enhancing the quality, scope, equity, and sustainability of education innovations across a whole system so that all children—including the most marginalized—get quality educational opportunities that result in robust learning and human development.

Since 2014, the Center for Universal Education (CUE) at the Brookings Institution has sought to address the challenges of scaling impact in education through the Millions Learning project, which focuses on how and under what conditions quality education innovations scale. In 2020, Millions Learning joined the Global Partnership for Education's (GPE) Knowledge and Innovation Exchange (KIX), a joint partnership between GPE and the International Development Research Centre (IDRC), to facilitate a cross-national, multi-team, design-based research and professional support initiative called Research on Scaling the Impact of Innovations in Education (ROSIE). ROSIE brings together researchers and practitioners working in 29 LMICs to study processes of scaling education initiatives and to deepen impact of their ongoing work. Parallel to this work of learning alongside these scaling researchers and practitioners, we are pursuing a complementary qualitative study on *how governments identify, adopt, and support education innovations to scale.* **It is that national level decisionmaking study on which these summary findings focus.** Because this study is ongoing, these insights are provisional and will likely deepen and grow during our second round of data collection to be conducted during the final months of 2022. Our final findings will be released in 2023.

The summary findings and accompanying full report of this ongoing study are written predominantly for civil society, philanthropic, and private sector education reform professionals who seek to partner and scale with governments to leverage innovations for improving education in LMICs. By illuminating and analyzing how some of these decisionmaking processes and perspectives occur in a handful of countries, we hope to open the "black box" of partnering with government for education scaling and share guidance with others.

# Analyzing how decisionmakers approach scaling education innovations in LMICs

In our qualitative study, CUE seeks to examine how national and regional decisionmakers in the public sector approach scaling education innovations in LMICs. This includes exploring what they see as key factors or influences on the process of supporting or adopting education innovations to scale, what the contours and calculations of their decisionmaking processes are, and how broader components of the decisionmaking ecosystem interrelate. To answer these questions, CUE conducted three separate reviews of the existing literature and conducted over a dozen hour-long, semi-structured interviews with national-level education decisionmakers in five GPE countries: Bhutan, El Salvador, Guatemala, Kyrgyzstan, and Malawi. CUE also relied on data from ROSIE's ongoing collaborative study with our 15 collaboration teams, in which we are learning alongside KIX teams that are working to scale and research promising innovations in 29 LMICs.

- Identification, adoption, and adaption of innovations to scale is in part a common, rational, linear process in all five countries but also entails *idiosyncratic negotiation* marked by regional histories, political economies, the significant influence of multilateral donors, and bureaucratic nuances.
- Most education innovations discussed at the national level originated in other countries, and so *contextualizing and studying an innovation's impact* in a new location becomes paramount.
- Equity is increasingly a topic of discussion, but the rhetoric does not always translate into increased action.
- A country's unique context matters and there is often a *complex tension among localization, globalism, and equity* in the push for education systems change.
- Government decision makers view education technology and information systems as promising, but they are *still mostly an aspirational goal in LMICs, especially in rural areas.*

# The mechanics of identifying and adopting education innovations in LMICs

The analysis presented in the full report is placed inside the broader context of national-level education innovation decisionmaking in LMICs. As a whole, the context for education decisionmaking is rational in its rhetoric and bureaucracy but opaque and non-linear in many nuanced ways. Ministries of Education (MOEs) and Ministries of Finance (MOFs) negotiate back and forth, and an MOE will often lobby for its preferred innovation. Sometimes the president intercedes in the process. National politics, regional relationships, and global pressures matter. Donor organizations carry significant influence. Characteristics such as the strength of a particular MOE or the symbolic value of a particular innovation might tip the scale in one direction or another.

This means that people promoting an innovation must know the specifics of the country and learn how to package and communicate the innovation in ways aligned with a deep understanding of this broader policymaking process. Among other things, that requires sharing the right innovation data in the right way to the right people and establishing good working relationships with multiple levels of government personnel. Additional details and takeaways are presented in the report.

The report then offers analyses and recommendations related to government level educational decisionmaking as characterized by factors such as national politics, terminology, the donor community, centralized bureaucracies, rural versus urban contexts, and the complexity of ed tech promises. Finally, the report closes with the following considerations for action.

# Considerations for action

## SCALE WITH CONTEXT IN MIND

It is important to balance the local with the global. There are global trends and a strong tradition of education transfer, but there are also local needs and contextual realities. Going too far in either direction risks errors, so finding the right balance is important. It is imperative both to deeply know commonalities across countries and to develop keen understandings of the immediate contexts in which one is working, including national and local politics. Additionally, given that so many education innovations come from elsewhere and must be tailored to the setting, contextualization of the innovation must not be taken for granted. Equally important is to study successes and failures of contextualization so that, with each iteration, knowledge is accumulated.

## PARTNERSHIPS MATTER: APPEAL TO DECISION- AND POLICYMAKERS USING DATA-BACKED RESEARCH

An NGO or other group with a promising innovation must identify its potential community champions, networks, or levers and authentically partner from the beginning. Use them to get to provincial and national-level government in the right ways; use religious institutions if applicable. Put a former government official on the scaling team. Leverage public-private partnerships in countries that value those. Do not underestimate the productive power of local populations supporting innovations with which they agree or the negative power of resisting those they do not.

## ACHIEVE LONG-TERM IMPACT EQUITABLY

Currently, the array of incentives in education improvement incentivizes short-term project implementation rather than scaling for long-term impact. Only when the financial, political, and other categories of incentives are shifted and aligned for deep and sustained uptake of an innovation will fundamental improvement occur. Sustainability and equity become everyone's responsibility—starting with donor organizations and the global education development architecture. For example, consider urban bias: While it may seem at first blush logical to invest resources and scaling work only in urban areas, it is neither equitable nor sustainable over time to neglect rural regions. For this reason, viewing rural education as a priority area—especially, but not solely, with regard to ed tech—is critical. Further, we must deeply interrogate how to capitalize on the promise of technology in education to provide exponential improvement without neglecting its drawbacks.

## INGREDIENTS FOR SUCCESS

From our analysis, we found that for an innovation to be seriously considered for national-level scaling and for it to be adopted for scale with impact at the country level, some ingredients are *necessary* (e.g., ensuring that it addresses or solves an already identified national need) and some ingredients are *important* (e.g., having an infrastructure with sufficient schools and teachers, clear procurement processes, and a coherent pre- and in-service training system).

We use the full report and summary finding to discuss several dimensions of national-level decisionmaking in five LMIC countries. To advance this important work, however, more is required than the pages of the report describe.

We look forward to the new set of findings and discussions to be released in 2023. Until then, we close with two additional elements we believe are necessary for scaling education innovations in LMICs. One is honest dialog among all participants. The second element is hope. As one participant said, "I have to always hope for the best. We must work hard, make good decisions, and strengthen whatever mechanisms we have some control over to make sure that all these [promising innovations] are working to improve life for our children. If that happens, then my wish will be granted!"

# OVERVIEW

Provision of quality, inclusive, and equitable education remains one of the biggest challenges for low- and middle-income countries (LMICs). Two hundred and sixty million children are currently out of school and as many as 8 out of 10 children in low-income countries are functionally illiterate by their 10th birthday.[1] COVID-19 has intensified this, with early data suggesting the pandemic may have wiped out 20 years[2] of education gains. The United Nations' Sustainable Development Goal 4 (SDG 4) calls on nations to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all children by 2030. However, despite the efforts of global, national, and local actors, education improvement is moving too slowly and unevenly to address the magnitude of the need.

For years, initiatives and innovations have been implemented and tested in countries around the world to address this learning crisis. While many have demonstrated success at small scale, the majority have been unable to attain large-scale and sustainable impact, have failed to produce robust results, or have fallen short of the system-wide change needed to achieve SDG 4. Though the reasons for these challenges are many, we know that education is complex and cannot be separated from the entrenched ecosystems in which it takes place. Scaling in education is not simply about increasing the reach of an innovation; it requires expanding, deepening, and enhancing the quality, scope, equity, and sustainability of education innovations across a whole system so that all children—including the most marginalized—get quality educational opportunities that result in robust learning and human development.[3]

Since 2014, the Center for Universal Education (CUE) at the Brookings Institution has sought to address the challenges of scaling impact in education through the Millions Learning project, which focuses on how and under what conditions quality education innovations scale. Through that work, we have learned that scaling a promising innovation rests not just on the excellence of the innovation itself but is also strongly influenced by external factors[4] in the broader environment[5]—including political,[6] economic, social, and cultural characteristics; national and international crises and movements; and opportunities and constraints inherent to education. All of these must be considered in a scaling strategy. Additionally, we have learned that scaling—unlike its 20th-century, more technically-minded predecessor (sometimes called "project implementation")[7]—is a non-linear, iterative process that requires ongoing adaptation based on new data and changes in the educational ecosystem. But putting this learning into practice is challenging.[8] Education systems can have inflexible and bureaucratic norms[9] and power dynamics, and limited human and financial resources constrain individuals' ability to use continuous learning for flexible adaptation. Further, the data and information required to inform a scaling process differ from the data collected to assess impact during a pilot[10] phase.

> *Scaling is "the diffusion, dissemination and implementation of innovative and effective public … interventions." (Östlin, P. as quoted in World Health Organization, 2016).*[11]

In 2020, as part of our ongoing work on scaling for impact, Millions Learning joined the Global Partnership for Education's (GPE) Knowledge and Innovation Exchange (KIX), a joint partnership between GPE and the International Development Research Centre (IDRC), to facilitate a cross-national, multi-team, design-based research and professional support initiative called Research on Scaling the Impact of Innovations in Education (ROSIE). ROSIE brings together researchers and practitioners working in 29 LMICs to study processes of scaling education initiatives and to deepen impact of their ongoing work (find full summaries of the 15 ROSIE teams here).[12] Parallel to this work of learning alongside these scaling researchers and practitioners working in 29 countries, we are pursuing a complementary qualitative study on *how governments identify, adopt, and support education innovations to scale*. It is that national-level decisionmaking study on which this report focuses.

This report is written predominantly for civil society, philanthropic, and private sector education reform professionals who seek to partner and scale with governments to leverage innovations for improving education in LMICs. By illuminating and analyzing how some of these decisionmaking processes and perspectives occur in a handful of countries, we hope to open the "black box" of partnering with government for education scaling and share guidance with others.

Our report illuminates the decisionmaking process in five LMICs by discussing the following five findings:

**Identification, adoption, and adaption of innovations to scale is in part a common process in all five countries but also entails idiosyncratic negotiation marked by regional histories, political economies, the significant influence of multilateral donors, and bureaucratic nuances.**

**Most education innovations discussed at the national level originated in other countries, and so the work of contextualizing and studying an innovation's impact in a new location becomes paramount.**

**Equity is increasingly a topic of discussion, but it seems that the rhetoric does not always translate into increased action.**

**A country's unique context matters and there is often a complex tension among localization, globalism, and equity in the push for education systems change.**

**Government decision makers view education technology and information systems as promising but these are still mostly an aspirational goal in LMICs, especially in rural areas, not a current reality.**

To unpack these themes and provide accompanying recommendations, this report is arranged into four parts:

1. Data and study methods
2. The mechanics of identifying and adopting education innovations in LMICs
3. Six emerging insights
4. Concluding considerations for action

# 1. DATA AND STUDY METHODS

To pursue this qualitative study, we developed the following questions:

- How do national and regional decisionmakers in the public sector approach scaling of education innovations in LMICs?
- What do they see as key factors or influences on the process of supporting or adopting education innovations to scale?
- What are the contours and calculations of their decisionmaking processes?
- What are the broader components of the decisionmaking ecosystem? How do these components interrelate?

Next, we conducted and used three separate reviews of the existing literature and conducted over a dozen hour-long, semi-structured interviews with national-level education decisionmakers in five GPE countries: Bhutan, El Salvador, Guatemala, Kyrgyzstan, and Malawi (Table 1).

To select these countries, we stratified all 76 (as of July 2022) GPE participant countries in terms of global location, population size, government type, and governance circumstances and employed a combination of random sampling and purposeful selection to choose five. For the purposeful sampling, we used criteria such as choosing countries where we could establish national-level personnel access and countries more likely to make education decisions at the national level. This selection process allowed us to balance purpose with some generalizability. The subsequent phase of this study will collect another round of interview data on more countries, as well as conduct interviews with some middle-level country education personnel, global funders, and research representatives.

We transcribed (and, when necessary, translated into English) the hour-long, semi-structured interviews and hand-coded them according to preset codes from our desk research, emergent codes on topics of interest as they arose, and axial codes to look across topics.

