Design Principles to Create Sustainable Community Media Networks

Appropriate Computing Technologies for Development (ACT4D), IIT Delhi

Voice of the Village Technology. Media. Development

Microsoft Research Faculty Summit 2015
July 8-9, 2015
Joint work with...


- IIT Delhi students: Arvind, Dipanjan, Prateek, Abhishek Katyal, Rohit Bhatia, Deepak Martin, Amitsingh, Gaurav Luthra, Gaurav Agarwal, Quamar Niyaz, Sameer, Rahul, Asheesh, Piyush Agarwal

- Collaborators: CEDPA, Sesame Workshop, PFI, Development Alternatives, Gurgaon ki Avaaz, JEEViKA, PHRN, Gram Swaraj Abhiyan, Digital Green, CREA, Jean Dreze, Reetika Khera, and many others
Community media in rural areas in India

- Variety of mechanisms
  - Community radio
  - Community video
  - Wall newspapers
  - …

![Image of a woman using a radio]

- Communication, entertainment
- Representation
- Contextual & complete info
- Empowerment
- Change agent

- Gender
- Caste
- Power
- Profession
Mobile Vaani: A voice based community media platform using phones

1. Speak
Users speak and listen to contributions over our intelligent IVR platform

2. Moderate + Share
Content moderated locally and centrally, then published on IVR, web

3. Connect to stakeholders
Inputs connected to government (local + other), NGO partners, social enterprise partners
Traction on Mobile Vaani

- 90% community sourced content
  - Local news
  - Interviews and informational services
  - Opinion on topical issues
  - Guided discussions and campaigns
  - Grievances and feedback on government schemes
  - Cultural artifacts including folk songs and poems

- Current reach
  - 10,000+ calls per day
  - 8min average call duration
  - 1,000,000+ unique callers
  - 2,500,000+ households reach
Context: To help people understand through examples

**Stories of Vaani Create Behaviour Change for Social Good: Education**

"I listened to a campaign on early marriage. After hearing other people’s experiences with early marriage I decided to only marry after I have finished school.

- Kishore, Student Bihar"

**Stories of Vaani Create Behaviour Change for Social Good: Health**

"I comment on the health channel and spread awareness among people on health services like free medicines and Mamta Vahan. Through my contributions this helped me gain respect in the community and helped my work as an Asha.

- Kunti, Asha Worker"

Mobile Vaani: Technology. Media. Development
**Para Teachers Mobilize State wide strike using Jharkhand Mobile Vaani**

**Jharkhand, state wide:** Month long para-teachers strike paralyzes all schools across the state. Demand for permanent positions and increased salaries. Parents rebut with accusations of negligence of duty. Teachers send their petition to the government. District administrators respond with their point of view. A great example of multi-stakeholder discussions on the platform.

<table>
<thead>
<tr>
<th></th>
<th>Strike update</th>
<th>Problems caused</th>
<th>Valid cause</th>
<th>Invalid cause</th>
<th>Request to government</th>
<th>Request to para teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para-teachers</td>
<td>24%</td>
<td>7%</td>
<td>31%</td>
<td></td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>Activists</td>
<td>10%</td>
<td>24%</td>
<td>20%</td>
<td></td>
<td>31%</td>
<td>3%</td>
</tr>
<tr>
<td>Students</td>
<td>43%</td>
<td>4%</td>
<td>34%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>4%</td>
<td>38%</td>
<td>9%</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90%</td>
</tr>
<tr>
<td>Media</td>
<td>53%</td>
<td>17%</td>
<td>23%</td>
<td></td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>
Stories carried by several regional media publications
Testimonials about 5 health facilities that have improved since campaigning started on Jharkhand Mobile Vaani
Estimated 100,000 people thus indirectly impacted

Koderma, Jharkhand: Drive against alcoholism especially illegal sales started on Mobile Vaani by women volunteers. Eventually led to termination of a local shop in the neighborhood

Dhanbad, Jharkhand: MV campaign on migration brought out a pending widow pension case that required maintenance of a local migrant worker register to make payments. Over the next few months, several other areas demanded up-to-date registers in their villages
Our learning: The ICTD onion

- Broader ecosystem
- Technology design
- Community characteristics
- Adoption & awareness
- People processes
- Content & services
Our learning: The ICTD onion

Broader ecosystem

Technology design

Community characteristics

Content & services

People processes

Adoption & awareness

Software engineering and design processes

Technology architecture

Ease of use, task completion, data collection accuracy, cost

Machine learning, recommendations

Technology support and scaleup
Unpeeling the onion: Adoption and awareness

Broader ecosystem
Technology design
Content & services
People processes

Community characteristics
Adoption & awareness
User training and capacity building

