Evaluation of Gavi's Private Sector Engagement Approach (2016-2020)

Case Study Supplement

4 June 2021

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Contents

List of acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANM	Auxiliary Nurse Midwife
ANMOL	Auxiliary Nurse Midwife Online [project]
ASHA	Accredited Social Health Activist
BMGF	Bill and Melinda Gates Foundation
CCE	Cold Chain Equipment
EOC	Emergency Operations Centre
EPI	Expanded Programme on Immunisation
GMF	Gavi Matching Fund
HSIS	Health Systems and Immunisation Support
HSS	Health Systems Strengthening
HW	Health Worker
IFFIm	International Finance Facility for Immunisation
IT	Information Technology
IMPT	Intelligent Maintenance and Planning Tool
INFUSE	Innovation through Uptake, Scale and Equity
KII	Key Informant Interview
KPI	Key Performance Indicator
LMIS	Logistics Management Information System
MDSC	Managing Directors Standing Committee
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MoU	Memorandum of Understanding
NFC	Near-Field Communication
PCV	Pneumococcal Vaccine
PS	Private Sector
PSEA	Private Sector Engagement Approach [2016-2020]
RMPSP	Resource Mobilisation, Private Sector Partnerships [and Innovative Finance] Team
RTM	Remote Temperature Monitoring
SCM	Senior Country Manager
SDG	Sustainable Development Goal
SFA	Strategic Focus Area
SMS	Short Message Service
SP	Selected Project
TCO	Total Cost of Ownership
UAE	United Arab Emirates

UHC	Universal Health Coverage
UNHCR	United Nations Refugee Agency
UNICEF	United Nations Children's Fund
UPS	United Parcel Service
US	United States
VFM	Value for Money
WHO	World Health Organization

Introduction

This Supplement to the Full Draft Report on Evaluation of Gavi's Private Sector Engagement Approach (PSEA), 2016-2020, contains seven in-depth case studies to support the evaluation.

The objective of the evaluation was to assess the quality of the design, extent of implementation, results and sustainability of the PSEA over the period 2016-2020. The lessons learnt and recommendations from the evaluation will inform the design of the PSEA for the next strategic period (Gavi 5.0, 2021-25).

For the evaluation, the Mott MacDonald evaluators were asked to conduct case study reviews of a purposeful sample of private sector projects under the PSEA. Each case study was required to address seven 'design and delivery' evaluation questions. The evaluation questions for the selected projects (SP) are listed in Box 1 below.

Box 1: Question set for each case study

Each project case study addressed the following seven questions:

- SP1. To what extent is this project addressing an identified country need?

- SP2. To what extent is the project aligned with other Gavi support and investments?

- SP3. What was the role of the different stakeholders in development, implementation and monitoring of the project, and to what extent was this well coordinated?

- SP4. Has the project acquired the necessary clearances in the country/countries of implementation prior to onset of implementation, in particular regarding projects with innovation components?

- SP5. To what extent has the project achieved or is on track to achieving its intended results, including scalability? What factors have influenced the results?

- SP6. To what extent is the project sustainable from programmatic and financial perspectives?

- SP7. To what extent is the project viewed as relevant, and of value to the private sector partner and to implementing Gavi countries?

During the inception phase, the evaluators used a systematic purposeful sampling strategy to transparently select seven projects for review (see Inception Phase Report, July 2020). The sampled projects covered each of the functional modalities / mechanisms of Gavi's PSEA, namely Financial Contributions partnerships, Leveraged/Operational partnerships and INFUSE Pacesetters. Notably, the sampled projects were selected to illustrate both achievements and challenges.

An overview of the sampled projects is shown in Figure 1 below.

Figure 1: Overview of the sampled case study projects

La Caixa
Long-term contributor to Gavi. Raises funds and awareness through its employees, the general public and its innovative Business Alliance for Child Vaccination. Over 2016-2020, La Caixa's financial support has been earmarked for pneumococcal vaccine supplies in Mozambique. Also hosted INFUSE workshops in Barcelona in 2017 and 2019. Budget 2016-2020: USD$11.1m (matched to reach US$22.2m).

Mastercard
Data quality project based on digital 'Wellness Pass' combined with GiftedMom (2017 INFUSE Pacesetter) SMS reminders. Piloting and roll-out led implementation partner (Oasis).
Country: Mauritania - plan to scale to 4 other countries.
Budget (matched): US$ 8.6m

Unilever
Demand generation focusing on immunisation and handwashing behaviour change. Roll-out sub-contracted to Group-M; M&E sub-contracted to Kantar Public.
Country: India
Budget (matched): Phase I&II: € 5,800,000; Phase III: € 2,000,000

Zipline-UPS
Supply logistics project using a drone delivery network. Also supports the wider health system by delivering emergency blood supplies and chemotherapy drugs.
Country: Rwanda; recently scaled to Ghana
Budget (matched): Rwanda US$ 2.8m; Ghana US$ 5.4m

Khushi Baby
Data quality project with health & immunisation data held on a client retained necklace or card. Data populates a dashboard to support immunization and logistics decision-making.
Country: India
Budget: US$ 500,000

Nexleaf Analytics
Data quality / cold chain logistics project using low-cost refrigerator sensor technology. Includes Intelligent Maintenance and Planning Tool (IMPT) component for data analytics. Potentially useful for Gavi at global level. Aims to scale through collaboration with other manufacturers.
Country: Tanzania and Kenya
Budget (matched): US$ 9.1 million

Zenysis
Data quality solution to using machine learning to integrate diverse data sources for consolidated analytics.
Country: Pakistan; possibly Mozambique

Budget (matched): US$ 9 m

Financial Contributions
Leveraged /Operational
INFUSE Pacesetters

The evaluators used a triangulated mixed method approach to collect data for the case studies. For each case study this included:

- A desk review of project documents, reports and records
- Key informant interviews with:
  - Representatives of each private sector partner and, where appropriate, implementation partner
  - A senior country stakeholder (where available);
  - The Gavi Senior Country Manager (SCM) and Relationship Manager.

Design of the data collection tools for the case studies was informed by: a) formative investigations in the inception phase; and b) a landscape review of all projects (conducted for the Phase I global analysis). The full methodology for the evaluation, including the case studies in described in Annex 3 of the main report; this annex also discusses the limitations of methodology. A list of people interviewed for the case studies is included in Annex 8 of the main report. The documents reviewed for each case study are listed in Annex 9 of the main report. A synthesis of the main findings from the case studies are presented in the findings section of the main report under the chapter heading, Project Design and Delivery Case Studies

It is important to emphasise that the case studies in this Supplement should **not be seen as evaluations of the respective private sector partnerships or projects.** Rather, they are a synthesis of rapid assessment evidence to address the specific Design and Delivery questions set for this evaluation.

The evaluation team is very grateful for the perspectives and experiences shared by key informants for these case studies. They include a number of frank and insightful reflections that are intended to contribute to shared lessons and constructive progress.

Importantly, findings from the case study reviews should not be cited without explicit permission of the Gavi Relationship Manager <u>and</u> the respective private sector partner.

Case Study 1: La Caixa Foundation

Partnership

La Caixa Foundation

Implementing countries

Mozambique

Total budget this period

US$11.1m (matched to reach US$22.2m)

Dates

Long-term partner since 2008

Current partnership: 2016-2020

Private sector partner

La Caixa Foundation is supported by CaixaBank. It raises funds and awareness for child vaccination through partnering with Gavi and similar organisations.

La Caixa Foundation

Introduction

CaixaBank is a financial group leader in Spain and one of the largest banks in the Eurozone. Since the creation of its International Cooperation program in 1997, "la Caixa" Foundation has prioritised the improvement of global health among its strategic areas and has collaborated in initiatives to combat the main diseases affecting poverty, such as malaria, AIDS, tuberculosis and pneumonia.

La Caixa led the way as Gavi's first private sector partner in 2008. Using an innovative approach to expanding its contributions, La Caixa Foundation has provided around US$ 38 million in funding for Gavi since 2008. Of this, nearly Euros 10m have been raised through public, employee and business donations. In recent years, La Caixa's financial contributions have been further enhanced through the Gavi Matching Fund (GMF), specifically through matched funds provided by the Bill and Melinda Gates Foundation (BMGF) – see Table below.

Table 1: Partnership budget and source of funding

Funding source (US$ m)	2008-2010	2011-2015	2016-2020	Total
La Caixa Foundation financial contribution	15.7	11.1	11.1	37.9
Match BMGF	-	11.1	11.1	22.2
Total	**15.7**	**22.2**	**22.2**	**60.1**

Source: Gavi Program Tracker Q1 2020, Gavi Donor Profiles, 2020, La Caixa Banking Foundation, (https://www.gavi.org/investing-gavi/funding/donor-profiles/la-caixa-banking-foundation)

Partnership objectives

Childhood immunisation is one of the most important priority areas for the Foundation. This shared strategic priority has been the basis of the partnership with Gavi since 2008. To maximise its investment, the Foundation has raised funds and awareness for immunisation through its employees, a general public, giving programme, and an innovative Business Alliance for Child Vaccination. In summary, La Caixa's financial contributions are built up from:

● Micro-donations from the general public
● CaixaBank employee contributions
● Contributions from over 700 Spanish companies in the Business Alliance for Child Vaccination

Raising public awareness on global immunisation challenges and benefits is a central plank of La Caixa's approach. For example, in 2015, La Caixa launched the successful campaign, '1=4' to explain to the public and companies how every donation for Gavi is multiplied by four after matching by La Caixa and the GMF.

La Caixa also reports that its endorsement of Gavi and its mission at a symposium in 2008 led the Spanish Government to pledge 9 million Euros to Gavi over 20 years.

Case study focus areas

La Caixa's support to Gavi through the PSEA sits within the 'Financial Contributions' modality. While the other case studies in this Supplement refer to private sector *projects*, the relationship with La Caixa is primarily a "cash" *partnership*. The responses to the case study questions in the table below have been adapted accordingly and focus on the review period 2016-2020.