We also relied on data from ROSIE's ongoing collaborative study with our 15 collaborators (known as the ROSIE *Action Research*), in which we are learning alongside 15 KIX collaboration teams that are working to scale and research promising innovations in 29 LMICs. They generously speak with us regularly and share their progress through focus groups, documents, and other scaling data every six months (for more on this strand of research see the policy brief "Scaling education innovations for impact in low- and middle-income countries during COVID: Reflections on key themes").[13]

To provide contextualized and dynamic analysis to national-level government decisionmaking, we applied two complementary conceptual frameworks: an ecological one[14] and a global-development one.[15] The ecological framework derives from Bronfenbrenner[16] who studied expanding concentric circles of influence on a central unit. (Imagine an archery target) Bronfenbrenner chose the developing child for the center of his concentric circles; in this study, we use national government decisionmaking in education.

This framing focuses analysis on how the center (i.e., government decisionmaking) affects the people, forces, and contexts of each broader level while at the same time, how influences from those broader contexts steer inward to shape the center. This dynamic ecosystem became the groundwork for our data analysis.

The second framework comes from Allen Caldwell,[17] who delineates seven themes that influence government education development in LMICs. His framing holds that contemporary public sector decisionmaking around education is often a product of seven interdependent forces:

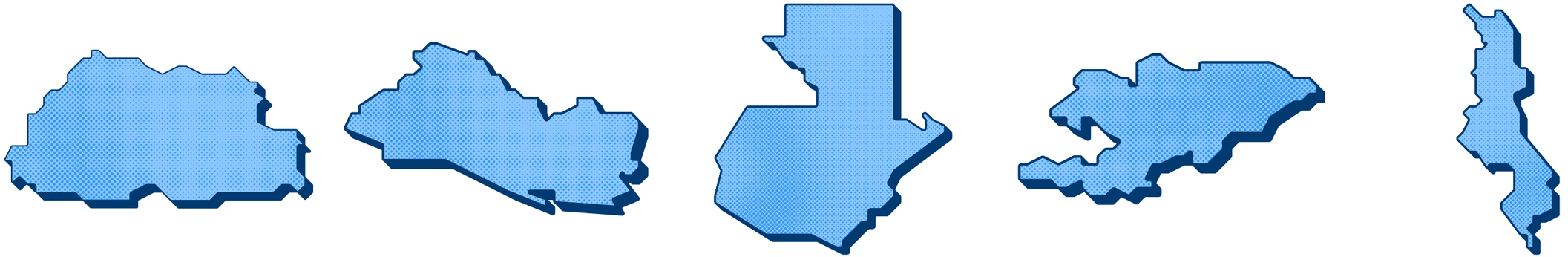
1. *Modernity*: a move away from traditional societies toward modern ones
2. *Ministry of Education* (MOE): the primary lever of education reform in each country
3. *World systems:* multiple interconnected countries as the unit of analysis, not just a single nation
4. *Regional isomorphism*: national locations—consciously or not—taking on the characteristics of their neighbors; see Box 1
5. *Sustainability*: the ability to maintain an intervention or its effects over time
6. *Relationships, partnerships, and trust*: necessary in governance and public systems reform
7. *Leadership*: individuals who motivate mass action

Each of these seven forces exerts mediating pressure on the others and all combine in ways that illustrate the complexity of national-level education decisionmaking. This contemporary set of interdependent forces supported us to interpret additional meaning from the collected data.

Iterative rounds of data analysis within these two frameworks and our research reviews produced the insights discussed in this report. Before launching into those insights, however, we set the context by considering the mechanics of education policy development in LMICs.

TABLE 1.

## The five focus countries in our study



| | BHUTAN[18] | EL SALVADOR[19] | GUATEMALA[20] | KYRGYZSTAN[21] | MALAWI[22] |
|---|---|---|---|---|---|
| | Population Size: **867,775** | Population Size: **6,570,000** | Population Size: **17,703,190** | Population Size: **6,071,750** | Population Size: **20,794,353** |
| EDUCATION SYSTEM | • Compulsory education: None—government offers free basic education from pre-primary to grade 10, but it is not compulsory[23]<br>• Government expenditure on education: 16.24% of total government expenditure (2021)[24]<br>• Primary completion rate: 88.2% (2020)[25]<br>• Lower secondary completion rate: 61.9% (2020)[26]<br>• Upper secondary completion rate: 35.7% (2020) | • Compulsory education: 15 years from ages 1 to 15[27]<br>• Government expenditure on education: 18.1% of total government expenditure (2021)[28]<br>• Primary completion rate: 89.71% (2018)[29]<br>• Lower secondary completion rate: 75.07% (2018)[30]<br>• Upper secondary completion rate: 59.24% (2018)[31] | • Compulsory education: 16 years from ages 0-15[32]<br>• Government expenditure on education: 21.1% of total government expenditure (2020)[33]<br>• Primary completion rate: 83.4% (2020)[34]<br>• Lower secondary completion rate: 54.5% (2020)[35]<br>• Upper secondary completion rate: 38.1% (2020)[36] | • Compulsory education: 10 years from ages 6-15[37]<br>• Government expenditure on education: 16.5% of total government expenditure (2019)[38]<br>• Primary completion rate: 99.5% (2020)[39]<br>• Lower secondary completion rate: 98.8% (2020)[40]<br>• Upper secondary completion rate: 84.9% (2020)[41] | • Compulsory education: 8 years from ages 6-13[42]<br>• Government expenditure on education: 11.5% of total government expenditure (2020)[43]<br>• Primary completion rate: 49.3% (2020)[44]<br>• Lower secondary completion rate: 23% (2020)[45]<br>• Upper secondary completion rate: 15.5% (2020)[46] |
| GOVERNMENT | • Democratic constitutional monarchy<br>• Bhutan is in the process of transitioning to greater decentralization[47] | • Presidential republic<br>• Centralized – unitary state with one tier of decentralization (262 municipalities)[48] | • Presidential republic<br>• Unitary government with one level of sub-national government, 334 autonomous municipalities[49] | • Presidential republic<br>• Unitary government with 3 levels of local government: first tier which comprises of cities, local communities, and township councils; second tier which includes districts; and third tier, which is made up of regions and cities with special status[50] | • Presidential republic<br>• Unitary government with a single-tier structure of decentralized governance[51] |

| | BHUTAN[18] | EL SALVADOR[19] | GUATEMALA[20] | KYRGYZSTAN[21] | MALAWI[22] |
|---|---|---|---|---|---|
| FRAGILITY AND DONOR DEPENDENCY | • Fragile States Index Score:[52] 67.4 – "warning" category[i] | • Fragile States Index Score:[53] 70.8 – "warning" category[i] | • Fragile States Index Score:[54] 77.5 – "warning" category[i] | • Fragile States Index Score:[55] 77.1 – "warning" category[i] | • Fragile States Index Score:[56] 83 – "warning" category[i] |
| TOP EDUCATION CHALLENGES | • Low access to ECCD and to education opportunities for children with special needs[57]<br>• Strained capacity for enrollment in urban primary schools and high levels of repetition[58]<br>• Insufficient learning levels, concerns the system does not prepare students with skills necessary for the 21st century[59]<br>• Inequities in education access and opportunity by gender, geography, socioeconomic status, disability[60]<br>• Inadequate infrastructure and facilities and insufficient human and financial resources; reliance on donors to address infrastructure problems[61]<br>• In response to the COVID-19 pandemic, the Ministry of Education implemented online teaching through social media, video and radio lessons, and self-instruction materials.[62] | • Very low access to ECCD programs (0-3) and low enrollment in kindergarten programs (4-6)[63]<br>• Low learning levels in primary school[64]<br>• High drop out rates in secondary school<br>• Inequities in access by gender, geography, socioeconomic status[65]<br>• Pervasive violence, with one of the world's highest homicide rates; youth who drop out of school are particularly vulnerable[66]<br>• Approximately 1.4 million students missed "almost all classroom instruction" when the government closed schools for the COVID-19 pandemic between March 2020 and April 2021.[67] While the government instituted a range of distance learning options, limited internet connectivity was a significant constraint to access. | • Low learning outcomes<br>• High drop-out rates in secondary school, especially for indigenous youth[68]<br>• Inequities in secondary school access and outcomes by gender, geography, and for ladino and indigenous communities[69]<br>• Poor school infrastructure, including thousands of schools that lack safe water and electricity; unsafe conditions delayed plans for re-opening schools after COVID-19 closures[70]<br>• Underfunded education sector<br>• 4.2 million students missed at least 75% of classroom instruction as a result of COVID-19 school closures between March 2020 and February 2021. Many students lacked access to the technology necessary to participate in virtual learning opportunities.[71] | • Very low access to pre-primary education[72]<br>• Insufficient learning levels[73] and inequity across geographies<br>• High levels of absenteeism in upper secondary, contributing to poor learning outcomes[74]<br>• Inadequate resource allocation and financial management, insufficient numbers of teachers and teaching and learning materials,[75] overcrowding in urban schools,[76] poor and deteriorating infrastructure[77]<br>• COVID school closures from March 2020 through September 2021 affected nearly 1.8 million students. The World Bank estimates up to 97% of students in schools closed for more than a year will fall below functional literacy levels.[78] | • Overcrowded classrooms, understaffed schools, and insufficient school infrastructure and teaching and learning materials[79]<br>• High drop-out, repetition, and out-of-school rates, especially in secondary[80]<br>• Low learning levels[81]<br>• Gender inequality and gender-based violence, high HIV/AIDS prevalence (8.1% of adults infected, 9th highest in world), and other vulnerabilities also limit access to education[82]<br>• Nearly six million children missed out on in-person instruction when schools were closed for COVID-19. Many children struggled to access virtual learning opportunities due to cost and lack of access to devices and connectivity. The pandemic also saw increased rates of teen pregnancy, early marriage, child labor, gender-based violence, and child abuse.[83] |

i The methodology used for the Fragile States Index gathers quantitative and qualitative data on 12 social, economic, and political/military indicators for 178 countries and gives each state a score between 0-10 for each indicator (0 being most stable, 10 being most unstable). The ranking of countries in the index is obtained by adding up the scores for all 12 indicators. The total score falls between 0-120, with 120 being the highest possible level of instability. Countries are divided into four categories based on this score: 1) red or "alert" (highest fragility), 2) yellow-orange or "warning," 3) green or "stable," and 4) blue or "sustainable" (lowest fragility). For more information on the indicators and the methodology, see: https://fragilestatesindex.org/

**Source:** Authors' analysis.

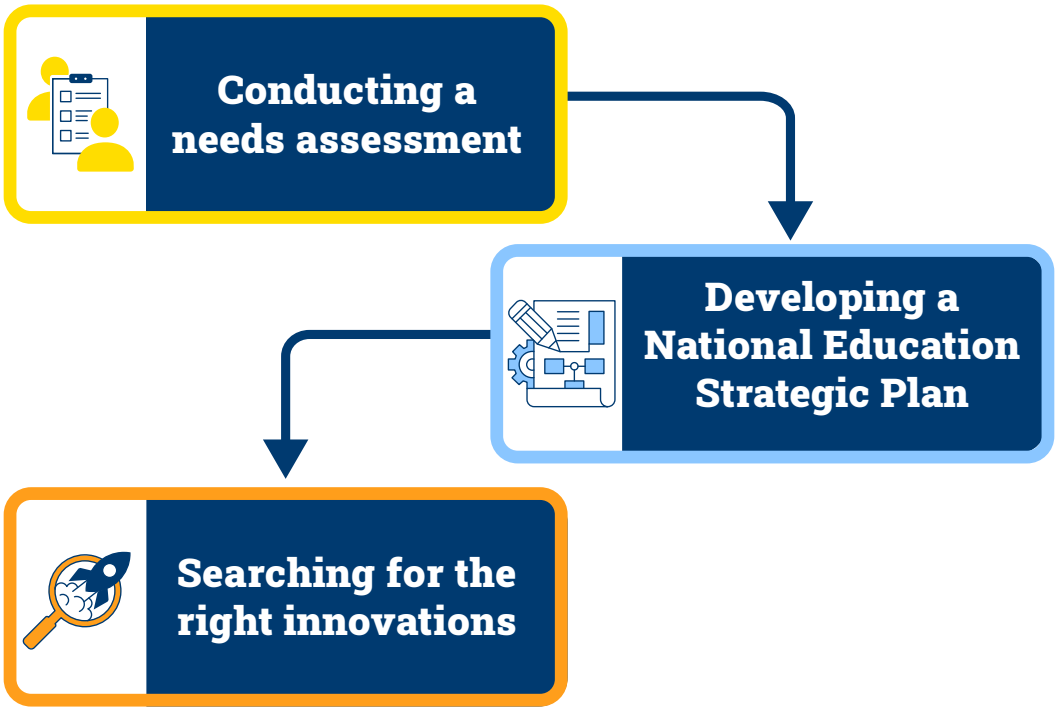
# 2. THE MECHANICS OF IDENTIFYING AND ADOPTING EDUCATION INNOVATIONS IN LMICS

## Engaging with policymakers

There is a common understanding that education policy development works in a rational, linear way in most countries (see Figure 1). First, a country conducts a needs assessment: Multiple directorates of the education ministry, along with outside technical experts, draw on their experience and expertise and analyze available local and international data for their respective domains (such as primary education, STEM, technology, curriculum and instruction, or teachers) to identify pressing areas in need of attention in the system.