Offline in-person training/demos are imperative

% subjects completed task

- Promos
- Multiple IVR use
- Training on phone

Understood in 1st call
Understood by 3rd call
Did not understand by 3rd call

60%

Leave a message...
Offline methodology for acquisition and training of users

1. Our field team enters new geographies through NGO/CBO partners

2. We begin with identifying volunteers from the community
Need for institutional structures and community ownership

1. Our field team enters new geographies through NGO/CBO partners
2. We begin with identifying volunteers from the community
3. Over time, volunteers are then organized into clubs
4. Clubs are mentored closely by the field team

BMV – 6000 callers per day in 10 months
Jamui club – 6000 callers per day in 5 months
Decision to grab low hanging fruit, or go after harder social impact?

High degree of heterogeneity in club effectiveness

Formula driven growth can be achieved, but what is our mission? Investment Vs grants?

<table>
<thead>
<tr>
<th>Number of clubs</th>
<th>Cost per user acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>More</td>
<td>3</td>
</tr>
</tbody>
</table>

Good content, volunteers are reporters

Top-up or salary? Community ownership?

Women clubs
What services do users actually want

- Broader ecosystem
- Technology design
- People processes
- Community characteristics
- Content & services
- Adoption & awareness

Mobile Vaani: Technology. Media. Development
Field visits & volunteer feedback to understand information needs

- What is MV for you?
- What do you want to hear on MV?
- Challenge: How to change the character of the system?
We are a media company!

- Agriculture solutions
- News
- Straight from the heart
  - Contributions on travel experiences, childhood memories
- Story telling
  - Solicit ideas on legends and folk tales
  - Famous writers like Premchand and Bhishm Saini
- My life and times
  - Interviews of vegetable sellers and local merchants
- Employment channel, Children’s slot, Talent competition…
We are a media company!

- Agriculture solutions
- News
- Straight from the heart
  - Contributions on travel experiences, childhood memories
- Story telling
  - Solicit ideas on legends and folk tales
  - Famous writers like Premchand and Bhishm Saini
- My life and times
  - Interviews of vegetable sellers and local merchants
- Employment channel, Children's slot, Talent competition...
Systematizing information contextualization: Campaign methodology

Selection of appropriate campaign method → Develop content plan and message matrix together with partner → Weekly episodes on different topics through guided sourcing of messages from community → Analysis and impact assessment

Need to explore more. Impact?

Bulk of our campaigns

“Mass” content does not work
Scaling impact: Understand the political economy of the ecosystem

- Broader ecosystem
- Technology design
- Content & services
- People processes
- Community characteristics
- Adoption & awareness
Platform to help communities build local accountability loops?

People reported on a few officials who were demanding bribes for UID enrollment. The site was visited by the block development officer and the officials were fined.

A village ignored by health agencies was reported to have had 3 malaria deaths in the last one week. A mobile ambulance was immediately dispatched, with fumigation equipment and first aid.

Fear of escalation can make things work at the local level.

But can this be formalized for scaleup?

Needs volunteer training and mentoring.
Or, formally build accountability loops?

Adoption largely depends on conscientiousness of officer

However, inefficient in implementation since it is top-down

Pioneering a civil society assisted grievance redressal system for RSBY
Or, do a hybrid through the political system?

1. A governance focused NGO, Action India, approached Gram Vaani to build a ‘better grievance redressal system’

2. Community members call into a toll-free number to leave complaints

3. NGO listens to complaints and categories/transcribes them on the Internet

4. Youth wing of NGO files complaint officially, and sends a report to the local councilor

5. Redressal statistics also displayed on website (and wall newspapers)

   Internal pressure dynamics thus created were used to improve grievance rates on ration, pension, and sanitation. New toilets and public works were sanctioned.

Mobile Vaani: Technology. Media. Development
Or, do it through the administration and link it with performance?

1 Municipal Corporation of Delhi approached Gram Vaani for phone based citizen monitoring of waste disposal in the city.

2 Our server makes and receives calls/SMS from contract staff on their deliverables.

3 Community members query the status and dispute it if they want.

4 Status and disputes were made available on a web dashboard and reviewed by the MCD commissioner; City Representatives post responses on Facebook.