Focus area	Findings
1. **Addressing an identified country need**	Over the period of this review (2016-2020), La Caixa's financial contributions have been earmarked for Mozambique. La Caixa has long a history of supporting malaria and other social development projects in Mozambique (as well as other countries in Latin America, Africa and Asia). Following dialogue with Gavi and its country support team, it was agreed that La Caixa's support for the period 2016-2020 should focus on improving coverage of pneumococcal vaccine (PCV) in Mozambique (as an extension of support commenced in 2013). Pneumonia has long been recognised as a leading cause of child mortality in Mozambique.[1]
2. **Alignment with other Gavi support and investments**	La Caixa's focus on PCV coverage in Mozambique is highly consistent with Gavi's strategic 4.0 goals relating to improved and equitable vaccine coverage and inclusive health systems strengthening. La Caixa's donations contribute to Gavi's core fund, while being earmarked for specific country objectives. Importantly, La Caixa's contributions are consistent with Gavi's portfolio of support to Mozambique which prioritise comprehensive vaccine coverage (including PCV coverage) and health systems strengthening.[2]
3. **Stakeholder engagement and coordination**	The responsibilities of each party are clearly delineated in the Partnership Agreement between the La Caixa Foundation and Gavi, and the desk review suggests that Gavi provided timely reports on how La Caixa funds were being spent to the donor organisation. In keeping with the Partnership Agreement, La Caixa's role is to raise awareness of the partnership amongst the employees and private clients of the CaixaBank, as well as amongst the Spanish public. La Caixa has clearly performed this role creatively and well. The development, implementation, and monitoring of the PCV component of the county support programme is the responsibility of Gavi. It updates La Caixa on progress through regular narrative and financial reports. Although the La Caixa team conducted a field visit to Mozambique in 2020, there has been no direct involvement in programme implementation or government engagement. One distinctive feature of La Caixa's support has been its in-kind support to Gavi's INFUSE workshops. La Caixa hosted Gavi's second and fourth INFUSE workshops in Barcelona in July 2017 and July 2019 respectively, thus contributing to expanded partnerships for innovative solutions to country challenges.
4. **Country clearances**	This initiative did not require specific clearances because it forms part of Gavi's portfolio of country support to Mozambique. Applications for health systems strengthening (HSS) grants and other vaccine support grants have been led by the Mozambique Ministry of Health (MISAU).

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[1] Sitoe, Breiman & Bassat, 2018, Child Mortality in Mozambique: a Review of Recent Trends and Attributable Causes, https://link.springer.com/article/10.1007/s40475-018-0156-4

[2] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/africa/mozambique

Focus area	Findings
5. **Delivery of intended results, scalability and influencing factors**	Over the course of the partnership between La Caixa Foundation and Gavi (2008-2019), under-five mortality in Mozambique has decreased by 35%.[3] From 2013 to 2018 (the period covered by the Partnership Agreement between La Caixa and Gavi), the percentage of surviving infants who received the third dose of the PCV vaccine, increased from 45% to 80%.[4] La Caixa reports that in 2018 the total budget of the "la Caixa" Foundation together with the GMF covered 80% of the total budget for PCV in Mozambique; in 2019 this increased to 100%.
6. **Programmatic and financial sustainability**	Although La Caixa remains strongly committed to Gavi, the Foundation is currently developing a new Sustainability Strategy. This is taking place at a time when the COVID-19 has created huge uncertainties in Spain, Europe and elsewhere. Future support to Gavi will, therefore, depend on emerging priorities and the resources available under La Caixa's new Sustainability Strategy.
7. **Private sector and country perspectives on project relevance and value**	It is clear that La Caixa takes great pride in its partnership with Gavi. There is strong alignment of mission and goals: "*This mission really fits with the "la Caixa" Foundation´s mission to provide equal opportunities for the most vulnerable populations, especially children, in the most vulnerable countries.*"[5] For both organisations, there are clear benefits in terms of raised visibility and profile. The benefits of childhood vaccination for lives saved and global health security feature significantly in La Caixa's publications, reports and website.[6] The link to strong, measurable results in Mozambique is also perceived as a strong return on investment. *"We really consider GAVI as one of the best partners on global health ever. The mission of the organizations but also the human team, the strategy, the governance, etc. make GAVI as a successful organisation with very important achievements."* Gavi's reputation for transparency and accountability were also cited as key factors in La Caixa's support. Key informants suggest that the success of the partnership lies in the open and frank dialogue that supports management of expectations, corrective action when necessary, and shared celebration of success. *"From the GAVI perspective they have a very professional team working on private sector who are making an important effort in transparency and accountability and try to provide answers to all the requirements we may have."*

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[3] UNICEF Data Warehouse, 2020, Under-five mortality rate, 2008-2019

[4] UNICEF Data Warehouse, 2020, Percentage of surviving infants who received the third dose of pneumococcal conjugate-containing vaccine (PCV), 2013-2018

[5] La Caixa questionnaire for this evaluation, December 2020.

[6] See for example: https://fundacionlacaixa.org/en/programas-sociales/cooperacion-internacional/salud-global/vacunacion-infantil/que-hacemos

Conclusion

Gavi's partnership with La Caixa Foundation is categorised as a Financial Contributions partnership under Gavi's PSEA (2016-2020). However, it is founded in a long-standing relationship dating back to 2008. While this partnership is not entirely typical of other Financial Contributions partnerships, it is a strong example of good practice. The partnership with La Caixa Foundation shows how such partnerships can be creative, innovative and mutually beneficial, while incurring relatively low transaction costs.

A key feature of the La Caixa partnership is the added value provided by the Foundation's activities in raising public and business sector awareness in Spain. This has raised the visibility of immunisation issues, as well as the profile of both Gavi and La Caixa. This, in turn, may have benefited further resource mobilisation efforts, including (anecdotally) sovereign donor inputs to Gavi from the Government of Spain.

This partnership has benefited from good communication by both partners, sound client management skills on the part of Gavi, and Gavi's international reputation for transparency and accountability. Importantly, there are clear links to measurable results – these can be used to demonstrate accountability for donations made, as well as further awareness-raising and marketing activities.

Case Study 2: Mastercard

Image source: 5 - Mastercard Project Presentation New MD Country Support _Nov 2019

Project

Mastercard Wellness Pass

Implementing countries

Mauritania (proof of concept), thereafter scale-up to Burkina Faso, Ghana, Uganda and Mozambique

Total budget

US$ 8.6m

Dates

Pilot phase 2019-2020 with possibility to scale to 20 countries by 2028

Private sector partners

Mastercard is an American multinational financial services corporation that is global pioneer in payment innovation and technology connecting billions of consumers, issuers, merchants, governments & businesses

GiftedMom is a leading mobile health solutions provider in Africa. It leverages technologies to provide pregnant women and new mothers with access to health information and strengthen linkages to antenatal care. GiftedMom was selected as a 2017 INFUSE Pacesetter

Mastercard: The Wellness Pass solution

Introduction

The Mastercard Wellness Pass stores child immunisation data on a secure patient-retained digital card. Patient data then uploads to an electronic health information system where it replaces paper-based vaccination cards, registers and reports. The system has also been integrated with the GiftedMom Short Message Service (SMS) platform so mothers can access health information for themselves and their children. The Wellness Pass can also be used as a credit card to access cash transfers and other financial benefits. The solution is currently being piloted in Mauritania to enhance the system for data capture, storage, retrieval, aggregation and analysis in this challenging low- income setting.[7]

Table 1: Project budget and source of funding

Funding source	USD m
Private Sector: Mastercard	3.8
Matched funding - BMGF	3.8
Gavi PII budget	1.0
Total	**8.6**

Source: Gavi Project Tracker, Quarter 1, 2020

Project objectives

The pilot project Mauritania (2019-2020) has a matched budget value of US$1.5m and aims to reach 73,374 children (including among nomadic populations).

The objectives of the pilot project are to:[8]

- Enrol at least 40,000 children in the Expanded Programme on Immunisation (EPI) using the WCS to assign and tracks children using unique identifiers.
- Identify patterns and trends in immunisation service uptake among mothers in Nouakchott (e.g. where and when mothers have their children immunised).
- Measure change in child immunisation data quality (e.g. timeliness, accuracy) and coverage using pre- and post-intervention data.
- Reduce the number of drop-outs between the first and third doses of Diphtheria, Tetanus, Pertussis (DTP) vaccinations by increasing mothers' awareness and compliance with the vaccination schedule.

Project design and delivery

The project is designed to create an enhanced system for capture, storage, retrieval, aggregation and analysis of child immunisation data, in combination with a biometric identity and two-way communication platform. [9] The system is expected to deliver the following:

- **Immunisation records to improve data quality and timely reporting:** Each registered child is issued with a Wellness Pass, a multi-service card that looks like a credit card and stores information previously recorded manually on the child's immunisation record. The

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[7] Managing Director Standing Committee notes, 25-10-2018

[8] Ibid

[9] Ibid

digital immunisation (and maternal health) data is then uploaded to the national electronic health information system.

- **A biometric identifier to improve client tracking:** Registration generates a unique biometric identifier for each client.
- **A communication platform to improve adherence:** SMS reminders are sent to parents / guardians two days before an appointment day and a voice message is sent on the day of appointment. Health education messages are sent around twice a month.
- **A real-time data visualisation system** across all participating clinics via a central database. Data uploads and report generation are designed to operate real-time. There is also offline functionality. Health facilities are provided with a tablet computer and EPI officers can access the aggregated data via a web portal.
- **Incentives & payments:** The unique identifier gives access to a digital financial account for children and parents/ guardians where they can receive incentives for immunisations.

