Center for Universal Education at BROOKINGS

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GOVERNMENT DECISIONMAKING ON EDUCATION IN LOW- AND MIDDLE-INCOME COUNTRIES

UNDERSTANDING THE FIT AMONG INNOVATION, SCALING STRATEGY, AND BROADER ENVIRONMENT

BRAD OLSEN

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Author

Brad Olsen is a senior fellow at the Center for Universal Education at the Brookings Institution.

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Executive summary

Only a few innovations ever successfully scale throughout education systems. Previous research highlights two reasons for this scarcity of success stories: either the innovations are badly designed, or the environment is not conducive to accepting and absorbing the education innovations.[i] Our research, however, finds that these two reasons cannot be separated and in fact are about a single concept: the fit among innovation, scaling strategy, and broader environment.

That third element is crucial. Even the best innovations with the most strategic scaling plans can underestimate the power held by the broader environment over scaling success. The broader education environment is not distinct from scaling but is rather a dynamic context, system, and process that surrounds and subsumes the scaling process and will often either enable or inhibit the scaling of an innovation for impact. Often, it is the misjudgment of factors that lie *outside* the scaling model that hinders or sabotages even the most auspicious scaling plans.

The research that informs this report found that government decisions about scaling education innovations are not primarily about the merits or impact of the specific model being considered. Rather, a series of *factors external to the innovation* influence decisionmaking about whether the innovation should be adopted and whether it can scale. We might call this "the power of the broader environment." For this report, we have organized the many factors of the power of the broader environment on decisionmaking into five dimensions:

I. National politics
II. Donor priorities
III. Education transfer and contextualization
IV. Education technology
V. Absence of meaningful data

The contents of these five dimensions intersect in different ways to influence government decisionmaking, at times aligning but more frequently competing for dominance. Too often, organizations looking to scale an innovation assume that continuous refinement of their approach and strong proof of impact will eventually convince government decisionmakers to adopt their innovation for scale.[ii] **Our research, however, suggests something else: The decision to scale rarely has to do solely with the innovation, but rather how it is positioned within the wider education ecosystem.**

With this in mind, this report explores how the identified factors shape decisionmaking and considers what this means for scaling teams hoping to institutionalize their innovations into public education systems or expand the innovations' impacts in new ways. The report concludes with recommendations for scaling teams, donor representatives, government decisionmakers, and others about how to understand and make productive use of these factors and more strategically harness the larger system within which it operates. The hope is that the insights in this report contribute to the field of research on scaling impact in education and assist teams working on education initiatives to better acknowledge and leverage external factors in the wider environment.

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, 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 KIX researchers and practitioners working in 30 LMICs to study processes of scaling education initiatives and to deepen impact of their ongoing work (find summaries of all 15 ROSIE-KIX teams here).[iii] Parallel to this work of learning alongside KIX scaling researchers and practitioners, Millions Learning is pursuing a complementary KIX qualitative study on how governments identify, adopt, and support education innovations to scale.

This qualitative study pursued the following three research questions:

- What key themes and factors comprise and influence national and regional decisionmaking related to the scaling of education innovations in LMICs?
- How do public-sector national and regional decisionmakers approach scaling?
- What are the broader components of the decisionmaking ecosystem, how are these components positioned, and how do they interrelate?

Five dimensions of the external environment that influence national-level government decisionmaking about scaling

Analysis of this round of data confirmed what we found previously: The rhetoric and bureaucratic processes of national-level government decisionmaking for education might appear rational, linear, and coherent, but the actual decisionmaking—constructed by way of limited time, insufficient information, political economies, and personnel turnover—is often about navigating competing, nonlinear, direct and indirect pressures.[iv]

As a result, we found that national-level decisionmaking runs along two intertwining courses. One course is the straightforward work of a country's education decisionmakers and advisers collecting and interpreting information from multiple sources, considering it against existing priorities and plans, generating consensus about future directions, and ultimately seeking bureaucratic and funding approval from high-level officials. The other course is one in which government decisionmakers negotiate with others inside and outside government to fit the multiple, often competing goals into the administration's broader education agenda while simultaneously bargaining with development partners, special interests, and nongovernmental organizations (NGOs) who bring their own priorities and mandates to the process. In short, this report emphasizes how important it is to recognize that decisionmaking around innovations happens inside a complex education ecosystem.

I. National politics

A first dimension of influence on decisionmaking about scaling education innovations is the reality of domestic political negotiations and the influence of diverse constituencies within a country context. Negotiation and compromise are hallmarks of national policymaking in pluralistic democracies, and they influence the process of selecting and scaling education innovations. Negotiation and compromise encourage the inclusion of multiple voices and collective input, ensure a collaborative process, and increase the likelihood that final decisions are domestically relevant. But they complicate education decisionmaking.

II. Donor priorities

A second dimension prevalent in the data was donors' and funding institutions' influence on national government decisionmaking about what to scale and how. It was clear that the influence of donors is fundamental to government decisionmaking and that it also introduces a tension between *speed and visible results* on the one hand (two things donor organizations often incentivize) and *sustainable impact* on the other (which requires patience and reform continuity).

III. Educational transfer and contextualization

A third dimension of influence on national government decisionmaking about scaling is not about the general influence of the donors themselves but about the increasingly limited selection of innovations and models they promote.[v] One topic that came up multiple times in interviews is the donor community's reputed practice of developing a "one-size-fits-all" model of education improvement and then finding ways to fit it onto particular LMICs. The oft-stated concern about this approach is that one solution will not fit every context. Conversely, the advantage noted of this approach is that it ostensibly derives from decades of experience and expertise and results from testing and vetting hundreds of approaches along the way. Our research nuances this binary.

IV. Education technology

A fourth dimension influencing how decisionmakers choose innovations for adaptation and scaling is the rise of education technology (edtech). Overall, we saw significant interest from education policymakers in edtech innovations and found that this notably influenced their decisionmaking about what innovations to consider adopting, adapting, and supporting at scale. This strong interest appears to derive from a confluence of four factors: (1) external demand for digitalization from other sectors in a country (such as the president, families, the ministry for information and communication technologies, and the media), (2) the many tech companies aggressively attempting to enter new markets, (3) some donor organizations' prioritization of edtech as a viable solution in LMICs, and (4) the already strong presence of edtech in higher-income countries that puts pressure on LMICs to embrace edtech. At the same time, our interviews highlight the paucity of useful research that could aid education decisionmakers to determine the possibilities and risks of specific edtech innovations when deciding what to adopt and scale.

V. The absence of meaningful real-time data about education outcomes

A final dimension of influence emerging from this research is that most global education specialists and government policymakers believe that there is too little evidence or research available for use in education decisionmaking, and that what does exist is often neither particularly helpful nor used much by decisionmakers. The ubiquitous solution we heard is that more research, data, and evidence must be generated and analyzed (ideally by in-country specialists) for use in making decisions about scaling and made available in useful ways. That is surely true, but closer inspection nuances this exhortation somewhat.

Discussion of findings and recommendations

Our analysis, contained in the following report, illuminates that the five dimensions discussed in this report influence (and are themselves influenced by) the practices and processes of national level government decisionmakers identifying educational priorities and calculating domestic **demand** for various innovations, the **feasibility** of adopting and scaling the particular innovations, and the potential **sustainability** of their impact. In other words, the factors of these five dimensions, separately and together, directly and indirectly, shape how decisionmaking occurs. The continually shifting nature of these interacting dimensions of influence and effect requires acknowledgment of the complexity of decisionmaking and an admonishment for participants to understand the particular pressures each constituency faces as it engages in what is ultimately collaborative and highly intricate policy work.

Introduction

What is required to improve education systems in low- and middle-income countries (LMICs)?