FIGURE 1

## The process of identifing education innovations




**Source:** Authors' analysis.

Next, a national strategic plan is developed: The findings of the needs assessment are reviewed, refined, and sometimes approved through iterative rounds to build consensus, and other times are dictated directly by the MOE and/or the country president. Once the ministry of education completes the review process, the country develops a strategic plan. These strategic plans are often developed for 10+ years but usually split into five-year increments to tackle identified problems. They are generally anchored to international efforts such as the Sustainable Development Goals.

Third, the country searches for educational solutions: The MOE—or education directors—and sometimes the country president will search outside the country for innovations that fit the strategic plan or take meetings with global donor representatives who wish to offer assistance.

Interviewees in our study articulated this process in their respective countries. For example, in Kyrgyzstan, the president regularly meets with neighboring presidents, and they share education ideas and what worked in their locations. We also learned that they have a website where residents can propose education innovations of their own, such as offering multiple matriculation dates for entering university, instead of one per year. We were told that the head of state of Bhutan travels widely and engages in conversations abroad with experts, policymakers, and others to find the latest education innovations. In Latin America, participants told us that ministers of education talk with each other and attend conferences or "study trips" where they share education innovations.

However, when respondents began discussing the specifics of their work in more detail, a more complex and less linear process emerged. In El Salvador, participants told us that each government administration drafts its strategic education plan based on its own style or political interests. In this way, the minister of education has significant autonomy and will often (with the president's encouragement) change course from that of the previous administration. Many

of those with whom we talked in Latin America and Africa lamented this lack of continuity in education reform across administrations. In Kyrgyzstan, we learned that individual decisionmakers have little autonomy. Instead, the decisionmaking process is marked by the consensus process, the bureaucracy, and a cultural belief that a system is stronger than its human participants.

Bhutan was a monarchy until it became a democracy in 2008, and participants told us that, even now, the bureaucratic machinery of decisionmaking and policy implementation is rather inert until the monarch steps in and tells them to do something—at which point everyone jumps quickly into action. Because of the tendency to respond quickly to the monarch's requests, sometimes educational innovations are adopted without adequately considering the resource and infrastructure barriers beforehand, which results in significant challenges to scaling.

In Malawi, the president and cabinet create broad development goals first, and the ministry of education creates aligned educational goals. Parliament endorses both sets of goals before they can become part of the strategic agenda. Once Parliament approves the strategic agenda, the national planning department uses that agenda to develop a five-year plan and sends it to the ministries for implementation. As a former minister said, "The administration sets the agenda which becomes our momentum—our mandate. We [ministries] implement that momentum."

**BOX 1**

## What is regional isomorphism and why does it matter?

*Regional isomorphism* is a term to explain why processes or structures in one location tend to look similar to those nearby. This happens because locations—consciously or not—take on the characteristics of their neighbors. In its broadest form, it could be seen as the process of globalization: a process by which all nation states begin resembling each other.

Given the popularity of national-level government officials communicating with neighboring country leaders and working with regional and global donor institutions, regional isomorphism is a powerful force.

This "crowd-sourcing" of education innovations has the effect of narrowing the innovations or definitions of educational success available. In other words, could contemporary education transfer be seen as a process of establishing a single globalized or "world system" model for education[84] by way of a global innovation incubator? If so, is that a desirable natural selection in which only the best tested innovations remain? That could be an impressive evolutionary process to applaud. Conversely, however, could the situation represent a convergence in which only those innovations considered expedient, good for some but not others, or easy or cheap to implement get through the complex (and only partly intentional) vetting process? If so, that could be detrimental to countries or populations who do not in the end benefit from innovations whose popularity emerges from this global crucible of education interventions.

## TAKEAWAYS

This reality—a formal, highly rational approach to choosing education reforms that mixes with the idiosyncrasies of political economies, cultural histories, and bureaucratic processes—suggests three broad takeaways:

1. **More multimethod, context-specific, and co-created research is needed.** The complexity of scaling and innovation transfer requires incentivizing rigorous, multidimensional, and locally driven research responsive to the contextual realities of each location. While randomized controlled trials (RCTs) have been successful in certain scenarios, they carry limitations. Although government experience and expertise are useful, they have inherent biases. As a result, while perhaps not as "exciting" as funding innovations or RCTs, the funding of co-created quality impact and process studies (including cross-case and longitudinal research) with local partners to examine education decisionmaking related to scaling is needed to respond to specific local contexts (For more see: "Breakthrough to Policy Use: Reinvigorating Impact Evaluation for Global Development").[85]
2. **Balancing local needs and global trends should be a priority for decisionmakers and people promoting education innovations.** Adopting and adapting education innovations occurs in an ecosystem with myriad—and sometimes competing—local needs and global trends. Policymakers and scaling professionals must consider global best practices in the context of countries' historical, political, and cultural differences. And so, knowing the political, colonialist, and reform histories of a country is critical for those who engage in education work in LMICs. Neglecting the nuanced understandings of particular countries or over-privileging Western or global systems can create a tunnel vision that narrows one's understanding of challenges and possibilities.
3. **Education scalers should become knowledgeable before engaging with policymakers on the adoption of an innovation.** During decisionmaking, policymakers bargain with other decisionmakers and key groups in society; this includes both actors who will fight for an innovation's equitable implementation, and actors who may oppose a policy or try to shape it for their own benefit. Additionally, policymakers rely on their own intuition, beliefs, familiarity with the topic, and considerations of potential political gain or risk when making decisions. As a result, we recommend scalers and innovators consider the following questions before engaging with decisionmakers on the adoption of an innovation:

    - Who are the key players involved in the decisionmaking process?
    - What are their powers and roles?
    - What are their preferences, incentives, and risk tolerance?
    - What are their time horizons?
    - In which arenas do they interact?
    - What are the formal and informal rules under which these arenas work?
    - What types of political and economic resources exist to compensate those who may oppose the innovation?[86]

# Contextualizing an imported innovation in a new location

Study participants raised almost no examples of home-grown innovations. Nearly all of the innovations referenced in interviews had been developed and employed in other countries first. Knowing this, government decisionmakers viewed the piloting of innovations as an important initial step because they wanted to be sure it would work in their context. They expressed that just because the innovation worked in one country did not mean it would work for them. Piloting was a chance to adjust the innovation for the context, garner local support, learn about its potential for scaling, and ensure it worked. However, government officials also felt that time constraints made piloting an innovation difficult and sometimes impossible. Time is something that neither those working in politics (who often have re-elections on the horizon) nor the current children (who will only be in their grade for one year) have. A former El Salvadorian minister of education highlighted this challenge: "The advantages of doing one, two, or three pilots [is that] you make sure the program is going to be successful, but [there's a] disadvantage: It takes too long. It can take many years before you are sure that it is going to be successful, and time moves on, and a generation misses out on the benefits of this innovation."

Additionally, not all organizations—from the education sector and beyond—conduct evaluations of an innovation's success during or after implementation once they complete the pilot studies.[87] When they do, they often give their innovations suspiciously high marks. Most ministries in LMICs have neither the time nor resources to carry out their own evaluations. As a result, the evaluation aspect around scaling can be opaque, anecdotal, or simply a formality for donor requirements or political expediency.

***These details suggest that it is crucial for those promoting an innovation to conduct sequenced and localized effectiveness studies that highlight success stories (and their accompanying government "wins") along the way. It is more effective to share timely data strategically related to the current political climate with policymakers rather than wait for the final results of longitudinal pilot studies to win their support for scaling an innovation.***

## TAKEAWAYS

1. **As a whole, the context for education decisionmaking is rational in its rhetoric and bureaucracy but opaque and non-linear in nuanced ways.** MOEs and Ministries of Finance (MOFs) negotiate back and forth, and an MOE will often lobby for its preferred innovation. Sometimes the president intercedes in the process. National politics, regional isomorphism, and global pressures matter. As we will discuss, donor organizations carry significant influence. Characteristics such as the strength of a particular MOE or the symbolic value of an innovation might tip the scale in one direction or another.
2. **People promoting an innovation must know the specifics of the country and learn how to package and communicate the innovation in ways aligned with a deep understanding of this policymaking process.** Among other things, that requires sharing the right innovation data in the right way to the right people and establishing good working relationships with multiple levels of government personnel.

# 3. SIX EMERGING INSIGHTS

## Translating the rhetoric around equity into actual change

We begin with equity because it is too often attached at the end of reports and presentations, almost as an afterthought. In the interviews, we asked national decisionmakers open-ended questions about equity considerations in their identifying, adopting, and scaling of education innovations. Typically, we heard three responses: The country needs to bring quality education to rural locations. The country needs to do a better job making schools inviting to girls and ensuring that they stay in school. And there is always a tradeoff between equity and cost because meeting the needs of the majority of students (in the bell of any population curve) is easier and less expensive than successfully reaching those students at the end of either tail.

To a lesser extent, we also heard that students with disabilities are "an increasingly popular topic." When we asked a data scientist in Malawi why this is important now, she mused that its popularity derives from rights-based thinking:

> People now understand that everybody has a right to education, including those with special needs. Because previously you would find parents keeping their disabled children—not all disabilities, but some of them, if they were quite helpless—under lock and key. But these days we have people who go around and talking about the issue, making families aware of the need to educate even those children with disabilities. Some children may have a disabled body, but their brain is quite sharp; they may not see, but their brain is sharp. And because of some role models who have gone through education—maybe somebody who is blind or somebody they know who is deaf—now bosses, parents, and neighbors understand the need to bring out their children who are living with disabilities and send them to school. This demand will have to be addressed.

It is reassuring that equity concerns came up in our interviews and that gender equity and social inclusion are currently top priorities for many funding organizations and researchers, but we hope that the rhetoric will translate into actual efforts. Viewing learning differences and cognitive diversity as assets, not deficiencies, has not yet permeated many aspects of actual education reform. Reports of overt ethnic violence in many LMICs are rife and there may be covert exclusion (in terms of language use, educational opportunities, and government representation), but we heard very little about that in our interviews. Equity must be viewed as a transversal principle that weaves through every aspect of education improvement and government decisionmaking around innovations to scale. We recommend that equity concerns get integrated into all scaling approaches and that equity is built into the scaling strategy from the beginning. To that end, we have attempted in this paper to offer equity considerations throughout.

***In the sections that follow, we share six principles that emerged from our analysis, discuss how they emerged, and offer some practical recommendations that derive from them.***

# 1. Develop a shared understanding of scaling and learn how to talk to each other

Participants reported that colleagues, stakeholders, and even themselves were not always clear about what scaling is. For many, the concept was understood in terms of growing something in a marketplace and derived from startups or new business technologies. In the scaling science, this corresponds to the "horizontal" path of scaling: expanding reach or coverage,[88] which is just one available pathway to scale. Many government decisionmakers in our study emphasized growing or replicating an innovation, but scaling scientists and advocates call for other dimensions, too. There is vertical scaling (getting the innovation adopted into policy) or organizational scaling (strengthening the capacity of the system). Something can be scaled up, down, out, or in—or some combination of all four. ROSIE prioritizes scaling for impact, and so, for us, no matter the scaling strategy, the goal of scaling is to embed a good innovation into the system deeply and productively in a way that lasts.

We learned about difficulty translating the word "scaling" across languages. For example, one participant said that a common translation in Russian—*масштабируемость*—means "to produce many in order to cut costs." In Spanish, *escalar* can mean either to climb or rise up (as in scaling a mountain or a corporate ladder) or to implement something in a new context. In French, the terms typically used are *mise à l'échelle*, which implies growing in size from small to big (literally, to put something on a scale), or généraliser, which refers to extending something by applying it to additional contexts or individuals. Neither exactly captures the dimensions of "scaling" as used in English.