Case study focus areas

Focus area	Findings
1. Addressing an identified country need	This initiative was developed following a joint country appraisal visit in July 2017. The appraisal visit focused on learning about Mauritania's immunisation structures, processes, EPI objectives and challenges. During the visit, the Mastercard team defined the country need in consultation with the national EPI team, Gavi, the World Health Organization (WHO) Regional Office and other country stakeholders.
	From the appraisal visit, the joint team was able to confirm that Mauritania has a high vaccination dropout rate, low household coverage of immunisation cards, incomplete immunisation records at household, facility and programme levels, and erroneous estimates of dropout and coverage rates for some localities. It was also established that Mauritania is a large areas of desert with a low population density. Since much of the population is nomadic, health and immunisation data needs to be accessible from anywhere in the country to cater for a mobile population.
	Based on Mastercard's proposition, Gavi confirmed the interest of the Minister of Health of Mauritania.
	Design of the Wellness Pass solution also included a user experience workshop in November 2017 and a co-creation workshop in March 2018.
	To date, appraisal visits have not yet been completed in the other countries identified for scale-up, namely: Burkina Faso, Ghana, Uganda and Mozambique. However, key informants suggest that there are likely to be similar infrastructure, data quality and immunisation uptake challenges in these countries, so learning from Mauritania will be relevant to future design.

2.	**Alignment with other Gavi support and investments**	This project aims to directly address three of Gavi's 4.0 Strategic Goals relating to increased and equitable vaccine coverage, inclusive health systems strengthening, and programme sustainability.[10] It is also consistent with Gavi's portfolio of support to Mauritania which also prioritises comprehensive vaccine coverage and health systems strengthening.[11]
		According to notes from the New Business Committee of 28-08-2018: the project is a *"well-balanced and aligned"* partnership project with strong relevance for the implementing country:[12]
		"Mastercard will gain access to Gavi eligible countries for financial inclusion using immunisation as an entry point. Mastercard will build capacity in country, outsourcing their skills where possible. They will provide the hardware and the technology, secure fulfilment team to deploy the infrastructure, configure and distribute/install the relevant equipment for clinicians and caregivers use (50,000 cards and 140 tablets), train the different stakeholders, establish the onsite-offshore managed operations, and measure results against key performance indicators which is very important to Gavi, so both benefit from access to each other's unique skillset."
3.	**Stakeholder engagement and coordination**	The project was conceived by Mastercard in consultation with Ministry of Health of Mauritania, Gavi and the WHO Regional Office. Mastercard conducted an appraisal of Mauritania's immunisation system in consultation with key stakeholders in November 2017.
		Stakeholders, including system users, health care workers and clients, participated in two consultation in 2017 and 2018 respectively.
4.	**Country clearances**	Gavi received in-person confirmation of the interest of the Minister of Health of Mauritania at the WHO's World Health Assembly in May 2018.[13]
		Since 2018, there has been a change in the leadership of the Mauritania Ministry of Health, so Gavi has recently applied for updated clearance and approvals. Gavi has also played an active role in providing the government with regular updates on the progress of the project and the implementation delays described below.
		Key informants suggest that a concern for government relates to 'cost sharing arrangements with Mastercard over the longer term. However, information on this is only expected once the pilot phase has been completed.
		There are also some government concerns about the political fallout from recent social media coverage raising issues of vaccine hesitancy and data security in relation to the Wellness Pass.

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[10] Gavi 4.0 Strategy. Available at: https://www.gavi.org/our-alliance/strategy/phase-4-2016-2020

[11] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/africa/mauritania

[12] Ibid

[13] Minutes of the Managing Director Standing Committee meeting, 05-11-2018

5.	**Delivery of intended results, scalability and influencing factors**	In 2018, the WHO Regional Office accepted the role of becoming an implementation partner and the WHO's Director General and African Regional Director were expected to visit Mauritania in June/July 2018 to discuss the project.[14] Pending the signature of the related service agreement, a set of preparatory activities was carried out, namely training, testing and validation of the solution.
		Unfortunately, in November 2019, WHO found there was a FENSA (Framework of Engagement with Non-State Actors) compliance issue and pulled out of the role of implementation partner.
		A restricted call for tenders to identify a new implementation partner was initiated in January 2020. Gavi also accepted Mastercard's proposal to deploy a technical team to Mauritania to ensure continuity of activities; however, this has been disrupted by the COVID-19 pandemic. The new implementation partner (the Senegal-based company, Oasis) was sub-contracted in mid-2020 and is now commencing implementation.
		Piloting will commence in the three regions of the capital, Nouakchott, (North, South and West) for a minimum of 18 months. The pilot project will now aim to: (1) enroll at least 100,000 children ; (2) identify patterns and trends in adoption of immunization among mothers / caregivers in Nouakchott (for example, where and when mothers / caregivers vaccinate their children); (3) develop an improved technique for estimating the denominator for vaccination; (4) measure changes in the quality of child immunization data; (5) reduce the vaccine dropout rate; and (6) increase immunization coverage in target areas.
		Since the project is still in the early phase of implementation, there is no evidence of results at this stage.
		Some efforts have been made to prepare for **scale-up**. Towards the end of 2019, Gavi and Mastercard convened a series of meetings and demos to develop country engagement plans for Myanmar, Ethiopia, Uganda and Senegal. Following these meetings, the Gavi Senior Country Manager (SCM) for Uganda reported that Uganda was not interested. The Myanmar and Senegal SCMs asked for a delay due to local challenges and other conflicting priorities.
		A joint mission to Ethiopia was planned with Gavi, Global Fund and Mastercard for April 2020. Again, this was disrupted by the COVID-19 pandemic. However, there is consensus that further decisions on scale-up will depend on the results of piloting in Mauritania.
6.	**Programmatic and financial sustainability**	Key informants have highlighted that country ownership in the programme will be key to its sustainability. According to notes from the New Business Committee Checkpoint in 2018, there was high level of interest and buy-in by the Ministry of Health in Mauritania following in-depth consultations.[15]
		Some key informants were concerned that since Mastercard's original commercial case for investment depended on roll-out to at least five countries, the viability of the initiative could be in question. For its part, Mastercard reiterated its commitment, and the fact that the project is not expected to yield a profit; however, it was also observed that there had been a negative return on investment to date.

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[14] New Business Committee Checkpoint 2A: proposal request form. 11-06-2018.

[15] New Business Committee Checkpoint 2B: proposal validation of 28-08-2018

7.	**Private sector and country perspectives on project relevance and value**	The Wellness Pass solution is consistent with the Mastercard Foundation's Sustainability Strategy. Mastercard is highly committed to the benefits of financial inclusion for low income populations, with a target of reaching 500 million people previously excluded from financial services by 2020. In making this commitment, Mastercard highlighted the importance of public-private partnerships.
		Key informants suggested that the sustainability of this project will depend on it delivering against the commercial case over the long run. As the Wellness Card is also a credit card, this would give Mastercard access to a significant market, particularly if it can be scaled up to countries with large populations, such as Nigeria or Ethiopia.

Conclusion

This Mastercard initiative is classified as a Leveraged partnership under Gavi's PSEA. It was considered to have high potential as a shared value partnership for Gavi, the pilot country (Mauritania) and Mastercard from the outset.

The early stages of the project were promising with good efforts to engage country stakeholders to leverage expertise and innovation for a defined country need. However, due to a 'perfect storm' of factors leading to delays, the project has taken considerable time to reach the implementation stage and demonstrate results. This scenario means the commercial case for further investment and scale-up is at risk of being undermined.

This project has benefited from a dedicated Gavi project manager. Due to the implementation challenges and the constant need to maintain stakeholder buy-in at country and global levels, transaction costs have been high.

The Government of Mauritania has expressed some concerns for relating to the 'Total Cost of Ownership' but these cannot be estimated until piloting is complete. Some key informants have raised concerns about the scale of Mastercard's ambition for the credit card component of the solution - issues of market distortion, data sovereignty, dependency and accountability may need to be addressed more transparently. Based on lessons from similar interventions, there are also concerns that incomplete or partial take-up of the card in target populations will result in fragmented / hybrid immunisation information systems.

Despite these concerns, there remain high hopes that the Mastercard initiative in Mauritania will be game-changing. Much will depend on the results and lessons from the pilot. Mastercard has already approached other global health partners (e.g. the Global Fund) to assist scale-up.

A robust independent evaluation of the pilot, including costing and total Cost of Ownership studies, will be especially important to ensure future decisions are fully evidence-based and build on lessons learnt to date.

Case Study 3: Unilever

Image source: Gavi Programme *Safal Shuruaat* (Successful Beginning).

Project

Unilever Immunisation-Handwashing Behaviour Change Project.

Implementing countries

India

Total budget

Phase I&II: € 5,800,000

Phase III: € 2,000,000

Dates

Pilot phase: 2017-2020; Scale up: 2021-2022

Private sector partner

Unilever is a multinational consumer goods company with a portfolio of more than 400 brands

Unilever: Behaviour change for demand generation

Introduction

For this Leveraged Partnership with Unilever, Gavi seeks to improve demand for immunisation using innovative approaches; while Unilever wishes to make a difference to health and well-being by promoting handwashing using its leading health soap Lifebuoy.[16] The project is being implemented in Uttar Pradesh in India.

The project implementation partner in India is Dialogue Factory, an experiential marketing organisation which is part of the Group M /WPP, the world's largest media investment group. Dialogue Factory uses its extensive media base and expertise in social marketing to advance the desired outcomes in immunisation and handwashing through positive changes in perception and behaviour.[17]

Table 1: Project budget and source of funding

Funding source		
Phase I&II		
20 Dec 2016	From Unilever	€2,900,000
	Dutch Matching Fund	€2,900,000
Total		**€5,800,000**
In-kind support	Unilever/ Lifebuoy soap *	€ 100,000
Phase III		
July 2019	From Unilever and Hindustan Unilever	€1,000,000
30 Jan 2020	Dutch Matching Fund	€1,000,000
Total		**€2,000,000**

Source 1: Gavi Private Sector Partnerships Report Q1 2020.
Source2: Unilever UK Central Resources Limited-Gavi Partnership agreement December 2016.*

Project objectives

Goal

The goal of the project is to increase demand for immunisation and improve handwashing with soap at five key occasions to help prevent diarrhoea and pneumonia in children under five.[18]

Objectives

The project objectives are to: [19]

- Support community behaviour change - by positioning child health-related behaviours (such as handwashing & immunisation) under the umbrella of the 'Successful Parenting Behaviours' approach, focusing on parental ambitions of a successful child and prosperous family.

