Organizational details

Name of the institute: Gram Vaani Community Media (OnionDev Technologies) in partnership with IIT-Delhi

Incubator: Gram Vaani was incubated in IIT Delhi and is now a 75+ member team

Faculty: Dr Aaditeshwar Seth, Associate Professor at IIT Delhi, running the ACT4D (Appropriate Computing Technologies for Development) research group, and Co-founder and Director of Gram Vaani (OnionDev Technologies)

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Objective:

We aim to provide an end-to-end offering, **to support the ongoing community engagement for the COVID-19 vaccination drive** through a suite of innovative technologies developed in-house by Gram Vaani, in collaboration with IIT and other partners, to optimise routine immunisation delivery". We propose to use a combination of field-ready data collection approaches (smart form registers paired with an Optical Scanning mobile app) and voice-based communications approaches (Interactive Voice Response Systems) to reach last mile frontline workers (FLWs) and communities in hard-to-reach settings (low literacy, not tech savvy, low socio-economic background, rural areas). Our specific aims are to:

1. Strengthen last mile enumeration and immunization session planning, by last mile functionaries (ANM, ASHA, AWW and any other last mile workers) deployed for line listing
2. Support in building awareness and counselling in last mile communities
3. Support the reporting of Adverse Event Following Immunization (AEFI) and Adverse Event of Special Interest (AESI) beyond 30 minutes following vaccine administration, using an in-built monitoring system.

Type of Intervention: (Choose one)

1) Proposal on Vaccination drive community engagement

2) Proposal on Cold storages and Cold chains battery or solar operated for last mile connection

3) Last stage Vaccination development

**4) Post Vaccination studies.

Details of intervention:(Should cover details about the product/ technology, methodology, milestones, timeline, Line-item wise financials along with tentative cost of transportation, annual maintenance etc.)

Product/technology and methodology:

Our technology suite is a combination of Optical Character Recognition (OCR) and IVRS and is proposed to contribute to the existing community engagement efforts for the vaccination roll-out program. The cornerstone is a **new technology** enabling designated personnel like a FLWs (basic health workers, or "BHWs") or Panchayat representative, equipped with smartphones pre-loaded with our mobile application to **click a picture of a smart form/ register and the data gets digitized automatically (near real-time)**.

The application includes additional supportive functionalities for health workers and officials and is linked to an IVRS for direct communication with beneficiaries as well as visualizing the line-listing data on a real-time dashboard. Advanced analytics enable last-mile immunization session planning and tailored interventions to improve performance. This is a low-cost and light-touch approach designed to integrate with existing Government of India programmes, practices and investments. This system will reduce burdensome paper-based documentation and increase the availability of actionable information at the last mile, strengthening coverage, timeliness, quality, and equity of the immunization drive. Following sections details out the methodology and solution capabilities:

1. **Strengthening last mile enumeration and immunization session planning, by last mile functionaries (ANM, ASHA, AWW and any other last mile workers) deployed for line listing:**

   In order to undertake large scale community mobilisation and engagement, we can ride on the activities currently being planned for leveraging the frontline workers for a comprehensive line listing of the beneficiaries for the CoWIN purposes. Data entry into a specialized device e.g. mobile phone or tablet may not be practical for the frontline workers (ANM, ASHA, AWW) due to unavailability of devices in large quantities and low-tech knowledge at the grassroots. Paper data entry is the most feasible strategy in a short time period and most convenient for last mile functionaries, but digitization of data leads to delays.

   To overcome these challenges, we have designed a smart form register (physical form), with a unique QR code and an alphanumeric code printed on each of its pages (top right corner). These forms will be given to the ASHAs or other designated FLW for enumeration. All the details of all family members can be noted down on that register. This will be done in the traditional pen and paper method. Once the FLW has recorded the details of the community members in this register, a picture can be taken through our optical scanning app and the AI-enabled image-processing techniques read the data for its instant digitization. The alphanumeric code and the QR code which is unique for each register will be printed on each page of the register. The record of which alphanumeric code is given to which enumerator can be maintained at the Block/ Sub-center level, while handing over the register to the enumerators. This will enable our system to know beforehand which alphanumeric code/ QR code contains the data of which Panchayat, Block, District, etc. FLWs without access to smartphones can deliver forms to the local sub-center for scanning without much delay. Alternatively, anyone in the village with a smartphone could be designated as a volunteer for the

scanning or gram panchayat members can support for this short-term activity. The technology is easy and quick to be used by FLWs at existing skill levels.