When asked this question, ChatGPT required only 45 seconds to deliver the following: "Prioritize education funding. Invest in teacher training. Address infrastructure gaps. Prioritize early childhood education. Emphasize technology. Foster community engagement. And monitor and evaluate progress."[vi]

ChatGPT can offer this crisp (but incomplete) answer because the field of education improvement already has significant knowledge of the key factors, details, and drivers that promote the scaling of promising education innovations.[vii] Despite this, only a few innovations ever successfully scale throughout education systems. Previous research highlights two reasons for this scarcity of success stories: either the innovations are badly designed, or the environment is not conducive to accepting and absorbing the education innovations.[viii] Our research, however, finds that these two reasons cannot be separated and in fact are about a single concept: the fit among innovation, scaling strategy, and broader environment.

That third element is crucial. Even the best innovations with the most strategic scaling plans can underestimate the power held by the broader environment over scaling success. The broader education environment is not distinct from scaling but is rather a dynamic context, system, and process that surrounds and subsumes the scaling process and will often either enable or inhibit the scaling of an innovation for impact. Often, it is the misjudgment of factors that lie *outside* the scaling model that hinders or sabotages even the most auspicious scaling plans.

Box 1. What is an education innovation?

An education innovation can be an idea, approach, or technology that is new to the setting (if not the world). For this report, we use the terms "innovation," "initiative," and "intervention" interchangeably. It can be a promising micro-innovation (often focused on problems of practice), such as a digital literacy device for classroom use or a new pedagogical way of teaching algebra. It can be a mid-sized intervention, such as providing free breakfast for children in schools. Or it can be a macro-innovation, such as shifting to multi-age classrooms or restructuring the way schools are funded in a country.

The research that informs this report found that government decisions about scaling education innovations are not primarily about the merits or impact of the specific model being considered. Rather, a series of *factors external to the innovation* influence decisionmaking about whether the innovation should be adopted and whether it can scale. We might call this "the power of the broader environment." For this report, we have

organized the many factors of the power of the broader environment on decisionmaking into five dimensions:

I. National politics
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The contents of these five dimensions intersect in different ways to influence government decisionmaking, at times aligning but more frequently competing for dominance. Too often, organizations looking to scale an innovation assume that continuous refinement of their approach and strong proof of impact will eventually convince government decisionmakers to adopt their innovation for scale.[ix] **Our research, however, suggests something else: The decision to scale rarely has to do solely with the innovation, but rather how it is positioned within the wider education ecosystem.**

With this in mind, this report explores how the identified factors shape decisionmaking and considers what this means for scaling teams hoping to institutionalize their innovations into public education systems or expand the innovations' impacts in new ways. The report concludes with recommendations for scaling teams, donor representatives, government decisionmakers, and others about how to understand and make productive use of these factors and more strategically harness the larger system within which it operates. The hope is that the insights in this report contribute to the field of research on scaling impact in education and assist teams working on education initiatives to better acknowledge and leverage external factors in the wider environment.

Box 2. What do we mean by "scaling"?

Scaling refers to a range of approaches—from deliberate replication to organic diffusion to integration into national systems—that expand and deepen impact leading to lasting improvements in people's lives. This conceptualization of scale implicitly takes a systems approach—where the focus is not on growing an individual project but on enacting and managing a sustainable change in the broader system.

Data and methods

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, 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 KIX researchers and practitioners working in 30 LMICs to study processes of scaling education initiatives and to deepen impact of their ongoing work (find summaries of all 15 ROSIE-KIX teams here).[x] Parallel to this work of learning alongside KIX scaling researchers and practitioners, Millions Learning is pursuing a complementary qualitative study on how governments identify, adopt, and support education innovations to scale.

This qualitative study pursued the following three research questions:

- What key themes and factors comprise and influence national and regional decisionmaking related to the scaling of education innovations in LMICs?
- How do public-sector national and regional decisionmakers approach scaling?
- What are the broader components of the decisionmaking ecosystem, how are these components positioned, and how do they interrelate?

Pursuing those questions during our first round of research for this study (in which we focused on Bhutan, El Salvador, Guatemala, Kyrgyzstan, and Malawi) yielded the first report in this series: "How do government decisionmakers adopt education innovations for scale? Implications for national-level education policymaking in low- and middle-income countries."[xi]

For the research informing this second report, new focal countries were identified, and corresponding data were collected and analyzed. For this research round, we planned to focus on one country in each of four KIX regions (Latin America and the Caribbean, Anglophone Africa, Francophone Africa, and Europe-Asia-Pacific). We prioritized countries with decentralized education systems, countries with an active donor presence, and pluralistic democracies. Ultimately, we ended up with three focal countries: **Ghana, Honduras, and Nepal.**

In September 2022, we identified 10 **current and former government education decisionmakers and experts** from these three countries and began conducting 60-minute, semi-structured Zoom interviews. Additionally, out of the previous research round, we identified three thematic areas that merit deeper examination: (1) balancing global trends with local needs, (2) educational technology and scaling, and (3) the role of the global donor community. To collect perspectives on these three areas related to government decisionmaking for education scaling in LMICs, we identified 10 additional informants and conducted virtual interviews. These 10 **informants are current and former**

government advisors, researchers and academics, technology industry representatives, and donor representatives.

In total, 20 interviews were recorded and transcribed.[1] We also reviewed published research around education decisionmaking in each of the three countries as well as conducted focused literature reviews on contemporary education technology and the role of the global education development community on education decisionmaking over the last decade.

All data were hand-coded according to preset and emergent codes and analyzed in relation to themes and questions that arose during the development of the first research report. The findings and discussions of this report are based on the 20 interviews, the previous rounds of ROSIE research, and our knowledge of the related literature. Alongside this report, we are also creating concrete, action-oriented, targeted materials based on the research findings and the wider Millions Learning project.

Five dimensions of the external environment that influence national-level government decisionmaking about scaling

Analysis of this round of data confirmed what we found previously: The rhetoric and bureaucratic processes of national-level government decisionmaking for education might appear rational, linear, and coherent, but the actual decisionmaking—constructed by way of limited time, insufficient information, political economies, and personnel turnover—is often about navigating competing, nonlinear, direct and indirect pressures.[xii] Pressures cited include those at the domestic level—from electoral politics, competing policy priorities, structural governance tensions, and funding constraints—as well those from the global level, including pushes for specific interventions supported by the donor community and associations with funding as well as regional and international legitimacy. Alongside this, it was clear that there are significant pressures arising from the growing importance of edtech (and the symbolic power attached to it) and challenges stemming from the push for evidence-informed decisionmaking (amid serious limitations about evidence and how it is employed).

> *The rhetoric and bureaucratic processes of national-level government decisionmaking for education might appear rational, linear, and coherent, but the actual decisionmaking … is often about navigating competing, nonlinear, direct and indirect pressures.*

[1] To encourage candid responses on the part of respondents, we do not name the interviewees in this report. Some of the interviews were translated into English. The quoted interview selections in this report have been lightly edited for clarity and flow.

As a result, we found that national-level decisionmaking runs along two intertwining courses. One course is the straightforward work of a country's education decisionmakers and advisers collecting and interpreting information from multiple sources, considering it against existing priorities and plans, generating consensus about future directions, and ultimately seeking bureaucratic and funding approval from high-level officials. The other course is one in which government decisionmakers negotiate with other decisionmakers and special interest groups inside and outside government to fit the multiple, often competing goals into the administration's broader education agenda while simultaneously bargaining with development partners and nongovernmental organizations (NGOs) who bring their own priorities and mandates to the process. In short, this introductory section emphasizes how important it is to recognize that decisionmaking around innovations happens inside a complex education ecosystem.

I. National politics

A first dimension of influence on decisionmaking about scaling education innovations is the reality of domestic political negotiations and the influence of diverse constituencies within a country context. Negotiation and compromise are hallmarks of national policymaking in pluralistic democracies, and they influence the process of selecting and scaling education innovations. Negotiation and compromise encourage the inclusion of multiple voices and collective input, ensure a collaborative process, and increase the likelihood that final decisions are domestically relevant.