- Increase demand for immunisation among young parents.

- Increase handwashing with soap in the home.

- Provide training and capacity building to government functionaries on supporting community behaviour change.

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[16] Unilever UK Central Resources Limited-Gavi Partnership Agreement December 2016.

[17] Ibid (Annexure1: project proposal)

[18] Ibid

[19] Ibid (Annexure3: results framework)

Project design and delivery

To achieve the above objectives, the project uses a multi-channel approach that includes: direct interpersonal communication; mobile communication; professional development and capacity building for frontline health workers. Communication messages have been informed by formative research on audience motivations and barriers to behaviour change. Key communication intervention sites include: households; community spaces and community centres; schools; marketplaces, shops and tea stalls. [20]

Case study focus areas

Focus areas	Findings
1. **Addressing an identified country need**	According to the business case, this project was born out of a global need rather than a specific country need. [21] Handwashing with soap and vaccines are two of the most successful and cost-effective health investments that have been proven to save lives and could help address the health and well-being of children and mothers is an integral part of the sustainable Development Goals (SDGs).[22]
	From available documentation, the project was conceived first by Unilever and Gavi before it was introduced to the Government of India.[23] It was primarily conceived as a vaccine promotion and successful parenting platform.
2. **Alignment with other Gavi support and investments**	This project directly addresses three of Gavi's 4.0 Strategic Goals relating to increased and equitable vaccine coverage, inclusive health systems strengthening, and programme sustainability.[24] It is also consistent with Gavi's portfolio of support to India which also prioritises comprehensive vaccine coverage and health systems strengthening.[25]
3. **Stakeholder engagement and coordination**	According to project key informants, the project team collaborated with several development partners at different stages of implementation, such as: WHO, UNICEF and BMGF.
	A competitive process was conducted to select the implementing partner. Sixteen submissions were received in the first round, from small and large vendors. Of these, six were shortlisted and asked to submit a full proposal, with a final three being interviewed. Group M was selected jointly by Unilever and Gavi.
	Gavi progress reports indicate there has been excellent buy-in from the Federal Ministry of Health, State Ministry of Health, down to District magistrate level.
	It took seven months (December 2016 to July 2017) to set up the project in India. Project key informants suggested that this delay was largely due to dialogue between Group M, Gavi and Unilever (including both Headquarters and regional offices) to build consensus on a shared value approach to the innovative behaviour change initiative.

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[20] Ibid (Annexure1: project proposal)

[21] Unilever UK Central Resources Limited-Gavi Partnership agreement December 2016.

[22] Ibid

[23] Ibid

[24] Gavi 4.0 Strategy. Available at: https://www.gavi.org/our-alliance/strategy/phase-4-2016-2020

[25] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/south-east-asia/india

Focus areas	Findings
4. **Country clearances**	A letter from the Joint Secretary of the Ministry of Health and Family Welfare was sent to Gavi and Unilever approving the project.
	Unilever obtained letters of support from India's Government officials including the Ministry of Health and all officials at all levels of intervention from the State of Uttar Pradesh.
5. **Delivery of intended results, scalability and influencing factors**	Project implementation has taken place over three phases:
	- Inception (Phase I): for formative research and finalisation of the project approach (November- December 2017) - Pilot (Phase II): Two districts (Sitapur and Hardoi) in Uttar Pradesh, India. In this phase, the project reached 303,516 direct beneficiaries over nine months. - Scale up (Phase III): Started in January 2021 to scale up the project to 12 additional districts in Uttar Pradesh. The project is aiming to reach 2,015,000 direct beneficiaries by July 2022.
	Under the project, the company Kantar Public was subcontracted to conduct a baseline of the project in June 2019, a midline in December 2019, and an endline in June 2020. [26] The results of the Kantar evaluation showed that:[27]
	- The number of parents possessing a mother and child protection (MCP) card rose by 11%. - Attitudes to immunisation saw a significant positive trend and vaccine compliance improved across all socio-economic segments. - Knowledge of the number of times a child needs to get vaccinated in first five years saw a five-fold increase. - The presence of soap and water together at the handwashing station saw an increase of 20%. - Overall frequency of hand washing before/after all critical occasions increased four-fold and the incidence of handwashing with soap post defecation increased by 57%. - An increase in age appropriate compliance of Pentavalent, Rotavirus and Measles Rubella was observed. – Pentavalent increased from 66.1% to 80.5% – MR rose increased 42.1% to 73.3% – Rotavirus increased from 24.5% to 56.4%
	Following the outbreak of the COVID-19 pandemic, the project has adapted communications to incorporate social distancing and additional handwashing messages.
6. **Programmatic and financial sustainability**	Key informants noted that the main goal of the project was to support a sustainable behavioural shift by motivating parents as successful parents as ambassadors of change.
	Although there is evidence of good engagement and capacity building of government and other key stakeholders at local, state and federal levels, there are some questions about whether government could keep up the required level of investment to maintain and scale the project, as this would take significant prioritisation, as well as additional capacity building and assignment of human / financial resources.
	Based on the positive experience in India, Unilever and the project implementation partners are now planning to roll out a similar initiative in Indonesia (with some adaptations for COVID-19 prevention). Unilever have

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[26] Procurement contract no. RM 77 21 12 18

[27] PowerPoint presentation on research findings by Kantar Public; and Gavi Programme *Safal Shuruaat*

Focus areas	Findings
	committed an addition EUR 3 million, which will be matched by the Gavi Matching Fund for a total project investment of EUR 6m.
7. **Private sector and country perspectives on project relevance and value**	Unilever and its implementation partners report that the partnership with Gavi has been an excellent example of how to leverage the expertise, resources and reach of all partners. However, there was a suggestion that Gavi needs to expand its project management capacity to give due attention to projects of this scale.
	There is good evidence of public health benefits. Government partners are reported to have benefited politically from these results. Their active participation in the project may also raise their political profile.
	For Unilever, the project is highly consistent with the Unilever Foundation's Sustainability Strategy. It was acknowledged that the formative research is useful for the company's local marketing strategies. The project also has potential benefits for brand identity and recognition, as well as market penetration / expansion for Unilever's hygiene products.
	One key informant reported indirect concerns about local market distortion, Unilever maintained that any expansion of customer markets for hygiene products would be likely to benefit other manufacturers too.

Conclusion

The Unilever Immunisation-Handwashing Behaviour Change Project is an important example of an innovative 'demand generation' project in Gavi's PSEA portfolio. There are only a small number of these projects in the PSEA portfolio and lessons from them are especially relevant to the objectives of Gavi's 5.0 Strategy.

This project has been important for demonstrating that effective innovation can sometimes be 'about different ways of working', people-centred design, and widening the innovation ecosystem to address issues of political engagement and inclusion.

There appear to have been particular benefits associated with a well-informed and knowledgeable local implementation partner and M&E partner. The project has been greatly enhanced by formative research to inform and adapt the design, credible data on results and active monitoring for structured learning.

While results from this project look promising and there is rich data for learning and knowledge generation, it has required a significant investment of technical and financial resources to date. It is expected that the final phase of the project in India (Phase III) will provide an opportunity to further strengthen the design of the intervention and make it more easily replicable, scalable, and ultimately sustainable.

Case Study 4: Zipline-UPS

Image source: Zipline 2017 Report: Rwanda launch, test phase and early operations

Project

Zipline-UPS

Implementing countries

Rwanda, Ghana

Total budget

Rwanda US$2.8m

Ghana   US$5.4m

Dates

Rwanda Pilot Phase: October 2016-2020

Ghana Scale up Phase 2021-2022

Private sector partners

Zipline International LLC (Zipline) is an automated logistics company that designs, manufactures, and operates drones as a service to make lifesaving deliveries to those in need irrespective of where they are

UPS Foundation leads the global citizenship programmes for the UPS transport and logistics company

Zipline-UPS: Safe vaccine delivery

Introduction

Zipline started operations in 2012. The Government of Rwanda contracted Zipline in 2016 to launch the world's first national scale last mile drone delivery network to transform Rwanda's national health supply chain. UPS Foundation and Gavi entered into a partnership with Zipline to help realise this vision. The service began first with the delivery of blood products due to the complex and critical nature of blood logistics.

In November 2018, the Government of Rwanda approved the expansion of its partnership with Zipline to include the delivery of vaccines.[28]

Since 2019, the Zipline-UPS project has also been scaled-up to Ghana. It has been agreed, however, that this case study review will focus on experience from Rwanda.

Table 1: Project budget and source of funding

	Zipline 1 Rwanda	Zipline 1 Rwanda Extension	Zipline 2 Ghana
	2016-2018	2016-2020	2019-2021
UPS Foundation through Gavi	0.8	1.0	2.4
UPS Foundation - In-Kind			0.6
Matched funding - BMGF		1.0	2.4
TOTAL	**0.8**	**2.0**	**5.4**

Source: Gavi Project Tracker Quarter 1,2020

Objectives of the partnership

The goal of the partnership was to explore the potential for Zipline's solution to transform the distribution and availability of vaccines, improving delivery network reliability and last-mile medical access. The objectives were: to reduce waste from product expiry; eliminate stock-outs that hinder quality care, and enable emergency and specialized products to be made available at any facility when needed.[29]

Project design and delivery

During the early operational phase, Gavi provided technical guidance on vaccine logistics and cold chain storage requirements, while the UPS Foundation provided technical support on operational efficiency. Within the first project year, Zipline drones completed a total of 274 flights and successfully delivered 236 units of blood products, 30.5% of which were for emergency orders to 2-5 hospitals. [30]

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[28] Zipline Report, Safe Vaccine Delivery: Vaccine Packaging Solution and Validation. November 2018
[29] Zipline Report, Safe Vaccine Delivery: Vaccine Packaging Solution and Validation. November 2018
[30] Zipline 2017 Report: Rwanda launch, test phase and early operations

