

Increasing transparency on the cost of digital health transformation

THREE KEY RESOURCES

The logo for Digital Square, featuring the words "digital square" in a white, sans-serif font inside a dark blue rounded square.

Understanding the digital health market is critical for ensuring that appropriately designed, affordable, high-quality digital products are produced to improve health outcomes among vulnerable populations. Digital Square works to demystify the market by publishing research to better understand what contributes to a healthy, functioning market for digital health and developing resources to support more open, transparent, country-led planning around the financing of digital transformation efforts.

This document summarizes three resources—a conceptual framework for digital health investment, a Total Cost of Ownership (TCO) tool, and a Sustainability Calculator—which have been created by Digital Square in partnership with other digital health experts to promote a more transparent and data-driven digital health ecosystem.

Conceptual Framework for Digital Health Investment

The problem this resource addresses | The digital transformation of health systems has the potential to improve access, quality, and efficiency of health care on an unprecedented scale and accelerate progress towards Universal Health Coverage. It is therefore critical for national governments to allocate the necessary funding to digitally enable their health systems and ensure that this is part of their national health strategies. While some countries can mobilize the necessary funding domestically, others require additional support through international funding.

Little information exists about the financial resource requirements or when and how funding should be invested to achieve a successful digital transformation of health systems. Where information does exist, critical data points are often not accounted for, resulting in unreliable or inaccurate cost estimates.

Description | The Conceptual Framework and corresponding report, titled '[Closing the digital divide: More and better funding for the digital transformation of health: A Conceptual Framework to guide investments and action towards health for all in the digital age](#)', outlines the amount, focus, and nature of the investments needed to support the equitable, inclusive, and sustainable digital transformation of health systems in low- and lower-middle-income countries (LMICs) and offers recommendations for how that transformation should occur.

Methodology | The conceptual framework was developed by [Transform Health](#), and the cost and impact modelling was led by [Digital Square at PATH](#). To create the framework, nine priority investment areas were identified by more than 350 global stakeholders as critical

to reaching digital transformation. By estimating the cost of these nine investment priorities in LMICs, an indicative figure for resource needs for a digital transformation of health systems was generated. Based on this modelling, the framework estimates an investment of US\$12.5 billion (approximately US\$2.5 billion per year) is needed for the nine priority investment areas across 78 LMICs over the next five years.

What makes this resource unique | The framework and corresponding report go beyond a typical set of recommendations by providing an evidence-based approach to prioritizing investment areas and defining the level of investment necessary to support the financing of digital health transformation across all LMIC geographies.

How to use the analysis | This framework should be used as a resource by donors, government representatives, and development partners at any stage of a funding cycle. The recommendations should also be used by donors when considering an investment strategy in digital health transformation.

Limitations | The nine investment areas analyzed do not represent an exhaustive list of the investments needed for a full digital transformation of health systems, nor do they represent the priority investments that any particular country may choose. Instead, they represent building blocks that likely will require complementary investments. Further limitations are due to the limited availability of cost data from countries with developed or emerging national digital health strategies.

Link | [Investing in digital health | Transform Health \(transformhealthcoalition.org\)](https://transformhealthcoalition.org)

Sustainability Calculator

The problem this tool addresses | Today, many low- and lower-middle-income countries are prioritizing digital health transformation as a way of improving overall population health. To appropriately plan for sustainable digital health transformation on a national level, it is important for countries to understand the approximate cost of implementation countrywide. There are few resources that exist to help countries in the early stages of planning for digital health transformation understand what costs need to be considered for digital transformation.

Description | Digital Square's Digital Health Sustainability Calculator is a modelling tool designed to provide a high-level estimate of the total cost to reach digital transformation at a country level. The tool estimates the annual price of digital health based on a country's total population and assumed per-person cost of delivering digital health services.

Methodology | The Calculator was developed by analyzing costed digital health roadmap data from 13 African countries with a [digital health maturity](#) level between 1 and 3 and using that data to generate a suggested cost-per-person estimate based on maturity level. Low-maturity-level countries have higher cost-per-person estimates than higher-maturity-level countries, largely due to the need to bolster infrastructure, training, and regulatory policies. To be included in this analysis,

Total Cost of Ownership (TCO) Tool

The problem this tool addresses | Long-term success of digital health interventions in low-resource settings depends on accurate planning for expenditures over the lifecycle of the intervention. This can only be attained when all costs associated with owning and operating a unit of equipment or technology—referred to as total cost of ownership—are understood and documented.