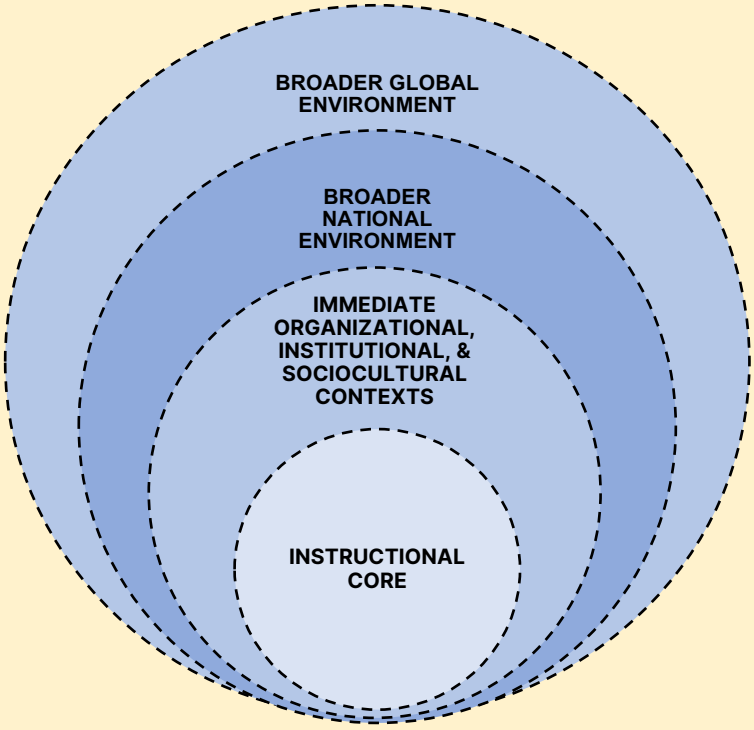
However, we heard from representatives in all three focal countries that at times this sort of political wrangling can dilute or shift the intended outcomes of education policy. One interviewed decisionmaker shared an example where he and his team had offered to the education ministry strong evidence against a particular education innovation. But the minister, who had a powerful, specific constituency to appease at both national and international levels, decided to adopt the innovation against his advisory team's position and the evidence. In the end, the two sides compromised: The minister's position became policy but with several waivers and features proposed by the technical advisers. Our respondent reported that this might have been good politics but would not likely benefit education in the country:

> *"There's a rational process to education reform here. But that's only one part of the story—it won't tell you everything. We might begin with the pressing issues that we find through the evidence we collect. But then we need to consult with many stakeholders and, while going through the consultation process, you experience different kinds of reality, different expectations from different people. There are different interests from different groups who always try to insert their agenda into the policymaking process.... [There are] so many instances where I have seen [how] policy questions are influenced by the political interest of different groups...They have their interests, and all of these play a role in the process."*

Box 3. What is the education ecosystem?

The ecosystem for scaling and education improvement can be conceptualized as a set of circles around a central target. The center is the instructional core—the heart of education in which adults and children, teachers and learners, and facilitators and peers join together for shared activity over weeks, months, or even years of collective and individual learning and development.[xiii] Most, if not all, innovations for education are designed, in theory at least, to improve this instructional core. The instructional core is shaped by student characteristics, such as students' prior knowledge and backgrounds; teacher characteristics, such as their training, beliefs, and collegial arrangements; the curriculum, standards, and underlying learning purposes and ideologies; the resources available to students and teachers, such as textbooks and technology; the types of assessment and testing that the system relies on to judge the success of the teaching and learning process; the culture of the classroom and school; and family and community engagement.

Moving outward in the ecosystem, the instructional core is embedded in the next circle of immediate organizational, institutional, and sociocultural contextual details. This includes bureaucratic structures concerned with delivering, monitoring, resourcing, and regulating education services. Moving outside that level are even broader environmental levels that go all the way up to national and even global levels: influences and effects such as prevailing ideologies; funding and resource constraints; social and cultural practices; and power dynamics at different levels including regional departments, national governments, and the international arena.[xiv] Each level—or concentric circle—exerts influences on both the levels below and above it and all levels continually interrelate.



By understanding the contextual dynamics and processes unique to a particular location, scaling teams, decisionmakers, and other stakeholders can identify the key system levers most relevant to their context and develop strategies and adaptations to improve the chances of scaling an innovation successfully.

Another inadvertent potential casualty of the negotiation process is sustainability. Building sufficient consensus to get an education decision approved is difficult, and so that becomes the goal. As a result, considering how to support the policy or innovation for scale in a way that lasts over time is often deprioritized. As this same decisionmaker said:

> *Sustainability [of the policy or innovation] is considered in the beginning, but while dealing with all the many issues, problems, and priorities of different groups, you find yourself shifting away from the technical side of "how will this be sustained to last?" toward the social side of "how do we get enough support to get this through?" By the end, no one is talking any more about sustainability.*

Electoral politics is another domestic pressure on education scaling decisionmaking. In systems where the top decisionmaking role is an appointed position and there is high turnover, ministers of education may not have deep or longstanding knowledge of their education systems and might not be very involved with the intricacies of education data, so they leave the data analysis to permanent directors or technical advisers. But they do have decisionmaking power—and often the ear of the president or other top-level leaders. This carries three implications for which education innovations are ultimately adopted and scaled. One is that the ruling government's agenda can be a significant force in defining and addressing education priorities. Second, when a government turns over, there is often the need for scaling teams and donor organizations to restart their work to establish relationships and collaborate on agenda setting in support of scaling a specific initiative or approach. Third, during election seasons, it is not uncommon for some education scaling and government decisionmaking to pause until it becomes clear which government will be in power afterwards.

Finally, one must acknowledge the power of what one interviewee called "bureaucratic careerism": the notion that rejecting the traditional and embracing something new and exciting (as many innovations purport to be) is a good way to advance a career within government or a donor organization. All these factors combine to influence which innovations are prioritized within a particular country context and often play a stronger role in identifying what is selected and scaled than the evidence and design of an innovation itself.

Ideally, education innovations selected for adoption and scaling in a particular country are not selected by themselves, but as part of a broader, coherent vision for the goals and purposes of education specific to that context. Several respondents (the education specialists, not the government decisionmakers) said that effective education decisionmaking begins with the need to reflect on and collectively define *broad purposes for education* in a country.[xv] While research and external expertise can assist with that, it is typically a different kind of education question that must be answered by leaders within the country—one having to do with national identity, regional histories, local characteristics, and leadership capacities.

Alongside the work of developing clarity and consensus on a location's education purposes, there is a need for leadership to broadly determine how to deliver or enact those education purposes.

Given the context and education purposes, decisionmakers must interrogate what their educational processes and institutions should look like (and how should they be governed and evaluated), how the particular education system can actually be transformed, and what kind of pedagogical approaches will best achieve the desired aims with regard to teachers and students. These are questions for which evidence can offer support, but they are not empirical or technical questions alone. They are philosophical and moral questions, too. Only once these foundational and pedagogical questions have been settled can decisionmakers take on the topics of *what educational needs their location has and what available interventions and innovations will best meet those needs*.

II. Donor priorities

A second dimension prevalent in the data collected was donors' and funding institutions' influence on national government decisionmaking about what to scale and how. It was clear that the influence of donors is fundamental to government decisionmaking and that it also introduces a tension between *speed and visible results* on the one hand (two things donor organizations often incentivize) and *sustainable impact* on the other (which requires patience and reform continuity).

Often in LMICs, a bilateral or multilateral organization either offers or is requested by the country to help formulate the national education strategic plan. The funding organization, now a development partner, provides financial and technical assistance. Once the plan is formulated, other funding organizations are invited to examine the plan in case there are specific activities or opportunities they are interested in supporting, too.[xvi]

Sometimes our respondents articulated this approach negatively, explaining that countries are beholden to development partners in a "one-size-fits-all" way. Conversely, other respondents articulated this dynamic as a positive, given that funding organizations have been working on the specific activities or implementation priorities for years and bring significant expertise. This report does not wade into the myriad histories and debates related to that broader topic. However, it was evident from the examples shared that donor organizations' priorities and activities do not always fit the country's agenda and, even when the topic or innovation aligns with the country's own agenda, the timeline or implementation details of the funder's intervention might not fit the country's situation.