Case study focus areas

Focus area	Findings
1. **Addressing an identified country need**	Zipline was first identified by the Government of Rwanda and contracted to help transform the country's medical supply chains.[31]Gavi assisted in validating the proposal and providing catalytic funding to the government to help them enter into the project.
	At the time of the evaluation enquiry, key informants reported that the proof of concept process in Rwanda was useful. However, some Secretariat key informants argued that, while there has been a clear use for Zipline's drones in delivering emergency supplies in Rwanda (e.g. blood and chemotherapy products), there has been limited application for vaccine logistics – this is because Rwanda has good infrastructure and vaccine logistics systems, so disruptions in vaccine supply chains are rare. Nonetheless, the Secretariat has informed the evaluators that, in recent months, drones have been used for vaccine deliveries in Rwanda.
2. **Alignment with other Gavi support and investments**	The project aims to directly address two of Gavi's 4.0 Strategic Goals relating to increased and equitable vaccine coverage and inclusive health systems strengthening.[32] It is also consistent with Gavi's portfolio of support to Rwanda which also prioritises comprehensive vaccine coverage and health systems strengthening.[33]
3. **Stakeholder engagement and coordination**	As indicated above, Zipline has worked closely with Government of Rwanda, as well as with UPS and Gavi from the outset of this project.[34,35]
	Zipline has also worked closely with several key national institutions in Rwanda to establish drone infrastructure and delivery hubs in line with national and international regulations, and to build national capacity. For example, during the test phase Zipline undertook the following:
	● A series of test flights with the Rwandan Civil Aviation Authority (RCAA).
	● Shared technical data with RCAA on different aspects of Zipline's system, including the Global Navigation Satellite Systems (GNSS), and details of the fail-safe parachute system, aircraft running lights, and the propulsions and control surface redundancy system.
	● Demonstrated the full mission at the RCAA-designated drone test site.
	● Worked with the Rwanda Biomedical Center (RBC) and the National Center for Blood Transfusion (NCBT) to ensure the necessary quality standards were maintained throughout the blood product supply chain.
	Some key informants suggested there was room for better coordination and information-sharing across the Gavi Secretariat during the implementation phase of this project.
4. **Country clearances**	According to project reports, the Government of Rwanda and the President are keen supporters of this initiative.
	The Government of Rwanda granted land in Muhanga District to Zipline to construct first distribution centre. Although there has been implicit reference to military clearance, civil aviation clearance and regulatory development, documentary evidence was not shared with the evaluators.
5. **Delivery of intended results, scalability and influencing factors**	There appears to be no results framework or monitoring and evaluation (M&E) plan for the project in Rwanda. However, as indicated above, Zipline reported that in the first project year, its drones had successfully delivered 236 units of blood products, of which 30.5% of which were for emergencies.[36]

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[31] Zipline Report, Safe Vaccine Delivery: Vaccine Packaging Solution and Validation. November 2018

[32] Gavi 4.0 Strategy

[33] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/africa/rwanda

[34] Zipline 2017 Report: Rwanda launch, test phase and early operations

[35] Zipline Report, Safe Vaccine Delivery: Vaccine Packaging Solution and Validation. November 2018

[36] Zipline 2017 Report: Rwanda launch, test phase and early operations

By 2020, the Rwanda project had achieved 24,000+ deliveries of 44,000+ blood units, of which 39% were emergency deliveries. There were only 0.1% damages and it was estimated that product wastage was reduced by 7%.[37]

Gavi reports that other performance and results data is reported to government, but this is note shared with partners due to political sensitivities.

Scale-up has recently commenced in Ghana. Gavi reports that, since 2019, Zipline drones have been used to deliver 98,235 vaccines through 5,826 payloads in Ghana.

Factors in results include: whether the country terrain and infrastructure are conducive for drone hubs and relatively small delivery packages; the prevailing logistics system and whether drones are a cost-effective solution to address vaccine stock-outs; country skills and capacity for drone/hub maintenance; and buy-in of the national leadership.

Expert key informant suggested drones are likely to be much more relevant in countries where health systems supply chains and logistics infrastructure are weak. It was also noted that setting-up of drone network requires an initial capital investment in hub infrastructure; there needs to be a conducive legal and regulatory environment. Gavi maintains, however, that there is significant interest in drone logistics in Malawi, India, the Democratic Republic of Congo, Indonesia and Papua New Guinea.

6.	**Programmatic and financial sustainability**	Country ownership in the programme is clearly demonstrated as above. Zipline provided training to local teams to support sustainability of the project. For example, in the test phase, Zipline trained a local team of eight Rwandan nationals who are now highly skilled flight operators and technical coordinators.
		Gavi has been subsiding the capital costs of this project, but not funding operating costs. It is anticipated that the Government of Rwanda will be able to cover recurrent costs going forward.
		Zipline key informants suggest that, once the drone infrastructure is in place, there can be delivery cost savings as well as benefits for the environment, due to use of batteries rather than fossil fuels.
7.	**Private sector and country perspectives on project relevance and value**	The commitment from Government of Rwanda to Zipline indicates that the project is of value to the country. Zipline and the Government of Rwanda share a vision for how the initiative can transform medical logistics and save lives in the country. However, there is little indication that this vision extends to vaccine supply chains.
		The UPS Foundation's mission is to build safer, more resilient and inclusive communities around the world. The investment in Rwanda coincides with the Foundation's work on resilience and emergency responses. From a commercial perspective, drone technology, infrastructure and capacity can continue to be a very useful innovation in delivery of commercial goods as well as life-saving commodities.

Conclusion

The Zipline-UPS project is classified as a Leveraged partnership under Gavi's PSEA. It was designed to address the strategic focus area of improving immunisation supply chains. It was envisaged that drone technology could have particular role to play in smaller countries with hard to reach terrain, such as Rwanda and Ghana.

The approach has proved useful for some emergency supplies in Rwanda. However, in practice it has had little application for improving vaccine deliveries in this setting. This is largely because Rwanda's supply chain infrastructure was already strong and vaccine stock-outs were rare.

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[37] Gavi Brown bag Discussions 10-02-2020

Gavi communications specialist suggest this project may have had significant benefits for raising the visibility of Gavi. This project has had high levels of media coverage. It is, therefore, likely to have played a role in reinforcing Gavi's brand identity as a creative and innovative organisation at the forefront of public-private partnerships. The publicity coverage for Zipline, UPS and, indeed, the Government of Rwanda is also likely to have been beneficial.

No evaluation reports are yet available to show results or benefits of this investment compared to improvements in other health or social infrastructure. Whereas drone technology has proved useful for delivery of emergency commodities and country capacity building, it remains unclear whether the initiative will prove sustainable from a programmatic and financial perspective.[38]

[38] Gavi has reported, however, that the Ghana initiative is already making a profit (written communication January 2021).

Case Study 5: Khushi Baby

Project

Road to Impact through Transformative Innovation – Khushi Baby in Rajasthan, India

Implementing countries

Rajasthan, India

Total budget

US$ 0.5m

Dates

2016-2020

Private sector partner

Khushi Baby is a not-for-profit digital health care provider that seeks to improve vaccination rates in the developing world with a wearable technology necklace or health card that digitises data at the point of care

Khushi Baby: Digitising data at the point of care

Introduction

Khushi Baby is a digital medical passport for children in the form of a necklace or health card. It ensures that medical records can always be accessed and updated by health workers. Khushi Baby also includes an immunisation registry and dashboard analysis that can be used to assist decision-making among policymakers.[39]

Khushi Baby was selected as a 2016 INFUSE Pacesetter and was awarded US$ 0.5m from the UAE INFUSE Fund. The grant was awarded so the Khushi Baby team could continue its work on proof of concept in preparation for scale-up to other States in India.[40] To date, these funds have not been subject to matching.

The added value of Khushi Baby's technology is that, even without internet connectivity or electricity, health workers can access the entire health record of the child by using a mobile application that connects to the necklace using NFC (near-field communication).

Khushi Baby already had a successful track record in India.[41] A randomised control trial (RCT)[42] in Udaipur in 2016 showed that the use of necklaces has been very well received by mothers, with more than 70% of mothers being satisfied with the necklace, compared to 45% in control groups that were handed vaccination cards with NFC stickers.

Project objectives

Khushi Baby started as a class project in the Yale Center for Engineering Innovation and Design in 2014. The objective was to develop a technology to address problems in vaccine delivery in the developing world. Since 2017, Khushi Baby platform has been co-designed with the community in rural Udaipur. The system is based on a continuum of care approach for tracking of family planning, antenatal care, postnatal care and immunisation.

Case study focus areas

Focus area	Findings
1. **Addressing an identified country need**	Khushi Baby was originally founded in partnership with an Indian NGO and has subsequently expanded to work with the Rajasthan State government. Key informants reported that Indian local authorities were heavily involved in planning and implementing the project from the outset. The intervention has also received additional funding from the central government as an 'enhancement initiative'.
	Khushi Baby supports a number of national policies and priorities relating to universal health coverage, equity and reaching every child. The solution is also in line with the Government of India's m-health and e-health policies and guidelines.[43]

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[39] Khushi Baby, 2020, What We Do, https://www.khushibaby.org/
[40] Khushi Baby Proposal to the Gavi Secretariat, 2016
[41] Khushi Baby Proposal to the Gavi Secretariat, 2016
[42] Khushi Baby Proposal to the Gavi Secretariat, 2016
[43] Khushi Baby Proposal to the Gavi Secretariat, 2016

2.	**Alignment with other Gavi support and investments**	The Khushi Baby project directly addresses three of Gavi's 4.0 Strategic Goals relating to increased and equitable vaccine coverage, inclusive health systems strengthening, and programme sustainability.[44]It is also consistent with Gavi's portfolio of support to India which also prioritises comprehensive vaccine coverage and health systems strengthening.[45]In addition, this project addresses the 2016 INFUSE theme of 'improving immunisation systems data availability, quality and usage'.
		Some key informants suggested that the Khushi Baby project has very similar features to another Gavi / UNICEF collaborative project in Andhra Pradesh that is expected to be scaled nationally - namely the HSS-supported Auxiliary Nurse Midwife Online (ANMOL) project. Secretariat key informants emphasised, however, that the two projects are complementary, since Khushi Baby demonstrates features of offline functionality.
3.	**Stakeholder engagement and coordination**	The project was developed by Khushi Baby with the support of Gavi and the Health Secretariat of Rajasthan. The organisation has strong expertise in Rajasthan, and more specifically, in Udaipur District.
		Key informants noted that the state and district authorities were engaged in intense co-ordination with Khushi Baby regarding the implementation of the hardware (necklaces) and software (mobile/table application) elements.
		During implementation, the close cooperation between Khushi Baby and the Rajasthan Department of Health and Family Welfare continued in the form of weekly meetings with the Additional Chief Secretary for Health.[46] Khushi Baby and the Health Secretariat of Rajasthan collaborated closely on the delivery of necklaces, the education of parents, and the training of health workers.
4.	**Country clearances**	The project has received all required clearances from the State of Rajasthan Department of Health, as well as relevant District Medical Officers.[47]
		The Khushi Baby team was also designated as the lead knowledge provider for two further health data projects by the State Department of Health.

