Defining Electronic Health Technologies and Their Benefits for Global Health Program Managers

DEFINITION

Hackathon: … **a gathering where programmers collaboratively code in an extreme manner over a short period of time**. Hackathons are at least a few days—or over a weekend—and generally no longer than a week. While working on a particular project, the idea is for each developer to have the ability and freedom to work on whatever he/she wants. A hackathon is also known as a hackfest or hack day" (Techopedia, available at http://www.techopedia.com/definition/23193/hackathon).

Hackathons

Hackathon is a contraction of the words "hack" and "marathon." Two groups—OpenBSD and Sun Microsystems—are said to have created the first hackathons simultaneously, in 1999 (1).

Hackathons are short-term events (2) that bring together technology professionals of various affiliations to create something that previously did not exist. Many hackathons in the information technology (IT) community are "fast-paced contests to code software" (3), while others are more collaborative. Some involve a cash prize; others do not. Regardless of the process and incentives used, hackathons enable coders, programmers, and data visualization specialists in a compressed period to develop a product (a specific computer code or data visualization scheme, such as an infographic), a prototype (an early version of an application, game, or other output), or a concept (an early idea for a product), or to overcome a problem (export specific software or fix a software glitch).

MEASURE Evaluation—funded by the U.S. Agency for International Development (USAID) to strengthen health systems in low-resource settings—is exploring how hackathons can address data gaps and support decision making in HIV programs.

What Can Hackathons Do for Global Health Program Management?

Hackathons have potential to address data gaps and support decision making in HIV programs

Conceptually, hackathons are an opportunity for prototypes, applications, and products to be developed that can help program managers do their jobs. However, few documented examples of hackathons to improve global health program management exist. One of the best of these is Liberia's use of a hackathon to improve its response to the 2014 Ebola outbreak. When the crisis began, the Ministry of Health and Social Welfare had no way to deliver late-breaking information quickly to its 8,000-some public health workers. To solve the problem, the ministry turned to the human resources (HR) data base it used to track these employees,

Hackathons

because 90 percent of the records included workers' mobile phone numbers. Integrating a platform for text messaging developed by the United Nations Children's Fund (UNICEF) in the HR data base would give the health ministry the communication tool it needed. The task would be relatively easy, because the data base had been developed using interoperability standards (see our fact sheet on data interoperability and integration) and open source software (iHRIS: http://www.ihris.org/). But code would have to be written to link these two systems. To get that done, the ministry and its partners hosted a hackathon, where developers and public health officials joined forces to create a new mobile phone application called mHero (Mobile Health Worker Ebola Response and Outreach). This application can access health worker data from other data sources that use the same standard code, making it easy for health managers to get the right information to the right people, fast.

Hackathon at iHub in Nairobi, Kenya. Photo: Erik Hersman

Another good example of a hackathon—focused not on health but on crime and violence in Latin America and the Caribbean—illustrates a different way this strategy can support program management. In May 2015, more than 100 participants from approximately 50 organizations worldwide formed teams in accord with their skill sets and interests to create eight new projects that would show how data can be analyzed to yield new insights on crime in the region. The winning project consisted of simple but compelling visualizations of the way people perceive violence in their neighborhoods and whom they trust most. This information can be used to improve crime and violence prevention programs (4, 5).

A new mobile phone application—mHero, produced through a hackathon in Kenya—gets the right health data to the right people, fast

For more information on hackathons, see Health Hackathon Handbook (http://hackingmedicine.mit.edu/handbook/), a step-by-step guide to organizing a healthcare hackathon).

For more information on MEASURE Evaluation, visit: www.measureevaluation.org.

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Hackathons

ALL ABOUT eHEALTH

Electronic health (eHealth) refers to the health sector's use of information and communication technologies (ICT) such as mobile phones, portable and handheld computers, Internet and cloud-based applications, open source software, and data warehouses. Advances in ICT have increased exponentially the amount of data that health information systems can collect, synthesize, and report. Expansion of these technologies in low- and middle-income countries (LMICs) promises to revolutionize the global health sector's response to these countries' most pressing health issues.

MEASURE Evaluation—funded by the U.S. Agency for International Development—seeks new ways to exploit such eHealth solutions as data dashboards and geospatial data analysis, as part of its mandate to strengthen health systems in low-resource settings. Even though health program managers in LMICs—as everywhere—are increasingly expected to use and invest in such strategies, many lack information about how the strategies work and how they can benefit the management of health programs.

To address this problem, we developed this glossary of eHealth strategies most likely to enhance data access, synthesis, and communication for health program managers at all levels of a health system who are eHealth novices. The list has been vetted and revised by an advisory group representing the World Health Organization, the Free University of Free Brussels/European Agency for Development and Health, the University of Oslo, the Public Health Foundation of India, and the National Institute of Public Health Mexico.

The complete set consists of fact sheets on the following eHealth strategies, in addition to this one:

- **Dashboards**
- **Crowdsourcing**
- **Open data**
- **Big data and data science**
- **Geospatial analysis**
- **Integration and interoperability**
- **App competitions**

In each fact sheet, you'll find the following information:

- eHealth strategies that have been used in health information system strengthening efforts to improve access to and synthesis, presentation, and communication of health data for program management
- How the strategies have been adapted (or not) from their application in resource-rich country settings to health programs in LMICs
- An example of the strategy for global health program management
- Links to additional resources for more in-depth details on the strategies

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