

# Public-Private Partnerships for Global Health: The mVacciNation Pilot in Mozambique

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March 2022



This research was made possible through the Reach Alliance, a partnership between the University of Toronto's Munk School of Global Affairs & Public Policy and the Mastercard Center for Inclusive Growth. Research was also funded by the Ralph and Roz Halbert Professorship of Innovation at the Munk School of Global Affairs & Public Policy. We express our gratitude and appreciation to those we met over the course of this project. In particular, we acknowledge and thank the key informants who took the time to share their insights with us.

This research was vetted by and received approval from the Ethics Review Board at the University of Toronto. Research was conducted remotely during the COVID-19 pandemic.



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Cover image: Childhood vaccine vial (Tom Whipps Photography)

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## Executive Summary

As cross-sectoral alliances that propose to (1) extend the reach of services to include vulnerable populations, (2) effectively mobilize sufficient resources, (3) better distribute risk and (4) integrate competitive expertise from across sectors, public-private partnerships (PPPs) are critical to advancing the Sustainable Development Goals (SDGs). They specifically relate to the cross-cutting SDG 17, Partnerships for the Goals.

While there is a large body of empirical literature on PPPs in high-income countries, less is known about their origination, internal management and impacts in low- and middle-income countries. A range of scholars and practitioners contend that partnerships need to be more effectively scrutinized, especially given that governments have budget-related incentives to promote the use of cross-sector partnerships involving public, private and nonprofit actors to accomplish shared goals for local development and global health. The ongoing COVID-19 pandemic, which has both disrupted the operations of cross-sector partnerships for global health and increased their importance, equally highlights the need for continued learning and practical insights for responsible and transparent collaborations.

Through a series of seven semi-structured interviews with stakeholders from five organizations actively involved in public-private partnerships and a literature review, we explore cross-sector perspectives of partnership experiences related to initiation, barriers to success and sustainability. The mVacciNation mobile application pilot in Mozambique serves as an illustrative case study. Key themes and recommendations point to a need for co-creation, selecting the right partners upon initiation, developing a governance framework for accountability, and implementing flexible monitoring mechanisms and feedback loops.

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## The mVacciNation Pilot in Mozambique

Mozambique faces several challenges, from maintaining macroeconomic stability to internal displacement, severe food insecurity and weather shocks — now amplified by public health crisis mitigation related to COVID-19. In the face of these challenges, it has also worked to strengthen health service delivery. One health service focus has been immunization coverage.

According to a 2014 study, over 90 per cent of children in Mozambique receive the first shot of diphtheria, tetanus and pertussis (DTP) vaccine but fewer than 80 per cent receive the third and final dose.<sup>1</sup> While coverage for several other routine vaccines was less than 75 per cent in many parts of the country, the country's under-five mortality rate remained high at 97 deaths per 1,000 live births.<sup>2</sup> To make matters worse, the World Health Organization (WHO) has reported that since the rise of the COVID-19 pandemic and its widespread service disruptions, over 283,000 children have missed out on their first dose of the DTP combined vaccine. This trend makes Mozambique the country with the sixth-greatest increase in children not receiving the routine immunization since the beginning of the pandemic.<sup>3</sup>

Beginning in 1979, the Ministry of Health (MOH) embarked on an Extended Programme of Immunization (EPI) which has strengthened the health system to tackle challenges of low vaccination coverage.<sup>4</sup> However, since 2012, supply chain management and service delivery

challenges at national, provincial and district levels have prevented the effective uptake of vaccines.<sup>5</sup> To address this issue, the government piloted mVacciNation between 2014 and 2018.

A mobile phone application-based intervention, mVacciNation aimed to increase immunization coverage by reducing drop-out rates in children under five years of age. It was driven by a cross-sector partnership between Gavi, the Vaccine Alliance (Gavi), GlaxoSmithKline (GSK), Vodacom/Mezzanine, the US Agency for International Development (USAID), VillageReach and Mozambique's MOH. Healthcare workers used the app to capture and record the number of vaccinations and health records of each child, enabling providers to track stock levels to optimize the supply chain and prevent stock-outs.<sup>6</sup>

The program began with a pre-pilot phase where the initial application, which was developed externally and then brought to the country, was tested and refined with healthcare workers' feedback. The official pilot started in Nampula Province in 2014 but was not scaled up across the country by the time it was completed in 2018. This was the case despite Mezzanine's earlier reports that roughly 95,000 patient records were created and a total of 315,000 immunizations were administered with the app's assistance. Current reports indicate that 452,550 vaccinations were recorded in Nampula Province between 2013 and 2016 and 130,761 children were registered and vaccinated through mVacciNation's multiparty implementation approach.<sup>7</sup>

The program's discontinuation could be attributed to challenges in limited pilot resources and the

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1 Dean Karlan, Gunther Fink, Luke Crowley, "Increasing Vaccination Coverage Using a Mobile Phone Application in Mozambique," Abdul Latif Jameel Poverty Action Lab, n.d. [↗](#)

2 Ibid.

3 "COVID-19 Pandemic Leads to Major Backsliding on Childhood Vaccinations, New WHO, UNICEF Data Shows," World Health Organization Press Release, July 15, 2021. [↗](#)

4 "Comprehensive Multi-Year Plan (CMYP 2015-2019)," Republic of Mozambique Ministry of Health, 2014.

5 Ibid.

6 Mezzanine, "mVacciNation," MezzanineWare, 2020. [↗](#)

7 Mezzanine, "mVacciNation Overview, March 2021." [↗](#)



**Figure 1.** Healthcare worker vaccinating a child in Nampula, Mozambique (Tom Whipps Photography)

level of commitment within the collaboration. We examine the relationships, responsibilities and learnings of various stakeholders involved, with specific reference to their impacts on the mVacciNation pilot in Mozambique.

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## Trends in Partnerships for Development and Global Health

Since the 1990s, collaborations between organizations in different sectors of the economy — public-private partnerships (PPPs) — have become increasingly dominant in public sector management and development aid efforts. These PPPs promise to leverage the advantages of each sector to tackle challenges that unilateral public approaches have had limited capacity

to realize. During the 2019 United Nations (UN) General Assembly week, stakeholders in international development and global health across nongovernmental organizations (NGO), and public and private sectors established that cross-sector partnerships are critical to achieving the Sustainable Development Goals (SDGs).<sup>8</sup> SDG 17 specifically calls for a stronger commitment to partnership and cooperation to achieve the SDGs, urging that we mobilize the efforts of governments, businesses and civil society to achieve the 2030 UN Agenda. By joining actors to provide goods or services to community groups with limited resources, PPPs can trigger related societal change and, in turn, improve the community's standard of living and economic viability.

Today, PPPs are emerging as a common approach to improve the delivery of health and welfare services in low- and middle-income countries, such as immunization access among

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<sup>8</sup> Lawrence Bowdish and Yagmur Cosar, "Transforming Global Health: Cross-Sector Partnership to Advance the SDGs," US Chamber of Commerce Foundation, October 30, 2019. [↗](#)

regions in East and Sub-Saharan Africa.<sup>9</sup> While several stakeholders including many in civil society, social welfare services and the public health community contest *in principle* a major role for the private sector in health care and question the source of waning public resources available, proponents of PPPs advocate for the critical role the private sector can play in closing resourcing gaps. Current trends reflect an increasing prominence of private sector and not-for-profit voices in global health and development decision making. The procurement, management and impacts of partnerships in these contexts, however, require ongoing investigation.

PPPs can make a real impact. For example, in Rwanda's human papillomavirus (HPV) vaccine rollout, the country's MOH partnered with Merck to provide the Gardasil HPV vaccine to all eligible girls. After the first three-dose course of vaccination, 93.23 per cent were vaccinated. Much of this success was attributed to the ministry's approach to creating a "public-private community partnership," systematically including local leaders, community health workers and teachers in the vaccine-delivery strategy, combined with Merck's in-kind support and vaccine provision.<sup>10</sup>

Facing the highest hepatitis C virus (HCV) infection rates worldwide, Egypt embarked on a large-scale disease-screening campaign in 2014 in partnership with the private sector. Between the partnership's decentralized, multisector approach and strong government vision and leadership, the prevalence of the virus declined from 7 per cent in 2014 to less than 1 per cent in 2020.<sup>11</sup> As a result of this campaign,

Egypt will probably be the first country in the world to eliminate HCV within its borders.

