CASE STUDY

FrontlineSMS and Georgetown University's Institute
for Reproductive Health

FRONTLINESMS

About FrontlineSMS

FrontlineSMS is award-winning free, open-source software that turns a laptop and a mobile phone or modem into a central communications hub. Once installed, the program enables users to send, receive and manage text messages with groups of people through mobile phones. Because it uses text messages, it does not require an Internet connection and all data lives on the computer, rather than on a server controlled by someone else. Users can send messages to individuals or large groups, and reply individually. It is easy to install and requires little or no training to use.

FRONTLINESMS AND GEORGETOWN UNIVERSITY'S INSTITUTE FOR REPRODUCTIVE HEALTH

Introduction

Georgetown University's Institute for Reproductive Health (IRH), a global organization dedicated to improving reproductive health worldwide, has used FrontlineSMS, an open source software for sending and receiving SMS (short message service), to provide a rapid prototype of a new mHealth service. This service — called CycleTel™ — empowers women by providing them with accessible reproductive health information through SMS. CycleTel facilitates the use of the Standard Days Method® (SDM) of family planning, which is a simple fertility awareness-based method of family planning that teaches a woman to identify her fertile days each menstrual cycle and avoid unprotected sex on these days to prevent pregnancy. By making this fertility information accessible via SMS, CycleTel helps women take charge of their reproductive health and use an effective family planning method.

IRH used FrontlineSMS to support two phases of manual testing of the CycleTel concept, in two Indian cities; Lucknow and New Delhi. This case study details how IRH worked with FrontlineSMS to test the CycleTel concept before proceeding with product development, demonstrating the utility of FrontlineSMS as a first step to systematic scale-up of innovations in mHealth and other sectors.

About IRH

IRH is a research organization with over 25 years of experience in designing and implementing evidence-based programs that address critical needs in family planning and reproductive health. With support from the United States Agency for International Development (USAID), IRH has developed, tested and introduced three modern fertility awareness-based methods — the Standard Days Method® (SDM) with CycleBeads®, the TwoDay Method® (TDM), and the Lactational Amennorhea Method (LAM) — in over thirty countries worldwide, thereby expanding peoples' options and bringing new users to family planning. IRH's work has expanded beyond fertility awareness-based methods; by focusing on broader issues of gender equity, couple communication, scale-up of innovations, building country-led capacity, fertility awareness, reaching very young adolescents, going directly to consumers with reproductive health information - IRH engages in issues that are at the core of strengthening quality family planning and reproductive health programs.

The Standard Days Method in Brief

The Standard Days Method® (SDM) is a simple fertility awareness-based method of family planning based on a woman's menstrual cycle. Appropriate for women who usually have menstrual cycles between 26 and 32 days long, the method identifies days 8 through 19 of a woman's cycle as the fertile days. To prevent pregnancy, the couple avoids unprotected sex on the woman's fertile days. Most SDM users find that CycleBeads®, a color-coded string of beads, help to track the days of her menstrual cycle and identify which days she is most likely to get pregnant. Clinical trials have proven SDM to be 95% effective in preventing pregnancy with correct use and 88% effective with typical use, which is comparable to other user-directed methods.

To use SDM, a woman simply has to learn about the method, answer a few questions to see if the method is appropriate for her, and learn to follow a simple set of instructions for each menstrual cycle — all of which has been proven manageable for women of varying levels of literacy worldwide. Studies show that SDM has wide applicability, is culturally acceptable in a range of developing countries and is directly addressing the global challenge of unmet need for family planning — a burden for 200 million women worldwide.

SDM and Mobile Phones: A Recognized Opportunity

IRH was awarded the Fertility Awareness Based Methods (FAM) Project by USAID in 2007 to increase access and use of SDM within a broad range of service delivery programs using systems-oriented scaling up approaches. With scale up in mind, the utility and pervasiveness of mobile phones became an exciting prospect for expanding access to SDM.

SDM is a knowledge-based method that is unique in that a user does not have to visit a health provider or buy anything to use the method. As long as a woman can learn to track her fertile days and has a means for doing so, she is equipped to use the method correctly. In 2009, the number of active mobile phone connections approached 5 billion worldwide and with the level of connections growing fastest in the developing world, the development community buzzed around the potential of information and communication technologies for development (ICT4D). Researchers at IRH asked, "Why not offer SDM directly to women's mobile phones?"
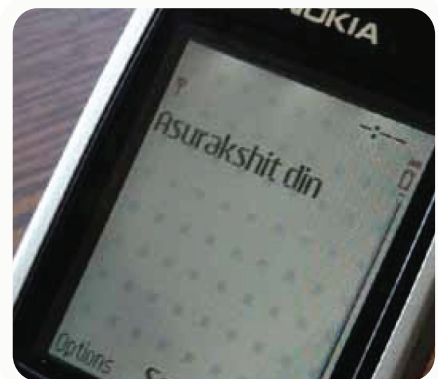
CycleTel: The Concept

CycleTel's premise is simple: a woman learns about CycleTel and opts to join the service by sending an SMS to a designated number. Then, via SMS, she is screened for method use. If she meets two conditions — her periods usually come once a month, and she and her partner can avoid unprotected sex several days each month — she sends the date of her last period to the service and begins using CycleTel. The service alerts her of her fertile days during each cycle. Additional messages support correct use of the method, help her monitor her cycle length, and offer information on other reproductive health issues, such as the importance of optimal birth spacing. The woman is reminded to re-enroll each cycle by sending in the date of her next period.

