Openness and value in the digital health sector

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The value of openness goes far beyond cost.

The use of open standards and open source software *does* provide a set of cost-effective, adaptable options for countries, but the benefits of such openness are more complex and nuanced than cost savings. The growth of the open ecosystem is due in large part to an *ethos* that has reduced barriers of entry for new solutions, allowed countries the flexibility to deploy customizable solutions to meet their needs, and provided key capacity-building opportunities for emergent entrepreneurs and technologists in the countries where these systems were being deployed. An open approach can also deepen country ownership of their digital health systems, expanding a country's choices for data hosting, vendor support, and applications beyond a single health vertical or program.

Programs can maximize their resources — and ultimately their impact — through open standards, open data, open source technologies, and open innovation.

– [Principles of Digital Development](#)

However, the sustainability of open source systems is coming into question. Countries, implementers, and donors alike are testing the resilience of long-term business models for open source systems as the total cost of implementing global goods is becoming more transparent, and commercial solutions are increasingly prevalent in low-resource settings. As the digital health sector grapples with these questions, it's easy to lose sight of a remarkable feature of the digital health landscape—the ever-increasing set of affordable, quality choices for countries represented by open source digital health tools.

Libre vs. Gratis

One of the highest value propositions of nearly every digital health global good software tool, from DHIS2 to iHRIS, is adaptability. These tools are designed to be agile so that country governments, facilities, and health workers have access to digital tools that meet their specific needs. While not exclusive to open source technologies, the philosophy of common goods and sharing that underlies open source naturally extends to the open exchange of data. This is accomplished through the promotion of open standards and interoperability approaches that allow the easier data exchange between systems. Governments are calling for adaptability and interoperability in their digital health strategies—emphasizing the importance of these qualities within a strong ecosystem of available options.

A common criticism of open source technologies is the 'hidden' cost of adaptation and support needed for an open source product to work effectively for a given health system. It is generally accepted that the cost of maintaining open source software compares with commercial software license costs.

The misconception of open source as "free" may be better understood through the romance languages. Open source is LIBRE, NOT GRATIS: free as in speech, not as in lunch.

In the case of many low resource settings, this is the right kind of free. The need for adaptability is balanced by the *ability* to adapt a software. Many software developers working in global health today are based in the regions and countries they support, building their skills and capacity from the open source code of available software. Software developers who learn from open source global goods have new skills that they can apply in other sectors of a country's economy, building the overall national technology capacity and increasing the national market readiness for the benefits of digital transformation.

But we propose that the most important value of open source systems is community.

Open source software relies on a strong community of software engineers, donors, health experts, governments, and implementers working together throughout the life of a software tool. Developing, scaling, and enabling interoperability of digital health global goods is not easy. Ensuring effective, ethical governance of digital solutions is not easy. Open source communities use groups of diverse stakeholders to answer critical development, implementation, and governance questions. These communities foster peer-learning between countries and users as implementation best practices and software improvements are captured and shared. This community is the engine that powers the valuable capacity strengthening that has impact beyond the health sector. Digital systems and the insights they produce have a growing role in the decision-making on how, where, when, and what health services are delivered—a responsibility that *should* involve diverse communities.

Asking challenging questions

It takes a strong community to reflect, ask challenging questions, and make hard decisions. The community must balance the potentially conflicting needs. Users may see the benefit of using open source options for immediate health system needs, but also want to ensure that open source software has a lifespan beyond donor funding cycles. Digital Square recently hosted a webinar to share research on sustainability models for OpenLMIS, a global good designed to manage health commodity supply chains. How can OpenLMIS survive in the absence of donor funding? It's a bold question but one many open source solutions grapple with, especially those global goods backed by a sole implementer.

Countries need global goods like OpenLMIS that are not just a nice prototype, but a perpetual product that fits with their long-term digital vision. The global financial landscape continues to evolve, and OpenLMIS needs to evolve with it.

– Brian Taliesin, Director of OpenLMIS

OpenLMIS has taken a bold step: engaging in a public/private partnership that keep the core of OpenLMIS licensed as open source and support new features for a possible commercially licensed version. This is the first example for a digital health global good, but examples abound of private sector companies that find successful business models that both leverage and help sustain open source technology keeping their vision, value and principles intact.

Shifting towards business models that sustain open source requires us to think differently—it gives us an opportunity to engage private sector organizations in ways that can be a positive contributor to health systems.

– Brandon Bowersox-Johnson, VillageReach

An ecology of choice

This blended commercial-and-open-source approach extends to implementations as well. Open source devotees are frequently hesitant about commercial solutions and close the door to this approach to diversity, strength, and resilience. We propose that being closed to commercial partnerships and stronger hybrid solutions undermines the very principle and spirit of *openness*. The hard truth is that open source is not free (*read: gratis*). It is not easy. And it is not the solution for every digital health need in every country, especially as markets evolve and mature.

Ultimately, a country moves past the capacity-building phase. In a mature market, entities focus primarily on their core business, and the core business of a health system is not software development. This shift does not happen all at once, rather we see it happening in different cases at different times. A country can standardize on an open source medical record system and health workforce information system yet select a commercial financial information system and logistics management information system.

There is no "one size fits all" approach for the long-term sustainability of open source projects. Projects like OpenLMIS that are deeply exploring a diversity of business models and revenue streams are going to be more resilient in the long term. While we do need more systematic donor commitment for the core support of global goods, it will be the projects that have fostered a community that can include NGOs, governments, startups, and commercial players that are going to be more sustainable.

– Heath Arensen, Digital Impact Alliance's Open Source Center

We advocate for investors and implementers to support countries to build an **interoperable ecology of choice**. The emphasis should not be on open source vs. commercial licensing of software, but on open vs. proprietary standards. If a country develops a national interoperability architecture based on open standards, then a country may select from a wide variety of open source and commercial applications that incorporate those standards. A variety of software can then be plugged into a country's architecture and changed and evolved along with the country's priorities and capacities.

Digital Square's Commitment

Digital Square's vision is stated clearly in our strategy - we support a world where appropriate use of digitally-enabled health services closes the health equity gap. It takes communities beyond just our global digital health community to realize this vision. Every voice and perspective is important—country stakeholders, investors, organizational partners, open source developers and private sector—both partners in open source resilience and commercial software vendors. With authenticity, transparency, and even

vulnerability, we can work collaboratively to build a world where everyone can access digitally enabled health care, supported by a resilient, sustained, interoperable ecology of choice.

Organizations and donors (like USAID and UNICEF) working in the digital health sector are developing evidence and tools that countries can use to inform their decisions. Similarly, Digital Square is undertaking research this year to better match digital health interventions across levels of digital health maturity. We are talking with and conducting research in low-resource countries to understand the perspectives of different country stakeholders about commercial and open source products: where are commercial products out-performing and where are open source solutions the better fit? We are also looking at what is affordable at different levels of digital health maturity. As the conversation about the value of open source tools evolves in this next decade, we are committed to provide evidence to inform and support countries at a variety of digital health market levels.

This conversation continues. You can read more on the DIAL Open Source Center Forum, where some useful tenets necessary for global goods to sustain and evolve toward their future state have been shared.