[44] Gavi 4.0 Strategy. Available at: https://www.gavi.org/our-alliance/strategy/phase-4-2016-2020

[45] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/south-east-asia/india

[46] Khushi Baby, 2019, Gavi KB November 2019 Report

[47] Khushi Baby Proposal to the Gavi Secretariat, 2016

5.	Delivery of intended results, scalability and influencing factors	As shown in the following data from Khushi Baby's Final Report (May 2020), Khushi Baby has greatly exceeded key performance indicators.

KPIs	Planned	Achieved (May 2020)
Number of children registered, vaccinated and fully vaccinated	Track **50,000** children	**641,827** children registered **18,204** children tracked, of whom **11,177** were fully immunized
Number of parents who received education materials through Khushi Baby necklace and their feedback	**30,000**	**193,134** pregnant women have been tracked and educated on the benefits of the system
Usability of Khushi Baby platform for health workers	**250** ANMs **30** officials	**15,835** ANMs **32,389** Accredited Social Health Activists (ASHAs) **2,006** Medical Officers
Number of Health service delivery points where Khushi Baby platform is used to provide child health services	**1,000** villages **40** Primary Health Centres	**32, 498** villages **2,625** Primary Health Centres
Number of trained people in Rajasthan among key actors (health facilities, regional health teams)	**250** ANMs **30** District Health Officials	**15,835** ANMs **32,389** ASHAs **2,006** Medical Officers

In addition, findings from an International Initiative for Impact Evaluation (3ie) randomised control trial showed that mothers in villages where the Khushi Baby system was active were 1.66 times more likely to have their infant be fully immunised by 12 months; their children were also 0.26 times less likely to suffer from acute malnutrition.[48]

With regards scale up, it appears Khushi Baby's has good support from the State Department of Health in Rajasthan to scale up to other districts.

6.	Programmatic and financial sustainability	Efforts have been made to support programmatic sustainability by ensuring the Khushi Baby system is interoperable with government systems. The Khushi Baby team has ensured there is state government buy-in. It has also gone to extensive efforts to train health care workers, medical officers and district manager so they can access aggregated data and use it for decision-making.

From a financial perspective, the continuation of the initiative requires funding to cover the costs of producing health cards and educating parents and health workers on how to operate the system. Khushi Baby estimates that the whole system cost US$ 4.00 per beneficiary per year, including health cards and ensuring all health workers have phones.

Khushi Baby representatives believe the political will exists both in Rajasthan and in India more widely to support this project financially after Gavi phase-out. For example, Khushi Baby reports that the State of Rajasthan has secured financial approval for US$ 2.4m for scaling up Khushi Baby to five districts – although this budget is somewhat jeopardised by COVID-19 spending demands.

7.	Private sector and country perspectives on project relevance and value	As indicated above, there appears to be strong state government support for this digital solution in Rajasthan and efforts are being made to allocate state funds for the initiative.

This not-for-profit organisation was set up by a dedicated group of public health graduates. The support through Gavi INFUSE funding has helped them showcase the Khushi Baby solution on the

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[48] Nager R. et al., 2020, Impacts of a novel mHealth platform to track maternal and child health in Udaipur, India. 3ie Impact Evaluation Report 129. October 2020. Available at: https://www.khushibaby.org/

international stage and roll-out the solution in collaboration with the Rajasthan state government with good results.

Project key informants see the INFUSE funding, as well as the technical and operational support provided by Gavi, as being highly catalytic. Following roll-out of the Khushi Baby solution, the team has been awarded a three-year contract with the state Department of Health as a technical support partner. As a result, the Khushi Baby team has been tasked with both scaling-up the platform for maternal and child health, and adapting the platform for of COVID-19 tracking.

Conclusion

The Khushi Baby initiative illustrates how well targeted INFUSE funding can be highly catalytic. The award given to the Khushi Baby not-for-profit organisation was relatively small, but has achieved extraordinary amounts.

The Khushi Baby team has maximised support from Gavi to successfully adapt and scale its digital solution across multiple levels of the health system in Rajasthan. By 2020, the majority of targets had been vastly exceeded. There was also good evidence of contributions to improved immunisation coverage, even among hard-to-reach populations. There are now good prospects for sustainability and further scaling in Rajasthan. Moreover, the Khushi Baby team is also providing technical support to the Rajasthan Department of Health to improve the quality of other technology initiatives.

Although the prospects for national scale-up are uncertain, it is clear that experience and technical know-how from the project will benefit the wider health system. The Khushi Baby project has also provided other states and the federal government with options and lessons for selecting practical digital solutions that work. Other countries, too, may benefit from this experience.

Finally, Gavi has also benefited from the partnership. Gavi has showcased the Khushi Baby project through multiple publications and media coverage. The project has thus raised the profile of Gavi and spotlighted its place at the forefront of game-changing solutions in child health and immunisation programmes.
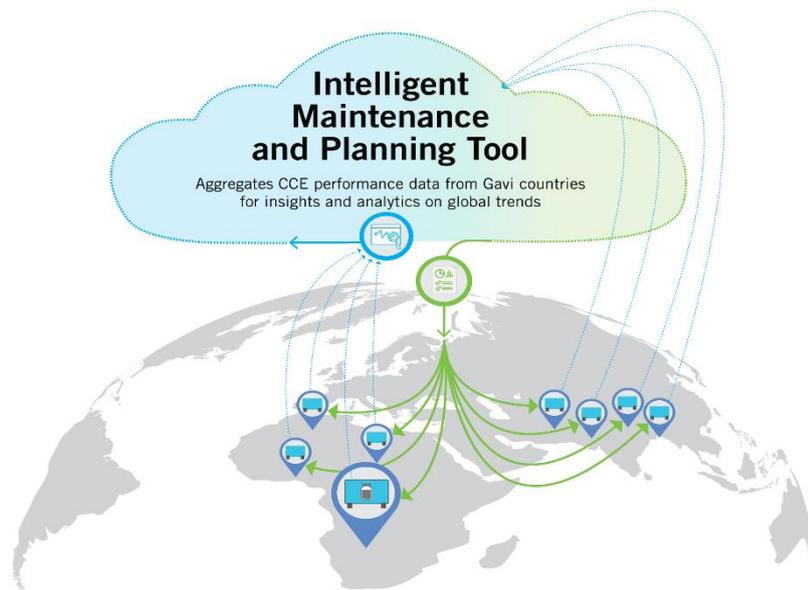
Case Study 6: Nexleaf Analytics

Image source: Gavi Presentation_22.11.2019

Project

Nexleaf Analytics - The Intelligent Maintenance and Planning Tool

Implementing countries

Tanzania, with plans for scaling to Kenya, Mozambique, Tanzania and Senegal

Total budget

US$ 9.1m

Dates

2017- February 2021

Private sector partner

Nexleaf is non-profit and has successfully worked with Ministries of Health in Africa to deploy remote temperature devices for fridges

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Nexleaf Analytics

Introduction

Nexleaf Analytics specialises in wireless remote temperature monitoring for medical cold chains. It combines this with analytics to rapidly inform health workers and their managers about refrigerator maintenance needs and cold chain performance.

Nexleaf Analytics was a 2016 INFUSE Pacesetter. It has been received funding from Google.org, Elma Philanthropies and UAE (matched by BMGF). This project built on initiatives in Kenya, Mozambique and Tanzania, but has focused on Tanzania over the period 2018-2020, and an extension to Kenya over 2019-2020.

Table 1: Project budgets and sources of funding (US$ millions)

Donors	Nexleaf (2018-2020)	Nexleaf (2019-2020)
Implementing countries	Tanzania	Kenya
Google.org	2.0*	-
Elma Philanthropies	1.8	-
UAE		1.5
Match BMGF	1.8	-
TOTAL	**7.6**	**1.5**

Source: Gavi Project Tracker, Q1 2020

*Grant to cover several implementing countries (i.e. Tanzania, Kenya, Mozambique and Senegal)

Project objectives

The Nexleaf partnership programme aimed to create and implement a software solution that would allow Gavi and Gavi-supported countries to monitor cold chain equipment performance:

"Through INFUSE and with funding from Google.org and Gavi, Nexleaf is working to bring the power of data to Ministries of Health, to ease the burden of vaccine system management, reveal unseen problems, answer questions, and address the most pressing challenges countries face as they strive to immunize all their children."[49]

An important feature of this solution is the Intelligent Maintenance and Planning Tool (IMPT). The purpose of the IMPT is to *"anonymize, aggregate and analyze cold chain equipment (CCE) performance data from all contributing Gavi countries"* in order to provide decision makers with both country-specific and aggregated global CCE performance data *"to support decision making."[50]* IMPT was developed to address two key challenges: [51]

- **Lack of real time data** at country level on the functionality of the CCE for evidence-based decision making.
- **Lack of visibility** into the field performance of CCE by global-level stakeholders to inform future generations of CCE.