While PPPs hold potential, they are not without their challenges and limitations. A study of a PPP in Lesotho — an ambitious attempt to outsource new healthcare facilities and clinical services — found drawbacks in domestic capacity to manage the complex contractual relationship. Despite relatively high quality of services at the contract's midpoint, the costs to the government were greater than forecasted and the MOH's ability to meet wider health-system objectives was undermined as a result of limited capacity to plan, procure and manage complex contracts.<sup>12</sup> In another study evaluating Uganda's Gavi-supported HPV vaccine application, 11 national stakeholders representing the MOH and partnering organizations perceived the partnership positively. The application was praised in terms of country ownership and effectiveness, but it lacked formalized procedures and management mechanisms that could have otherwise improved the partnership's efficiency and overall governance.<sup>13</sup>

Similar insights into relationships, ownership, capacity and governance emerge from reflections on Mozambique's mVacciNation program pilot which ran from 2014 to 2018. Despite the viability of the program's mobile application and the MOH's approval and involvement, stakeholders described issues arising from misaligned interests, disproportionate commitment from partners, weak provincial buy-in, resource limitations and lack of community engagement in its PPP, all of which affected the pilot's perceived success. What has often

9 Donald A. Barr, "Ethics in Public Health Research: A Research Protocol to Evaluate the Effectiveness of Public-Private Partnerships as a Means to Improve Health and Welfare Systems Worldwide," *American Journal of Public Health* 97, no. 1 (2007): 19–25.

10 Agnes Binagwaho, Claire M. Wagner, Maurice Gatera, Corine Karema, Cameron T. Nutt and Fidele Ngabo, "Achieving High Coverage in Rwanda's National Human Papillomavirus Vaccination Programme," *Bulletin of the World Health Organization* 90, no. 8 (2012): 623–28.

11 Ahmed Hassanin, Serageldin Kamel, Iman Waked and Meredith Fort, "Egypt's Ambitious Strategy to Eliminate Hepatitis C Virus: A Case Study," *Global Health Science and Practice* 9, no. 1 (2021): 187–200.

12 Mark Hellowell, "Are Public-Private Partnerships the Future of Healthcare Delivery in Sub-Saharan Africa? Lessons from Lesotho," *BMJ Global Health* 4, no. 2 (2019): e001217.

13 Carol Kanya, Jessica Shearer, Gilbert Asimwe, Emily Carnahan, Nicole Salisbury, Peter Waiswa, Jennifer Brinkerhoff, and Dai Hozumi, "Evaluating Global Health Partnerships: A Case Study of a Gavi HPV Vaccine Application Process in Uganda," *International Journal of Health Policy and Management* 6, no. 6 (2016): 327–38.

been described as a “multisector network” in postpilot documents never came to fruition as a formalized PPP in Mozambique.

Collectively, these examples not only demonstrate the challenges and successes of PPPs for global health but also reveal a common purpose for partnership initiation: vaccine deployment. Achievements in critical areas such as child mortality rates, which decreased globally from over 11 million in the 1990s to around 5 million currently,<sup>14</sup> have been facilitated through strong partnerships that ensure effective procurement, supply, delivery, access and uptake of vaccines. However, practitioners contend that achieving the SDG targets for health by 2030 requires innovations. Advancements in “programmatic intelligence” must include understanding barriers and deepening insights about cross-sector partnerships to leverage them to increase immunization rates.<sup>15</sup>

During the COVID-19 pandemic, scholars identified a new, amplified PPP model known as the “super PPP.”<sup>16</sup> They argue that the COVAX initiative, which describes itself as a “ground-breaking global collaboration to accelerate the development, production and equitable access to COVID-19 tests, treatments and vaccines,”<sup>17</sup> has had limited success thus far because of its complex multistakeholder PPP: it resembles a “Russian Matryoshka doll-like” structure.<sup>18</sup> As a super-PPP, COVAX therefore reproduces and intensifies challenges associated with the established PPPs it incorporates, raising speculation about its future as well as the direction of PPPs for global health.

The uptake of PPP models and their growth across development initiatives, especially

in global health, raises questions for those working across sectors and on health policy. While PPPs for global health have encountered disruptions and challenges during the COVID-19 pandemic, additional investment will be needed in many countries, particularly low-resource settings where infrastructure remains inadequate, healthcare facilities face limited human resources and services are not meeting the growing demands of caring for those populations hardest to reach, all while continuing to address a global public health crisis.

## Defining Partnership Practice and Structure

In the context of SDG 17, the UN defines partnerships as “voluntary and collaborative relationships between various parties, both public and non-public, in which all participants agree to work together to achieve a common purpose or undertake a specific task and as mutually agreed, to share risks and responsibilities, resources and benefits.”<sup>19</sup> Well-cited definitions in recent World Bank literature distinguish public-private partnerships from other government contracts, characterizing them as long-term relationships (often 15 years or longer, but no less than five) that involve consensus around shared risks and benefits and formalized responsibilities based on performance indicators, among other criteria.<sup>20</sup> However, definitions of PPP remain contested with blurred conceptual boundaries.

We use the phrase interchangeably with “cross-sector partnerships” and “multisector partnerships.” These terms refer more broadly to partnerships that bring together a set of actors from the private sector, the

14 United Nations, “The Sustainable Development Goals Report 2017,” 21. [↗](#)

15 Sonia Pagliusi, Yanchun Che and Shaozhong Dong, “The Art of Partnerships for Vaccines,” *Vaccine* 37, no. 40 (2019): 5909–19.

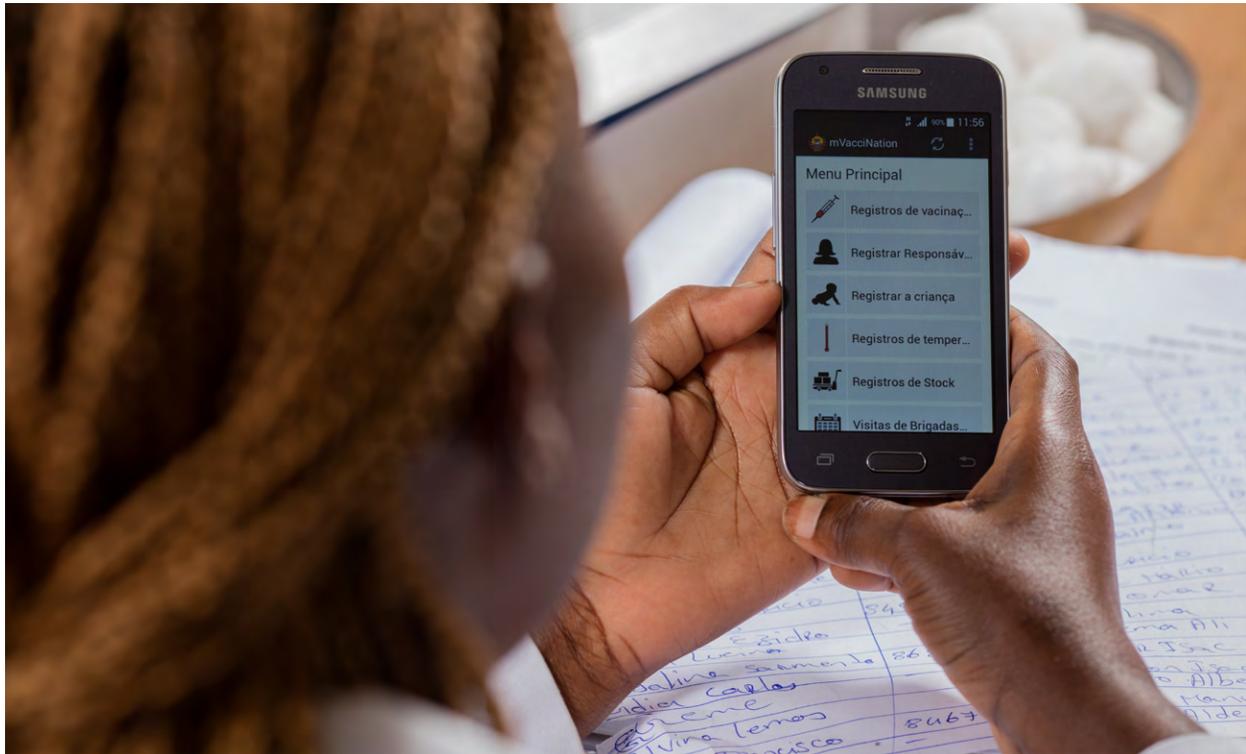
16 Katerini Tagmatarchi Storeng, Antoine de Bengy Puyvallée and Felix Stein, “COVAX and the Rise of the ‘Super Public Private Partnership’ for Global Health,” *Global Public Health* (2021): 1–17.

