# Simputer Case Study

**Background and Context**

The Simputer project was conceived during the organization of the Global Village, an International Seminar on Information Technology for Developing Countries in 1998. The Seminar highlighted the point that the key to bridging the digital divide is to have shared devices that permit truly simple and natural user interfaces based on sight, touch and sound. A challenge was made to develop a low-cost, easily available device that would deliver local-language and icon-based IT access to the masses.

**Project Description**

A joint effort of the Indian Institute of Science and a Bangalore-based software company took up the challenge and developed the Simputer - named as a short form for Simple, Inexpensive and Multilingual. The device has an iconic interface, touch-sensitive screen and text-to-speech features in different Indian languages. Consequently, for the first time, non-literate users can browse the web using pictures and the text-to-speech capability allows the web content to be delivered in local languages. The device is expected to cost approximately $200.

While resembling a PDA, the device is much more powerful with an Intel strong-arm chip, a GNU/Linux operating system and 32MB RAM. The inclusion of a smart card reader and the extensive use of audio in the form of text-to-speech and audio snippets also distinguish the device from a PDA.

The Information Markup Language (IML) was created to suit the unique needs and purpose of the Simputer. Referred to by some as the "Illiterate" Markup Language it was designed to provide the following features:

- Uniformity across diverse applications
- Ease of use
- Support for multilingual text and speech output
- Support for smart card usage
- Transparent access to remote/local resources
- Ease of application development
- Use of Internet standards
- Platform independence

Application development for the Simputer can be done on any platform: linux, windows, solaris, MacOS. This is because any Simputer application can be viewed as a black box that reads in IML and outputs IML.

Finally, given the unreliable sources of electricity for the rural poor, the Simputer was designed to run on AAA rechargeable batteries or the mains.

**Simputer Trust**

The Simputer developers established Simputer Trust, a non-profit organization, in order to fulfill the catalytic vision of taking IT benefits to the rural masses. The Trust is described as "a coming together of academics and technologists from industry with a broad imperative of harnessing the potential of the Simputer for the benefit of all sections of society. The vision is to promote the Simputer, not as an end product but as an evolving platform for social change."

The Simputer Trust will license the device's design and software to manufacturers for mass production but keep a tight control on specifications to maintain standards. The device makers can modify the design but must pool back the changes to the trust after having a one-year head start in commercially using the modifications. A one-time license fee will cost US$25,000 for firms in developing countries and US$250,000 for those in developed countries. Funds from licensing will be ploughed back into research and development.

As with any IT hardware, useful applications rather cost alone will drive the demand and determine the success of the Simputer. The needs of the rural poor and the market opportunities in serving them are unfamiliar to most software developers and entrepreneurs.

The work of the Trustees is to encourage software developers, entrepreneurs, development agencies, nonprofit organizations and others to activate the potential of the tool they have provided. Their role is to educate market developers to meet the unfamiliar needs of the rural poor. For instance, they note that the SmartCard feature that the Simputer provides enables the Simputer to be marketed to and shared by a whole community. In fact, since Smart Card technology allows for personal information management, a very large number of individuals can benefit from a single device. (This is a completely foreign concept to traditional market-development professionals.) A local community such as the village panchayat, the village school, a kiosk, a village postman, or even a shopkeeper should be able to loan the device to individuals for different uses. Applications in diverse sectors such as micro banking, health data collection, agricultural information gathering and dissemination are just a few anticipated. The Trustees are Vijay Chandru (IISc), Vinay Deshpande (Managing Trustee, Encore), Shashank Garg (Encore), Ramesh Hariharan (IISc), Swami Manohar (IISc), Mark Mathias (Encore), and V Vinay (IISc). Rahul Matthan (Trilegal).

**Obstacles**

- **Getting the Simputer Manufactured**

  Simputer Trust will not undertake the manufacture and distribution of the Simputer. The trustees have decided against the traditional models of technology development and deployment, which they believe have restricted the benefits to the few. Instead they have decided make Simputer's hardware specifications available on the web and to provide very generous licensing provisions as partially described above. Multiple manufactures are desired as this would help minimize the cost of the hardware for the consumer.

- **Getting Applications Developed**

  Low hardware costs should lower one of the barriers to application development. Still, rural villagers with unfamiliar needs and a variety of languages may still not sound like a market prime ready for a "killer app." Nevertheless the reality is that the market is huge, the needs are great and IT technology now allows profitable markets to be developed that could not have been imagined even a few years ago. Governments, development agencies, entrepreneurs, non-profit organizations and others are well positioned to become the new "market developers" serving the underserved. Getting sufficient content or data developed in local languages may initially require some education and effort by those most familiar with the needs of the rural poor.

- **Making it Truly Affordable**

  $200 may still be too high for poor communities. The hope is that government and large multilateral organizations will use the Simputer as a platform, indirectly making it affordable for poor communities to get access to Simputers. SmartCard has been added as a prime method of enabling the "sharing" of such devices. Rural communities could own several devices and hire these out for usage to individuals based on the ownership of a SmartCard.

- **Reparability**

  No provision has been made for the reparability of the devices yet. Manufacturers may provide some service. As Simputers proliferate, it can also be expected that entrepreneurs will fill the demand for spare parts, repair, and maintenance. "In developing countries nothing is 'throwaway."

**Impact**

The Simputer was formally "launched" on April 26th of 2001. At the event, Vijay Chandru, a

professor at the Indian Institute of Science and one of the trustees, stated, "the Simputer is essentially an empowering device," and T-shirts declared "Radical simplicity for universal access." Obviously it is too early to measure the impact of the Simputer, but with such sentiments, the potential implications for the rural poor are profound.

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