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[49] https://nexleaf.org/impact/coldtrace-real-time-data/

[50] IMPT One Page Summary

[51] IMPT One Page Summary

Case study focus areas

Focus area	Findings
1. **Addressing an identified country need**	The evidence in the early project proposals suggest that Gavi, Google.org and Nexleaf Analytics first "*identified the need for a powerful data analytics tool*" to help monitor cold chains locally and globally to improve the functioning of fridges and storing of vaccines. The tool was developed to address this.[52] Key informants observed that, while this solution addresses a generic country need, from a policy and financing perspective there was a need to expand the scope to support knowledge generation for policy advice at a global level. However, from the outset the intention was to work closely with each implementing country to develop a version of the tool that would meet their specific needs: *"The aim is to co-design this system and structure with the countries, based on their needs, questions, concerns".*[53]
2. **Alignment with other Gavi support and investments**	Nexleaf Analytics was already working with several countries to support development of Gavi's Cold Chain Equipment Operations Platform (CCEOP). For example, over 2014-15, Nexleaf Analytics, the Mozambique Ministry of Health, and other partners collaborated to study the performance of vaccine refrigerators and subsequently engaged in working together with the ColdTrace dashboard.[54] Similarly, Nexleaf Analytics has been working with the Ministry of Health in Kenya since 2013 to learn about the vaccine cold chain challenges and the role of data to bring visibility.[55] Project publications describe how this initiative helps to ensure Gavi's continued effectiveness in improving vaccine supply chains to increase vaccine coverage (Gavi 4.0 Strategic Goal 1). *"Strengthening country cold chains is necessary to efficiently and sustainably protect and maximise the impact of the Alliance's >US$ 1 billion per year investments in life saving vaccines, and to get those vaccines to reach every community."*[56]
3. **Stakeholder engagement and coordination**	As is shown in the graphic below and illustrated in the following example, IMPT, which is managed by Gavi, is an endpoint for the data and larger system. In the overall process, there are a number of key actors and stakeholders. For example, the system works as follows:[57] ● Temperature data comes from Equipment Model A in Country X. ● Remote Temperature Monitoring (RTM) data updates dashboards and the logistics management information system (LMIS). ● Health Workers (HW) then utilise the data to respond to cold chain failure, and inform decision making in country around planning and budgeting. ● This data from the RTM dashboard is then sent to Gateway.

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[52] IMPT-Tanzania Expansion-Summary-Feb-10-2017

[53] IMPT-Tanzania Expansion-Summary-Feb-10-2017

[54] https://nexleaf.org/reports/Nexleaf-why-fridges-fail-part2-rtm-data-for-maintenance-website.pdf

[55] Gavi UAE Grant Implementation in Kenya Progress Report, Jan-Jun 2020.

[56] Nexleaf - Google Overview: 2016 INFUSE PACESETTER ENGAGEMENT, 16 August 2016

[57] Gavi document titled "Description of IMPT", unknown date.

- Then the Gateway anonymises the data and sends it to the Gavi-managed IMPT. On IMPT the data on equipment Model A is aggregated along with other relevant data. It can then be used to develop equipment, procurement and policy guidance.

Figure 1: IMPT: Complete Picture of who runs what and where components run
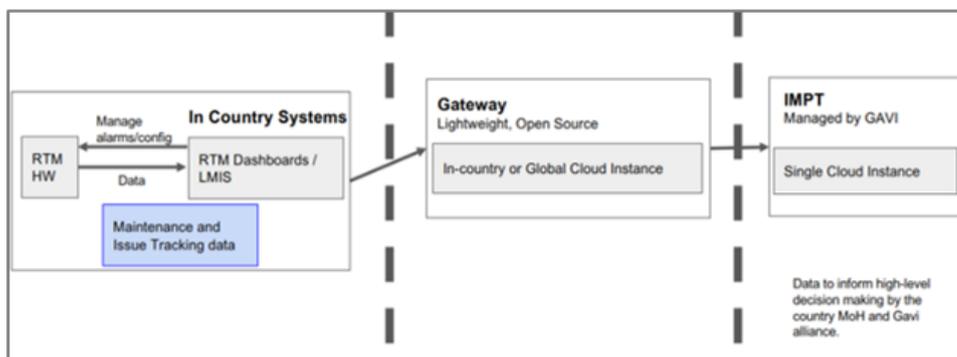
Source: Gavi document titled "Description of IMPT" (undated)

Project key informants reported that internal coordination has been good, with development of the solutions developed jointly with the Gavi's HSIS team and the RMPSP team. This was followed by engagement with legal, risk management, finance and market-shaping teams, as well as Senior Country Managers.

With regards external coordination, Gavi plays the role of a convener and facilitator. Gavi also works with Alliance Partners to ensure coordination and alignment with country priorities. Project key informants observed that Gavi has been highly effective in this role, and has been able to mobilise key conversations between stakeholders.

The Tanzania Ministry of Health and Social Welfare (MoH) have been actively engaged with the partnership. For example, in July 2018, Tanzania MoH visited Mozambique to hear directly from Mozambique MoH about their experiences using real time data to improve cold chain performance and explore areas for data sharing and collaboration between their ministries.[58]

4.	**Country clearances**	The evaluators can confirm that a Memorandum of Understanding was signed between Nexleaf Analytics and the Government of Tanzania in 2019.
		In March 2020, Gavi reported that in Tanzania: *"Data sharing agreements with countries have taken a lot longer than anticipated. While the Ministry of Health agrees to the projects, the process to get the approval from the Cabinet Secretary for data sharing is lengthy and difficult."*[59]
		A key issue causing some delays has been that system devices must be in the WHO Pre-Qualification list unless a waiver is obtained.
5.	**Delivery of intended results, scalability and influencing factors**	As of January 2019, significant progress had been made in Tanzania with some progress in Kenya and plans were in place for further expansion in Mozambique and Senegal.[60]

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[58] IMPT update_EO_21.01.19

[59] ELMA questions on 2019 reports- Nexleaf and Gavi Responses, March 2020

[60] IMPT update_EO_21.01.19

Gavi set an aim to engage with 20 countries by 2020 to discuss IMPT. As of June 2019, discussions around IMPT had been held with 19 countries, and a further 12 countries had been identified to reach out to next.[61]

By end of 2019, Nexleaf Analytics had covered 5,000 health facilities with sensor technology in Tanzania and remote sensors were deployed in approximately 400 sub-county sites in Kenya, representing 2,200 refrigerators.

However, Gavi progress reports for March 2020 [62] indicated that, while Year 1 project targets had either been achieved or were on track, Year 2 targets have not yet been met due to delays in RTM installations, customs delays or Memorandum of Understandings not being in place. As indicated above, it has taken considerable time to secure data sharing agreements with both countries and manufacturers. While an important breakthrough has been agreement that primary data ownership lies with the national government, Gavi is still waiting to receive signed letters from Kenya and Tanzania.

In a subsequent update, a report highlights *"data continuity gaps"* after an RTM is installed for over a year, with more than 250 RTMs not sending data, indicating difficulties in measuring CCE performance. However, despite this, the report notes that Nexleaf Analytics was getting data from over 1,000 CCE throughout all regions of Tanzania.[63]

Scalability: The Nexleaf Analytics IMPT partnership has been rolled out across Kenya, Mozambique and Tanzania. The partnership agreement was originally for the years 2017 to 2019 and was subsequently expanded with two further agreements with other donors in 2018.

Discussions have begun with the international medical equipment supplier, BMedical, on expanding this partnership in Senegal and / or Haiti. However, there has reportedly been a reluctance from BMedical to share country data with Gavi via IMPT, due to a perceived data ownership and commercial conflict of interest issues. Gavi is now taking several steps to address data ownership and access in BMedical countries, including Senegal.[64]

Early project design documents point to a scale-up ambition to reach 54 countries. However, key informants note that as countries have different systems and equipment, there is a need to show the platform can work with data from any system before moving to scale.

6.	**Programmatic and financial sustainability**	With regards financial sustainability, the project requires a relatively low investment for Gavi to maintain the system for accessing data globally (est. US$ 250 000 per annum). At the country level, findings from the initial phase indicated that the cost per RMT device was US$ 20-24 per year, but Nexleaf is aiming to bring this cost down.
		Gavi is currently looking at a more in-depth sustainability plan for IMPT at global and country level. At global level, there have been initial discussions between stakeholders on where data access/control sits, for example one option is for WHO to manage it. However, decision making on these issues is seen as down the line.

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[61] IMPT Update _ Copenhagen June 2019

[62] Gavi Elma GRM Report, March 2020.

[63] ELMA questions on 2019 reports- Nexleaf and Gavi Responses, March 2020

[64] ELMA questions on 2019 reports- Nexleaf and Gavi Responses, March 2020

Private sector and country perspectives on project relevance and value	In Tanzania, there is good evidence of support from key EPI stakeholders and some reference to five-year budget allocations to support the system.[65] The MoH in Tanzania has also taken an active lead in the training and RMT installation and District Coordinators have been trained in basic troubleshooting.[66] Country representatives engaged in the EPI Technical Working Group reported that this project has been associated with excellent partner coordination and joint-problem solving and is addressing an important challenge that is relevant across the region.
	Private sector partner consultations pointed to a highly valued partnership based on shared objectives and a commitment to adaptive learning and problem-solving.
	It was observed that Gavi has played a key role in initiating and maintaining government and country stakeholder involvement. Importantly, Gavi has also engaged other fridge manufactures and kept them on board. It has also leveraged the support of UNICEF and the Clinton Health Access Initiative when needed – although it was observed that there is scope to strengthen this coordination role. Enthusiasm for Gavi's important role was captured in the following partner statement:
	"The partnership has been incredibly transformative for us. In Tanzania and Kenya etc Gavi brought its weigh to the project so things could happen more quickly and effectively. …The non-tangible is credibility. Gavi has grown the partnership. This made it clear to our donors and stakeholders that we are doing the work we say we are doing."

