Innovation Trends in India

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Innovative IT strategies in industrialized economies are premised on the existence of highly developed social and economic infrastructure as well as a strong purchasing power. These conditions, if they exist in emerging markets such as India, do so in small pockets. One of the most underserved constituents in India is the rural population, whose individual purchasing power is significantly lower than that of the urban population but its aggregate purchasing power is said to be comparable to that of urban people. We have heard a great deal about business-aligned IT. How about village-aligned IT? How about innovative IT strategies that genuinely empower the people living in areas where infrastructure development has a long way to go?

As a case in point, this article will focus on key healthcare challenges in rural India and how village-aligned IT initiatives can help overcome them.

The Problem

When we travel from a major city to any rural part of India, we are greeted with facts that we read about but they don't quite make an impression on our mind. I am referring to facts such as the ones mentioned below, which were validated by our research.

- While the majority of people live in rural India, the majority of physicians live in urban centers—the ratio of doctors per thousand people in urban India is said to be seven times more than that of rural India
- Government health centers are understaffed and ill-equipped—there is less than one doctor per 10,000 people in rural India
- Health staff are undertrained and lack the knowledge for diagnosing certain medical conditions and undertaking specialized treatment
- In most cases, patients who can afford it, are forced to travel to towns and cities, often with their relatives, for diagnosis and treatment, all of which translate into high cost and loss of daily income—of every Rupee spent, 70% is overhead and only 30% is used for medical care
- All diagnose and prescription documents are in English, which is not the working language of rural people

To eliminate the need for travel, especially among the elderly population, suffering from chronic diseases, industrialized nations use telemedicine—a technique that leverages high-speed network connection and allows doctors to use a two-way video communication for monitoring the conditions of patients. These solutions are not viable in the remote areas of India due to multiple reasons:

- Lack of ubiquitous network connection—villages may or may not have wireless data connection
- Regular interruption in electricity supply
- Prohibitive cost of providing telemedicine
- Scale and challenge of communication between doctors and patients

The last problem is unique to India which has 22 official languages and hundreds of dialects. Therefore, finding a doctor who can treat a specific ailment, who is available and also speaks the same language as the patient (especially in the case of telemedicine) is extremely difficult if not impossible. In instances where telemedicine could be a possibility, there is a likelihood of rural people not being open to receiving medical advice from someone who is at a remote location.

So what are the alternative ways of healthcare delivery in rural India?
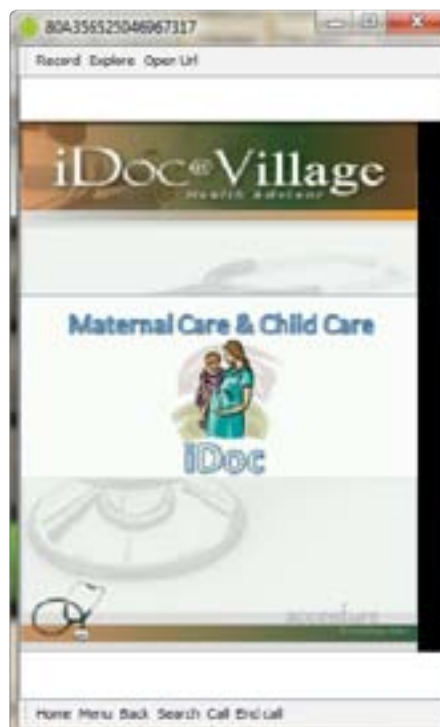
Village-Aligned IT Initiatives

One way of bringing quality primary care to people in rural India is to empower the intermediaries (healthcare or outreach workers from each village) already active in those regions. This is precisely the approach that we have adopted at the Accenture Technology Labs, India. We are working with multiple stakeholders to equip field workers with Decision Support System (DSS) enabled tablets or smart phones that incorporate the latest World Health Organization (WHO) guidelines, clinical protocols and best practices. Each tablet has inbuilt mechanisms for supporting consultation with doctors, remote diagnostics and context-sensitive treatment and location-aware data capture.

Our system fulfills two important requirements. First, the powerful knowledge-based mobile devices—capable of processing complex business rules—allow the rural intermediaries to provide the human touch necessary for overcoming the local language, literacy and trust barriers. Secondly, our system allows less than fully trained medical doctors to deliver quality healthcare.

DSS for clinical diagnostics has been around for some time. What is relatively new, however, is the usage of such a system (for outreach workers) on a handheld mobile device that can operate even without network connectivity.

As one would expect, an initiative of this scale involves multiple stakeholders, besides the patients. We are, therefore, working with primary healthcare providers, tertiary healthcare providers, micro-finance institutions, government departments and technology providers to ensure a widespread adoption of our healthcare solution.

Our Solution—iDoc@Village

iDoc@Village is a flexible and extensible system which can operate in three modes.

Basic
In this mode, the system does not require network connectivity. Using a mobile DSS, the solution allows outreach workers to make on-the-spot diagnosis and recommend remedial actions. Where patients have a low cost cell phone supporting basic text SMS, our application can also be configured to send alerts and reminders of treatment to patients in their preferred language.

Enhanced
In this mode, the outreach workers are able to go beyond asking questions from patients. They can place medical devices on patients and collect physiological data on parameters such as, blood pressure, oxygen content in blood, blood sugar, ECG data, weight and other health parameters.

Furthermore, outreach workers can use cameras for taking photos of rash, skin color, abrasions and other physical symptoms. This information can be used for more detailed analysis and comprehensive treatment. Although not a requirement, in the event that there is network connectivity, outreach workers can leverage comprehensive backend diagnostics systems as and when required.

Comprehensive

This mode requires network connectivity for enabling real-time video consultation between a patient and doctor present in an urban hospital.

We have embedded features in the iDoc system that allow outreach workers to identify and contact the most appropriate specialist, based on criteria such as region, language, specific problem at hand and availability/presence of the specialist.

Innovation at Accenture Technology Labs, India

Accenture Technology Labs, India specializes in four areas: Software Engineering, Digital Experiences, Biometrics and Emerging Economy.

The Software Engineering R&D group develops tools and frameworks for industrial strength software development and for conducting research on next generation application lifecycle management for cloud. The Digital Experiences R&D group focuses on social media, social CRM, social commerce and other collaboration initiatives. The Biometrics R&D group concentrates on next-generation authentication systems based on various biometric signatures. The main focus of the Emerging Economy R&D group is on the development of next generation IT solutions that are highly relevant for India and other emerging markets.

Miles to go...

We are aware that the iDoc@ Village solution is a drop in the ocean of holistic rural development. In fact, the lack of access to healthcare is only one of the ingredients of what makes rural India 'rural.' Innovative technologies have an important role to play in many other segments for which the Accenture Technology Labs, India is developing solutions. For instance, we are developing:

- Innovative consumer-centric solutions to help reduce or eliminate the need for load shedding or rolling blackout
- Biometric-based solutions to help National and State Governments make their public distribution system through Fair Price Shops (FPS) tamper-proof and highly secure

- Kiosk-based mobile video content distribution solutions to help telecom service operators and content providers distribute content at affordable prices in rural areas

We expect our solutions for India to be highly relevant to other emerging markets, which have similar social economic conditions and whose governments are exploring effective mechanisms for delivering basic services to their rural people.

Career Opportunities at Accenture

If you enjoyed reading this article and would like to explore career opportunities in India with Accenture, we encourage you to visit us and learn about vacancies, our work environment, benefits, career path and much more.

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