Once we have the contact information (mobile numbers) of the target beneficiaries, our Mobile Vaani platform can push out automated calls to them at a predetermined frequency. We will play relevant audio content in local languages in order to boost the vaccine confidence in people and bust any myths that might be resulting in vaccine hesitancy. After playing the content, we can also ask the listeners to record their feedback or query,

Real-time dashboards will provide access to data such as enumerations/ listing completed by the health workers, listing data segmented by age, gender, and comorbidities. Access to real-time information will empower program managers to take agile, evidence-based decisions on microplanning for vaccination. Access to digitised mobile numbers of the community members will also allow for automated updates and reminders on vaccination and seek community feedback via our voice-based IVRS service.

Insights from our Tika Vaani project: We have developed a dedicated smartphone app for FLWs called TikaVaani and have deployed OCR tools for real-time digitization of Mother and Child Protection (MCP) Cards via QR Codes. We further integrated the automated IVR messaging for beneficiary engagement and improving community mobilisation in the target geography. This is a Controlled before-and-after (CBA) study supported by BIRAC (Government of India) and Gates Foundation, conducted in Hardoi district in Uttar Pradesh with a total 11,000 target beneficiary households in two study blocks viz. Madhoganj (Intervention) and Mallawan (Control). Our aim is to address key questions around health worker workflow, vaccination drop-outs, data quality, equity and timeliness of vaccination, and missed opportunities for vaccination. The acceptance level of the technology among the BHWs we are working with is 100%, with 97% of the BHWs claiming the app to be very simple to operate, and 3% claiming it to be fairly simple. OCR app also has high end extraction results both in terms of error checking and correction and shows promising results.

2. **Support in building awareness and counselling in last mile communities on COVID-19 vaccination**:

The above capability at FLW level is further amplified at the last mile communities by integrating the **IVRS component** which enables us to reach the most remote and under-served communities at a large scale, in a very short duration.

Mobile Vaani is a **community-driven, participatory media platform creating awareness, driving demand, monitoring services and building community engagement since 2012**. Mobile Vaani uses an IVRS to engage participants and was designed to meet the needs of rural and low-income urban communities in underserved areas. The system operates using a "missed call" approach wherein users place a call using their phones to a number, and the server disconnects and calls them back, making the system free of cost for the end-user. Alternatively, conveniently scheduled "call outs" can be used to contact beneficiaries and to conduct surveys remotely. The system is available 24x7 and can be accessed on basic mobile phones. It provides community members in media dark areas an access to local news and contextual information, created by the community members themselves in the local vernacular language that users can relate to. The discussion-oriented nature of the platform encourages self-expression, which offers the user

a sense of agency, anonymous space and empowering framework. It also ensures effective behavior change by encouraging people to adopt best practices and by celebrating positive deviants in their 'peer groups', for taking the first steps towards the change. There's an offline component for Mobile Vaani wherein community volunteers or reporters help with driving impact at the last level. These citizen reports help uptake of technology at the community level. Mobile Vaani has also triggered adoption among first time users of technology, often women or poor low-literacy people. The user engagement insights, as well as the user generated content (UGCs) inform further policy intervention customised to each region or user segment. Being a voice-based intervention, which can be customized to any language, the IVR overcomes the barriers of literacy and multiple languages across the country.

Our dedicated COVID-19 IVRS lines linked off the Mobile Vaani platform have been running since March 2020 (real-time dashboard link) and have served key public information with respect to COVID-19. Dedicated COVID-19 IVRS lines linked off the Mobile Vaani platform will help build awareness, tailored to meet the communities' needs, also ensuring to alleviate anxieties and scepticism on-ground. It will help counter misinformation about COVID-19 and vaccination and help disseminate information about vaccination updates as per government's advisories in hyperlocal language. Through the IVRS, communities will also be able to seek help on the challenges they are facing or queries they may have on COVID-19. Various audio modules will be prepared including how to register for vaccination, some common expected side effects, adverse event preparedness to build trust. It will also allow a platform for asking for help in case of any adverse events. The call will also popularise the appropriate local help desk as per COVID-19 vaccination operational guidelines.