When asked if electoral politics affect how international funders and the development community work with government decisionmakers, the answer was a resounding "yes" from several of our respondents. These respondents shared that when a government turns over, there is often the need for the donor organizations to begin anew their work to

establish relationships and collaborate on agenda setting (as discussed in the previous section). However, for other interviewees, the answer was "no" because they said most of the funded work by bilaterals and multilaterals occurs "underneath" the political level and is designed with timelines that stretch long past four- or eight-year electoral periods. Donor organization representatives, we were told, form multi-year relationships with advisors and technocrats that remain unmoved by the political currents above them. One respondent told us that such work is "below the visibility line of electoral politics and politicians." Another respondent, a representative from a multilateral education funding institution, said:

> *We are in [this] for the long haul; we have long-standing relationships with [all of] the political parties. Sure, the political cycles change in each country—and we work with people who represent all kinds of different political viewpoints, and you know we are primarily a technocratic institution. So that shields us from political wins.*

We reconcile these seemingly opposing positions with the all-too-familiar "it depends." It depends on the donor or funding institution, the innovation, the strength and internal coherence of the country's governance system, and the sociopolitical characteristics of the country and region.

A key finding from this round of research is that while the donors have power, so too do the country governments. We heard specific examples from Nepal where the government works with development partners to co-create the agenda. An interviewee in Honduras reported that Honduras is inclined to follow donor priorities faithfully. She went on to say, "I know that this isn't how it works here, but I think our country should set the goals in a long-term way and demand that the donor will actually try to fit in it." A Ghanaian decisionmaker reported that there is a highly rational process by which the government co-creates its education agenda with trusted bilateral development partners and then accepts bids from funding organizations and funded NGOs that want to participate.

One respondent who has worked with the donor community framed this as a somewhat contradictory tension but a solvable one (and we heard this from others, too):

> *Sure, the poorer a country is, the more power the donors have. But I think what's not so obvious is that a lot of that power comes from [the donor's] ability to set the agenda to prioritize, to coordinate. The lower the state capacity of the host government to coherently set agendas and coordinate its education plan, the less power it has in relation to donors... If a government has a clear plan—something that's well thought out, is already prioritized, is logical, is based on good practice—[then] they'll have a lot of power. I've seen it many times. If you have your stuff together as a government, that will make a huge difference.... You can blunt a lot of the donor's power by just being organized as a government.*

Country representatives reported that it is not uncommon for multiple donor organizations to group their priorities and resources together, but one respondent who has worked with the donor community recounted a story about an education minister in a LMIC who decidedly did not want the donors to partner together, saying to our interviewee:

> *I don't want the donors to coordinate. Sure, it might be inefficient for them if they all come visit me with different agendas, but that way, I get to play them. So no, I don't want them to coordinate.*

Extrapolating from our interviews, it appears that central-level decisionmaking for education in LMICs is well served when governments can establish and maintain long-term relationships with funding personnel, cohere and strengthen their national governance structure, and prioritize the use of good data.

Box 4. The legacy of colonialism in the selection of innovations for scale

The particular historical context of the Global South adds yet another level of complexity to education decisionmaking, given the legacy of colonization, development politics, and globalization. Many LMIC countries adopted the modern schooling model and particular education interventions and approaches as a result of these dynamics.[xvii] This provides a very different external environment from how modern schooling expanded in the Global North. While the modern schooling model is rooted in histories and ideologies of the Global North and evolved and grew organically within these higher-income countries, the same model has been explicitly transferred and adapted to the Global South, first through colonization and then through the efforts of world-governing bodies and multinational organizations.

Most of the global push toward universal education derives from worldviews from the Global North, which linked the primary purposes of education to the ideas of building national identity and civic engagement at first, then to a development model defined by modernization and human capital theories, and later to the free-market economic model. Systems of education and knowledge structures that developed around local cultures, religions, and traditions in LMICs have been devalued and framed as leading to underdevelopment of society and thwarting a free market economy.[xviii] This framing can impede work on foundational, locally oriented education issues and the prioritization of locally developed solutions.

As a result, the dynamics and histories of how international- and national-level policies and politics interact and influence each other are extremely influential on which education innovations are ultimately adopted and scaled and which innovations are perceived by donors and other external influences as unscalable or dispreferred. In some cases, local communities adopt external innovations easily, contributing to an enabling environment for scaling. In other cases, imported innovations do not fit well in the location or are seen as impositions and flatly rejected. It is important to understand and acknowledge these dynamics.

III. Educational transfer and contextualization

A third, related dimension of influence on national government decisionmaking about scaling is not about the general influence of the donors themselves but about the increasingly limited selection of innovations and models they promote.[xix] One topic that came up multiple times in interviews is the donor community's reputed practice of developing a "one-size-fits-all" model of education improvement and then finding ways to fit it onto particular LMICs. The oft-stated concern about this approach is that one solution will not fit every context. Conversely, the advantage noted of this approach is that it ostensibly derives from decades of experience and expertise and results from testing and vetting hundreds of approaches along the way. Our research, however, nuances this binary.

First, it is important to note that the many multilateral and bilateral organizations each have different operating models and approaches. Even those within the category of multilateral organizations—for example, the World Bank—take less of a "one-size-fits-all" approach and more of a "four-sizes-fit-forty" approach. In other words, the multilaterals tend to develop a handful of archetypical country reform frameworks and then fit them onto particular country locations that fit the profile. One respondent described this concept as a cookie-cutter agenda:

> *"It's not that the donors' cookie-cutter agenda is necessarily badly thought out. It's often relatively well thought out. It's just that it's cookie cutter. They try to apply it to anything from Argentina to Kyrgyzstan to Nepal, and by definition, that's not going to be fine. It's kind of a least-common-denominator priority that the donors typically have; they'll try to fit the archetype country—which is often a low-income country with a reasonably capable government and some kind of match to the country's overall state, capacity, and development and its objectives. That's the cookie cutter profile the donors have."*

The significant influence of the global donor community on government education decisionmaking discussed in the previous section has created the current popularity of transferring education innovations from country to country. **Because bilateral and multilateral donor groups often bring their own preferred innovations and education initiatives to partner countries, global trends and transferrable innovations receive significantly more attention than local adaptations or homegrown innovations.** Our research revealed that a relatively short list of education innovations currently dominates the global conversation about what approaches to adopt and scale in order to improve education outcomes (such as the World Bank's "Smart Buys").[xx] However, multitudes of education innovations exist beyond this shortlist. The strong emphasis on adopting and adapting established external innovations makes for decreased attention to identifying, developing, or supporting homegrown innovations. And we found that local, grassroots efforts—many of which have not been validated due to a lack of in-country research funding in LMICs—are rarely considered at the national level.

Yet, homegrown innovations have some inherent benefits. Often emerging organically out of locally defined needs and assets, they are by definition tailored to the education characteristics of a specific context and can have grassroots support already in place. Because they derive from local contexts, they may be more likely to have equity considerations—such as rural location needs, gender equity, or a focus on unique characteristics of the learner population—built into the innovation. It can be difficult to promote or support these innovations for large-scale take-up, however, even when they are highly promising, because they have typically not been sufficiently studied or piloted. Without this evidence base and visibility, these innovations do not make their way into the "basket" of innovations promoted by bilateral or multilateral development partners.[2]

[2] We do note, however, that this is not universally true and there have been more concerted efforts to identify and elevate local solutions. For example, see the African Union's Innovation Education in Africa call for proposals.