Given that many scaling partnerships in education cross national boundaries and even global regions, something as seemingly simple as terminology can be a barrier. In the ROSIE collaborative research, one ROSIE

scaling team in the Caribbean began a focus group by asking, "What is scaling to you?" Someone shared, "One of the things that struck me [is that] scaling is not just a matter of replicating—it's about thinking about what the idea is, or what the innovation itself is, that will continue to make a change." Later, she continued:

> It made me think of what we used to call 'sustainability.' But I see differences between 'sustainability' and 'scaling' because sustainability… is about continuing the program without the project—you know, continuing as many of the components as possible but without the outside funding. I realize now that, maybe if we'd looked at [our prior initiative] from a scaling perspective instead [i.e., embedding the idea into widespread practice,]—it may have been more effective.

During the same focus group, someone joked: "Isn't 'scaling' when you have your teeth cleaned?"

Similarly, we found that "innovation" meant different things to different people. The typical view was that it was a program, technology, educational approach, or curriculum that, if fully and sustainably implemented in a location, would improve (parts of) the system. Some participants equated innovations with digital technology: new communications platforms, information systems, or device-based practices for learning or teacher development. Cuban[89] reminded us, though, that a transformational technology in education can be as simple as unbolting the student desks from the classroom floor. Furthermore, sometimes an innovation is just an idea—like the belief that *all* children can learn or that a curriculum must reflect students' lived experience. One ROSIE scaling researcher said, "I think when you talk about innovation, really, many people think that we are only talking about technology… but innovation goes beyond the technology use. It goes to the level of new ways of teaching, new ways of doing things."

> *"Addressing education's challenges and shortcomings will require not tinkering around the margins but rapid, nonlinear progress, which is what the Center for Universal Education (CUE) at the Brookings Institution calls leapfrogging."* [90]

Pushing further, an education minister in Malawi wondered if an "innovation" is something whose value can only be seen retrospectively: "[Maybe] *any* new way of doing, or new way of thinking is innovative but, when it is happening, the people do not call it an innovation…. I think there are a lot of innovations that take place without being named as such—at least not until afterwards."

## TAKEAWAYS

1. **To help establish common understanding of the scaling vision, practitioners and organizations should begin any scaling journey with definitional conversations about words and meanings.** This could include discussing the meaning of core terms such as "scaling," "sustainability," "implementation," "reform," "innovation," and "educational goals," or asking questions such as: What does scaling mean to you? How is scaling different from project implementation? Why is it important to begin any scaling journey by finding consensus on what the primary purposes of education are?

   These conversations not only acknowledge and clarify lexical confusion but also become a professional development exercise of their own. As diverse stakeholders (sometimes operating in two or more languages) share and clarify understandings of the terminology, they are establishing a common discourse and shared understandings: two hallmarks of communities of practice.[91]

2. **It is imperative to link scaling to solving identified policy problems.** Although this is not a new recommendation, it bears repeating: Focus on what specific, persistent problem the innovation will solve and always use that as the north star in terms

of what scaling pathway the innovation should take. There are still too many "solutions in search of a problem." An innovation that addresses a clear, perennial issue is best positioned for acceptance, and it will have to be one that should actually be scaled in the location.

To do this, scalers must answer the primary question government decisionmakers have on their mind, namely: How will committing to this innovation solve the problem on which I am focused? Scaling advocates should have clear and accurate answers—with supporting evidence—for any innovation. Similarly, another essential question for scalers is: If our work is successful, exactly what will the new normal look like?

3. **Additionally, researchers and education scalers should learn how to speak the decisionmakers' language.** Researchers often fail to convey good evidence about reliable innovations because they do not engage in a way that resonates with policymakers. Educationalists sometimes fail to adequately discuss the political dynamics involved in an innovation, yet this is a top concern for policymakers.[92]

   Cairney and Kwiatkowski[93] offer three useful strategies for talking effectively with policymakers:

   - **Understand how politicians process information.** Decisionmakers benefit from having information synthesized concisely. Use presentations to frame conclusions rather than relying on technical data to speak for itself.
   - **Identify and exploit "windows of opportunity."** Communication with policymakers is especially important when there is sudden political attention on the issue addressed by an innovation, or when there is alignment of thinking in policy circles or moments of increased engagement from a policymaker.
   - **Engage with real-world policymaking.** Make routine (and informal) efforts to engage with policymakers and those advising them, rather than restricting all communication to political cycles. By engaging regularly, trusted networks can be created and ready during the political moments.

**EQUITY CONSIDERATION #1:** Equitable education and quality education do not oppose each other and therefore do not constitute a "trade-off," but rather are complementary. Quality education, by definition, must be equitable because if an education system is not providing robust learning opportunities for all children and youth and doing so in ways that work for each learner, then it is not a system able to meet all given needs. Shifting equity and quality to complementary goals, rather than opposing purposes, when talking with decisionmakers and others is a first step.

# 2. Avoid the short-term project trap: Align incentives for scaling

We found in our interviews with national-level decisionmakers that, even if the stated goal was scaling, national-level approaches were often framed in terms of project implementation: externally funded, short-term projects with end dates, after which the supports would be removed and the innovation had to fend for itself.

This appears to derive from three related sources: national politics (which we discuss later in this report), a project mentality, and donor policies. Government aspirations might be for long-term impact, but interviewees conceded that national budget limitations and external-donor funding structures, electoral politics, and the entrenched nature of status-quo systems worked against the ability of many innovations to last. As a result, our interviews uncovered a tension in the minds of decisionmakers between the aspirational and the real: the wish for education to succeed and improve in sustainable ways against acknowledgement of the multitude of formidable factors that often preclude fundamental change from occurring. One senior official said, "We'd rather be seen as *doing something*, rather than accused of doing nothing—even if what we do won't last the test of time." This mindset means that education innovations are often framed as interventions to scale for long-term impact but still thought about as projects that will regrettably fade away.

As we discuss later in this report, donor policies are implicated in this project mentality. The nature of donor support and logistics of planning, funding, and staffing the daily work of embedding an innovation continue to be arranged in ways that, more often than not, incentivize short-term projects in which clear objectives are funded, reported on, and must be met within short timelines. Donor organizations, too, are constrained in ways that lead them to focus on short-term, measurable gains, and so, even if they wish to incentivize long-term scaling for impact, it is hard to do so.

Exceptions to this project mentality did exist, however. Reconfiguring funding formulas for education-financing at a national-level was a change expected to last. For example, Kyrgyzstan's effort to fund schools using average daily student attendance rather than separate funding streams for each dimension of schooling (e.g., teachers, infrastructure, and textbooks) had taken 10 years but was reportedly beginning to work. Infrastructural innovations such as building more schools (Malawi), bringing electricity and internet to rural schools (all five countries), or constructing rental housing for teachers coming from cities (Malawi and Bhutan) are pursued in ways expected to set a long-term future of educational improvement, as long as the funding remained.

This means that there is a kind of hierarchy of scaling potential. Different categories of innovation-scaling carry different degrees of *feasibility, motivation,* and *expected sustainability* on the part of government officials. Scaling a particular innovation might be at the high or the low end of feasibility and the high or low end of motivation, and so—for example—an innovation being considered for scaling might be highly feasible but not that important to the decisionmaker. Conversely, it could be very important to the decisionmaker (high on the motivation plane) but not very feasible to scale. A third innovation might be feasible but not expected to last the test of time. The goal, then, is for innovations to be perceived as important to the decisionmaker, feasible to scale, and sustainable over time.

For example, decisionmakers framed changes in education *funding reforms* and *infrastructure* as important and sustainable but not highly feasible in our interviews. National-level decisionmakers found that *increasing teacher numbers and capacity levels* were also important, but they pointed repeatedly to the challenges and did not always see them as feasible, either. Several *smaller curricular, classroom, and/or tech-learning innovations* (like digital literacy learning apps) were framed as feasible, important attempts at long-term impact but with some resignation that such optimism was overstated because these kinds of reforms cycle through and are therefore not sustainable. On this aspect of the sustainability of classroom innovations, it is also worth acknowledging that local educators and school officials will sometimes "wait out" an innovation[94] they

do not believe in. There is a belief on their part that, if they can just ignore or perfunctorily engage in it for two years, it will be replaced by something else. These reform-fatigue perceptions may be a symptom of a short-term project mentality.

Another category of innovations shared with us in interviews was *reconfiguring governance structures*, such as reorganizing the civil service in Bhutan or changing the consensus process for developing strategic education plans in El Salvador. Those were inexpensive but politically complex ways to lower barriers for the scaling of promising education innovations and were pursued with the conviction that, if they could be initiated, they would succeed. Therefore, those could be categorized as fiscally feasible, politically infeasible, and highly sustainable. These can be contrasted with *financially costlier ones* (like lowering class sizes at the secondary level, free meals in schools, or scaling a digital literacy program across all primary grades), which might be highly important, not always feasible, and unclear in terms of their sustainability.

## TAKEAWAYS

1. **It is important to identify where a particular innovation sits on the hierarchy and not only treat it accordingly but also attempt to shift it toward the higher ends of the three dimensions.** For example, donors and scalers might ask themselves what it would take to shift an aspirational innovation—such as having a sufficient number of well-trained teachers in a rural region or adding breadth of skills to a national literacy and numeracy curriculum—into something that is feasible and sustainable. It would require a long-term commitment, perhaps experimenting with new funding structures, and a willingness to address the barriers underlying such a goal. In this way, education reform professionals can be nudged away from short-term project goals and toward reform continuity, infrastructure needs, and whole systems change. If decisionmakers can be convinced, these kinds of innovations fare a better chance of being adopted for scale.
2. **It is difficult to organize and act for long-term embeddedness of an innovation when the incentives are not aligned.**[95] As a result, one lesson that emerged is that attention to what is incentivized is paramount. Donor organizations can play an important role in effecting this sea change, as well as researchers who might interrogate exactly who is incentivizing what, and how to shift the paradigm toward decades-long commitments. Consider work being promoted by the scalingXchange.[96]
3. **A culture of reform continuity in LMICs in which governments and donor organizations build consensus and agree to set a specific education transformation path for at least a decade or more is necessary—no matter who comes into office.** This can chip away at a short-term project mentality. Equally important is to authentically engage teachers and local education administrators as active (not passive) partners whose commitment is secured and maintained.

**EQUITY CONSIDERATION #2:** From a policymaker perspective, investing resources in minority populations (such as children and youth in outlying areas, ethnic minorities, or people with learning differences) can seem counterintuitive if one believes that resource investment should logically be apportioned to affect the greatest number of people. But that is not equity. Instead, a society has a moral imperative to offer support and success to all, and investing in quality education for everyone—not just the easiest to reach—will produce direct and indirect gains for the whole country down the line. In fact, it is one characteristic of a healthy society. We recommend that scalers and researchers acknowledge the difficult position some decisionmakers are in and try to understand their perspective, but at the same time, work with them to find strategies for adopting and scaling innovations that adhere to equity concerns.

# 3. Modernize the role of external donor organizations

Participants in our study raised almost no examples of home-grown innovations. Almost all the innovations referenced in our interviews originated from multilateral organizations (such as the World Bank and UNICEF) or bilateral donors (such as the Foreign, Commonwealth and Development Office [FCDO], the International Development Research Centre [IDRC] in Canada, or USAID in the United States). In most LMICs, national governments lack the budget to finance the scaling of new educational innovations.

The role of donors in the selection and promotion of innovation is substantial. These external donor organizations fund the scaling of innovations and play a significant role in helping a country identify particular innovations that might fit its needs. This is because these international organizations are positioned to have learned about numerous innovations addressing specific (but common) educational issues worldwide, and they hold the purse strings.

Participants described the multilateral organizations as possessing a "basket" of reforms they bring to each country, offering various innovations from their basket and supplying funding and implementation assistance. In this way a country can learn about a range of innovations that have been vetted for success elsewhere without having to either develop an innovation themselves or search the globe for what works. The concern that we heard, however, is that sometimes the donor will propose innovations from its basket without regard to whether it aligns with the country's identified education needs (contained in their strategic plan), and, because the key decisionmakers in low- and middle-income countries (LMICs) either do not have the confidence or ability to push back or do not want to lose the funding attached to the innovation, they are unwilling to say no.[97]

Different countries have varied processes for navigating this complexity. For example, Kyrgyzstan has a Donor Department for Education: a group of 14 donor organization representatives who have input into the country's education plan and can choose whether their organization wishes to participate in a particular topic or education area already selected by the government. Those who do participate have an active hand in recommending innovations that they will fund. But one interview respondent told us that they believe that many external donors do not understand how isolated Kyrgyzstan's rural regions are and continue to recommend bringing digital learning to areas that have no electricity. Participants also told us that the U.S. embassy runs a program to develop English instruction in rural locations, even though the country's focus is bilingual education (Kyrgyz and Russian) and not trilingual education.