17 Seth Berkley, “COVAX Explained,” *Gavi*, September 3, 2020. [↗](#)

18 Storeng et al., “COVAX and the Rise of the ‘Super Public Private Partnership’ for Global Health.”

19 “Partnerships for the SDGs,” *Partnerships for the SDGs*, United Nations, accessed January 15, 2022. [↗](#)

20 “What are Public Private Partnerships?” *World Bank*, 2020. [↗](#)



**Figure 2.** Healthcare worker using mVacciNation mobile app (Tom Whipps Photography)

public sector, not-for-profit organizations and/or civil society for the common goal of improving the development and well-being of a population through mutually agreed roles and principles. This was also how the different people we spoke with used the phrase.

At the heart of partnerships are relationships, and among their measurable characteristics are questions of who sets objectives, who establishes decision-making, accountability and other mechanisms, and who influences organizational identity.<sup>21</sup> By extension, overarching concepts of risk management, performance management, governance and sustainability — concepts that connect public health and social science conceptual frameworks — require more effective scrutiny and measurement within the context of cross-sector partnerships.<sup>22</sup>

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## Exploring Good Practices in Public-Private Partnerships

What are good practices for cross-sector partnerships in global health — vaccine deployment in particular? To respond to this question, our modified grounded theory approach involved exploring what arises from literature and interview data, identifying patterns, and verifying and elucidating concepts and their relationships through subsequent data collection. We conducted seven remote semi-structured interviews with key representatives from across five organizations: one government-funded not-for-profit agency, one multilateral nongovernmental organization (NGO), one multilateral network of private sector agencies

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21 Kanya et al., “Evaluating Global Health Partnerships.”

22 Marie H. Martin and Arie Halachmi, “Public-Private Partnerships in Global Health: Addressing Issues of Public Accountability,” *Public Administration Quarterly* 36, no. 2 (2012): 189–237.

and two additional private sector organizations, all actively engaged in cross-sector partnerships for global health and development. These interviews included two representatives from private sector organizations outside of Mozambique who were involved in the pilot implementation of the mVacciNation application. Their insights are supplemented by post-pilot evaluation documentation from a local partner, VillageReach, who carried out mVacciNation in Nampula Province, Mozambique. The remaining interviews took place with directors of units involved in partner relations, funder relations and strategic innovations, as well as one program officer. Sampling began purposively, targeting organizations in the mVacciNation multisector network, and then snowballed to capture additional, widely applicable perspectives from actors in the field.

We used an existing partnership evaluation tool to structure interview questions. Brinkerhoff's framework, which addresses the challenges of integrating process and institutional arrangements into performance measurement systems, incorporates concepts and considerations for partnership success.<sup>23</sup> This framework has been applied to at least one existing case study: an evaluation of Gavi's HPV vaccine application process in Uganda.<sup>24</sup> We tailored interview questions to each type of participant, accounting for their expertise and experiences.

Following the collection and transcription of interview data, which involved two investigators per interview, we analyzed interview data thematically. We used emergent coding — a series of descriptive codes developed into

specific categories — and then integrated themes with findings from the literature. This approach marries the comparative methods and memo writing of grounded theory<sup>25</sup> with the systematic process of general inductive coding,<sup>26</sup> which helped us to depict concepts based on ideas important to interviewees and that add to an understanding of PPP experiences.

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## Four Themes

Our analysis revealed four overarching good practice themes for consideration among partners: (1) understanding the problem, need and context, (2) selecting the right problem and understanding competitive advantage, (3) mobilizing a governance framework and accountability and (4) establishing feedback loops and knowledge sharing.

### 1. Understanding the Problem, Need and Context

With the growing interest in PPPs over recent decades, organizations across the world actively seek and create opportunities for collaboration. But in global health, interventions can have unintended outcomes such as exacerbating the burden of disease, unforeseen sociopolitical consequences or environmental calamity.<sup>27</sup> These can stem from a poor understanding of the problem. Calls to action to help populations in need must therefore be balanced with a strong understanding of the problem and context of operations which will inform next steps.

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23 Jennifer M. Brinkerhoff, "Assessing and Improving Partnership Relationships and Outcomes: A Proposed Framework," *Evaluation and Program Planning* 25, no. 3 (2002): 215–31.

24 Kanya et al., "Evaluating Global Health Partnerships."

25 Juliet M. Corbin and Anselm L. Strauss, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed. (Los Angeles: Sage, 2008).

26 David R. Thomas, "A General Inductive Approach for Analyzing Qualitative Evaluation Data," *The American Journal of Evaluation* 27, no. 2 (2006): 237–46.

27 Rachel Hall-Clifford and Robert Cook-Deegan, "Ethically Managing Risks In Global Health Fieldwork: Human Rights Ideals Confront Real World Challenges," *Health and Human Rights Journal* 21, no. 1 (2019): 7–18.

## SELECTING THE RIGHT PROBLEM TO ADDRESS

Selecting the “right” problem to address requires organizations to adopt a “needs-based approach,” which is grounded in local realities, to account for and respond to the population’s needs. As people we spoke with highlighted, global health initiatives often start with a predefined solution and work toward either identifying the best-fit problem or making the solution work for a problem posed. This approach limits the ability to address a need or gap.

Tensions between perceived and actual needs often lead to community needs being overlooked. These tensions arise from outsiders — in this case agencies that are not familiar with or knowledgeable about the challenges faced by the community — who claim expertise of local context. Such tensions result in:

1. *Prioritizing funders’ needs over community needs.* Because funding organizations, which are predominantly from Western high-income countries, define the scope and extent of the work done by recipients as well as expected deliverables, they often shape an understanding of the problem that does not align with local realities. This also creates a growing tendency among organizations to feel more accountable to their donors than to the communities being served or the host government.
2. *Prioritizing organizational needs over community needs.* Organizations often set goals based on their private needs and priorities or are motivated by a problem’s popularity. The discordance between organizational and community needs influences the problem chosen, approach adopted and solution proposed. Interviewees pointed to easier solutions being favoured while more expensive, yet necessary solutions are avoided to meet organizational needs.

In global health PPPs, starting by identifying actual needs then working toward solutions is a better pathway to create more responsive

and impactful solutions. A good understanding of the community’s self-determined needs helps to determine whether an intervention is necessary in the first place and what approach and expertise are appropriate.

## THE IMPORTANCE OF CONTEXT

Understanding culture, history and the socioeconomic, institutional and political structures that shape people’s lives shows that needs and priorities differ across places and communities. Global health actors are encouraged to conduct background research to better understand the culture and the people they intend to work with. This leads to customized interventions that meet the specific needs of a population. For example, when implementing an intervention involving new technology, communities with less exposure to different technologies would require additional training to benefit from the intervention.

Understanding the existing landscape of community assets can mitigate the waste of resources and prevent duplication. Becoming acquainted with the government and its operations is similarly part of this process. When initiating a global health PPP, private organizations need to understand regulatory restrictions in the host country and ensure that their programming aligns with government priorities. While this may hinder efficiency, it helps mitigate structural barriers (such as barriers to project approval or sign-off) that partnerships could face if local processes are not understood.

One interviewee recommended investing time in the field to become acquainted with the extent of the challenge rather than merely reading about it. Capturing the challenge is usually not limited to the problem at hand and involves going back in history to understand former issues in their sociopolitical context and their impact on both present conditions and the community’s readiness for certain approaches.