Because of the prevalence of importing external innovations (called "education transfer" in the literature), close attention to *deep contextualization* becomes paramount. Every decisionmaker we interviewed noted that, before a government will consider an externally developed innovation, it must be clear that it has been tailored for specific use in the country (though, as discussed later, digital technology is an exception in this respect). This includes the language and curricular standards of the content, the assessment and data requirements of evaluating the innovation, and the teacher capacity and local infrastructural needs of the scaling plan.

Box 5. Education transfer and contextualizing innovations

Education transfer (sometimes referred to as "education borrowing and lending") is a term for the practice of moving education innovations around from country to country, or within countries from location to location. More precisely, however, it is not a lending or borrowing of the innovation but rather the *replication* of an existing innovation in a new place. There is a whole history—beginning in China over 1,000 years ago and becoming popular elsewhere throughout the last 50 years—of innovations that are considered successful or promising being taken up in new locations. Indeed, this is a complex topic and much has been written about it and the politics that surround it. [xxi]

Given the popularity of education innovations being transferred around the world, the act of adapting—or *contextualizing*—the innovation to the particulars of each new location becomes crucial. There is surface contextualization: fitting the language, curricular standards, and technical aspects of an innovation to the context in which it will be used. And there is deep contextualization: adapting the deeper parts and processes of the innovation to the cultural, cognitive, learning, and systemic features of the new location.

However, decisionmakers also pointed out that contextualizing an innovation often requires additional time and funding. This points to a tension: Decisionmakers report that they want to see evidence of contextualization, but they (and often the nongovernmental organization hoping to scale the innovation) cannot always afford the patience or resources necessary for sufficient contextualization. Some innovations transfer to new locations easily, while others need considerable adaptation. The more significant the adaptations required, the more expensive the innovation can be to scale; as a result, there is a perceived trade-off between contextualization and speed/cost-effectiveness. In interviews, decisionmakers acknowledged that this means that they will sometimes choose surface-level innovations that are more easily contextualized even though they believe that deeper innovations would more likely improve the instructional core in classrooms for sustained impact. Or, they said that they know more contextualization or piloting of a particular innovation is required but time pressures preclude that, so they

move forward anyway. Some also reported that they are more inclined to import innovations used in neighboring countries where they know the decisionmakers personally and believe the context is similar. Additionally, it was pointed out that equity issues become harder to address if an innovation is developed elsewhere (and perhaps built for easy export), so another trade-off sometimes emerges between addressing equity concerns and facilitating rapid adaptation and expansion.

Our research on this topic highlights that attention to contextualization should be a high priority for those interested in having their innovation adopted for scale in a country or new context. Prioritizing research on contextualization in scaling programs and funding more opportunities to test adaptations and address contextual nuances are good directions. Attention to contextualization does not only improve the chance for sustained uptake of the innovation but also, when conducted before bringing the scaling proposal to government, makes it easier for decisionmakers to say yes to the innovation. At the same time, our research suggests that government decisionmakers should honestly ask themselves and the innovation representatives hard questions about contextualization and be realistic that a quickly contextualized innovation is less likely to provide sustained impact (and therefore will be less cost-effective in the long run).[xxii]

Our research on this topic highlights that attention to contextualization should be a high priority for those interested in having their innovation adopted for scale in a country or new context.

IV. Education technology

A fourth important dimension influencing how decisionmakers choose innovations for adaptation and scaling is the rise of education technology (edtech). Overall, we saw significant interest from education policymakers in edtech innovations and found that this notably influenced their decisionmaking about what innovations to consider adopting, adapting, and supporting at scale. This strong interest appears to derive from a confluence of four factors: (1) external demand for digitalization from other sectors in a country (such as the president, families, the ministry for information and communication technologies, and the media), (2) the many tech companies aggressively attempting to enter new markets, (3) some donor organizations' prioritization of edtech as a viable solution in LMICS, and (4) the already strong presence of edtech in higher-income countries that puts pressure on LMICs to embrace edtech. **At the same time, our interviews highlight the paucity of *useful* research that could aid education decisionmakers to determine the possibilities and risks of specific edtech innovations when deciding what to adopt and scale.**

However, this interest in edtech on the part of policymakers in our study was not universal. In some interviews, national level decisionmakers reported that edtech is vital

to their countries' futures and is a top priority. Other decisionmakers reported that they believed there are more pressing education concerns to address in their countries that they believe need analog solutions, such as safe and clean schools, sufficient numbers of well-trained teachers, and post-pandemic learning recovery. And still other decisionmakers reported that, although there was strong public- and private-sector demand in their country for edtech, the current technology innovations in use in their locations were not succeeding. These three types of response did not cut cleanly across countries, the interviewees' roles in the decisionmaking system, or in what context the conversation topic emerged. All three perspectives were present in all three countries (and we have seen evidence of this across the Global South more broadly). This likely means that, because edtech is such a multidimensional issue, all three views have some validity, and the influence of edtech on decisions about scaling cannot be reduced to just one of the three.

Furthermore, not all edtech innovations are the same. When analyzing the role edtech plays on decisionmaking about what to scale, there is a need to distinguish among innovation types, potential benefits and concerns, best-use possibilities, and likelihood of supporting sustainable impact among this variety (see Annex 1). Generally, we found that the more 'alluring' or 'shiny' edtech innovations—e.g., adaptive learning, digital devices in the classroom, and ambitious communications systems or display tools—were more heavily promoted by edtech companies and more attractive to decisionmakers than simpler, less flashy forms of edtech. However, these high-tech innovations were also considered by many of the edtech experts we interviewed to be of less utilitarian value in LMIC settings today compared to less "exciting" ones such as building on existing information and communication technologies, investing in database systems that reduce teacher workload, and adopting digital solutions for administering schools.

Box 6. Interactive radio instruction

A useful example to illustrate the phenomenon of decisionmakers preferring the new and exciting is the rise and fall of interactive radio instruction (IRI) started in the 1970s. This pioneering innovation, initially begun in Nicaragua, used the low cost and long reach of radio to deliver interactive lessons that were carefully developed with student-centered learning theory in mind. Although IRI was used for a few decades and demonstrated lasting student learning gains,[xxiii] it eventually fell victim to many donors and governments moving on to the flashier, more sophisticated forms of digital edtech and—despite a modest resurgence in some countries during the COVID-19 pandemic—has mostly fallen out of favor.

Notably, educational management information systems (EMIS) are an exception to this trend. Interviewees from both the government decisionmaking sector and the tech space noted a growth in the popularity of EMIS in their areas of work over the last several years. EMIS were generally regarded as an area with immediate value—the common thread

being that a good EMIS can inform better budgeting, improve the ability to identify and pursue equity concerns in education, make better decisions, and reduce the time teachers and school leaders spend on noninstructional activities such as record keeping and managing assessment.

Aside from EMIS, however, the attraction of alluring innovations appeared strong despite the belief that more mundane solutions may carry significant value. Does this mean that education policymakers in LMICs should only focus their technological needs on foundational or infrastructural aspects? We resist easy answers here. Although countries must not neglect basic education needs—and three different interviewees used the analogy of Maslow's hierarchy of needs to argue for foundational basics like safe schools and feeding students before "luxuries" such as online learning or digital classrooms—we do not want to suggest that decisionmakers in LMICs should wait passively for the advantages of cutting-edge digital technology to arrive some day in the future. A balance can be struck between securing foundational education access and quality on the one side, and strategically introducing digitalization into the education system on the other. This can be effected through local dialogue, thoughtful prioritization, and candid discussions of what long-term education quality should look like.

What was clear from interviews with both decisionmakers and edtech experts is that evidence is often not a primary concern when considering whether to adopt and scale edtech initiatives. Rather, factors such as who is recommending the technology, how the decision announcement may look internally and externally (i.e., the political expediency of being a tech adopter), and the regional or international reputation of the innovation are more important.

What was clear from interviews with both decisionmakers and edtech experts is that evidence is often not a primary concern when considering whether to adopt and scale edtech initiatives.