In El Salvador and Guatemala, international donors help set the education priorities and offer advice on restructuring the countries' ministries or other educational bureaucracies. In these two countries, decisionmakers told us that the MOE actively focuses on obtaining resources for education reform but not at the expense of accepting unwanted innovations. "It can be free, but if it is not aligned with our national interests, then we consider it not an innovation we should opt for. Of course, when there is a proposal with a cost-benefit that makes it [relatively cheap for us to adopt, it becomes] much more feasible." Although externally funded education innovations from outside organizations are the majority, there were examples of external innovations that both El Salvador and Guatemala fund themselves. These tended to come from private-sector companies with technology-related education innovations that are intended to scale worldwide (e.g., a South American company offering online courses or a digital literacy-learning platform from Spain). Participants told us that the providers of these innovations will sometimes lower their price for a low-income country like El Salvador to have the chance to pilot their product further and prove its value to other

countries and will recoup expenses from selling it to wealthier countries later.*

In Malawi, we learned that external donors play a prominent role. One official in Malawi told us that when he was a high-level education decisionmaker, he could suggest topics in which he already knew the donors were interested (e.g., girls' education or building more schools) and ask them for solutions and technical assistance. He reported that he could be direct with donors because they had worked together before in other roles and went to the same U.S. graduate school together. However, he suggested that it was not easy for other African decisionmakers to push back:

> For us, the relationships worked well because there was mutual respect. They knew I had gone to the same schools where they went, and I had worked in the same organizations where they were working, so I knew. As a beneficiary and donor, I've been on both sides of the table, so there was mutual respect. But otherwise, in most other cases, people in government are so intimidated by the donors that, whatever [the donors] say, the [government decisionmakers] don't say 'No, we're not going to do that.' They just accept it.

We were told that a significant number of NGOs work in Malawi and that they, too, play a key role. But a former MOE in Malawi suggested that NGOs do not always follow Malawi's proposed needs but instead offer to work only on their own innovations:

> We have a lot of NGOs working in Malawi. We've worked hard to make sure that most of the NGOs buy into [our identified] priorities, but we're not there fully yet. This afternoon, I was with [the senior official who] manages our reforms' progress. We were talking about the role of NGOs and the considerable money they bring in, not just to education, but overall: We're talking about over 800 billion Malawi Kwacha—double the budget of the Ministry of Education! The challenge with these NGOs when they enter the education sector is that they do not buy into our national priorities. They don't use us as the entry point, not how we have looked at the data on the ground, but rather where they want to direct their resources.

As a whole, it seems that in Malawi decisionmakers felt less likely than in the other four countries we studied to turn down an externally proposed innovation, regardless of whether it fits, because of the funding attached.

The considerably smaller country of Bhutan (current population is below 900,000 people) was on the opposite side of the donor-dependent spectrum. For historical reasons (e.g., the Sikkim in Tibet) and geopolitical reasons (e.g., its proximity to India and China), Bhutan exercises substantial control over its external aid. Bhutan insists that any acceptance of donor funding be driven by its own needs. As one person told us, Bhutan is "very clear on controlling what kind of aid they receive." The government accepts aid primarily from northern and central European countries and Canada. Historically, it has not taken aid from the United States, and there are few international NGOs working in the country.

## TAKEAWAYS

1. **Given the popularity of adopting innovations that are developed, piloted, and implemented in other countries first, a focus on how to tailor or adapt the innovation for the context becomes important.** What kind of systematic attention or evaluation is conducted on how to contextualize the innovation and its implementation for the location? Who is studying these adaptation/piloting efforts and how? Exactly what data are being shared with government decisionmakers? These important questions must be continually answered.

   This phase of tailoring the contents and delivery of the innovation to the details of the national or

* This raises an interesting issue about venture capitalists currently funding these start-ups, betting on the edtech sector doing well in LMICs post-COVID, and perhaps using schools in LMICs as a kind of laboratory in which new innovations are tested out on children in low-resourced locations.

sub-regional context should be a primary area of attention. Contextualizing an innovation is an increasingly popular approach but, until its study by researchers is incentivized, it will remain anecdotal and not well understood.

2. **Another important question is whether the significant influence of external donors with baskets of solutions is right-sized.** Many debate whether development agencies should offer countries aid only, aid-plus-innovations, or aid-plus-innovations-plus-implementation/technical-support.[98] Others wonder if the influence of multilateral donors has the effect of opening up the marketplace of education innovations or, conversely, narrowing[99] it into a single global model of education. Critics say that the list of best practices in education is rather restricted.[100] These continue to be salient topics for interrogation.

   In many cases, the individuals in the roles of MOE or directorate secretaries have had significant prior experience—sometimes outside education—before taking on their education decisionmaking role. Only two of the decisionmakers we interviewed were former teachers or school heads. It was common for interviewees to discuss how their prior work (e.g., in the private sector, economic sector, the World Bank, or the United Nations) influences how they view and enact the work of identifying and adopting innovations to scale. One example is a former agriculture official, now a senior level decisionmaker for education who moved back and forth between her past agricultural policy implementation role and current education innovations' role when discussing scaling with us. Another example is an economist, now former education official in Guatemala who predominantly viewed education reform in terms of human capital theory. We additionally saw that personnel sometimes move back and forth between positions in donor organizations and government positions—a movement that could deepen and broaden the decisionmaker's perspective or conversely perhaps blur the loyalty lines.

   Given the importance of the education ministry, strong MOEs who understand the last 20-30 years of education trends and reforms, know theories of learning and education policy, and can leverage their expertise to fight for courageous transformation and leadership to push reforms through are essential.

3. **Sometimes the decisionmakers who talked with us suggested that there is a two-sidedness to the whole endeavor: a desire to publicly offer the rhetoric of possibility, hope, and the promise of long-term success, but a private admission that rarely do impactful innovations last past initial stages.** Such is the complexity when transformative goals meet governance realities. The MOE wants to scale the innovation, but if the scaling of the innovation is funded by a donor, once that financing ends, the costs typically transfer to the MOE. Donors may want the best for their countries but they typically offer bounded timelines and have their own constituencies to whom they are accountable. Both sides mean well and are incentivized in particular ways to make their best effort. But it is not easy.

   Given this, we encourage increasing the focus on sustainable scaling and establishing new venues and forums where stakeholders can candidly discuss not only the typical, easy-to-articulate challenges (such as funding needs, rural inaccessibility, or teacher workforce limitations) but also touchier ones (such as political turf battles or competing priorities). Candid conversations—perhaps led by professional facilitators or neutral third-party organizations—and a sober examination (rather than assigning blame) of how what occurs in scaling is precisely what is incentivized can lead to more fundamental improvements in the education ecosystem.[101]

4. **Unless the innovation is already attached to a large NGO or donor institution, or unless the scaling team includes a former senior level government official from the target country, it seems that it has little chance of getting on the radar of national government.** We found that very few innovations

are adopted by education innovators or small NGOs going directly to the national-level governments to persuade the MOE to adopt their innovations and partner to bring these innovations to scale.

This suggests that some scaling teams might be better served by one or more of the following pathways:

**A.** Starting at the grassroots or district/middle-level in a country and scaling the innovation up, down, and out from local use first, while simultaneously working to establish national visibility and government champions along the way.

**B.** Getting their innovation included in the "basket of reforms" that donor agencies offer to countries.

**C.** Partnering with an NGO or other civil service consortium with pre-existing relationships with government.[102]

**D.** Inviting international education experts to observe the innovation in hopes they will write about it. In the cases of Escuela Nueva in Colombia and the Learning Community Project in Mexico, their scaling increased exponentially when well-known U.S. education professors wrote admirably about it.[103]

**E.** Continuing to support the global scaling community in building its own databases of promising innovations (by topic, by type, by use, by unit-cost, etc.) and encouraging LMIC decisionmakers to use this compendium of options to match identified education needs with promising solutions. For example, FCDO is currently building a "What works in global education" evidence hub. Also, we recognize the work of organizations such as the Foundational Literacy Numeracy Hub, Education Partnerships Group's Global: The Evidence Hub, R4D Education, and HundrED. Yet, we believe that not only are the databases important, but people or groups to work with both sides as a kind of innovation broker are a necessary part of the equation.

**EQUITY CONSIDERATION #3:** Donors incentivize not only the national adoption of innovations, but often the development and scaling of innovations, as well. As such, donors have a responsibility to prioritize equity and fund research to study equity dimensions of innovation development and scaling. This includes encouraging study designs that collect—and disaggregate—data in ways to allow researchers to look at the equitable effects of the innovation and its scaling on various subpopulations sometimes excluded from traditional study designs.

# 4. Do not let centralized decisionmaking structures bury local innovations

Respondents in all five countries lamented the fact that their centralized bureaucracies (even if their education system is somewhat decentralized) deter participation at the middle and local community and education levels. Interviewees said that the education innovation programs they knew about were those adopted at the national level and implemented in top-down fashion, leaving little space for active participation and innovation generation at the province- or district-levels and in schools. As a result, they told us, the central government cannot capitalize on innovative education practices that grow from on-the-ground educators and forward-thinking administrators. One former senior education official who has worked in El Salvador and Guatemala said this:

> Unfortunately, the different administrations and ministries are very centralized now. By this, I mean that there's no possibility of bottom-up participation. [This neglects the power of] different levels of participation to promote innovation—for example, through the public schools. When I was minister, we used to promote teams of teachers who would share their successful experiences with others inside and outside their schools. This normally happened in a school where they had a good leader—a director that supported these initiatives and was able to get some funding. So, school by school, the internal educational community—the leader of the school or the teachers—were the ones that promoted innovations. I don't see that happening anymore.

However, while we found national leaders mostly unaware of local education innovations or grass-roots education movements, our ROSIE action research reveals innovations currently being scaled that focus on the community level or on learning from teachers or local school features. ULLN[104] works with World Vision in Latin America and elsewhere to support community volunteers in engaging children with literacy practices outside the schools. UHaiti[105] is working to scale an innovation that establishes iterative rounds of teachers experimenting with new practices and supports school leaders to develop cultures of pedagogical innovation in Haiti and St. Lucia. Data Must Speak,[106] an initiative supported by UNICEF and currently active in several countries, not only works with national governments to strengthen their education data systems but also seeks out uncommonly successful schools and studies their "positive deviant" practices and organizational details to identify promising educational features worth scaling.

Another characteristic relating to top-down education reform and local innovations is "loose coupling":[107] the phenomenon that what top-level administrators decree is only loosely—if at all—taken up by local, on-the-ground actors because there is organizational and accountability distance between central decisionmakers (often in the urban capital) and local school actors (spread throughout the country). Prior research108 has found, for example, that a village head or tribal chief will sometimes ignore or resist implementation of any education innovation with which they disagree (as in examples that we found, such as teachers in Bhutan stalling a curriculum reform they did not like, or local parents in Kyrgyzstan resisting a school reform they did not want).

## TAKEAWAYS

1. **It is important to highlight local education innovations that work and communicate their successes to the national level.** This requires establishing the right relationships with national- and subnational-level officials, investing in communications and outreach, and—as already mentioned—finding the right ways to present evidence to decisionmakers.
2. **We believe that the middle-level (between the national-level government and the local schools and communities)—which is composed of province decisionmakers, district education administrators,**

**universities, teacher networks, and community partnerships—is currently under-considered** by many in the global education space and is therefore a prime location for increased attention by donors, researchers, and scaling practitioners.

**EQUITY CONSIDERATION #4:** Many equity-minded innovations begin at local levels. This is because they respond to local, contextualized needs and so are often inherently tailored for equity. They sometimes link families to schools or teachers to communities. Although these innovations sometimes are initially focused on a particular sub-population, it is eventually realized that what works for a sub-population of learners is good educational practice for everyone (e.g., Universal Design for Learning). Actively looking for in-country education innovations that can solve national needs is a good way to identify already contextualized innovations that were organically developed with equity at their core.

# 5. Recognize and work to eliminate urban bias

Loose coupling is more prevalent the farther away a region is from urban centers—and that is especially true for decentralized education systems. Central authorities who monitor, evaluate, and enforce policy compliance are least likely to visit schools in outlying areas. Local actors know this, which highlights a broader inequity called urban bias.