Neglected communities and those with a history of being subject to unethical

experimentation have developed a distrust of foreign actors. One person we spoke with said of the colonial past, “I think this is forgotten by those of us in power, but it’s not forgotten by the people who have suffered it.” Taking time to do the additional yet necessary work of acknowledging and addressing these inequalities and violence is part of adopting a needs-based approach and has major implications for people’s acceptance of the intervention.

## CO-CREATION

Understanding the needs and context can be achieved through several means, but all informants emphasized co-creation with the community as the ideal approach.<sup>28</sup> Unfortunately, the community-engagement process is often done too quickly in the context of PPPs and typically begins only once funding has been secured or at the start of the project’s implementation, thus raising the likelihood of addressing the wrong needs or developing inadequate solutions. Making community engagement the starting point, where power is shared with end users, including community members, community leaders, healthcare workers and fellow beneficiaries, helps address some concerns:

- This primary step acknowledges the agency and self-determination of end users, creating space for their considerations and concerns to be accounted for.
- Engaging with community prior to partnerships also addresses the issue of global health PPPs that start with the solution instead of the problem, and prevent the community, who are experts in their context and experiences, from guiding and shaping the process.

Several people we spoke with pushed for the adoption of a global health PPP model wherein the community is considered a partner — probably the most important partner. This approach helps with earning and

building trust, creating a sense of ownership among community members, boosting the acceptability and usability of the solution and ultimately having a positive impact on the project’s sustainability. Meaningful community engagement or partnership can be achieved by adopting a bottom-up approach wherein ideas are co-constructed with the community from the beginning and throughout implementation, and clear and constant communication is maintained with the community and other relevant actors. Likewise, hiring locally and appointing experts who speak the community’s language can support meaningful engagement.

Co-creation is not an easy process. Language, technology, logistics, cultural misunderstandings and lack of trust were identified as potential barriers to meaningful community engagement. But even so, the value of co-creation still outweighs the cost of tackling these challenges.

## IS A PARTNERSHIP NEEDED?

Interventions influenced or driven by the popularity of an issue or profit-making incentives have led to global health being characterized as a business. Words like *cost*, *efficiency*, *supply* and *demand* have become so embedded in global health vocabulary that this work often appears to be a market transaction. However, with lives at stake, it is crucial to explore whether a partnership is needed in the first place.

When deciding if a partnership is needed to help address a problem in a particular context, the question is not whether the community should be a partner — its role should be central. The question, instead, is whether involving different sectors in the partnership would play a pivotal role in success. A private organization would therefore ask themselves if a partnership with the public sector is needed or ideal, and vice versa. What follows are some of the factors that interviewees raised to help guide the decision of whether to partner with other sectors:

28 Stephanie Hanson, “Can GAVI’s New Partnership Model Crack ‘Mhealth Pilotitis’ While Opening New Markets for Vodafone?” *Devex*, August 21, 2013. [↗](#)

1. **Established relationships.** Partnering with organizations that have established relationships with the community and the government can enhance credibility. This credibility can be translated into smoother operations facilitated by the government and greater responsiveness from community members because of the trust in the established partner.
2. **Cost and time efficiency.** Recognizing that one organization may not have all the expertise required throughout a project's cycle or that collaborating with other sectors could deliver more cost- and time-efficient services were highlighted as reasons to engage in a global health PPP. The COVID-19 pandemic demonstrated how coordination and integration at different levels enabled the mobilization of efforts. While most initiatives may not happen as quickly as they did during the pandemic, the ability to rely on different expertise to deliver appropriate and efficient services is beneficial for all parties involved. While people encouraged capitalizing on the lessons learned from the private sector because of its openness to risk taking, they also cautioned against disregarding ill-considered practices from partnering organizations such as those with a history of unethical research trials, exploiting or excluding historically marginalized people. Such practices defeat the purpose of global health.
3. **Impartiality.** If the implementing partner is not perceived as neutral because of its affiliation with the government, private sector or other actors driving the problem, it can generate trust issues. This is particularly relevant in conflict situations where independence is of the essence. Maintaining a degree of autonomy allows humanitarian organizations to provide fairer treatment to all populations. A partnership with the "wrong" agency in such contexts could lead to community members rejecting any form of support.

Overall, a needs-driven approach that prioritizes the local community's needs and considers the context is central to the deliberation about whether to partner on solutions, and whether to partner across sectors.

#### THE PROBLEM, NEED AND CONTEXT IN THE MVACCINATION PARTNERSHIP

Challenges and good practices related to understanding the health care needs in Nampula Province arose primarily around the topic of mVacciNation's mobile app deployment. Following the prepilot phase, the app was responsively modified to address certain cultural norms. For example, the requirement to input a child's name was removed because most newborns are not named right after birth.

Some training on how to use the mVacciNation application was provided to some healthcare workers and Sofala Provincial Directorate of Health (DPS) EPI management. However, healthcare workers were still reluctant to use the app. They described how time consuming it was to fill out the information in the app and considered it to be outside their scope of practice. The app's time-consuming nature was in part a result of the lack of power to charge phones which led to healthcare workers in some facilities having to travel up to 10 kilometres (using their own money) to charge phones. While Vodacom provided solar battery packs after electricity concerns were raised, the delivery of these battery packs to healthcare facilities was slow, limiting their ability to maximize their usage of the app.

The lack of adequate resources to provide technical support and supervise struggling facilities also negatively affected the app's adoption. Its acceptance was limited by the scarce on-the-ground presence of the main implementing partner, who reported the negative impact this had on their ability to build relationships and trust with healthcare workers in the region. While some healthcare workers gave feedback on and modifications to be made/brought to the app, the overall design

was not centred on the end user. Instead, it was designed outside of Mozambique, brought in and refined with the provincial government, exemplifying the trap of starting with a solution and trying to make it work for a predefined problem. The mVacciNation pilot lacked co-creation with end users from the beginning.

## 2. Selecting the Right Partners and Understanding Competitive Advantage

After having defined the scope and understood the problem — a PPP’s success depends on strategic initiation and co-creations — good practices for partnership initiation involve proactively addressing the challenges that come with collaboration, such as conflicting objectives, building trust and disproportionate allocation of responsibility among partners. They also include methods for navigating responsible co-creation between different stakeholders.

During the initiation phase of PPPs, selecting the right partners is essential. Misalignment of objectives, lack of local government ownership and the wrong funding partners can all lead to “pilotitis” — when a new development model is tested as a pilot but is never fully brought to scale due to several issues such as a lack of planning.<sup>29</sup> There is also risk of fragmentation in the program and potentially the partnership down the line, particularly when dealing with mobile health solutions like mVacciNation.

A recurring theme from interviews and the literature was ensuring that the PPPs were initiated with stakeholders who have similar priorities and share co-alignment toward the goal of the partnership, like increasing vaccination coverage. As an interviewee from a not-for-profit organization highlighted, while administrative or technical challenges like information and data sharing can be overcome by boilerplate nondisclosure agreement (NDAs),



**Figure 3.** Healthcare worker in Nampula, Mozambique (Tom Whipps Photography)

misaligned values are nearly impossible to overcome. Without shared objectives, project implementation runs the risk of becoming fragmented. While demonstrating value and goal alignment can be challenging, another expert shared that in their experience, the alignment does not have to be with the whole organization but can be with the specific touchpoint or team involved in the PPP. Proactive communication and negotiation at the beginning of a partnership can help mitigate “misguided assumptions” around the efficiency of public and private sectors or business cases required for private sector buy-in.

Participants emphasized five considerations and suggested practices when approaching partners in the initiation phase:

- 1. Tap into established networks.** It is important to connect with organizations/funders who are active in or have previously been active and demonstrated success in the region. Partnering with established

29 Stephanie Hanson, “Can GAVI’s New Partnership Model Crack ‘Mhealth Pilotitis’ While Opening New Markets for Vodafone?” Devex, August 21, 2013. [↗](#)

organizations and foundations could be a solution for organizations looking to enter spaces of development and global health and demonstrate value.

