Introduction to Interactive Voice Response

PREPARED FOR ICT4D CONFERENCE, NAIROBI | MAY 2016
The Challenge: 3B People are disconnected from valuable information.
Interactive Voice Response (IVR) is a technology that allows a computer to interact with humans through the use of voice and DTMF tones input via keypad.
IVR can be used in **information sharing**, **evidence gathering** and **behavior change** among the hardest-to-reach populations.

**Information Sharing**, sending tailored content directly to subscribers (push) and allowing individuals to call-in to dynamic hotlines to access information at the time and place of their choosing (pull).

**Evidence Gathering** including formative, developmental, and summative evaluations, randomized controlled trials, surveys and panels, national opinion polling, and passive data collection to measure engagement.

**Behavior Change** campaigns and techniques, including demand generation, social norming, reminders and salience, edutainment and gamification.
Three main types of data can be collected:

- **Multiple Choice Questions**, for example, GENDER (Press 1 for MALE or Press 2 for FEMALE)

- **Numeric Questions**, for example, AGE (How old are you? Use the keypad to answer the question)

- **Opened Ended Questions**, for example, OPINIONS (What is your opinion on the quality of health services received?)

**NO VOICE RECOGNITION (yet)**
**PUSH vs PULL Calls**

**Call originates from End User**
Subscribers are empowered to seek information by calling paid or toll-free hotlines to access content, take surveys, report incidents etc.

**Call originates from Platform**
Subscribers receive content directly to their phones in the form of a phone call. Push content can be used for Random Digit Dialing surveys, marketing or advocacy campaigns, reminders, educative messages, longitudinal data collection etc.
Maternal Health

Changing maternal behavior and improving health outcomes for mothers and babies through mobile education.

Type: In/Outbound IVR
Content: 60-Week Curriculum
Reach: 8,000 Women
Country: Northern Ghana
The result was a **30% increase** in women having an **attended birth** (compared to national average)

Users are satisfied...  
...and taking healthier behaviors

<table>
<thead>
<tr>
<th>Would you recommend the program to another person?</th>
<th>Where did you give birth?</th>
<th>Did it encourage you to visit antenatal care regularly?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes: 93%</td>
<td>In a clinic: 86%</td>
<td>Yes: 89%</td>
</tr>
<tr>
<td>Maybe: 3%</td>
<td>Anywhere else: 14%</td>
<td>No: 11%</td>
</tr>
<tr>
<td>No: 4%</td>
<td></td>
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</tr>
</tbody>
</table>

57% of births in Ghana attended by a health professional

Mothers accurately (>90%) report fever, diarrhea and cough in their children using IVR.
Free Information

Providing free on-demand multi-sector locally relevant information at scale, in partnership with mobile network operators.

Information is available 24/7 for users to access whenever they want.
VOTO powers Human Network International’s 3-2-1 service, a search engine where there is no internet

<table>
<thead>
<tr>
<th>Health</th>
<th>Gender Equality</th>
<th>Agriculture</th>
<th>Microfinance</th>
<th>WASH</th>
<th>Land tenure</th>
<th>Family Planning</th>
<th>Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>Dynamic Information</td>
<td>Cassava</td>
<td>Rice</td>
<td>Groundwater and environment</td>
<td>Request Certificates of Ownership/Maps</td>
<td>Definitions and Importance</td>
<td>Emergency weather information</td>
</tr>
<tr>
<td>Treatment-Children</td>
<td>Violence</td>
<td>Yam</td>
<td>Why borrow from a MFI?</td>
<td>Clean drinking water</td>
<td>Trader Ownership</td>
<td>Benefits</td>
<td>Weather emergency alert levels</td>
</tr>
<tr>
<td>Prevention-Children</td>
<td>Education</td>
<td>Sweet Potato</td>
<td>Requirements to borrow from a MFI</td>
<td>Water and Health</td>
<td>Request Federal Land and Certificates</td>
<td>Advice</td>
<td>Injury emergency</td>
</tr>
<tr>
<td>Adolescent Health</td>
<td>Economic Opportunity</td>
<td>Potato</td>
<td>Difference Loan Terms</td>
<td>Sanitation</td>
<td>Boundary Marking</td>
<td>Methods</td>
<td>Skin burn emergency</td>
</tr>
<tr>
<td>Treatment-Adults</td>
<td>Informed Political Participation</td>
<td>Taro</td>
<td>Savings Accounts at MFIs</td>
<td>Hygiene</td>
<td>Transfers</td>
<td>Clinics Near You</td>
<td>General Information about emergency preparedness</td>
</tr>
<tr>
<td>Women’s Health</td>
<td></td>
<td></td>
<td></td>
<td>Information about the Ministry of Water</td>
<td>Cancelation of Charges</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Madagascar and Malawi:

350,000 unique callers/month

1.5M information requests/month

Over 9M calls to-date
Mobile Games

A Choose-Your-Own-Adventure style game that teaches youth to make active decisions on financial literacy and family planning delivered in local languages.

Type: Inbound IVR
Content: On-demand mobile game
Reach: 1,200
Country: Northern-eastern Uganda

Source: afrikanneritage.com
WANJi GAMES
Where You are Part of The Story!
Ne irar ijo idiope kanu iswamasi!

Flash 0200522522
Ibiping 0200522522

Get a Call Back
Inomakino ijo esimu

Choose Your Own Adventure!
Eipone lo ikotor ijo abolia, erai aseunet kon!

Play free (Obolia titai)  Age 16+ (Lu ikaru 16+)

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Influencing Policy

Asking people directly about their development priorities.

Type: Outbound IVR
Content: 12-Question Survey
Reach: 6,000 People
Countries: Afghanistan, Ethiopia, Mozambique, Zimbabwe
High mobile penetration rates can produce representative samples.

Source: CGD/World Bank working paper
VOTO deployed a healthcare satisfaction survey with the WB’s Digital Engagement Evaluation Team in Brazil

OVERVIEW
• **Methodology**: RDD and known-number IVR surveys of 2,000 recent hospital patients in Brazil. 12 question surveys.
• **Objective**: Understand patient satisfaction rates with local clinics and hospitals
• **Timeline**: Able to translate, record, test, and deliver surveys in less than 3 weeks

INSIGHTS DERIVED
• The **voice** in which a survey is delivered may have material impact on engagement rates
• Intrinsic **incentives** (such as a survey introduction explaining how results will be used) may outperform financial incentives

Survey completion rates when deploying survey with female vs. male voices

Survey completion rates by incentives offered

Based on the work of the Digital Engagement Evaluation Team at the World Bank and VOTO, Brazil 2015
Some KEY INSIGHTS:

1. Make Content Accessible
   Offer a range of language options to increase participation and inclusion

Distribution of female respondents across languages:

- **Ethiopia**
  - Amharic: 80%
  - Sidamo: 19%
  - Oromo: 1%

- **Zimbabwe**
  - English: 79%
  - Shona: 10%
  - Ndebele: 11%

- **Afghanistan**
  - Dari: 75%
  - Pashto: 25%

Based on results of VOTO, World Bank and CGD research in four countries.
Some KEY INSIGHTS:

2 Structure Content to Maximize Participation
Contextualize incentives

Based on results of VOTO, World Bank and CGD research in four countries
Some KEY INSIGHTS:

3 Deploy Content to Minimize Participation Bias

Reach people at the right time of day

Based on a VOTO & Facebook survey in Bolivia, 2014
Some KEY INSIGHTS:

4 Deploy Content to Minimize Participation Bias  
Consider phone ownership and household dynamics

- Mother: 44%
- Father: 42%
- Another Family Member: 14%

42% of women were enrolled in the program by their husbands

Based on VOTO & Vodafone Foundation data in Ghana, 2014
Some KEY INSIGHTS:

5 Collect and Respond to Feedback
Share results with respondents to improve participation over time

Based on VOTO & Ghana District Government project data in Ghana, 2014
Some KEY INSIGHTS:

6 Deploy Content to Minimize Participation Bias
Provide multiple opportunities for respondents to be reached

With one call, we only reached 23% of participants

It can take up to 7 retries to reach over 80% of calls

Based on VOTO & Vodafone Foundation data in Ghana, 2014
Some questions to answer before diving into IVR:

- Mobile Phone Penetration Rates?
- Location-specific Information?
- Extreme illiteracy?
- Phone ownership?
More Voices, Better Choices
High mobile penetration rates, BUT some pieces are still missing...

1st Generation M4D tools focus on SMS, leaving out the low-literacy citizens that need these services the most.

Custom software development for each project is expensive, time-consuming, and inefficient.

Getting connected with mobile operators is slow, expensive, and out-of-reach for small projects and pilots.

It's hard to get the human side of the design right, especially when trying this for the first time.
VOTO was created to **amplify voices** of the under-heard and **close feedback loops** in the development sector.

- We offer **simple and reusable software tools** that don’t need any setup or technical capacity.
- We **transcend the literacy barrier** by reaching people in their own language, without written text.
- We establish **low-cost** mobile network operator connections that are **ready to go** in every country of the world.
- We provide thoughtful design consulting and research on how to **translate mobile engagement into impact**.
We offer the world’s most robust mobile engagement platform, connected to the fastest-growing network.
We have **offices** in 7 countries, **operations** in more than 40, and have the capability to **call any phone on the planet**.
Our 500+ partners have used the VOTO platform to collect data, effect behavior change, and measure results.
To best engage with end users we recommend leveraging the power of voice – because it works.

Based on a VOTO & World Bank comparative study in Ghana, 2014.
Create a free account at votomobile.org
VOTO Dashboard

Add subscribers and create groups for segmented outreach.

Create voice and SMS surveys and messages.

Schedule calls and messages. Create rules for incoming calls through Trees.
Add a new subscriber

Add a large database of subscribers
Analyzing Survey Results

View individual and aggregate responses. Export data for further analysis. Create new groups based on responses for further outreach.
Analyzing Survey Results

Results from a larger survey conducted by a partner to gather citizens’ feedback regarding electricity tariff rates being increased by 78%.

A VOTO partner added GPS location to IVR Survey results, yielding a map of the results.
Additional Features - Inbound Functionality

A VOTO partner is providing inbound functionality so farmers can have “information-on-demand”. Farmers call-in a specific number to hear past educational messages, pricing and weather information.

Call-in triggers a specific action, like an IVR directory or a voice message.

Inbound functionality can be used in crisis situations, like after an earthquake, for citizens to call-in to leave information regarding their location, condition and needs. The information is crowd-sourced in real-time.

Select the subscribers to be included.
Additional Features - Advanced Options

- **Voice Advanced Options**
  - **Voice Mail Detection**: Save airtime by detecting voicemail.
  - **Call retry patterns**: Increase response rates through call retry patterns for when respondent is out of network range or phone is out of battery.
  - **Call Time Window**: Set times of day calls can be sent out.

- **SMS Advanced Options**
  - **SMS survey reminders**: Messages say they are coming from an organization.
  - **SMS sender ID**: Transfer airtime to incentivize engagement with surveys and messages.

- **Transfer Airtime Credit**: Transfer airtime to incentivize engagement with surveys and messages.
Additional Features - Issue Tracking

- Each Question Gets Posted Here
- You can see how many questions are new, in progress or have been answered
Additional Features - Advanced Options

When you click on an issue, you can see the full question.

A moderate can approve or reject a question.

You can send a reply back to the person who asked the question.
Replies can be sent via IVR or SMS
Recipient: 256755634876
Language: English

Select Message
Create New Message

SMS Message Text
You must water the crops every morning...

Send SMS Message
Close

Details Send Reply History

Updated Apr 22, 2016 at 08:22
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