Urban centers are historically privileged at the expense of rural locations. Given that many innovations are piloted in urban locations first and innovations tend to fade away after the pilot work is complete, urban locations receive the bulk of new education practices and interventions. Most trained teachers are in urban areas, so if a country invests in improved teacher training or higher teacher salaries, urban children reap the benefits. The lower population density in rural areas makes it harder to keep schools open, recruit teachers, or keep teachers once they arrive. Malawi, for example, is working with multilateral donor partners to build rental housing in rural villages; otherwise, incoming teachers cannot find places to live. Bhutan raised the salaries of its teachers but requires them to go to wherever they are needed and if they leave teaching, they are prohibited from ever taking another civil service position.

When we asked participants open-ended questions about equity issues in education, most began by talking about rural locations in their countries. We heard from officials in Guatemala and El Salvador about how difficult it is to bring teachers, education innovations, internet, and teacher trainers to rural locations. Because many innovations are developed in urban locations first, even if they can scale in rural areas, they are not always tailored to rural children and youth who speak indigenous languages, have different life goals, face different security issues, and have little access to the cultural and educational resources of cities. We heard similar things about rural locations in Kyrgyzstan and Bhutan.

### TAKEAWAY

**Donors, implementers, and scalers should ensure a focus on rural areas. As dwindling employment opportunities and effects of climate change push more rural people to cities, various inequities around cultural, economic, kinship, and education for present and former rural families will only increase.**

**EQUITY CONSIDERATION #5:** We know of many contemporary education innovations that focus on children and families in rural locations, and we hope that not only do these continue but that funding for research, scaling, and education innovations for rural areas will be prioritized. Additionally, the cultural, environmental, and agricultural characteristics of rural locations and populations should be prized as national assets rather than left to decompose. This is a prime topic for bilateral and multilateral support, especially because, as we learned, it appears to be an important topic on the minds of national-level decisionmakers.

# 6. Ensure that the promises of digital technology and education data come true

In interviews, government decisionmakers frequently discussed digital technology, mainly information and communications technology, digital learning tools for the classroom, and educational management information systems (EMIS). Participants talked about how digital innovations are at the top of their list of interventions to consider for scale and that improved education data are necessary to make better decisions about which innovations to scale, where, and how to evaluate progress. There appears to be widespread belief among those we spoke with that a digital revolution could exponentially improve education. This promise of digital learning converged around four areas:

- It will aid or improve classroom instruction.
- It will equip students with 21st-century skills around digital literacy and offer new employment opportunities in coding or robotics.
- It can lower costs and increase coverage of teacher training (essential for the scaling of many innovations).
- It can make administration, record keeping, and data-driven decisionmaking more accurate and efficient.

Although they did not directly appear in our data, we posit two additional reasons for the desire to embrace education technology, or ed tech:

- These countries might want to signal to neighboring countries and the world that they are 21st-century, digital nations.
- Many donors and companies aggressively promote digital solutions to education problems.

But doubts emerged when our interviews turned to specifics around scaling and evaluating performance related to ed tech. As previously mentioned, in all five countries, interviewees reported how difficult it is to bring ed tech to rural areas—some of which do not have electricity, let alone internet. Additionally, we heard that digital learning tools will only succeed if teachers know how to "squeeze the best out of the machines," as one participant said. Expressing this same concern, a former minister of education in El Salvador said that "the efforts of bringing all this new equipment and educational devices to teachers and students are okay, but if we do not train [teachers in] the proper way to use them—if teachers do not know how to educate better through them—then there's no use for them."

Prior research has found that unless the technology has teachers teaching differently, it will likely not be worth its cost.[108] In countries where teachers have not previously used technology in their schools or personal lives, there is a steep learning curve not likely ascended by the few available tutorial courses or a short training program. One requirement is that the educators be digitally literate. The second requirement is to learn to integrate digital devices with increased teaching or content knowledge and new pedagogical practices. In Kyrgyzstan, participants told us that the four short courses offered to teachers on how to use the country's new digital multimedia classroom innovation were insufficient. In the end, the teachers still did not know how to use them effectively.

Furthermore, from our ROSIE action research data, we learned that several organizations scaling digital innovations suffered setbacks during COVID-19 when in-country travel stopped. Because the information technology (IT) specialists could not travel to schools, it was left to local educators to maintain the devices—and few knew how to do this. Additionally, when it was no longer possible for learning specialists to travel from region to region supporting teachers in using the technology, the scaling teams found that some teachers stopped using the devices altogether—an inauspicious harbinger for when the implementation supports are inevitably removed from these innovations.

We are not suggesting that bringing educational technology to LMICs is not worth doing, only that there are many aspects to address before and during the scaling of technology innovations in education. One freelance EMIS expert in Africa told us that too many countries are pursuing ed tech backwards by contracting with edtech organizations first. Instead, she said:

> You need to begin with the connectivity. And then build the infrastructure. And then provide the teacher training. And only then is it time to develop your EMIS to diagnose the situation and, finally, only now can you build your e-learning system, hire the right service, and integrate it with your national curriculum and teaching workforce. This is how to do it, but very few systems here do this.

There are some key issues: bringing electricity and internet to rural and low-resourced locations and the prohibitive cost for many homes and individuals.[109] Additionally, there is the need to equip localities to regularly replace or repair the hardware—particularly tricky in humid, hot, or oceanside locations where deterioration of metal, heat damage to electronics, and rodents chewing through cables are common. Further, there is a need for trained local personnel to update the software and teach each new version to teachers and students. An edtech innovation might seem exciting and promising to an LMIC at first, but where will it be five or seven years later: in use, improving teaching and learning, or boxed up in a closet gathering dust?

Connected to ed tech is the topic of EMIS, which many believe is essential in order to improve at scale. Simply put, the logic is that decisionmakers at all levels (from classroom teachers to school and district administrators to national-level government decisionmakers and budget ministers) need sufficient, accurate, and relevant education data to make good decisions. In the absence of data, they are forced to guess, use anecdotal information, and rely on tradition or politics to make decisions about instructional practices, resource allocation, policymaking, and other dimensions of education. Several participants spoke about the need for more—and better—education data at the national level (see Table 2), and many raised the additional issue of knowing how to use them, including a senior official in Malawi:

TABLE 2.

### What data do decisionmakers want?

| SOURCE OF DATA | RESPONSES |
|---|---|
| TEACHER | • Number of teachers by school and by region<br>• Details about teacher professional development<br>• Indicators or data on teacher welfare and well-being |
| STUDENT | • Enrollment and attendance numbers (highlighting data on gender and on students with disabilities or learning differences)<br>• Dropout rates, pass-fail rates, and gender ratios per grade level<br>• Number of students at specific time points (e.g., beginning, middle, and end of school day and throughout the school year)<br>• Disaggregated achievement data |
| GEOGRAPHY | • Number (or percentage) of school-age children in rural areas compared with enrollment data in urban areas<br>• Data on schools' and regions' access to electricity/energy, types of available energy resources, and connectivity. |

Source: Authors' interviews.

> I introduced eight reform areas when I took up the role of Education Minister. The top-most was 'data and evidence-informed decisionmaking,' which means that we need to, first of all, look at the quality of the data we collect in education, but also we need to look at *how* we use the data, or *do* we use the data at all to make decisions? If we do, how do we use it and what's the impact, and so on?

Having and using good data for educational decisionmaking is important for several reasons. One is that it strengthens the financial case an MOE can make to its MOF. A former MOF in Malawi said that, when the MOE approaches him to request money for hiring more teachers or building infrastructure, he cannot proceed without data:

> To be able to support them, I need the right information… I mean, for example, they will say, "We want an increase in our budget for our teaching staff" or "to increase infrastructure." But I need specifics. If they want to employ more teachers, how many teachers are they talking about? And how will these, say, 70 teachers be supported going forward? In terms of infrastructure, again, same thing: They must be specific in terms of numbers. If they lack specifics, I send them back.

Given that MOEs will often bargain or fight for preferred innovations, having clear data for a frugal MOF is good practice.

A second reason is that, if the right data are used in the right way, it fills the decisionmaking gap that otherwise politics might fill. For example, an MOE in Malawi told us that establishing a good EMIS will de-politicize decisionmaking:

> Because people will recognize the value of having evidence so that you don't just put a school in an area because it's where the minister comes from or because it's a location that voted for you. But that you put a school there because data show that children in that area travel the longest distance to get to school and, as a result, you have higher dropout rates, especially among girls, and so on.

However, even the intent to collect accurate data can become political. A senior education official in one country said that she initiated a government audit of teacher data but right in the middle it was unceremoniously shut down because there were people with more power who did not want that information to be known. As another example, we heard from a former MOE that a standardized student testing program in her country was flawed because too many teachers erased and fixed student errors on the exams in order to make their schools' performance look better. As a result, this official terminated the testing program and initiated a different one that was harder to mislead—a move that she said isolated her politically.

A third reason for EMIS is to raise the visibility of sub-groups of students in a country to focus attention on marginalized student needs, such as gender equity, students with physical or learning differences, and children living in outlying areas. Education officials in Malawi, El Salvador, and Kyrgyzstan told us that many historically neglected student sub-populations will receive increased educational support only when they "get on the radar" of national-level decisionmakers and that the best way to achieve that is to commission data collection and include data on these people in EMIS. Similarly, without good data, knowledge gaps such as teacher shortages in specific locations, the longitudinal experiences of students, or widespread cheating on standardized exams will remain invisible.

From our interviews, we learned that in all five countries, EMIS is not as strong as decisionmakers would like. One reason is that EMIS requires perpetual funding to pay for licensing or source fees, and perpetual funding is hard to come by in LMICs. Another reason is that large-scale digital data collection and storage systems do not always exist, or, if they do, they are often inconsistent, partial, or—when conducted via pen and paper—can take years to reach the central offices. When data are available, respondents tell us that there are few trained people who can analyze them and present accurate implications to government decisionmakers for thoughtful use.

We heard that in El Salvador, until recently, there was very little national education data collected, so the last several strategic plans were developed independent of useful data. Talking specifically about scaling quality teacher development, a national director there said that one barrier is that there are too many unconnected teacher development programs in the country, and that they have never been mapped. He said that another barrier is that very few teacher training or professional development programs collect baseline data or conduct impact evaluations. This has begun to change, he said, but the COVID-19 pandemic stymied recent efforts. In the absence of these data, it is impossible to ascertain which training approaches work and which do not, and, for those that do, what kind of student and teacher outcomes they produce. Without this information, a country cannot thoughtfully advance the scaling of quality teacher development.

These LMICs cannot afford to send out personnel to all schools and teaching training sites and collect data (or train and trust the schools to do it accurately themselves), as well as design, develop, and maintain a database and system of organizing incoming data. Furthermore, building a robust EMIS is a multi-year endeavor and is therefore sensitive to ministry personnel turnover. We interviewed an African data scientist who works at a Malawian university and who was hired to build a national database of students with disabilities that could be integrated with the country's EMIS so these students' educational needs would not be overlooked. But, by the time the database was developed and delivered, the government personnel who had commissioned it had been transferred. Our interviewee said she turned it over to the government, received her payment, and nothing ever happened with it.

We talked with another educational data scientist who said that several African countries would benefit from vocational programs in schools because many students are not interested enough in humanities or social sciences to stay in school, but that technical and professional courses leading to employment opportunities were in high demand. However, she said, because few, if any, African countries keep any data on which students do well in which specific academic programs—and what long-term benefits accrue to schools that offer vocational education—this was a lost opportunity.

In Guatemala, we were told that there are likely scores of important grassroots NGOs and other local innovation movements doing good work, but, because there is no national database, the government does not know who they are, what they are working on, or how to capitalize on integrating their efforts. Echoing this, a former MOE in Malawi said, "Government can't support [local efforts] if we don't know about them."

## TAKEAWAYS

1. **We recommend that decisionmakers, innovators, donors, and companies that promote ed tech hold candid, practical conversations** about the basics of hardware and maintenance, the complexity of teaching whole populations to use new machines, and the several "digital divides" that exist.
2. **We also suggest that countries enlist research teams to study if and how ed tech improves learning outcomes, teaching practices, whole-school change, and cost-benefit analyses over time**—and not just conduct narrowed RCTs, count numbers of users, or rely on self-reported satisfaction surveys and short-term outcome studies.
3. **Do not ignore serious concerns around personal privacy and the potential misalignment** between the external, for-profit companies that promote ed tech at scale and the domestic, realistic needs of LMIC locations.[110]
4. **Continued support for efforts to develop national data collection systems** (such as the World Bank's SABER-EMIS or EMIS 2.0, or using pulse checks or other digital crowdsourcing methodologies) and training educational information analysts in LMICs are sorely needed. More data experts who can travel from country to country building local capacity around collecting, storing, analyzing, and presenting data would help.