Even when evidence does exist, it is not particularly useful. Our review of the research found that there are problems and limitations with the current body of research on edtech that severely constrain its ability to inform adoption and scaling decisions. When it comes to academic literature, findings are highly mixed.[xxiv] Further, most empirical research requires years to complete, and as a result, is rarely useful for informing decisions because its evidence is already outdated when it reaches policymakers' hands.[xxv] As one edtech expert commented, "By the time elaborate RCTs and meta-analyses are completed, the technological intervention is no longer current." Additionally, applying academic research to decisions about a specific edtech innovation in a specific country is difficult. Each technology differs, even when they address similar concepts, and the context often matters. This means that locally contextualized studies—even if high quality—have low external validity. Where relevant evidence does exist, it can be difficult

for nonexperts to access: Studies are technical and the language arcane, and decisionmakers may struggle to understand them or appropriately compare different pieces of evidence from different sources to their own situations. Additionally, as one interviewee noted, "These types of analyses tend to focus on scaling as *adoption with fidelity* rather than adaptation to local settings, so they're not always helpful."

Outside of the academic literature, much of the concrete, practice-based evidence available on specific edtech innovations derives from research conducted by the tech companies themselves[3] and has typically not undergone external review. These studies provide limited evidence and usefulness. A recurring challenge is that the evidence base, whether academic or from tech companies, is minimal compared to the vast number of products being offered to decisionmakers.[xxvi]

The need for "more evidence" or "using the proper evidence" in deciding to adopt edtech emerged frequently in our interviews, but these statements about the importance of evidence do not mean that evidence necessarily impacts final decisions about what to adopt and scale. As one tech innovator said:

> *These governments want edtech because it [is perceived as] educational leapfrogging, even though 99% of edtech currently being developed isn't going to work for the kids who need it most. It will be decades before there's sufficient connectivity in LMICs.*

Instead, edtech appears to be popular not because of its evidence of effectiveness but because of its potential for rapid expansion and because it signals modernity. Critical to understanding this dynamic is the fact that government decisionmakers are bombarded with edtech innovation pitches, and many decisionmakers have neither the training nor access to the right evidence to make informed decisions. **As such, it is essential that decisionmakers be supported in making strategic edtech innovation, investment, and implementation decisions.** One strategy for this is to broadly encourage more and more useful evidence on the effects and usefulness of edtech innovations in LMICs.[xxvii]

Finally, it appears that less emphasis is placed on contextualizing digital technology innovations than there is placed on other education innovations. Digital innovations seem to be an exception to the idea that an external innovation must be contextualized before it is adopted and scaled in a new country or region. This is for two reasons. First, multiple interviewees reported that decisionmakers neither require nor request evidence in order to be convinced that adopting edtech innovations is the right thing to do. As mentioned, many decisionmakers are already primed to adopt edtech for scale in their countries and may be more interested in scalability or political benefits than in evidence of effectiveness. As one tech innovator explained, "There's very little evidence showing that digital edtech works. In fact, studying it is disincentivized because buyers don't need proof that it works. They already want it." Second, a global edtech expert talked about how difficult it is to contextualize most high-tech innovations, reporting that it is easier

[3] Exceptions include Central Square Foundation, Education Alliance Finland, HundrED, and EdTech Hub. These organizations provide evidence-based research on various education innovations, including edtech.

and cheaper to simply invent a new digital innovation for a specific LMIC context than try to adapt an already developed one:

> *There's a crazy amount of contextualization required. This is always underappreciated by those who are considering adopting an edtech innovation. It's even hard for me to think about this, even though I have seen it more than a hundred times. People think, "Oh, we can just take this digital language literacy program from here, slap it over there, and it will achieve the same great outcome." Not realizing that it doesn't work like that. There are issues around different teacher users with different capacities working in a different language, of course. But it's more than just professional development or translation. The types of reports delivered to the academic establishment are different. The way data are tracked is different. The curriculum and standards within and across subject areas do not align. This is why most edtech, sadly, does not cross country boundaries... Honestly, it is easier to invent a new one inside the location. The adoption and adaption function of edtech is ten times harder than inventing the actual intervention.*

Edtech is a tool, not a magic solution. Its usefulness, like that of any education innovation, hinges on what a location's broader purposes for education are and how the tool will be used by adults and children. Therefore, it is important that education decisionmakers considering edtech innovations to scale be clear and thoughtful about *why* they are adopting a particular technology and to what end—and give due consideration to a technology's realistic potential to achieve this intended goal in the particular context. Fields related to edtech, global education development, and scaling must invest in more research around edtech. And teachers and students (the "end users" of edtech innovations) should be meaningfully involved not only in the implementation or scaling of the digital innovations but also in the initial design and development of the innovations.

[I]t is important that education decisionmakers considering edtech innovations to scale be clear and thoughtful about why they are adopting a particular technology and to what end—and give due consideration to a technology's realistic potential to achieve this intended goal in the particular context.

As a whole, while going digital appears to be the way of the world and many decisionmakers are eager to embrace technological solutions to pressing problems, choosing to prioritize edtech innovations might have significant opportunity costs in LMICs that should not be ignored. Adopting a digital innovation may come at the expense

of considering other, more viable innovations that are not digital. Further, the scalability and contextualization needs of various edtech innovations must not be underconsidered. Finally, there are important equity and ethical dimensions to consider when choosing to engage children and adults in a digital-education future when no one is clear on the long-term results for humans and the planet.[xxviii]To better support national governments in making decisions about scaling edtech innovations (not just *which* ones, but *if* they should do so and *how*), more timely and actionable research is needed, with findings presented in ways and formats accessible to policymakers and useful for their decisions. Furthermore, there is a need to offer faster cycles of evidence and be sure that independent researchers—not only company-affiliated researchers—are engaged in this work.

V. The absence of meaningful real-time data about education outcomes

A final dimension of influence emerging from this round of research on how decisions are made about what education innovations to scale is that most global education specialists and government policymakers believe that there is too little evidence or research available for use in education decisionmaking, and that what does exist is often neither particularly helpful nor used much by decisionmakers. The ubiquitous solution we heard is that more research, data, and evidence must be generated and analyzed (ideally by in-country specialists) for use in making decisions about scaling and made available in useful ways. That is surely true, but closer inspection nuances this exhortation somewhat.

Many LMICs are developing national digital education data systems but are not yet far along in this process. In some locations (often, but not solely, rural) in all three focal countries, there are either no or little data being collected, or data are still sometimes being transmitted to central offices via paper and pen. What data are collected sometimes take so long to reach the country's capital for national-level use that, while they are still valuable for planning and policy analysis, they are no longer relevant to central-level monitors and managers. This underscores the need for locally-situated education data analysts—where timely data are more accessible and where the effects of planning are most visible—rather than expecting data analysis and policy planning to occur at the central level of a country's government. Acknowledging and harnessing these particularities should be a high priority.

Interviewees from the three focal countries conceded that, although attempts are made to collect data from schools once or twice per year, the data are very basic and are "neither reliable nor consistent" and only used for descriptive reports (typically in service of education budgets), rather than sophisticated analysis. Some respondents felt that the right basic, descriptive data can usefully inform district and national education officials about aspects such as teachers, learning materials, school sites, and student attendance patterns. Others disagreed, reporting that descriptive reports from basic data are insufficient and it is the ability to disaggregate and deeply analyze rich data that matters. In fact, both of those views are true: Reliable and full descriptive data are indeed useful for decisionmakers, but deeper and more sophisticated analyses are also required.

There are both logistical reasons and resource and capacity constraints for the limited data collection and analysis highlighted, especially in countries with severe financial

constraints or hard-to-access rural schools and families. For example, robust career pipelines to recruit, train, and support education-sector data scientists in the three focal countries were mostly absent (although there was disagreement among respondents over whether this held true in Ghana). And respondents reported that not only are there rarely in-country institutions to train data scientists in LMICs, but when there are, the professional opportunities for these data scientists are so few and impermanent that well-trained, motivated data experts will leave the country (or the ministry) to work elsewhere.