2. **Identify a dedicated anchor funder.** This is particularly important when seeking collaboration with local governments who must prioritize financial security and are often forced to cycle through global health projects.
3. **Understand that partners might have different funding structures.** Outline the implications for the modality of funding at the outset. A start-up and multinational agency might be well connected and have demonstrated success, but they will have different funding structures and requirements. Partners need to ideally be aligned on how funding is allocated and managed.
4. **Value long-term relationships and be prepared to commit.** One NGO member noted that “there are no quick fixes in a complex system, especially when you are in a resource-constrained environment.”
5. **Earn trust.** Trust is necessary for innovation and building a relationship. It stems from mission alignment and can be reinforced through governance good practices. In the words of one interviewee, “a common misconception is that trust is built with an institution.” While that is important, earning trust with an individual champion is far more likely to lead to successful co-creation and problem solving.

Essentially, a diverse, inclusive network built on trust and experience is key to avoiding and overcoming management challenges in decentralized partnerships that lack unified aims and communication between diverse actors.

Once a partnership has been initiated, the conditions are ripe for co-creation. As an iterative and ongoing process, co-creation

should be an opportunity to pool resources and expertise and add value to the table. After all, if one actor alone could solve complex issues, like childhood immunization in Mozambique, partnerships and their evaluation wouldn't be necessary. However, there are potential pitfalls and points of conflict that could undermine co-creation or stagnate the process.

Six considerations and good practices that global health experts emphasized when approaching subsequent phases of co-creation include:

1. **Ensure that partners can take meaningful action in line with their respective roles.** Partners must understand and be trusted to navigate their respective organizations, particularly how to share power, navigate approvals, request more funding (as needed) and understand the organization's mechanisms at play. As one informant highlighted, good intentions alone are not enough to “move the needle” to push projects forward.
2. **Align on language.** Consider recruiting an intermediary who can communicate effectively between and across stakeholders. Intermediaries must be able to ensure partnership-wide understanding of what mechanisms are being proposed and what activities are in play, and advocate for strong solutions that minimize fragmentation and promote efficiency along the path of co-creation.
3. **Engage partners proactively and iteratively.** This involves engagement of stakeholders in the stages of initiation and onward, from the joint definition of the problem statement to organizational practices like establishing communication expectations and meeting frequencies.
4. **Maintain a clear and flexible working environment.** Partners need to be able to bring their value to the table and feel a sense of ownership. Ensuring each partner has a clear mandate that they

can work flexibly within allows teams to effectively contribute their expertise and fosters a sense of ownership that is crucial to collective problem solving.

5. **Acknowledge power dynamics.** Multiple directors at a not-for-profit organization indicate that when navigating the funder-implementer relationship in particular, funding partners should aim to take that role — as partner — as opposed to that of a service contractor or client. Issues of power dynamics can arise at any point during a partnership. Addressing them at the outset is important to collectively setting expectations and aligning on priorities.
6. **Meet the community “where they are.”** Greater localization is key to co-creation. Ideally, local organizations and community members have a felt stake in the partnership. If this is not the case, PPPs need to be particularly responsive to the community to ensure co-creation remains focused on self-determined needs and community context.

One major success factor remains: government support and buy-in. Given the unique nature of political regimes, cultural norms, local contexts and differing bureaucracies, government buy-in has to be contextualized according to local realities. Government-actor relationships take years to build. An interviewee from a nonprofit shared how the Clinton Health Access Initiative (CHAI) spent more than 15 years developing their relationship with the Pakistani government.

Smaller organizations or private actors with a small-scale presence are typically better off partnering with organizations that have existing relationships with local governments, rather than newly embarking on the process. Another risk, especially in politically unstable

regions, relates to changes in leadership that are often followed by changes in budgeting and priorities. Maintaining long-term relationships and a trustworthy reputation helps, but there will always be some level of uncertainty. Clear communication channels need to be established with government counterparts, and for global health PPPs these are especially concentrated in the MOH. Delivering on agreed-upon metrics for assessing impact in a cost-efficient manner and with the potential to scale are among the priorities required to secure government buy-in.

When dealing with mobile health (mHealth) projects in particular, some echoed the results from a Cambridge study in their key considerations for nongovernment stakeholders: (1) less technologically savvy government officials may need to be educated prior to/ during the co-creation phase to ensure they can advocate for an appropriate solution; (2) with differing local contexts and systems of governance, it is incredibly challenging to make a plug-and-play solution and (3) mHealth applications that rely on system integration rather than infrastructure investment are at risk of failing to scale.<sup>30</sup> Partnerships centred on mHealth solutions should be prepared to spend more time developing trust and understanding. Interviewees from across different organizations contend that jumping in with prefabricated but decontextualized solutions, no matter how technologically viable, will lead to difficulty operating in the broader ecosystem without government guidance, coordination and support.<sup>31</sup>

#### **PARTNERSHIP INITIATION IN THE MVACCINATION PARTNERSHIP**

The mVacciNation pilot was implemented in partnership with the MOH, a broader context that some participants and scholars considered

30 Ian Leslie and Simon Sherrington, “Mobile Communications for Medical Care a Study of Current and Future Healthcare and Health Promotion Applications, and Their Use in China and Elsewhere [Final Report],” Cambridge University, 2011, 120. [↗](#)

31 Hanson, “Can GAVI’s New Partnership Model Crack ‘Mhealth Pilotitis?’”; Caroline Soi, Jessica Shearer, Baltazar Chilundo, Vasco Muchanga, Luisa Matsinhe, Sarah Gimbel and Kenneth Sherr, “Global Health Systems Partnerships: A Mixed Methods Analysis of Mozambique’s HPV Vaccine Delivery Network Actors,” *BMC Public Health* 20, no. 1 (2020): 862–62.

particularly challenging. One nonprofit sector representative, who previously collaborated on global health initiatives, regarded Mozambique as “one of our most difficult offices to work with because they’re very insular.” Others echoed that the country, especially Nampula Province in 2014, lacked strong healthcare infrastructure and required additional technical support from donors. In the words of Leah Hasselback, former Mozambique director for VillageReach, “if it can work here, it can work anywhere.”<sup>32</sup>

In terms of good practices followed, Vodafone had a clear competitive advantage in building and developing mHealth products — particularly having established an mHealth business unit in 2009. They had also learned from a previous pilot in The Gambia, where Vodafone benefitted from government support. As a result, for mVacciNation’s mHealth initiative in Mozambique, Vodafone sought out a partnership with Gavi given their experience with government relations in the region. This was a success in terms of partnership initiation because they recognized and followed through on the identified need, the MOH was involved at the ministerial level and the targets aligned with the MOH’s Extended Program on Immunization (EPI) national agenda. Aside from securing partnerships with key stakeholders, interviewees involved on the pilot’s private sector side confirmed that there were weekly meetings set up with GSK and Mezzanine to share learnings.

Throughout the partnership-initiation phase, some fundamental challenges emerged. The partnership’s origin was not needs based but rather relationship driven. GSK and Vodafone agreed to partner based on relationships at the executive level, which originated from talks at the World Economic Forum. Once the top-down relationships were established, collaboration seemed natural. However, the top-down approach to the partnership meant that there was a lack of clarity around goals

and responsibilities that were not confirmed or clearly defined by standard procedures like a memorandum of understanding (MOU). It also led to weak community engagement.

A lack of clarity around goals stemmed from misaligned objectives. Vodafone’s priority was to break into the mHealth market in the region rather than focusing on increasing vaccination coverage, which was the stated goal of both the MOH and GSK. With contrasting agendas and unclear partner roles came unmet expectations. We heard that GSK felt they were bearing too much of the financial cost while Mezzanine C-suite felt they were having to cover for other partners by going into the field when task delegation was poor.

While a lack of understanding sparks challenges in any partnership, a lack of community engagement will limit a pilot or program’s reach. Given that this PPP for global health was, according to one informant, formed “mostly outside of Mozambique in a London boardroom,” it is no surprise that there was weak buy-in and understanding around healthcare worker priorities. Nampula EPI managers did not support the product and healthcare workers found the application to be too time consuming, so the application was not used.