Description | The Digital Square Total Cost of Ownership (TCO) Tool is an Excel-based, interactive budgetary and benchmarking resource to help stakeholders in countries with lower digital health market maturities understand and develop more realistic budgets for digital health interventions. The tool can be used across a range of interventions, including both those used by many last-mile users (such as community health workers) and those more narrowly tailored for national-level health system management. It breaks down costs into development, deployment, and operations phases of implementation. When used appropriately, the TCO Tool has the potential to identify

roadmaps needed to meet a set of criteria, which are explained in the "Project Description" tab of the accompanying Excel file [linked here](#).

What makes this tool unique | The calculator leverages cost data from existing digital health roadmaps and knowledge gained from the [Conceptual Framework](#) analysis to estimate the country-level cost of digital health transformation. The tool also breaks down per-person costs by development, deployment, and operations.

How to use the tool | Users select their desired country, review the supporting data that provides information on suggested cost-per-person estimates, and enter the assumed per-person cost to generate an estimated total dollar amount to reach digital transformation at a country level within five years.

Limitations | The Sustainability Calculator is not meant to be an exact calculation but rather a high-level estimate of what a single country might spend on digital health transformation. The Sustainability Calculator leverages costs from country-level digital health roadmaps rather than actual cost data. Costs for financing the development and maintenance of global goods, aligning donors, and creating appropriate standards for data exchange are excluded.

Link | [Digital Square Sustainability Calculator](#)

cost savings which can improve the scale and sustainability of digital health solutions.

Methodology | Digital Square developed its TCO Tool by reviewing and incorporating elements of country-specific digital health cost line items from several sources, including investment roadmaps (such as [Tanzania's](#)), the [World Health Organization Digital Implementation Investor Guide \(DIIG\)](#), the [Digital Square and Vital Wave TCO reference case](#), the [Dimagi TCO Model](#), and other existing TCO tools in the global health field. Once developed, the Tool was then tested with a small working group—including Vital Wave, Dimagi, PATH Tanzania, and select digital health global good manufacturers—and refined based on their feedback.

What makes this tool unique | Digital Square's TCO Tool is unique in that it is intended to assist in planning expenditures over the entire lifecycle of the digital health intervention—not just the introduction. As countries grapple with how to plan and pay for digital tools to be

sustainable, this Tool provides insights to aid in that decision-making. The Tool is also aligned with a market maturity map, an evidence-based Digital Square product created to meet end users' needs and digital health product requirements within a specific country.

How to use the tool | The TCO Tool is intended to be easy to use. Users first download the Tool from the Digital Square website, open it with Excel, and then enter relevant inputs in highlighted fields on the “Input” tabs. To simplify data input, the tool comes with some suggested inputs and notes for select cost line items. The Tool also comes with a “User Guide” tab for specific instructions on utilization. Once all data are entered, the “Output” tabs will display the estimated costs and

provide guidance for benchmarking, budgeting commitments, and gaps.

Limitations | The TCO Tool is intended to be used to identify and collect user-specific cost data. Suggested inputs are provided in the Tool when possible but are only to be used as broad guidance and should be replaced by user-specific data when available. Costs may vary across products, countries, and scale of deployment.

Link | [Digital Square TCO Tool](#)

For questions or more information, please email DigitalSquareTCO@path.org

Which resource is right for you?

	Intended users	Purpose	When to use it	Format	Cost of use
Conceptual Framework 	Donors, private-sector partners, national governments	Understanding the cost, focus, and nature of the investments needed to support digital transformation	When aiming to coordinate and align investments across LMICs	Written report	Free and publicly accessible
Digital Health Sustainability Calculator 	Country-level stakeholders working in level 1–3 digital health maturity countries	Estimating the cost to reach digital transformation at a country level	As a starting place when developing a costed digital health strategy or roadmap at a country level	Web-based with an accompanying Excel document for additional information	Free and publicly accessible
Total Cost of Ownership (TCO) Tool 	Ministries of health, governments, software developers, donors, and other decision-makers	Developing more realistic budgets for specific digital health interventions beyond pilot phases	Generating a budget for a specific digital health implementation	Excel-based tool	Free and publicly accessible