We also heard about political reasons for intentionally not collecting or disaggregating data. For instance, if a government suspects that there is an education problem or inequity occurring (e.g., rural schools performing more poorly than urban ones or girls not receiving equal education access), it is not always in its political interest to make these facts public. A representative from a multilateral funding organization reported that this is why external data analyses are important: By highlighting a country's inequities through collection and analysis of data, they can encourage governments to consider making changes:

> *LMICs will collect basic school data, but what's really needed are test data. How well and what are students actually learning? … There are data that can be politically explosive—such as when you learn that students in [city schools] score so much higher than the students outside [the city]. If you have evidence of important regional inequalities, that can be a political tool that would affect the minister. I would say that's where the multilateral organizations can play a role. If they can get hold of such data, they can feed those back in a public report. This becomes a [change lever available] to multilateral organizations, a negotiating tool to use to push [LMIC] ministers who really want to improve schools.*

But a critic of this approach pointed out that multilateral organizations have their own ideologies and priorities too and that each side uses data to advance its own political agenda.

In addition to understanding the logistical, capacity, and political reasons that detailed data are not always used to inform decisions about adopting and scaling education innovations, it is also important to note the limitations of data. Although many in the global education community argue for data-based decisionmaking, it might not be that simple. First, even if perfect data were available, data will never be the sole determinant of government decisionmaking. There will always be influences deriving from personal beliefs and biases, political pressures, groupthink, and professional ambitions. The vagaries of making difficult decisions quickly within a public-sector bureaucracy will remain.[xxix] What is likely a more realistic goal is to increase the capacity for LMIC decisionmakers to centralize the strategic use of data as part of a complete, deliberate policymaking repertoire.

Second, all research data are not of equal value. For decades, the global education development space has been dominated by quantitative research—often production

functions and randomized control trials—and that has produced a particular view of the education landscape and decisionmaking context that may not always correspond to the actual reality of scaling in LMICs.[xxx] Further, the dominance of economic thinking in global education development has decreased the ability for qualitative and indigenous research methodologies to flourish and contribute to education scaling decisions and lessons in LMICs.[xxxi] Although comparative education researchers have been conducting qualitative studies for decades, the donor community has favored quantitative research and economic perspectives. Economic models for education certainly have value, but because of their taken-for-granted assumptions, they can obscure deeper processes, neglect the localized cultural complexion of social practice, and overvalue technical-rational solutions. **Any single research methodology will illuminate only part of the complex reality facing education decisionmakers and scaling teams. Therefore, incentivizing a range of education research methodologies (including multi-method approaches) will lead to fuller and more robust understandings of education development, which can support more informed decisionmaking about scaling impact in education.**

Third, even with sufficient and useful data coming from qualitative, quantitative, and non-Western knowledge paradigms, there will still be the need for other kinds of strategizing around identifying and addressing scaling dimensions for a country's education future. Some education questions exist outside the realm of the purely empirical. Not all educational outcomes are easily measurable, even if captured by proxy. As discussed in the first section, education innovations should not be selected for adoption and scaling individually but understood as fitting into a broader vision for the role and purposes of education within a country and a strategy for how those purposes can be enacted within the system. **That is where sufficient, reliable, and relevant evidence can play a starring role and where decisionmakers will benefit from increased support and capacity for employing data when making decisions about selecting, scaling, and sustaining education innovations.[xxxii]**

Finally, using data to continually monitor, evaluate, and adapt the innovations chosen is a necessary scaling component but must not be done overzealously or punitively. In this respect, LMICs can learn from some cautionary examples of higher-income countries aggressively adopting data-driven student and teacher accountability systems.[xxxiii] For example, in the United States during the early 2000s, a data-centered and standards-based reform movement ultimately (1) narrowed teaching and learning to fit standardized tests, (2) penalized schools and teachers in low-resourced communities without offering sufficient support, (3) incentivized school-level misuse of data, and (4) employed controversial statistical models to evaluate teaching and learning.[xxxiv] Data-driven education improvement must be pursued thoughtfully by including many different constituencies and charting a balanced course of equal parts quality control and support.

Discussion of findings and recommendations

Our analysis illuminates that the five dimensions discussed in this report influence (and are themselves influenced by) the practices and processes of national level government decisionmakers identifying educational priorities and calculating domestic **demand** for various innovations, the **feasibility** of adopting and scaling the particular innovations, and the potential **sustainability** of their impact. In other words, the factors of these five dimensions, separately and together, directly and indirectly, shape how the decisionmaking occurs. The continually shifting nature of these interacting dimensions of influence and effect requires acknowledgment of the complexity of decisionmaking and an admonishment for participants to understand the particular pressures each constituency faces as it engages in what is ultimately collaborative and highly intricate policy work.

Based on the data collected for this research and the previous ROSIE learning over the last 18 months, as well as relying on knowledge of the broader literature, we offer the following reflections and guidance for scaling teams, government decisionmakers, and other key actors in the education ecosystem working toward the shared goal of quality, equitable education for all children and youth.

Recommendations for teams scaling education innovations

- One approach for navigating the multiple layers of the broader education environment that influence decisions of scaling education innovations, assessing where the environment might constrain scaling or enable it, and working to address these constraints and leverage opportunities is to **establish and maintain a dynamic network of in-country champions across the ecosystem who will support the process.** That group of champions can include stakeholders at different levels of government; representatives from relevant NGOs, civil society organizations, and other professional organizations; researchers; and implementing partners. This is why *scaling teams*[xxxv] or *scaling labs*[xxxvi]—rather than individual scaling implementers—play such an important role in successful scaling processes. A multi-stakeholder approach to scaling provides diverse viewpoints, broader buy-in, collective wisdom, and increased opportunities for support. It better integrates scaling with country decisionmaking in collaborative fashion. Engaging with these stakeholders effectively not only requires patience and artful facilitation but also understanding that this network of champions will need to be engaged differently at different moments in the adoption, adaptation, and scaling processes.[xxxvii]

- **When scaling teams are external to the context, it is necessary to know the target locations extremely well**—not only in terms of what education priorities the national government has identified, which parts of the country the government believes are important to prioritize, and the complex cultural and governance

characteristics (including needs and assets) of the target location, but also in terms of how national and local government decisionmaking, as both a process and an organization, works in the country. Contextualizing an innovation that originated elsewhere requires a deep understanding of the location's similarities to as well as its differences from the other contexts in which the innovation was tested. Contextualizing an innovation before bringing it to the government will increase the likelihood of its acceptance. Such a recommendation returns us to the broader ecosystem and the need for understanding that each level of the system is influenced by the others. If a scaling team does not know all system levels of a target location, it will need to partner with people who do. Additionally, this requires authentic humility, curiosity, and the ability to listen.

- It is crucial to **prioritize the generation and use of research before, during, and after the scaling process**. Learning the context before the work begins is necessary. Conducting quantitative and qualitative research throughout the process is necessary for understanding the contours of adaptation and scaling and sharing with decisionmakers the successes and challenges along the way. It is important to ensure that research findings are packaged and presented in accessible ways for decisionmakers (not just created for technical, academic audiences). Additionally, internally collecting and drawing on data as well as other forms of knowledge such as local voices, stories, and deep reflection on education purposes throughout the process will support careful and continuous adaptation during scaling. Finally, as mentioned throughout this report, it is important to prioritize useful study and elevation of homegrown innovations, outliers, and the potential for specific digital innovations, not just innovations developed and tested external to a specific context. Organizations focused on identifying, cataloguing, and promoting innovations should give extra attention to highlighting these local innovations and approaches.

Recommendations for LMIC governments working with funders

- Understand that donors will indeed heed your demands if you **have a strong, internally coherent national decisionmaking system** and can clearly articulate your identified education purposes and priorities. Demand to be given better (and timelier) evidence and research on what education solutions actually work, and why they will work in your particular context.