Mobile Vaani, through the citizen reporters and volunteers, will also help create positive media on the participatory platform through ensuring standardized messaging on COVID vaccination in communities. Conveniently placed surveys will also be rolled out in the window period between multiple vaccine doses to gain deeper insights from communities and plan for mid-course corrective actions to ensure complete vaccination.

3. **Supporting the reporting of AEFI and AESI using an in-built monitoring system**:

Similar to the smart-forms mentioned above for enumeration, our OCR application can accelerate the reporting process at the planning centers. The designated functionary can just take a photograph of the register after filling in the details. Our system will digitise the data in near real-time and provide to the designated officials and experts. These smart forms can also be used in outreach sites in low resource settings (internet connectivity low) as manual reporting formats for reporting, as prescribed as contingency under COVID-19 operational guidelines. This will also save time and minimize errors associated with manual reporting using physical forms.

In order to report any adverse events being reported after half an hour, we can publicize a toll-free IVRS number for the beneficiary to call on. A set of pre-decided questions can be asked by the IVRS and based on the inputs (or in case no inputs are received from the caller), the call can be transferred to a live expert for further support). Through the IVRS system, communities without access to smartphones will be able to self-report adverse events to the designated authorities, for its near -real time management.

Using IVRS, we are also proposing a random-dial out symptom questionnaire to the COVID-19 vaccination beneficiaries for monitoring purposes. A structured survey can be used to monitor any vaccine-related AEFIs/ AESIs.

The FLWs can also build their capacity on adverse event management through the IVRS based platform by accessing the training modules for vaccinators, that they can dial-in (for training and anytime, as a ready reference) to understand all the symptoms, conditions and relevant updates on COVID-19.

For AESIs, because we would have collected the mobile numbers of those being vaccinated, we will be able to contact them to send brief post-COVID-19 vaccination symptom questionnaires. These will enable brief, real-time monitoring of symptoms for key AESIs. We will also provide an IVRS number to facilitate voice-based self-reports, enabling rural, low socio-economic and low digital literacy populations to access information and report symptoms which can later be analyzed for correspondence to AEFIs and AESIs.

Milestones:

Milestone 1: Technology deployment and the launch of the IVR platform for any given state.

Milestone 2: Start of community mobilisation through Gram Vaani's volunteers or partner organisations.

Milestone 3: User Generated Content (UGCs) start being recorded by the community members.

Milestone 4: A customised real-time dashboard is developed in partnership with all stakeholders.

Milestone 5: Quarterly report - quantitative and qualitative - being developed for reporting purposes.

Timelines:

Month 0 - MOU/ Contract signed.

Month 0.5 - IVR launch

Month 1 - Start of community mobilisation.

Month 2 - UGCs start coming in and a real-time dashboard is developed.

Month 3 - First quarterly report is developed.

Financials (Line-item wise financials along with tentative cost of transportation, annual maintenance):

Deliverables	Duration = 12 months; 1 district		
	Unit cost	No of units	Total Costs
IVR Setup Cost One callback number for each state - total 4 IVR platforms.	1,15,000	1	1,15,000
Content Development Assuming 6 new pieces need to be developed in 12 months. All existing content that doesn't require any edits will be provided fee of cost for this intervention.	12,000	6	72,000
Call cost for providing community access to COVID-19 Information Assuming 40000 people from a district will call 2 times a month for 2 min on each call.	0.25	19,20,000	4,80,000
Tech infra costs (rental costs for PRI channels) PRI lines required to support peak load at the proposed scale - 6 lines in the first 6 months, and 5 lines in the next 6 months.	18,000	4	4,32,000
Community Mobilisation and Engagement Assuming 10 volunteers per district will be engaged for the intervention period. Plus, some additional cost for local travel and IVR promotion.	55,000	12	6,60,000
Resource costs Assuming- i) Tech Ops @ 75,000 p.m. @ 5% bandwidth; ii) Moderation Support (Hindi) @ 22,000 p.m. @ 100% bandwidth of 1 person iii) Program Management @ 90,000 @ 5% bandwidth	28,250	12	3,39,000
Total Cost *	20,98,000		
Goods & Services Tax (@18%)	3,77,640		
TOTAL Project Budget	24,75,640		

*Please note that while this is the budget for 1 district, the fixed costs like IVR setup, content creation, etc. do not increase even if the intervention is expanded to multiple districts. Only the variable cots heads like the call cost, Tech infra cost, mobilisation costs, etc. increase in small increments.