While the MOH had supported the partnership at a ministerial level, there was no support at the provincial level. One private sector participant told us that the original international organization funders (Gavi and USAID) were also disengaged and had “one foot in, one foot out” as a result of simultaneous financial stakes in similar projects. A top-down initiation of partnerships that is not tailored to a specific use case or local context, and that deprioritizes administrative formalities that help set boundaries and align partners, can lead a PPP toward unengaged partners, unmet expectations and, ultimately, “pilotitis.”

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32 Hanson, “Can GAVI’s New Partnership Model Crack ‘mhealth Pilotitis?’”

### 3. Mobilizing a Governance Framework and Accountability

After establishing a need and selecting appropriate partners, governance frameworks — theoretical structures of organizations with prescribed roles and responsibilities for constituent entities — are important for sustainably managing the PPP. They mitigate potentially conflicting interests and goals among partners, a problem particularly salient for PPPs, where public and private interests may diverge. There is some evidence that governance modulates program success in such contexts. An evaluation of major National Health Service projects involving private partners found that governance structures delineate successful projects from failed ones.<sup>33</sup> An inadequate governance structure was unable to manage conflicting stakeholder priorities, which resulted in delayed decision making and consequently increased financial and time costs. An “equilibrium framework” can successfully balance the interests of the state, society and industry<sup>34</sup> by clearly specifying partners’ roles and responsibilities, monitoring both performance and conflicts of interests, as well as ensuring transparency in decision-making processes.<sup>35</sup>

Both interviews and the literature on governance structures in PPPs converge on a few key tenets that undergird a successful governance framework:

1. **Clear roles and responsibilities for partners.** Any ambiguity in roles and responsibilities can be disruptive to relationship building and organizational functioning and may lead to a “disintegration of relationship between

the partners.”<sup>36</sup> This principle is also a key condition for ensuring accountability among partners by providing a benchmark against which to evaluate partner performance. Particular partners may have a competitive advantage for delivering on certain tasks. However, in the absence of clearly defined roles and responsibilities, public and private actors may settle into “traditional” roles, which may not necessarily be optimal.

2. **Resource-sharing agreements.** Decisions about resource sharing should be meticulously documented. This ensures an allocation of resources appropriate for the PPP’s success while also embodying the fairness principle of a good governance framework (set forth in the UN Economic Commission for Europe report, *Guidebook on Promoting Good Governance in Public-Private Partnerships*).<sup>37</sup> Knowledge of the resources each partner is willing to contribute to a partnership is valuable to all other actors when evaluating whether to participate. By formalizing this arrangement, the PPP’s governance framework ensures that partners are responsible for and follow through on their commitments.
3. **Clearly defined conflict-resolution mechanism.** Since partners in a PPP may have conflicting goals and interests, a good governance framework should anticipate potential conflict and establish a procedure for dealing with any conflict among goals or interests. Although the process of selecting the right partners can effectively minimize this possibility, it can be difficult

33 Manju Patel and Herbert Robinson, “Impact of Governance on Project Delivery of Complex NHS PFI/PPP Schemes,” *Journal of Financial Management of Property and Construction* 15, no. 3 (2010): 216–34.

34 Michael J. Garvin and Doran Bosso, “Assessing the Effectiveness of Infrastructure Public-Private Partnership Programs and Projects,” *Public Works Management and Policy* 13, no. 2 (2008).

35 Kent Buse and Andrew M. Harmer, “Seven Habits of Highly Effective Global Public-Private Health Partnerships: Practice and Potential,” *Social Science and Medicine* 64, no. 2 (2007): 259–71.

36 “OECD Principles for Public Governance of Public-Private Partnerships,” OECD, May 2012.

37 United Nations Economic Commission for Europe, *Guidebook on Promoting Good Governance in Public-Private Partnerships* (New York: United Nations, 2008).



Figure 3. Mozambique neighbourhood (Edvin Johansson/Unsplash)

to ascertain the truth value of a stated goal. Due to this and the dynamic nature of strategic goals, a robust mechanism for resolving potential conflicts is prudent.

### GOVERNANCE IN THE MVACCINATION PARTNERSHIP

The mVacciNation pilot project did not have a formal governance structure but was led by an informal collection of partners. Consequently, its partners' common refrain was a lack of clarity regarding roles and responsibilities. Ad hoc task allocation meant some partners exceeded their individual expectations regarding resource contributions, which resulted in intra-organizational frictions. And in the absence of a defined conflict-resolution mechanism, conflicts among internal partners were never completely resolved. A misalignment of expectations resulted in a key partner prematurely leaving the partnership. Since performance monitoring was

not an explicit part of the PPP, there were also performance-related delays. This is a common governance concern for PPPs. Several studies have previously identified a lack of specific performance monitoring in the context of PPPs.<sup>38</sup>

An essential element in this regard, underscored by an NGO interviewee, is the crucial role of measurement in PPPs. Having well-designed performance indicators both ensures partner accountability and offers guidance when assessing project progress, with gains for program delivery. Another feature of the mVacciNation PPP was limited transparency in decision making. Public stakeholders were present in only a handful of meetings and decision making was generally concentrated among a few partners. This contravenes the participation principle of a good governance framework, which concerns the degree of involvement for stakeholders.

38 A. Venkat Raman and James Warner Björkman, *Public-Private Partnerships in Health Care in India: Lessons for Developing Countries*, vol. 67 (London: Routledge, 2009).

## 4. Establishing Feedback Loops and Knowledge Sharing

With the problem area well scoped, the right partners assembled and a clear governance structure enacted, establishing and maintaining a robust feedback loop and commitment to a knowledge-sharing agenda is another important characteristic of successful PPPs for global health. These mechanisms serve to measure results, correct deficiencies and effectively disseminate learnings to support the greater global health ecosystem.

The increased focus on closely measuring programmatic successes and failures is part of an increasing trend in results-based financing by global health foundations such as the Bill and Melinda Gates Foundation and the Global Fund, as well as goal-oriented frameworks such as the UN SDGs.<sup>39</sup> Interviewees from large global health foundations involved in PPPs all emphasized the importance of establishing indicators for measuring progress to ensure resources are allocated where efforts translate into results.

For example, one interviewee noted that having appropriate success metrics, which are established and agreed upon by all partners, can help mitigate power imbalances within public-private global health partnerships, while also serving as a strategy for risk mitigation. Ideally, each activity within the partnership would be designed to correspond with a set of clear metrics, so falling back in certain areas would highlight where additional attention and resources ought to be dedicated. Ensuring that project performance tracking is not left to the wayside is key to ensuring that executional problems are surfaced and addressed quickly.

Someone from a funding organization noted that this is especially important to highlight,

considering the operational realities of delivering programming across multiple partners, coordinating across different regions and the inevitable surprises that come along the way. This affirms scholarly findings that partnerships that lacked SMART (specific, measurable, attainable, relevant, time-bound) goals resulted in undermined global health PPPs.<sup>40</sup> Getting the measurement standard fit for purpose is especially important in digital health initiatives. Evaluations of digital initiatives should not simply record the impact of existing processes digitally but also assess the technology's marginal contributions to improving health outcomes.

All interviewees encouraged approaching monitoring and evaluation (M&E) in a flexible, agile and collaborative way, which is more conducive to continuous learning and application. Although gold-standard randomized control trials (RCTs), wherein results are evaluated only after a stipulated period of data collection, can yield useful results about the efficacy of an intervention, such partnerships should look toward evaluation structures that look more like tight feedback loops. Like the prototyping process often employed by private sector actors, PPPs can benefit from an active cycle of feedback collection (particularly from end users), integration and iteration. This model can also help build trust and mitigate power imbalances between partners which can arise when program evaluation is approached in a formal reporting manner involving site visits and random audits.

As one funder shared, a more collaborative M&E approach allows funders to provide connections to different resources as needed and allows partners to remove bottlenecks. The necessity for a flexible approach also reflects the realistic challenges faced when delivering resources to difficult-to-reach

39 Mulamuli Mpofu, Bazghina-Werq Semo, Jessica Grignon, Refeletswe Lebelonyane, Steven Ludick, Ellah Matshediso, Baraedi Sento and Jenny H Ledikwe, "Strengthening Monitoring and Evaluation (M&E) and Building Sustainable Health Information Systems in Resource Limited Countries: Lessons Learned from an M&E Task-Shifting Initiative in Botswana," *BMC Public Health* 14, no. 1 (2014): 1032–32.