While the concept is simple, IRH understood early on that scaling up a novel idea would require a systematic, step-by-step approach. As a member of ExpandNet, a global network of reproductive health professionals, IRH focuses on implementing a systems-based approach to scaling up evidence-based reproductive health innovations, including strategic decision-making and rigorous monitoring and evaluation. This approach guided the development of CycleTel — including the engagement with FrontlineSMS to move from concept to product design.

Formative Research and a Need for a Low-Cost Technology Solution

With these ideas in mind, IRH designed a three-phased proof-of-concept study to be implemented in two Indian cities, Lucknow and New Delhi, and consisting of: 1) focus group discussions with women, men and couples of reproductive age to ensure that CycleTel was an appropriate technology of interest to the target population; 2) cognitive interviews to test that the content of messages sent by CycleTel was understood; and 3) manual testing with FrontlineSMS to mimic the technology for two menstrual cycles with women actually using CycleTel before investing in technology development.

The Institute discovered FrontlineSMS by exploring existing ICT4D software, and was able to engage Ken Banks, FrontlineSMS' creator, as a short-term consultant to help understand how to use the software and how it would apply to the CycleTel manual testing phase. This direct support from FrontlineSMS helped IRH staff manage the planning phase of the project effectively. Banks' technical input helped IRH understand that FrontlineSMS would be appropriate to use with a small number of CycleTel users, given that an IRH staff member would need to send out personalized messages to message recipients from the FrontlineSMS platform daily. Only when the need and demand for the service were validated, and it became clear that the software was feasible to build, would IRH engage a software developer to create a customized platform to automate the CycleTel service.

Although FrontlineSMS was only used for a limited time for CycleTel, the software served as a crucial and practical step in the technology development process — especially as IRH was navigating the fields of mHealth and software development for the first time.

Manual Testing with FrontlineSMS: A User Experience

One major advantage of using FrontlineSMS is that it does not need a high level of technical expertise to set up and run successfully. Esha Kalra, IRH's India-based Program Associate, managed the CycleTel manual testing phase in Delhi. She explained that, "It was very easy to test FrontlineSMS functionality. Messages are easy to organize and send, and we experienced no problems with receiving messages back." A notable project management step taken by IRH was putting together a project manual on how to use FrontlineSMS, partly drawn from information in the FrontlineSMS help files and also customized for CycleTel programme needs. Using the manual, Esha was able to immediately navigate her way around the FrontlineSMS system; creating contact groups, setting up keywords to filter the incoming SMS, and exporting data from FrontlineSMS to enable regular analysis. Esha explains, "It really helped to have everything documented before the start of project. The manual laid out how to use FrontlineSMS to meet our project requirements and made project management easier." As a result of the ease of set up and use, Esha found FrontlineSMS ideal for proof-of-concept testing for CycleTel. Esha's fundamental advice to others who are considering a similar set up would be to establish the objectives of your project first, before getting started, and then map out and document how FrontlineSMS can be used to fit in with the project's requirement.

Promising Beginnings

The results, from interviews with over 100 women who tested CycleTel for two cycles of use, were very promising and showed that CycleTel is an innovation that could improve family planning use and knowledge, as well as cooperation between partners. Moreover, there is a clear demand for the service.

For example, the results showed that:

- Features that users liked most about CycleTel as a family planning method are ease of use, convenience, and lack of side effects.
- The majority of users felt it was easy to communicate with their husbands about the fertile days; about 70% of participants showed their husbands messages from CycleTel.
- 92% were very satisfied with CycleTel as a method to prevent pregnancy.
- 100% of users would recommend the service to friends.
- 35% of participants called the helpline, but helpline calls decreased after one cycle of use.
- 86% of users said that they would be willing to pay on average Rs. 33 per month for the CycleTel service, ranging from Rs. 15 - 400. Note: Sending one SMS in India costs less than Rs1.

Key Learning

With positive proof-of-concept results, IRH decided to partner with ThoughtWorks, a global IT consultant with offices in India, to build customized software to automate the service. The formative research using FrontlineSMS, and especially the feedback from test users, was absolutely essential to determine the product scope and functionality of CycleTel. With a clear understanding of the end product that would best meet customer's needs, IRH was able to articulate their technology needs to ThoughtWorks.

This model — leveraging FrontlineSMS as a low-cost software to test a concept before investing in software development — is one to be considered by ICT4D programs worldwide. For the CycleTel service, it proved to be an appropriate and critical step in the iterative process from concept to scale.

Plans for the Future

After only 12 weeks of technology development, IRH and ThoughtWorks launched a beta version of CycleTel and migrated 89 FrontlineSMS test users onto the system. While the service did not change for the end-user, CycleTel now runs without the support of a dedicated IRH staff person sending and receiving messages via FrontlineSMS. The Institute is now testing the automated software with 700 users before rolling out the service widely in India and other countries. IRH is also exploring ways in which CycleTel can be commercialized to ensure sustainability in the long run.

Suppliers and Hardware used
Falcom SAMBA 75
Windows XP operating system

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[3] International Telecommunication Union (ITU). The World in 2010: ICT Facts and Figures http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf

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