Do you have State Government connection, or will you require support from CSR –

Over the last decade, we've leveraged our technology in collaborations with 150+ partners for pan-India projects. This includes working in close collaboration with Government of Bihar (Bihar Rural Livelihoods Promotion Society JEEViKA) and Government of Uttar Pradesh (State Health Department) along with NGO partners for the technical assistance on the projects. Through our partners in states of Jharkhand, Madhya Pradesh and Chhattisgarh, we also work closely with State health departments.

We are also one of the award recipients under the Ayushman Bharat PM-JAY Start-up Grand Challenge 2020 under the category of 'Enhancing beneficiary awareness' and are in discussion with National Health Authority of India (NHA) for state-wide roll-out for reaching media dark areas for improving enrollment under PM-JAY, conducting satisfaction surveys and help resolve beneficiary grievances and disseminating information about benefits available under PM-JAY.

For scaling up our technology solution across multiple states and pan-India, a state government connect and funding support from CSR or other partners, will be required for a near real-time roll-out.

States that you can provide technology to – Our technology can be readily deployed and scaled-up across all states of the country. The roll-out and launch can happen in a matter of 2-3 weeks.

On scalability: Our technology is ready to be scaled across the country, as required, in a very short period of time. Gram Vaani's earlier experiences reiterate sustained listenership of content on the IVR lines over the years and the IVR lines if institutionalised within the government's system will continue to reach out to the end beneficiaries. The service delivery mode is easy to replicate across multiple geographies, with no complex requirements from partners end. Our lessons from multiple projects, including servicing the health domain, reiterates that it can be easily scaled-up at local, national and international level with support from government and local partners. Sustainability is also core to our work. We leverage our technology platform to amplify the capabilities for a long-term program impact. Given our program experience citing improvements in uptake of technology among first time users, it will be contributing to the routine health services along with COVID-19 vaccination roll-out.

Please answer following questions depending on the intervention you choose and if applicable to you:

Can you do the Community engagement yourselves or will need help by CSR-
The technology solution can be readily deployed on the field and will require minimal capacity building efforts for training users on the OCR app and content moderation and community mobilisation efforts for mobilising the ten-digit number using existing vaccination program's community mobilisation efforts.

A hand-holding support or field-support will be required in deeper pockets where individual phone ownership and usage is low and there are digital literacy barriers. In such a situation, we propose engagement of community-based volunteers who can be easily trained on the moderation interface. We have a robust volunteer base in select states of the country, who can be engaged in these community engagement efforts to drive local action. Outside those regions, we will need an NGO partner or the frontline health workers to take up this work.

For a scale-up model, government designated community mobilisers or partners (NGOs-TA partners) can be easily trained on the community engagement efforts. CSR funding support for this will be requested for the implementation.

If you have a Market ready technology available,

How do you plan to deploy?

There is a standard procedure for recording all the customised prompts and setting up the IVR platform. The same process will be followed for setting up the platform for this intervention. A separate callback number will be used for this platform which will be subsequently popularised among target community members. The name and branding of the platform will be jointly finalised with all the stakeholders and accordingly some collaterals will be developed for popularising the initiative in the target geographies.

Number of units available:

One IVR platform can be deployed for each state in which the initiative will be rolled out. This can be discussed and finalised with all stakeholders.

Do you wish to partner with an NGO? If yes, name the NGO and provide details on how u will partner? (item wise costing should include cost to NGO for their scope of work)

We plan to partner with RAAH Health and Social Development Foundation. They are our existing partner in the BIRAC and Gates Foundation funded Tika Vaani project and are primarily leading the activities around community engagement and testing of our new technology tools in the field settings. They also engage with the local health officials at the block and district level on a regular basis to share our learnings and take feedback on a regular basis. From the budget shared above, RAAH Foundation will be allocated the Community Mobilisation and Engagement budget head for the Hardoi district in Uttar Pradesh.