- **Request training support for in-country data analysts and education researchers** and funds for local researchers to study and validate local innovations as a precursor for scaling.

- **Be vocal about the difficulty of balancing "short-termism"** with the need for reform continuity and the "right kinds" of external support.

- **Prioritize education** as a long-term way to improve your country. Accept that education systems transformation is a pressing, long-term objective whose challenges are likely worth the effort. Ensure that your national and mid-level education decisionmakers are knowledgeable, committed, and incentivized to stay

in their roles. Understand that if electoral pressures trump good decisionmaking, the education system in your country will not fundamentally improve. Acknowledge the need to elevate and support teachers as a fundamental pillar of education quality.

- Do not expect that edtech will be a silver bullet. Its use and usefulness hinge on what a country's broader purposes of education are and how the tool will be used by adults and children. To this end, **demand clear and concrete data on why a particular digital innovation is better than alternative analog or digital solutions.** Employ caution and initial skepticism around high-tech innovations, and let the evidence and deep, collaborative dialog with regional and local education leaders convince you. Speak regularly with decisionmakers in countries that have already embraced edtech to learn from their results. Do not neglect the potential downsides of technology, including increased social inequities, the amplification of misinformation, and emotional health implications for users.

Recommendations for the global donor community

- **Move away from incentivizing short-term, bounded projects.** This is not to say that the short-term work of developing and cataloging promising examples (or "use cases") as components of a system of available solutions or using pilot results to build up the global evidence base is not valuable. But most education innovations and scaling strategies that provide real, sustainable impact are rarely completed within a few years. It is imperative for donor organizations to work with their own constituencies, boards, and organizational cultures to restructure the way they support lasting impact. Furthermore, there is great value in engaging authentically with LMIC decisionmakers in moral and philosophical conversations about purposes of education in the target country and then together building out corresponding multi-decade plans of sustained and focused work that fit the contours of the location. Such an approach is likely an improvement over the traditional focus on the technocratic advancement of circumscribed goals through bounded projects and emphasizing similarities among countries.

- Work with countries to **identify, refine, and support their own homegrown innovations.** Fund local research to examine the potential of promising grassroots innovations and prioritize the establishment of research, communication, and support infrastructures for this important aspect of education improvement. This encompasses four needs. One is to fund the identification, piloting, and validation of "hidden" but promising homegrown innovations. Two is to fund longitudinal and mixed-methods research on the extent to which the "smart buys" and other popular innovations do or do not lead to lasting education improvement in specific LMICs. Three is to encourage innovation promoters to advocate for promising homegrown innovations (e.g., HundrED).[4] And four is to fund research that identifies positive or negative outlier schools that are overperforming or underperforming and seeks to understand what is occurring. Finding schools that

[4] HundrED Education Innovations

are *already doing* the kinds of things education innovations intend to accomplish—and studying and sharing the culture or practices that produce such "positive deviant" results carries real value. Given that these cultures or practices have already worked in the country, there is great promise in their sustainability and scalability.

Conclusion: Integrating scaling with systems transformation

As emphasized in this report, even the best scaling strategies for expanding and sustaining effective education innovations often falter when they are required to contend with the broader environment and its complex crosscurrents. This acknowledgment of the power of the broader environment appears to be a primary reason that systems transformation in education has become popular.[xxxviii]

After these two rounds of research, we believe that *scaling* and *systems transformation* do not oppose each other but are complementary frameworks that can be successfully integrated if done carefully and under the right conditions. Systems thinking in education can be defined as the acknowledgement that any single education component or innovation interacts with dozens of broader system parts, organizations, forces, and levers—such as the school building and its manner of organizing human activity, the curriculum, students' backgrounds and learning characteristics, teachers as individuals and as a historical profession, institutional governance and accountability mechanisms at multiple levels, funding influences, the mediating power of communities, cultural beliefs and mindsets in locations, national politics and education commitments, and the global development arena. Systems thinking holds that it is the *complex interactions* among these hard and soft system parts that propel the change (or stasis) of a system.

After these two rounds of research, we believe that scaling and systems transformation do not oppose each other but are complementary frameworks that can be successfully integrated if done carefully and under the right conditions.

Transforming education systems requires cohering, pushing, and/or opening up many of those parts in ways that produce new interactions that, themselves, lead to new practices, mindsets, policies, and institutional cultures—especially at the instructional core of children and youth learning. If done carefully, holistically, and with patient determination, this should lead to lasting change in service of predetermined education purposes and goals. Additionally, there is the potential for promising innovations or pilots to *motivate* a system toward change or create *new spaces or linkages* within a system for changed interactions among the system parts.

Although the collected data informing this report are limited in what can be said about this increasingly popular topic, it is our belief that integrating scaling for sustained impact within whole systems change in LMICs is a valuable direction. Government

decisionmaking can focus not just on identifying promising innovations to scale, but also on identifying the influential system levers against which to push. Scaling can attach impactful innovations to one or more key system levers in order to shift them, thereby strengthening or transforming the system. In this way, scaling leverages the system to embed its innovation into sustained use at the same time as it transforms the system for exponentially improved learning outcomes.

Study limitations

This work is empirical in nature but also informed by the author's and team members' knowledge of three years of ROSIE learnings and the broader literature on the topics examined in this report. As such, the work is better described as a combination of qualitative research, research review, and analytical reflection on the existing knowledge base. Additionally, 10 interviews from three countries coupled with 10 interviews from broader education informants offer only a limited evidentiary warrant. Readers should keep these two study limitations in mind.

Annex I. Types and categories of educational technology innovations

Category of use	Definition	Examples[xxxix]
Formal learning device	Tech-assisted directed learning, with a learner being guided through learning objectives with clear pre-determined knowledge or skill outcomes.	• In-class reading learning via tablets or computers, facilitated by teachers. (Bridges to the Future Initiative, South Africa). • Offline phone application that provides material for lessons from early literacy through to grade 3 literacy and numeracy (Ustad Mobile, Afghanistan).
Informal learning device	Tech-assisted, nondirected learning taking place outside of formal learning settings.	• Interactive audio program designed to teach English listening and reading out of schools (BBC Janala project, Bangladesh). • Interactive Radio Instruction, Bolivia (among other countries): 30-minute pedagogically interactive radio broadcasts to out-of-school children.
Content provider	Tech-enabled provision of content resources.	• Distribution of Kindle e-books to students and teachers to enable access to texts (WorldReader, Sub-Saharan Africa). • Mobile-phone-accessible learning media (Sesame Workshop's M – Mobile initiative, India.)
Devices for enhancing instruction	Edtech innovations for improving quality of teacher – student interactions (including remote instruction, classroom instruction, and teacher engagement with parents).	• After-school lessons on a computer that allow students to select topics where they were struggling and filled teaching gaps in that topic (Computer-assisted learning, Cape Town). • Volunteers from U.S. universities were matched with U.S. high school students and provided one-on-one tutoring via Skype[xl]
Teacher development	Tech-enabled teacher professional development.	• WhatsApp-based (Raspberry Pi-facilitated) access to teacher professional development (TPD) conferences and teacher meetings (Zambian Education and School Training Project [ZEST]). • Solar-powered audio players transmit teaching resources and content in Dinka and Dari (Across Radio, South Sudan).
Information and communication technologies (ICT)	Tech-facilitated communication among teachers, students, and other community members.	• Randomized control trial (RCT) which sent SMS to parents to update them on their children, including absences, grades, and other information[xli]

Artificial intelligence	Tech interventions that utilize artificial intelligence.	• Granted after-school access to computer-assisted learning software that provides AI-powered, adapting lessons (Mindspark learning, India). • AI-powered virtual assistant that learns student patterns and schedules to provide study and learning assistance and reminders (Genie, Australia).
Administrative (EMIS)	Tech interventions for improving school and student administration.	• An EMIS system deployed to centralize various administrative regions' data systems and financial management applications to allow central access to school- and district-level information (SIMEN, Senegal).

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