Self-reported status by MCD staff

Citizens can query and dispute
Design principles to create sustainable community media networks

✓ Usable and appropriate technology design

✓ Build a sense of community and ownership. Institutional structures should be nurtured

✓ Create content formats that encourage contextualization by the community itself

✓ Work in partnership with other stakeholders to give the platform a larger voice. But understand the political economy of the ecosystem

✓ Unsolved problem: Financial sustainability!
Thanks

Gram Vaani Community Media

Website: http://www.gramvaani.org

Email: contact@gramvaani.org
Future work

- Replicate learning to mobile apps
  - Build peer-to-peer or intermediary driven training and adoption processes for our apps
  - Leverage the stronger Internet ecosystem that already consists of platforms such as online social networks

- Can the learning be applied to adoption of mobile Internet itself? Potential to be a key revenue driver!

- Consolidate offline processes including volunteer recruitment, training, club composition, and club mentoring

- Possibility of USSD integration to ease IVR navigation

- Shortcode based VAS access for user subscriptions
Cash flow management

Usage quotas

Start of financial incentives - I

Start of financial incentives II

Usage quotas

Significant second order effects on user retention as well
User retention

- Users who call just once ranges from 25% to over 50% some times. Correlated with quotas imposed.

- Quotas have lower correlation with retention rates of older users.

- 45% of new users claimed they were actually old users calling from a new phone number.
Another example: Citizen verification of official data

- Joint work with Stanford Liberation Technologies and IIT Delhi
- People enrolled with job card + mobile phone information
- MIS status for job cards picked up from the website, and converted into voice messages
- People could file a grievance if they noticed a discrepancy
- Initial work: 52 people pinged, 30 detected a problem, 23 filed a grievance
UNIT ECONOMICS

COST PER USER

$0.3
Acquisition cost (to acquire users at 15% month on month growth)

$1.5
Engagement cost* (will drop as users migrate to using data services)

POTENTIAL ANNUAL REVENUE PER USER

Campaigns

Advertisements

Enterprise Solutions

$10.0

*Average call time of 9 minutes
*Users call 4 times per month, 25% of users stick for a year, 45% for a quarter

** We assume we will fill only 25% of the ad inventory at steady state, and of that we will tap only 20% in year-1
Appropriate technology design

- Observe the users to understand gaps to be addressed through ICTs. But also identify good pilot partners/power users who can give actionable feedback.
- Software engg. currently is a hit and miss affair

Marsden, 2013
Most faults occur when people tinker with cables and other moving parts. Impossible to avoid!

Moved to a cloud deployment with Mobile Vaani

Most debugging needs to be done over the phone but hard to resolve over the phone alone with a local unskilled tech resource.

<table>
<thead>
<tr>
<th>Mode of communication</th>
<th>Faults identified</th>
<th>Faults resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone calls</td>
<td>57</td>
<td>16 (28%)</td>
</tr>
<tr>
<td>Remote desktop</td>
<td>9</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>Remote desktop &amp; phone</td>
<td>9</td>
<td>6 (67%)</td>
</tr>
<tr>
<td>Reverse SSH</td>
<td>6</td>
<td>5 (83%)</td>
</tr>
<tr>
<td>Reverse SSH &amp; phone</td>
<td>2</td>
<td>2 (100%)</td>
</tr>
<tr>
<td>Physical visit</td>
<td>6</td>
<td>6 (100%)</td>
</tr>
</tbody>
</table>
Technology efficacy

Data collection
- 84% of responses match those given to a live operator
- 79% of users understood more than 80% of the questions

Crowd-sourced voting
- Linear list of thumbs-up thumbs-down Vs best-of-two Vs best-of-four
- No significant difference in task completion, nearly 100% for all
- Cultural preferences though: Did not want to call a song bad!
RURAL ADVERTISING

Targeted advertising in local language, plus value added services (direct lines to sales agents, FAQs and local people’s product reviews)

Last mile sales and distribution support for solar lantern industry

Return to advertisers: 500 inquiries for tractor buys generated in four weeks
Getting a discussion going in the community: Early marriage

- Duration: 4 weeks
- Outreach: 100,000 households in Jharkhand
- Topics
  - Laws against early marriage
  - Reasons for early marriage
  - Implications of early marriage on the health of girls
  - Implications of early marriage on boys
  - Drama, chutki ki kahani, who was married at 14
- Offline activity. 100+ volunteers recruited from across the state
  - Get pledges from Panchayats
  - Ask pandits and moulavis to visit weddings and condone early marriage
  - Get testimonials from school teachers
  - Form a committee comprising the Panchayat, teachers, religious leaders, and police
Currently consumption is closely in line with production

Only a few users exhibit preferences by navigating through content

Depending upon their age in the system, between 15% to 35% of users press keys to navigate

Of that, only between 11% to 26% of users exhibit preferences in topic and location selection

Challenges: How to inform? How to personalize? How to train even more?

No of items heard for atleast T units for a particular category

No of items presented for that particular category