5. **As some examples demonstrate, data are not by definition apolitical: Cherry-picking existing data or deciding what data to collect and what data sources to exclude are ways that politics enter into EMIS.** As a result, we encourage data scientists to acknowledge and protect against this, and for scalers and policymakers to become knowledgeable about how to use data carefully in education decisionmaking.

**EQUITY CONSIDERATION #6:** While the well-known digital divide—those with access to computers and high-speed internet and those without—in education persists, there are many other digital divides to consider and address: the divide between youth (who may be digital natives) and parents or other caregivers who are not digitally literate and cannot easily support their children's digital learning; the divide between younger, new teachers (who grew up with digital technology) and veteran, head teachers or school administrators (who may not have); and the divide between girls and boys, various language users, or dominant-versus-minority cultural members for whom the contents and learning styles of digital technology might not have been tailored. Additionally, EMIS should aim to capture and represent historically marginalized populations and education needs accurately and fairly. This means that strengthening EMIS is, at heart, an equity issue and should be prioritized as such. Decisionmakers must acknowledge and interrogate the ways that moving toward a digital future might include some members of society while excluding others.

# 4. CONCLUDING CONSIDERATIONS FOR ACTION

## Scale with context in mind

As presented in this report, it is important for education professionals in and across countries to balance the local with the global. There are global trends and a strong tradition of education transfer, but there are also local needs and contextual realities. Going too far in either direction risks errors, so finding the right balance is important. It is imperative to know the commonalities across countries and to develop keen understandings of the immediate contexts in which you are working, including national and local politics.

Additionally, given that so many education innovations come from elsewhere and must be tailored to the setting means that contextualization of the innovation is a key part of scaling and should not be taken for granted. Equally important is to study successes and failures of contextualization so that, with each iteration, knowledge is accumulated. Read

available education and governance research on the focal countries and become culturally aware and sensitive—not arrogant or condescending toward the people and places with which the scaling will occur. Know that different countries have different ways of engaging similar practices around dimensions such as time, friendships, accountability, indirectness versus directness, and collective identity. Emphasize the potential for externally developed education innovations to be rebuilt for the specifics of the location and national goals.

Any educational system, whether it is a local district or a whole country's public schooling system, consists of scores of moving parts and people. Structures and institutional practices resist change. And groups of people possess multiple and competing priorities. Therefore, systems transformation and planning backward—beginning with the ultimate purposes of education, then understanding the system in question, and then identifying which system parts can best be improved or changed to improve all the other parts—are key. (For more, see "Transforming education systems: Why, what, and how").[111]

Balance identifying the right externally developed education innovations with strong efforts to identify and strengthen home-grown innovations and scaling capacity. Teachers, school leaders, and others who are near the children and communities know student needs best and—with the right support, training, and improved work conditions—can become a marvelous source of systemic and scalable education improvements.

## Partnerships matter: Appeal to decision- and policymakers using data-backed research

An NGO or other group with a promising innovation must identify its potential community champions, networks, or levers and authentically partner from the beginning. Use them to get to provincial and national-level government; use religious institutions if applicable. Put a former government official on the scaling team. Leverage public-private partnerships in countries that value those. Do not underestimate the productive power of local populations supporting innovations with which they agree or the negative power of resisting those they do not.

More research on education decisionmaking, effective innovations in education, and scaling is sorely needed—especially deep, mixed-methods studies that examine scaling processes, scaling impact, and longitudinal effects of implemented innovations on multiple stakeholders. Until this work is funded and prioritized, it will not be able to contribute deeply to the existing knowledge base.

Policymakers in LMICs work within constraining bureaucracies and are influenced by multiple competing forces, and they must make decisions quickly and with insufficient information. This means that they will benefit from scaling implementers and researchers who can make their work easier. Having persuasive arguments aligned with national priorities, presenting the right evidence in the right way at the right moment, and understanding the process from the perspective of decisionmakers are key strategies for success.

# Achieve long-term impact equitably

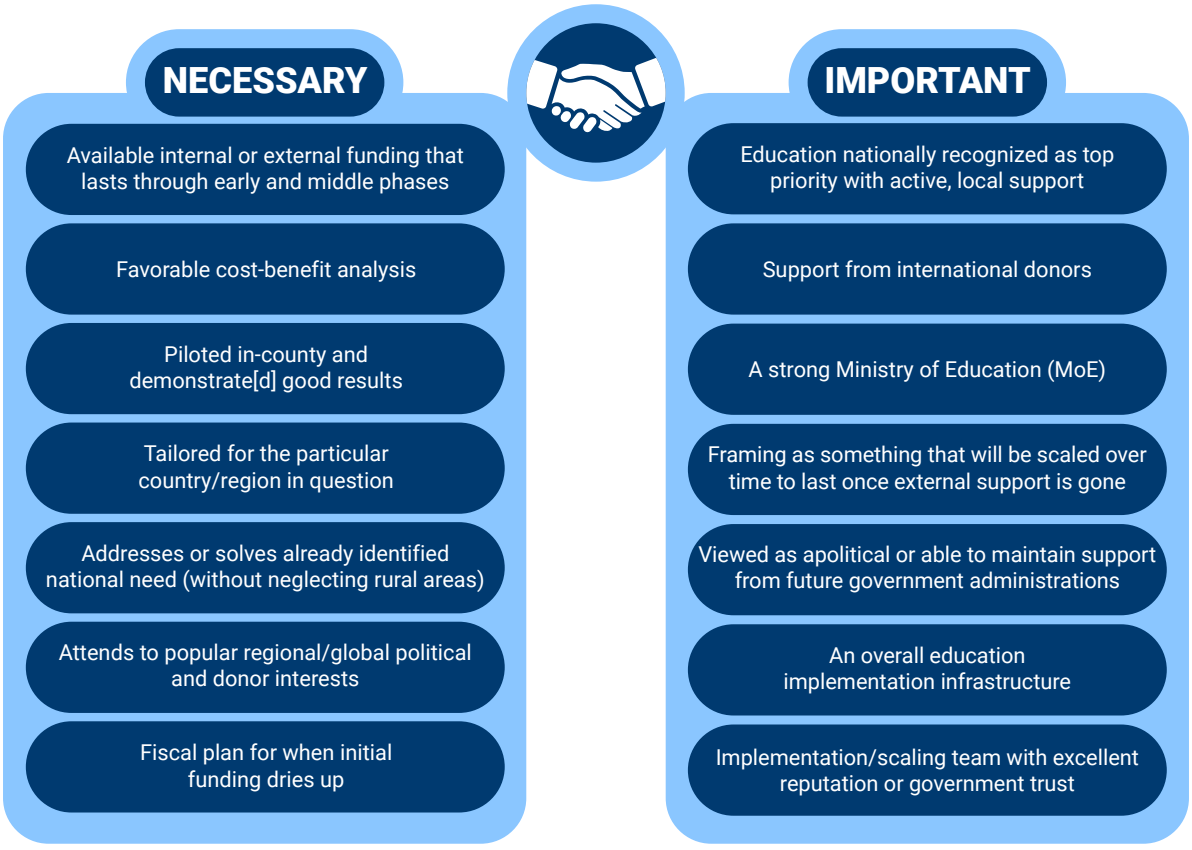
Currently, the array of incentives in education improvement incentivizes short-term project implementation rather than scaling for long-term impact. Only when the financial, political, and other categories of incentives are shifted and aligned for deep and sustained uptake of an innovation will fundamental improvement occur (Figure 2). This becomes everyone's responsibility—starting with donor organizations and the global education development architecture.

Also consider urban bias: While it may seem at first blush logical to invest resources and scaling work in urban areas, it is neither equitable nor sustainable over time to neglect rural regions. For this reason, viewing rural education as a priority area—especially but not solely with regard to ed tech—is critical.

On the topic of equity and sustainability, there is a need to deeply interrogate how to capitalize on the promise of technology in education without neglecting its drawbacks. First, not all aspects of ed tech are the same, so untangling which types of digital technology in education are most feasible and can produce the largest benefits is key. Second, we must not ignore the various complications around technology—including privacy issues, digital divides, teacher development, and sustained upkeep–in the rush to a digital future. Third, it is necessary to prioritize neutral third-party research on the benefits, costs, effects, and processes of scaling ed-tech innovations, so that each iteration improves on the one before it.

**FIGURE 2**

## Ingredients for government adoption of education innovations



# Ingredients for scaling success

To advance this important work, more is required than these pages describe. We look forward to this next round of ROSIE study: A new set of findings and discussions will be released in 2023. Until then, we close with two additional elements we believe are necessary for scaling education innovations in LMICs. One is honest dialog among all participants. As a government official in Kyrgyzstan told us,

> We must have open, authentic conversations with our constituents and people at multiple levels of our country. I say to everyone in government: Put your education plans online and seek feedback from everyone. Host focus groups with various people over and over again and listen to them. Explain to them what you are doing. If you're not listening to the people, you will make mistakes, but when you are listening to the people, you cannot go wrong.

The final element is hope. As one participant said, "I have to always hope for the best. We must work hard, make good decisions, and strengthen whatever mechanisms we have some control over to make sure that all these [promising innovations] are working to improve life for our children. If that happens, then my wish will be granted!"

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# ANNEX I
# ROSIE COHORT 1

## ABRA

### CONCORDIA UNIVERSITY, WILFRID LAURIER UNIVERSITY, AGA KHAN ACADEMIES UNIT OF AKDN, WORLD VISION CANADA

- **Project:** ***Using technology to improve literacy in the Global South.***
- **Countries of focus:** Bangladesh, Kenya, Rwanda.
- **Research question:** What are the impacts of the innovations ABRACADABRA and READS, including associated professional development methods and support, on students' reading and writing? Do these effects generalize across learning contexts, teacher characteristics, and student characteristics?
- **Project summary:** This project uses literacy software tailored for the Global South to improve children's learning outcomes in low-income countries to increase student learning by enhancing teaching practices through education technologies for professional development. The project scales two education software innovations, ABRACADABRA and READS, which is implemented through professional development and follow-up support for teachers in face-to-face, blended, and fully online formats. The project involves field studies in urban, rural, and remote communities, and ongoing evaluation of the project and its scaling strategies feed into incremental enhancements to the tools and techniques to increase the likelihood of success.

## DMS

### UNICEF OFFICE OF RESEARCH – INNOCENTI

- **Project:** ***Data Must Speak (DMS) about Positive Deviant Approaches to Learning.***
- **Countries of focus:** Burkina Faso, Ethiopia, Lao PDR, Madagascar, Nepal, Niger, Togo, Zambia.
- **Research Question:** What are the data-related factors that impede and enable the implementation of DMS?
- **Project summary:** This project adapts and scales a UNICEF-led proven innovation on data use in the education sector, DMS, and aims to generate knowledge and improved practices on using increasingly available education data to expand access and elevate school-level performance. The research incorporates the concept of positive deviance, uses a mixed-methods approach, and is simultaneously implemented in eight countries across Africa and Asia that have identified the need for better data management as a critical element of their Education Sector Plans.

# PAL

### THE PEOPLE ACTION LEARNING (PAL) NETWORK, PRATHAM, AUSTRALIAN COUNCIL FOR EDUCATIONAL RESEARCH

- **Project:** ***Common-scale assessment of early and foundational math learning across the Global South.***
- **Countries of focus:** Bangladesh, Kenya, Mali, Mozambique, Nepal, Nicaragua, Nigeria, Pakistan, Senegal, Tanzania, Uganda.
- **Research question:** What are in-country and cross-country similarities and differences in numeracy and literacy competences?
- **Project summary:** This project seeks to scale a digitally adaptive common-scale literacy and numeracy tool (ELANA) tailored for assessing, reporting, and providing community-relevant data that parents and communities can easily understand. KIX supports the design and expansion of this tool to three districts in 12 countries in Latin America, Africa, and Asia.

