

Delivering on the promise of information technology to strengthen health systems

PATH's approach to enterprise architecture addresses common challenges of health systems

BETTER HEALTH REQUIRES MORE THAN MOBILE PHONES

From tracking tuberculosis cases in Africa to providing better maternal and child health care in India, information and communication technology (ICT) is heralded as a powerful new tool in the effort to improve global health. Mobile phones, in particular, have sparked interest for their promise to transform health service delivery, diagnostics, and monitoring in developing countries.

In reality, many health-focused ICT projects fail after launch or never reach full scale-up, in part because they lack a common, coherent set of standards and requirements to guide their implementation. A review by PATH in 2009 found the majority of ICT pilot projects—and in particular those using mobile phones—failed to advance to full-scale deployment and remained narrowly focused on a single disease rather than addressing broader health system needs.

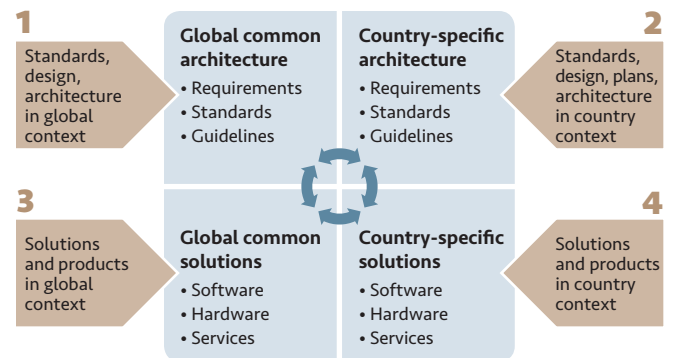
PATH's work in health information systems is bridging the gap between global health and ICT using a different approach—a user-driven enterprise architecture, an invisible scaffolding that supports and sustains technology implementation.

A well-designed enterprise architecture acts like the foundation, roof, and walls of a house. It provides the essential framework and common structure to support ICT projects of all kinds across different health programs and in many different settings.

PATH'S APPROACH TO BETTER INFORMATION SYSTEMS

ICT projects in developing countries too often skip a crucial first step: understanding what the end users of technology need and how they would use technology to address those needs. PATH focuses first on what health workers at all levels need to do their jobs more effectively and then on how technology can support them. With

Effective information systems require four kinds of work



more than 30 years of experience in developing and implementing health technology in low-resource settings, PATH is a leader in the development of technology that addresses user requirements and is sensitive to the context in which it is used.

Health information systems in many developing countries are fragmented and cumbersome, unable to provide answers to basic questions that health workers and government officials grapple with daily: How many people are sick? How many are getting necessary treatments and services? When and where is the next critical shipment of medical supplies expected to arrive?

We work with global health and technology partners to design and develop common tools and methods for building enterprise architecture that can strengthen overall health systems. We help build links between the world of global health and the discipline of ICT, but we deliberately do not undertake the development of long-term software solutions. We see our role as a catalyst, developing the initial design and approach, creating prototypes of potential solutions, then encouraging the development of a private-sector market for the technology.

A NEW TOOL FOR ACHIEVING GREATER HEALTH IMPACT

In 2009, PATH received a grant from the Rockefeller Foundation to develop a model enterprise architecture for low-resource settings that supports the design and development of sustainable, scalable, and affordable national health information systems. PATH worked with the Public Health Informatics Institute and other informatics leaders to adapt and validate a standardized methodology for gathering and documenting the specific functions that information systems must perform.

That approach is called the Collaborative Requirements Development Methodology (CRDM), which can be used across countries, cultures, and segments of the health care system to manage information. The approach can be applied to individual health records, insurance, laboratory data, management of facilities or health workers, pharmaceutical stocks, or prescription management.

PATH'S PROJECTS IN HEALTH INFORMATION SYSTEMS

PATH aims to demonstrate that investing in proper design, development, and implementation of health management information systems is a sound strategy. With this evidence, we hope to attract new interest from private donors and the private sector to help build high-performing, sustainable ICT projects in developing countries that can improve health outcomes.

Strengthening supply chain management

Goal: Define the global functional requirements for a supply chain management system. The requirements were then validated in Kenya, Rwanda, Senegal, and Vietnam. **Approach:** Applying the CRDM approach, health care workers identified a set of 12 business processes and 208 user requirements common to national supply chain systems. Albania, Rwanda, and Zambia have successfully used these global requirements to develop country-specific plans for new supply chain management systems.

The mobile midwife improves care for women

Goal: Improve postnatal maternal and newborn care in rural clinic- and home-based settings in India. **Approach:** Midwives use a mobile device for guidance on clinical decision-making, data collection, medical record storage, and patient education.

Getting facilities online through the SmartConnect™ data transmission system

Goal: Develop a low-cost device to bring a “digital dial tone” to rural health clinics. **Approach:** Facility-based device offers low-bandwidth data communication. Rural clinics in Nicaragua used the technology for diagnostics, monitoring, reporting, and vaccine stock management.

Mobile support for tuberculosis management

Goal: Improve tuberculosis (TB) diagnosis, treatment, management, and tracking in Tanzania using mobile devices. **Approach:** A mobile application was developed to improve TB case identification and management. PATH and our partners created a prototype for a national-level system, integrating the mobile technology with national registries, and developing requirements for a full-scale system.

A stronger, more reliable cold chain for delivering vaccines

Goal: Create a tool to manage and forecast cold-chain equipment needs to maintain vaccines at the proper temperature in Kenya, Uganda, and Zimbabwe. **Approach:** PATH developed an inventory management and planning tool, and then partnered with others for country introduction and development of national plans.

Advancing TB surveillance

Goal: Develop a process to gather system requirements for national TB surveillance, evaluating the feasibility of data reporting from facility to district to national level. **Approach:** PATH facilitated workshops with users, experts, and stakeholders in Tanzania to define business processes and workflows.

Supporting national health insurance information technology systems

Goal: Determine the global functional requirements that a health insurance information system must perform for use by countries embarking on national health insurance schemes. **Approach:** Apply the CRDM approach to develop common requirements for insurance schemes in Ghana, India, Indonesia, Kenya, the Philippines, Thailand, and Vietnam. The project will also provide standard reference research on core information system issues, such as the development of a common health data dictionary.

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PATH is an international nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think and act. PATH's work improves global health and well-being.

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June 2011