40 Kent Buse and Sonja Tanaka, "Global Public-Private Health Partnerships: Lessons Learned from Ten Years of Experience and Evaluation," *International Dental Journal* 61, no. S2 (2011): 2–10.

populations, where solutions may need to be adapted in the middle of deployment to respond to changing political situations or weather shocks, among other factors.

Tight feedback loops can also help mitigate the risk of M&E efforts overshadowing the actual resourcing and deployment of real-world interventions, as both our interviews and the literature highlighted. Indeed, a common criticism of global health PPPs has been that donor organizations often impose strict reporting requirements, which national public health authorities often find “overly burdensome” because they further divert already-scarce resources in the healthcare system. This problem becomes especially pronounced when there is a lack of harmony across global health partners, which not only results in the duplication of efforts across different partnerships but also leads to the increased monitoring-and-reporting demands that accompany them. Thoughtfully implemented feedback loops that consider additional resourcing required to adequately maintain them, and that focus on supporting the underlying project, can address these problems.

Although excessive internal reporting can hinder a partnership, there’s value in broadly and transparently disseminating the outcomes and learnings from partnership endeavours externally, regardless of outcome. This would help other partnerships understand where efforts have been dedicated to avoiding duplication, preventing them from replicating similar mistakes. It would also increase knowledge exchange between organizations and allow access to data that could be significant to addressing a future health challenge. One person argued that this extent of knowledge sharing should be a requirement for organizations to obtain funding, especially for those receiving public dollars. While seemingly straightforward, another informant pointed out that knowledge sharing should extend beyond simply program performance and governance structures. They noted the hold pharmaceutical companies have over patents of life-saving drugs and their prohibitively high

prices, despite many receiving public funding or benefitting from PPPs to develop such drugs.

The development of COVID-19 vaccines is a salient example of how publicly funded science provided both the backbone of the vaccine (e.g., through mRNA technology) and the foundation to support further development (through government assistance). Vaccine development, especially for neglected tropical diseases, is even more likely to benefit from public funding because companies are often unwilling to invest in time-consuming immunizations that promise little in financial return.

The increased knowledge sharing across organizations throughout the COVID-19 pandemic demonstrates what can be possible when cross-sectoral actors coordinate to address a public health emergency. However, there remains a lack of urgency around other public health challenges that do not also massively affect higher-income countries but still cause high mortality and suffering.

#### **FEEDBACK LOOPS AND KNOWLEDGE SHARING IN THE MVACCINATION PARTNERSHIP**

The mVacciNation pilot featured a sophisticated M&E scheme at its core, and faced challenges related to its implementation. As part of the USD 1 million grant provided for the pilot, USAID stipulated the need for an RCT that tracked the program’s impact on immunization rates to be conducted by a team of J-PAL (the Abdul Latif Jameel Poverty Action Lab) researchers and the Mozambique National Institute of Health. This required an in-depth baseline evaluation prior to the beginning of the pilot. However, as the retrospective VillageReach Report highlighted, the evaluation was delayed for over a year as a result of administrative setbacks, long coordination times with national and provincial authorities and vehicle importation (the USAID grant specified that American vehicles would need to be purchased and imported for field activities). The long delay in the RCT’s implementation led to financial strain for VillageReach, who needed to support staff for

longer than expected. While top-up finance was provided, the delay also caused the partnership to lose momentum and local government partners recognized that evaluation efforts were receiving the bulk of the project's budget and focus. The VillageReach report further noted that while the application's design greatly benefitted from input from the healthcare workers who were using it, the pilot also needed to establish an ongoing feedback loop to ensure continued success. As a key partner in the effort reflected, the pilot's goal should not have been to measure impact. Instead, validating the use-case of the technology and proving its value in being scaled in the future should have taken precedence.

On the side of knowledge sharing, we relied on a report compiled by VillageReach reflecting on the successes and challenges of the mVacciNation project. However, it was difficult to find up-to-date, substantive and publicly available information on the status and outcome of the project from the various partners' websites, so we were able to ascertain information on the project's status only through conversations with partners. They valued their personal learnings from the project and were able to revive the technology to support COVID-19 response in African Union member states, with plans to keep the technology in place to support future pandemic response and vaccination efforts.

#### **SUMMARY OF RESULTS: MVACCINATION PILOT ANALYSIS**

Table 1 summarizes the good practices followed and implementation challenges.

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## **Lessons Learned**

During the mVacciNation pilot in Mozambique between 2014 and 2018, stakeholders in the multipartner effort experienced successes and challenges within the relationship that informed their reflections about the characteristics of successful public private partnerships

(PPPs). The following lessons may be of interest to those working across partnering sectors in global health and development:

1. Be clear on the role of pilots in delivering value and addressing risks to support future scaling and impact.
2. Co-creation with the community needs to be the starting point of all global health PPPs and should be maintained throughout to ensure that the needs of the populations are understood and addressed with consideration of their local historical and sociopolitical contexts.
3. Ensuring explicit government buy-in in the partnership-initiation phase is imperative for a global health initiative. It is worthwhile to build those relationships proactively or strategically align with partners who have existing relationships and trust built with the host government.
4. Aligning at the beginning on goals, objectives, each partner's added value and resource allocation reduces fragmentation, mitigates unmet expectations and promotes collective ownership down the line.
5. A formal governance structure is essential, particularly one that has effective mechanisms for conflict resolution and performance monitoring.
6. Evaluation mechanisms should be tailored to the lifecycle stage of global health and development programs and ensure that room for flexibility and adjustment is given in planning and resourcing.
7. Ongoing deliberation is needed about the correspondence between growing enthusiasm over PPP models and what constitutes PPPs — especially for global health — and what the suitable conditions are for their use.

**Table 1.** Good practices and challenges in Mozambique’s mVacciNation pilot, 2014–2018

Good Practices	Implementation Challenges
<b>UNDERSTANDING THE PROBLEM, NEED AND CONTEXT</b>	
<b>Adaptation to context.</b> Following the prepilot phase, the app was modified to address certain cultural norms that could enhance its accessibility and relevance for users.	<b>Unbalanced resource allocation</b> meant minimal presence of on-the-ground implementation partners (VillageReach), which made it challenging for them to build trust and relationships with healthcare workers.
<b>Some responsive modifications.</b> Solar battery packs were given to healthcare facilities with limited access to electric power to enable healthcare workers to charge phones (which was a barrier to using the app).	<b>Poor understanding of infrastructure and healthcare worker needs early on</b> limited worker ability to use the app effectively and created bottlenecks in deployment.
<b>SELECTING THE RIGHT PARTNERS AND UNDERSTANDING COMPETITIVE ADVANTAGE</b>	
<b>Vodafone has expertise developing mHealth products:</b> they knew how to finance, develop strategy and implement mHealth products.	<b>PPP members had misaligned goals and priorities.</b> GSK and the MOH hoped to increase vaccination coverage but Vodafone needed quick wins and mHealth market expansion.
<b>Applying knowledge from a previous pilot, Vodafone knew it needed government support</b> and intentionally approached Gavi for that reason.	<b>There was lack of buy-in and dedication from all partners,</b> including disengaged funding partners, lack of buy-in at the provincial level and a Vodafone executive who referred to the pilot as a “pet project.”
<b>There was government involvement.</b> Mozambique’s MOH was involved at the ministerial level and the partnership aligned with their EPI agenda.	<b>The partnership and idea were relationship driven and not needs driven.</b> The relationship originated from existing relations between high-level executives.
<b>Proactive communication (partial).</b> GSK and Mezzanine met weekly and shared learnings.	<b>Lack of proactive communication (partial).</b> While one interviewee from GSK remembers weekly meetings, they claim to have met with the MOH only “once or twice” throughout the partnership.
	<b>Lack of clarity and ownership.</b> Since there was no MOU signed or clear delegation of roles, frustrations arose between partners.
	<b>Lack of community engagement or localized co-creation</b> led to the creation of a product that didn’t resonate with their end users (healthcare workers).
<b>MOBILIZING A GOVERNANCE FRAMEWORK AND ACCOUNTABILITY</b>	
A formal governance structure with clearly delineated roles and responsibilities of partners would have enabled better allocation of resources and clearer decision-making processes in the case of the mVacciNation pilot.	<b>Lack of a formal governance structure</b> resulted in ad hoc task allocation and delays, which affected the sustainability and functioning of the partnership.
<b>ESTABLISHING FEEDBACK LOOPS AND KNOWLEDGE SHARING</b>	
<b>A monitoring-and-evaluation scheme was established</b> through the RCT supported by USAID and J-PAL.	<b>Monitoring and evaluation took precedence over program delivery,</b> delaying the start of the pilot and increasing financial strain and decreasing buy-in from key partners.
<b>Partners maintained a record of what they’d learned,</b> internally or through private takeaways and lessons, which were then applied in reviving mVacciNation for COVID-19 vaccine delivery.	<b>The partners did not publicly share knowledge</b> of results from the Mozambique pilot, though a note about RCT cancellation was shared on the J-PAL website.