# TaRL Africa

### TEACHING AT THE RIGHT LEVEL (TARL)

- **Project:** ***Teaching at the Right Level (TaRL): Learning how to improve mentoring and monitoring support to teachers at scale in African government systems.***
- **Countries of Focus:** Côte d'Ivoire, Nigeria, Zambia.
- **Research question:** How can TaRL mentoring, training, and monitoring models be made more cost-effective for government systems to run at scale?
- **Project summary:** The TaRL Africa team is currently working with the government in Côte d'Ivoire, Nigeria, and Zambia to implement the TaRL approach. This project leverages current TaRL work to promote sustainable and effective government ownership of the TaRL approach. The project is piloting new innovations to the TaRL mentoring and monitoring approaches, rigorously testing the best innovations at scale in government systems.

# TPD@Scale

### FOUNDATION FOR INFORMATION TECHNOLOGY EDUCATION AND DEVELOPMENT (FITED), SUMMA, WORLDREADER

- **Project:** ***Adapting and scaling teacher professional development approaches in Ghana, Honduras, and Uzbekistan.***
- **Countries of focus:** Ghana, Honduras, Uzbekistan.
- **Research question:** How and to what extent can the TPD@Scale approach be used for in-service teacher training in these three countries to improve all teachers' access to quality professional development?

- **Project summary:** The TPD@Scale project applies ICT to enable more equitable access to and participation in quality teacher learning experiences otherwise impossible through conventional means. The project's main objectives are to develop a framework and guidelines for adapting, implementing, evaluating, and continuously improving upon proven TPD@Scale models; to build the capacity of ministries of education and relevant stakeholders at all levels to design, develop, implement, evaluate, and continuously improve TPD@Scale; and to promote evidence-informed changes in policy and practice toward improved access to quality teacher professional development using the TPD@Scale approach.

# ULLN

## WORLD VISION, ONTARIO INSTITUTE FOR STUDIES IN EDUCATION, THE SCHOOL OF EDUCATION AND LEADERSHIP OF THE UNIVERSITY OF GHANA, FORO SOCIAL DE LA DEUDA EXTERNA Y DESARROLLO DE HONDURAS (FOSDEH)

- **Project:** ***Improving Literacy for Children Through the Support of Community Networks (or Unlock Literacy Learning Networks (ULLN))***
- **Countries of focus:** Ghana, Honduras, Nicaragua.
- **Research question:** How can community actors and networks (both formal and informal)—with distinct and contextualized social issues—be strengthened to create their own adaptive systems to support children's literacy at scale, focusing on the implementation of the Unlock Literacy program and its impact on literacy outcomes?
- **Project summary:** The Unlock Literacy Learning Network (ULLN) consortium project model works with teachers, community leaders, parents, volunteers, and administrators to adapt the Unlock Literacy (UL) approaches project model within local learning systems. Through research, the consortium explores how community-based actors work together, adapt, and interact with the formal education sector to implement and support community literacy activities (including reading camps) to improve girls' and boys' reading fluency within distinct contexts in Ghana, Honduras, and Nicaragua. This project aims to provide evidence on improving collaborative stakeholder networks that advance quality, sustainable, and effective gender-responsive and inclusive education programming for early grade students (grades 1-3) to improve children's literacy levels within vulnerable populations.

# ROSIE COHORT 2

## AfC

### ASSOCIATES FOR CHANGE (AFC), GHANA, CENTRE FOR THE STUDY OF THE ECONOMIES OF AFRICA (CSEA), NIGERIA

- **Project:** ***Increasing access to quality education for rural and marginalized children in West Africa: A comparative study of accelerated education programs and girls' focused education models in Ghana, Nigeria, and Sierra Leone.***
- **Countries of focus:** Ghana, Nigeria, Sierra Leone.
- **Research question:** How can government capacity be built to adopt and scale up effective accelerated education innovations into policy to reduce the number of out-of-school children?
- **Project summary:** This project aims to generate lessons to enhance the scalability of Accelerated Education Programs (AEP) in Ghana, Nigeria, and Sierra Leone and conducts an analysis of four ongoing innovations in these countries (School for Life Complementary Basic Education Project, Strategic Approaches to Girls Education, Addressing Education in Northeast Nigeria, and Purposeful-Girls Circles project in Sierra Leone) and their effectiveness at reaching large populations of out-of-school children. Intended outcomes of the project include a strong evidence base on the effectiveness of AEP and girls' focused education programming across rural poor and emergency contexts.

## CAMFED

### THE CAMPAIGN FOR FEMALE EDUCATION (CAMFED)

- **Project:** ***Scaling a youth-led social support and mentorship program to improve quality of education for marginalized girls in Tanzania, Zambia, and Zimbabwe.***
- **Countries of focus:** Tanzania, Zambia, Zimbabwe.
- **Research question:** How can governments adopt and scale core elements of a youth-led social support and mentorship program in these three countries?
- **Project summary:** This project examines how the governments of Tanzania, Zambia, and Zimbabwe can adopt and sustainably scale core elements of the evidence-based, youth-led social support and mentorship program, Learner Guide. The Learner Guide programs focuses on improving girls' access to and retention in secondary education and equipping them with a broad set of life skills necessary to transition to productive, fulfilling livelihoods. The project examines the program's effectiveness under government co-implementation and its impact on marginalized girls in Tanzania and investigate how this approach could be transferred to Zambia and Zimbabwe to integrate the intervention into their government structures.

# CEIBAL

## CEIBAL FOUNDATION

- **Project:** ***Digital Adaptations for Effective and Inclusive Distance Learning in Rural Communities in Honduras and Nicaragua.***
- **Countries of focus:** Honduras and Nicaragua.
- **Research question:** What is the best strategy to adapt, implement, and scale up the use of tech for distance and blended learning in rural communities in Honduras and Nicaragua?
- **Project summary:** This project seeks to strengthen education systems to enhance equity and inclusion in rural communities in Honduras and Nicaragua through distance and blended learning models using various available technologies and appropriate pedagogical frameworks. The project defines and tests proven uses of technology—including digital platforms and educational television—and associated learning strategies in culturally diverse rural contexts, and establish conditions and pathways for scalability and replicability. Expected outputs of the project include public policy guidelines, pedagogical frameworks, technical standards, and resources for professional teacher training.

# CL4STEM

## IBRAHIM BADAMASI BABANGIDA UNIVERSITY, LAIPAI (IBBUL), TATA INSTITUTE OF SOCIAL SCIENCES (TISS), AND THE OPEN UNIVERSITY OF TANZANIA

- **Project:** ***Connected learning for teacher capacity building in science, technology, engineering, and mathematics (CL4STEM).***
- **Countries of focus:** Bhutan, Nigeria, Tanzania.
- **Research question:** To pilot the Connected Learning Initiative (CLIx) platform developed by the Tata Institute for capacity building for science, technology, engineering, and mathematics (STEM) teachers.
- **Project summary:** This project addresses the global undersupply of quality STEM teachers by adapting and testing CLIx, an open education resource platform developed in India that aims to support a community of practice via mobile devices for middle and secondary STEM teachers' professional development. The project takes a participatory approach to scaling the innovation and involves two major studies incorporating both quantitative and qualitative research methods—an innovation diffusion study to generate knowledge on the processes and factors that support the adaptation of the innovation for new contexts and the conditions to support scaling in these contexts, and CLIX impact studies on learning outcomes attained by teachers and students. From this project, a suite of open education resources is curated and adapted for suitability to local contexts and needs, new communities of practice are created on ICT platforms, and new knowledge on adapting teacher training approaches are shared and integrated into teacher education institutions.

# DUCE

## DAR ES SALAAM UNIVERSITY COLLEGE OF EDUCATION (DUCE), KIBABII UNIVERSITY (KIBU), AND UNIVERSITY OF ZAMBIA (UNZA)

- **Project:** ***Strengthening in-service teacher mentorship and support***
- **Countries of focus:** Kenya, Tanzania, Zambia.
- **Research question:** What are the existing and promising mentorship and support approaches for secondary school teachers, and how can they be scaled in these three countries?
- **Project summary:** This project adapts and scales up the school-based in-service teacher training (SITT) teacher mentorship and support model, which involves training experienced teachers and college tutors to mentor other secondary school teachers through peer learning exchange, model lessons, and team teaching. SITT has been successful at primary-school levels and is contextualized and adapted to secondary schools in Tanzania, Kenya, and Zambia—three countries with demonstrated commitment to continuous teacher professional development that lack comprehensive programs incorporating the mentorship and support approach. The project's intended outcome is strengthening government efforts to implement well-functioning school-based in-service teacher training programs that improve the quality of teaching, empower students, and enhance the quality of basic education.

# I-HELP

## THE INCLUSIVE HOME-BASED EARLY LEARNING PROJECT (IHELP)

- **Project:** ***The Inclusive Home-based Early Learning Project: Increasing Access to Quality and Equitable Early Child Care and Education.***
- **Countries of focus:** Kenya, Uganda, Zimbabwe.
- **Research question:** How can effective early childhood care and education (ECCE) models be adopted and scaled to increase access and improve school readiness in vulnerable communities?
- **Project summary:** This project seeks to adapt and scale up key elements of three early learning models (home-based, center-based, and play-based) to address the gap in government support faced by family and community engagement ECCE programs in many African countries. The project integrates different elements of these three models t create the IHELP to generate lessons about how parents and teachers can support learning in a home and classroom environment enriched with sensory experiences to improve access and learning outcomes for children. The project's intended outcome is increased community- to national-level action to provide access to quality ECCE for boys and girls—including those with disabilities—in Uganda, Kenya, and Zimbabwe.
- **No data from I-HELP are included in this current round of analysis*

# Karanta Foundation

### KARANTA FOUNDATION, FORUM FOR AFRICAN WOMEN EDUCATIONALISTS (FAWE), EDUCATIONAL RESEARCH NETWORK FOR WEST AND CENTRAL AFRICA (ERNWACA)/ RÉSEAU OUEST ET CENTRE AFRICAIN DE RECHERCHE EN EDUCATION (ROCARE)

- **Project:** ***A new model of bridging classrooms to improve learning for out-of-school children and youth in the six member countries of the Karanta Foundation (Learning Center) in West Africa.***
- **Countries of focus:** Burkina Faso, Cote d'Ivoire, Guinea, Mali, Niger, Senegal.
- **Research question:** To what extent does the innovation proposed here provide solutions to the common policy challenges of providing new opportunities for out-of-school and early out-of-school children and youth who have dropped out of primary and early secondary education?
- **Project summary:** The project "A new model of bridging classes to improve learning for out-of-school children and youth" in the six member countries of the Karanta Foundation in West Africa, is a research project in Non-Formal Education. It is implemented by the Karanta Foundation in partnership with the Forum for African Women Educationalists (FAWE) and the Educational Research Network for West and Central Africa (ERNWACA). The overall objective of the project is to implement an innovative program to provide new opportunities for children and youth aged 8-15 years, outside the school system, through bridges between non-formal and formal education. Through in-depth research on proven educational practices and innovations in bridging, a new model of school-based non-formal education centers are developed and piloted in countries. The innovative program emphasizes gender, inclusion and uses bilingual teaching. At the end of the experimental phase, a plan for scaling up the model will be proposed by the project team.

# SAHE

### SOCIETY FOR THE ADVANCEMENT OF EDUCATION (SAHE)

- **Project:** ***Data use for school improvement - opportunities, challenges, and scalable solutions.***
- **Countries of focus:** Nepal, Pakistan.
- **Research question:** How can the School Improvement Framework (SIF) be adapted, enhanced, and scaled in these countries?
- **Project summary:** This project aims to generate knowledge to optimize the use of datA produced by schools to improve their management and results, and inform how other education system levels can support improvement at the school level. Indicators in key domains present information on student participation and personal development, teachers and teaching, leadership and school support, and school environment. Combined into a composite index, the data allow schools to assess themselves and to be categorized by level of need for improvement. The project combines qualitative and quantitative approaches in

action research design, and expected outputs include a contextualized path to scaling up the innovation in Nepal and Pakistan.

# UHAITI

## STATE UNIVERSITY OF HAITI

- **Project:** ***Strengthening teachers and school principals' capacity for scaling innovation from the bottom up in the education system in the Caribbean.***
- **Countries of focus:** Haiti, St. Lucia.
- **Research question:** To what extent do training and capacity building for social innovation help principals and teachers be agents of change in the education system?
- **Project summary:** This project seeks to enhance the capacity of local actors in Haiti and St Lucia's education system to identify and understand concrete educational challenges devise and test solutions, and share results with peers and decisionmakers. The project aims to meet three goals: addressing social needs, improving key stakeholders' capacities, and using scarce resources efficiently. This project combines qualitative and quantitative methods with participatory components and tests proven methodologies focused on training key actors to introduce innovations from the bottom up, inform ongoing national policy reforms in St. Lucia and Haiti, and focus on conditions for effective scalability of innovations.

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