Conclusion

The 2016 INFUSE Pacesetter, Nexleaf Analytics, has been working with Gavi over a number of years to develop a scalable digital solution to assist real-time refrigerator monitoring and improve vaccine cold chains. Although the solution responds to a global need, Gavi, Nexleaf Analytics and their partners have worked closely with national governments to adapt the technology to specific country requirements. The solution is perceived as well-designed and there has been strong stakeholder engagement to ensure the buy-in of country governments, development partners, manufacturers and other key stakeholders.

Key challenges have related to: agreements on data ownership and data sharing; securing the buy-in of key manufacturers; and obtaining the country approvals and clearances needed to roll out the system within agreed timeframes. Over the longer-term there have also been issues with device maintenance and data flow continuity.

The next steps for this initiative will involve careful sustainability and scale-up planning. This will need to be an inclusive process with other partners and key stakeholders. There will need to be a consolidation of lessons learnt and a collective effort to address the remaining technical, operational, political and resource flow issues associated with this cutting-edge project.

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[65] IMPT update_EO_21.01.19

[66] IMPT update_EO_21.01.19

Case Study 7: Zenysis

Project

Data Integration for Strengthening Immunisation

Implementing countries

Pakistan (Sindh Province) and Mozambique

Total budget

US$ 4.5m (matched to reach US$9.0m for both countries)

Budget for Sindh Province: US$ 3.2m

Dates

2018-ongoing

Private sector partner

Zenysis Technologies creates software to help governments and international organisations leverage the full power of their data to accelerate progress towards global development goals

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Zenysis: Data Integration for Strengthening Immunisation

Introduction

Zenysis Technologies, is a Silicon Valley start-up that is working with Gavi to help low-income countries harness the power of big data and artificial intelligence to improve childhood vaccination programmes around the world.

Zenysis was selected as a 2017 INFUSE Pacesetter. The two-year partnership is intended to provide countries with Zenysis' software platform, analytical training and information technology (IT) skills development. Countries will use the platform's capabilities to integrate data from their fragmented information systems and help decision-makers see where children are not receiving vaccines. Advanced analytics will then help countries decide how to target their limited resources for maximum impact.

The project is currently being implemented in Pakistan and Mozambique. Thereafter, scaling to other countries will be considered. It has been agreed that this case study review will focus on experience from Pakistan.

The main funder for this INFUSE partnership is the Chinese technology company, Tencent. As shown in the table below, Tencent's funding has been matched by BMGF to give a total project budget of US$ 9 million.

Table 1: Project budget and source of funding (Pakistan and Mozambique)

Funding source	US$ m
INFUSE (Tencent)	4.5
Matched (BMGF)	4.5
Total	**9.0**

Source: Gavi Project Tracker Q1, 2020

Project objectives

The aim of the project in Pakistan is to improve the reach and efficiency of delivery of life-saving vaccines for 'zero-dose' children in the developing world .

Following an in-country scoping assessment, Gavi and Zenysis entered into a 2-year partnership to develop the next generation of immunisation data platforms in Sindh and drive evidence-based decision making.[67] Using Machine Learning, this platform will integrate data sources to:

- Enable decision makers to uncover the deeper insights they need to drive the next wave of progress in identifying zero-dose children and improving coverage rates, particularly in high-impact urban centres
- Transform EPI capacity to develop data-driven policy guidance
- Transform a Sindh Ministry of Health's ability to report on progress towards the Sustainable Development Goals.

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[67] Gavi, 2018, Zenysis Initial Proposal for Partnership (document name: PRF_ZENYSIS_MSIDDIQUI_11.06.18)

Case study focus areas

Focus area	Findings
1. **Addressing an identified country need**	Following the scoping assessment, the project team clearly identified the need to improve the data collection, retention, and analysis capabilities of health authorities in the Sindh Province of Pakistan with respect to polio vaccines, and especially the administration of the first dose ('0-dose') of that vaccine to small children. Thus, although the innovation was developed and awarded based on a generic need, this need was more carefully defined in discussion with the Pakistan government.
	Following early implementation experience, Zenysis is now negotiating a broader project approach with Gavi.
2. **Alignment with other Gavi support and investments**	This project aims to directly address two of Gavi's 4.0 Strategic Goals relating to increased and equitable vaccine coverage and inclusive health systems strengthening.[68] It is also consistent with Gavi's portfolio of support to Pakistan which also prioritises comprehensive vaccine coverage and health systems strengthening.[69]
	In addition, this project addresses the 2017 INFUSE theme of 'tech-enabled, proven innovations that promote immunisation uptake and improve health-service delivery'.
3. **Stakeholder engagement and coordination**	Gavi recognised the need for high Secretariat engagement in the early stages of the project.[70] Given the political sensitivities in countries such as Pakistan, it was understood that this engagement would require regular and direct involvement of the Gavi Secretariat to support Zenysis during the start-up phase.
	The roles of the different stakeholders in the development and initial implementation of the project were:[71]
	The Ministry of Health of Pakistan met with Zenysis representatives to calibrate the scope of the projects, secure its computer infrastructure in a way compatible with the work standards of Zenysis, and allow Zenysis data access to its systems.
	The project was developed in partnership with representatives of the Sindh Emergency Operations Centre (EOC) and Extended Programme for Immunisation (EPI).
	Gavi acted as a mediator between Zenysis, the Ministry of Health of Pakistan, the Sindh Emergency Operations Centre, and the EPI.
	The 2018 proposal document clearly outlined the responsibilities of each party in developing the project, and as such could be described as well-coordinated at the early phases. However, shortly after implementation commenced, the project stalled due to challenges in obtaining data access from other partners. This matter proved difficult to resolve despite interventions at the highest levels.
	In early 2020, with the outbreak of the COVID-19 pandemic, the Sindh Department of Health requested assistance from Zenysis on synthesis and analysis of COVID-19 data. Through this support, Zenysis demonstrated its

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[68] Gavi 4.0 Strategy. Available at: https://www.gavi.org/our-alliance/strategy/phase-4-2016-2020

[69] See Gavi's country portfolio summary. Available at: https://www.gavi.org/programmes-impact/country-hub/eastern-mediterranean/pakistan

[70] Gavi, 2018, Zenysis Initial Proposal for Partnership (document name: PRF_ZENYSIS_MSIDDIQUI_11.06.18)

[71] Zenysis Technologies, 2018, Data Integration for Strengthening Immunisation in Sindh: Zenysis Project Overview

		potential contribution to health data analytics and fostered the relationship with the Sindh government. This, in turn, has helped Zenysis better understand the health data ecosystem in Sindh Province.
4.	**Country clearances**	Following a joint appraisal by the Government of Pakistan and Gavi, the partnership with Zenysis was approved.[72] The project was then developed in consultation with representatives of the Sindh Emergency Operations Centre (EOC) and the EPI team, and Memoranda of Understanding (MOUs) were agreed.[73] The evaluators can confirm that all relevant documents are on file.

Since this time, there has been dialogue with a Technical Working Group on a revised approach and scope of work for Zenysis in Sindh Province. As a result, Gavi is preparing a contract amendment for Zenysis based on an annual workplan that will be validated by the Technical Working Group. |
| 5. | **Delivery of intended results, scalability and influencing factors** | Since project implementation has only recently begun in earnest, it is not yet possible to report on results or scalability. However, a review is being planned for the last project phase starting in 2021. |
| 6. | **Programmatic and financial sustainability** | In their 2018 proposal,[74]Zenysis proposed to train local officials to use its methods and systems so that health data analytics could be carried out even after Zenysis and Gavi discontinue their support. The proposal set out Zenysis' plan for the sustainability of the project with three options:[75]

● **Complete country ownership** with no permanent dependence on Zenysis or Gavi. After the end of the intervention, Sindh officials would be able to use and to maintain the system on their own without outside support. This will require increased investment (from Gavi, Pakistan, or a third-party donor) on capacity building.
● **Software-as-a-service:** After the end of the intervention, the Zenysis team would provide platform maintenance, server security, help desk support and access to new features via periodic updates. This will be paid by Sindh through an annual subscription fee at less than15% of upfront costs (industry standard 15-18%).
● **Hybrid model:** A hybrid model would involve Pakistan owning the system but also using the support services of Zenysis. Costs would depend on the support needs of the country. |
| 7. | **Private sector and country perspectives on project relevance and value** | The value of the project for Zenysis lies primarily in the opportunity to further test its solutions in the field and establish a relationship with both Gavi and the Government of Pakistan that will expand product markets.

Zenysis regards the partnerships with Gavi highly positively. However, the long initial delays in fund and country matching, coupled with interrupted grant disbursements due to start-up challenges, did create fund flow challenges for the company. The narrow initial scope of work also led to implementation constraints.

As indicated above, Zenysis's flexibility in responding to the COVID-19 data challenges has opened doors with government and should stand the project team in good stead for getting back on track. |

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[72] Mott MacDonald engagement with anonymous stakeholders.

[73] Zenysis Technologies, 2018, Data Integration for Strengthening Immunisation in Sindh: Zenysis Project Overview

[74] Gavi, 2018, Zenysis Initial Proposal for Partnership (document name: PRF_ZENYSIS_MSIDDIQUI_11.06.18)

[75] Gavi, 2018, Zenysis Initial Proposal for Partnership (document name: PRF_ZENYSIS_MSIDDIQUI_11.06.18)

Conclusion

The Zenysis project is especially important for Gavi because it addresses the common challenge of fragmented data sources within and across health information systems. The Zenysis platform leverages Machine Learning to quickly consolidate diverse sources of data into an integrated view.

However, the project in Pakistan was slow to take off. In part, this was due to delays in matching the project to a funding source and an appropriate country for implementation. Thereafter, there were challenges with data access, as well as constraints associated with a narrowly defined scope of work. These factors meant Zenysis was not able to meet initial milestones and this resulted in interruptions to grant disbursements. These, in turn, created some fund flow challenges for the Pacesetter.

Zenysis's recent experience of assisting the Sindh Department of Health during the COVID-19 pandemic highlights the value of allowing room for flexibility and 'agility'. This case study shows that maximising opportunities to work closely with a country government to respond to public health imperatives can be catalytic in forging the trust and buy-in needed for collaborative working on immunisation initiatives.

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