## Conclusion

We sought to unravel some of the inner workings of partnership relationships to explore good practices in PPPs for global health and development, particularly for vaccine deployment in low-resource settings. PPPs and any cross-sector partnership for health rely heavily on political support and require strong interdependence between government and private operators to achieve success. It's urgent that partners better understand local contexts. For new and unfamiliar actors, understanding is built by listening to the voices of healthcare workers and community members who are often reached and represented by trusted organizations on the ground. Dedicating resources toward continuously improving this contextual understanding and applying co-creative strategies in program design are good practices to facilitate power sharing and success. Where there are conditions that aren't ripe for co-creation, partners must be particularly responsive to the feedback and needs shared by communities — certainly by healthcare workers in health-related interventions — and the local organizations that represent them. Challenges associated with performance measurement, budget predictability, governance structures, feedback loops and building trust are among considerable barriers to success.

## Limitations and Next Steps

Eliciting insights from more diverse informants in the public sector would be an important next step in this exploration. We spoke primarily

to funding and private sector partners, which leaves room for conducting interviews with implementation partners and government representatives. Future researchers might also scrutinize the nuances of “global health partnerships” versus “public-private partnerships” and “cross-sector partnerships” in greater depth. They might also further explore the impact of the COVID-19 pandemic on PPPs for global health and mVacciNation's operation in neighbouring countries. Although our study sample was limited to seven interviews with different cross-sector stakeholders, it was combined with a body of existing literature, so the results reveal pertinent insights and gaps for informing further research studies into the internal dynamics of PPPs in low- and middle-income countries. In future, a larger sample of informants can provide even more insights on the question of PPP good practices.

Holistically, the results from this exploratory study can serve as a guide to public and private sector partners and leaders to further understand essential issues around initiating, scaling and sustaining cross-sector partnerships and their resulting public projects while attending to their unintended consequences. It also contributes to literature and practice around the use of public-private collaborations to advance the UN's SDGs, namely SDG 17, in global health and development interventions. Its case example further incorporates learning and possibilities for mVacciNation's ongoing operations in communities across Africa. Together, these findings highlight possibilities for future dialogue and action on sustainable development.

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## Research Team



**Martina Facchin** is a graduate of the University of Toronto, with an Honours BA in political science and peace, conflict and justice studies. She has previous experience researching the intersections of international development, innovation and global health through various roles at Grand Challenges Canada, the United Nations Development Program Georgia office and working with Dr. Joseph Wong. She is currently working for an innovation consultancy based in Toronto.



**Muhammad Ali Sajid** is a graduate of the University of Toronto, with an Honours BSc in economics with double minors in mathematics and statistics. His research interests lie in applied microeconomics, particularly economics of education, and development economics. He is a past recipient of the Laidlaw Undergraduate Research and Leadership Scholarship under which he conducted research on sibling spillover effects. He has also received research funding from the School of Cities under their Urban Leadership Fellowship and Academy Program. He currently works as a predoctoral fellow and research associate for Professor Elizabeth Dhuey, assisting in research projects in economics of education and labor economics. Muhammad relies on a quantitative methodology toolkit in his research work. He has experience using quasi-experimental approaches and working with survey data.



**Lesley Lepawa Sikapa** holds a BSc in human biology (global health) from the University of Toronto where she studied as a Mastercard Foundation scholar. She is passionate about using evidence-based and community-led approaches to address the social determinants of health for poor and marginalized communities. Her passion has led her to her current work in community development where she supports socioeconomic needs for communities across Toronto. Lesley has also been active in disability-inclusive development research where she collaborates with researchers and practitioners in Cameroon and Canada to make research more inclusive and accessible.



**Perri Termine** is a graduate student at the Ontario Institute for Studies in Education (OISE) in the University of Toronto, concluding a master of education degree in adult education and community development. She is pursuing a collaborative specialization in comparative, international and development education. As program coordinator, International and Innovation at OISE Continuing and Professional Learning, Perri is passionate about promoting lifelong learning opportunities. Her past research and ongoing endeavours explore complex relationships and scrutinize binaries — global/local, universal/particular, theory/practice — to support peacebuilding, community development and inclusive education. She is a Wilfrid Laurier University alumna with a BA in global studies and French language minor. An avid soccer player and food enthusiast, Perri is energized by movement, music and connecting through cooking.



**Hui Wen Zheng** is a recent graduate of the University of Toronto, where she studied peace, conflict, and justice and contemporary Asian studies, as a Loran Scholar. Passionate about the intersections of economic development, migration and health, she has also conducted research on the impacts of social exclusion on the mental health of rural-urban migrant workers in China. Hui Wen previously worked at HOME, a migrant domestic worker advocacy organization in Singapore, and served as a policy analyst for Calgary's economic development agency, focusing on the advanced analytics and life sciences sectors. Most recently, she was a junior program analyst at Ulula, a Toronto-based start-up leveraging technology and analytics to enable transparent and responsible supply chains. She is currently an associate at the Boston Consulting Group in Toronto.



**Dr. Erica Di Ruggiero** is director of the Centre for Global Health, director of the Collaborative Specialization in Global Health, and associate professor of global health, Social and Behavioural Health Sciences Division, and the Institute of Health Policy Management and Evaluation at the Dalla Lana School of Public Health. Di Ruggiero is a global public health expert and opinion leader whose research focuses on evaluating the health and health equity impacts of different policy and program interventions on marginalized groups (e.g., labour policies and interventions that aim to reduce food insecurity). She is also interested in how different types of evidence shape global policy agendas and influence global governance in the context of the Sustainable Development Goals. She is editor in chief for *Global Health Promotion*. Prior to joining the university, she was the inaugural deputy scientific director with the Canadian Institutes of Health Research-Institute of Population and Public Health where she led the development, implementation and evaluation of strategic research, capacity building and knowledge translation initiatives to address different research priorities including health equity, global health, maternal and child health, environmental health and population health intervention research. Di Ruggiero obtained her BSc in nutritional sciences, a Masters of Health Science in community nutrition and a PhD in public health sciences from the University of Toronto. She is a registered dietitian.



**The Reach Alliance** began in 2015 at the University of Toronto as the Reach Project, a student-led, faculty-mentored multidisciplinary research initiative. The Reach Alliance has since scaled to include the University of Oxford's Saïd Business School and Blavatnik School of Government, the University College London and Tecnológico de Monterrey. Reach's unique approach uncovers how and why certain programs are successful (or not) in getting to some of the world's hardest-to-reach populations. Research teams, comprised of top students and faculty from across disciplines, spend twelve months investigating each case study. Once the data collection process is complete, teams write case reports that are published and disseminated across the Reach Alliance's diverse network of policymakers, practitioners, academics and business leaders.

Inspired by the United Nations' call to eliminate global poverty by 2030 as part of a set of Sustainable Development Goals (SDGs), our mission is to pursue the full achievement of the SDGs by equipping and empowering the next generation of global leaders to create knowledge and inspire action on reaching the hardest to reach.

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Published by the Reach Alliance, March 2022  
Munk School of Global Affairs & Public Policy | University of Toronto

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