

Quantifying Digital Health ROI — How To Prove Value and Drive Adoption



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Introduction

Everyone is talking about artificial intelligence (AI) and digital transformation, from schools rushing to figure out how to stop students from using ChatGPT to do their homework to Tom Cruise going head-to-(computer-generated)-head with the latest digital supervillain. It feels like it's impossible to avoid talking about the digital transformation, and it's no different in the healthcare industry.

Technological advancement, venture funding (though challenged at the moment) and a wealth of data being systematically gathered via electronic health records and connected devices have fueled the rise of digital solutions for healthcare organizations. These solutions aim to meet the needs of a range of players — including providers, health plans, employers, biopharmas and medtechs — operating across the product supply chain and patient care journey, from R&D to sales and distribution and from patient engagement through care delivery. These solutions aim to enhance operational efficiency, reduce costs and improve patient care outcomes.

Yet, while the goals of digitization are clear, customers continue to ask how to determine whether investment in a digital solution is likely to yield financial returns. Many vendors, largely due to their solutions' novelty or their own lack of resources, are unable to articulate potential returns and thus struggle to win over customers and sustain success.

For the potential customers of digital health solutions, the abundance of options has become a cacophony of indistinguishable pitches fighting for their limited attention and financial resources. Customers are inundated with options, but unlike the drugs or devices whose value they can rely on clinical trial data to see, they are struggling to calculate whether a digital health solution will generate a clear return on investment (ROI).

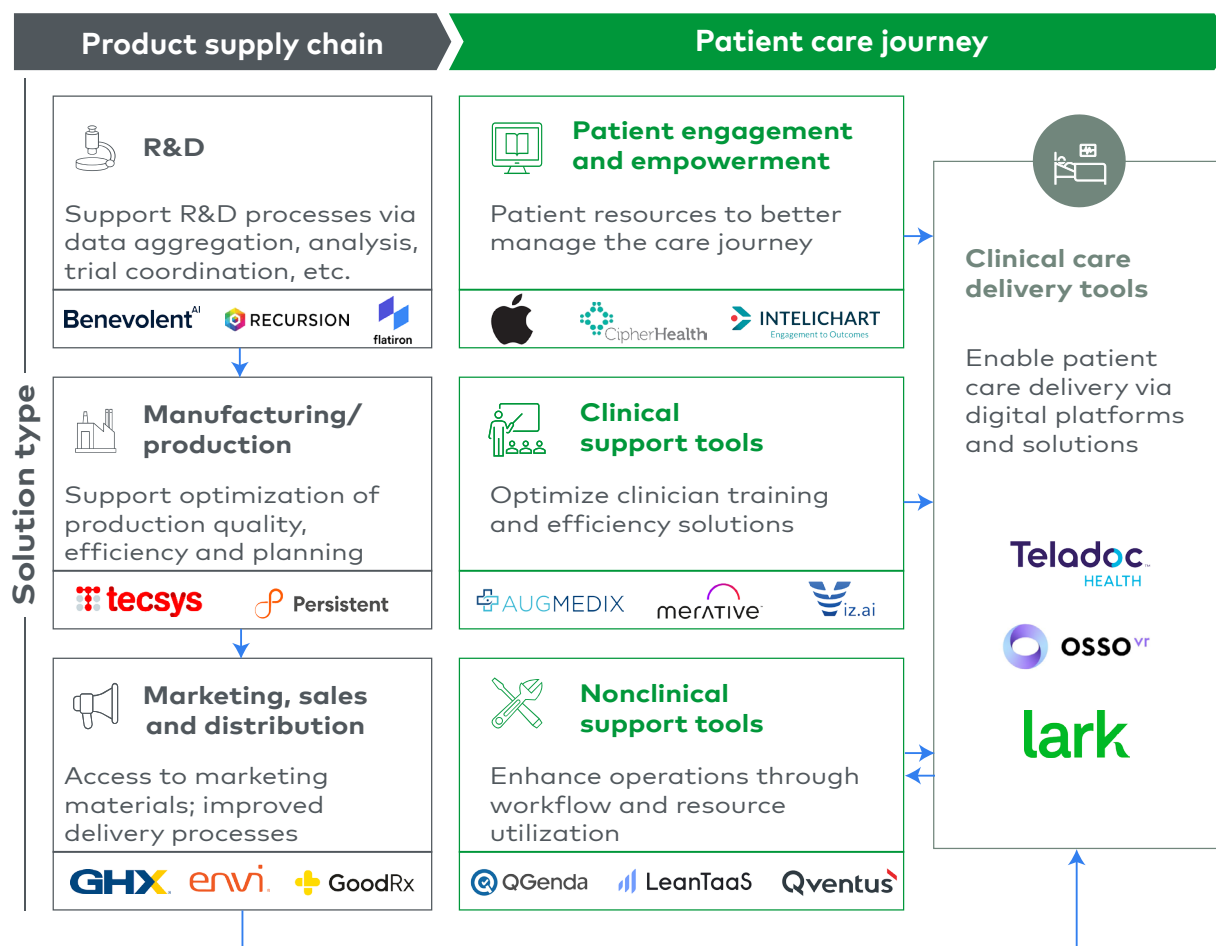
For instance, while AI represents just one small component of digital health, the Food and Drug Administration (FDA) has already cleared more than 500 health-related AI algorithms for use, creating a challenge for providers as they try to navigate this novel market and determine the best way to integrate AI into their workstreams. Though not all digital health solutions will have a quantifiable ROI, it is imperative for those that do (e.g., clinical decision support solutions) to quantify their ROI potential to differentiate themselves from competitors and drive customer acquisition.

Furthermore, payers and providers need help cutting through the noise of the plethora of digital health solutions trying to sell to them. Specifically, they are seeking vendors that demonstrate a strong understanding of the issues they face, how the solution will fit into existing systems and workflows, and how it will generate value in ways that can be measured.

A recent article published by Forbes, "Digital Health ROI Should Be Powered by Empathy, Not Calculators," stressed the need for ROI models that truly capture the essence of healthcare business, can be customized to the client and are more than just a simple calculator.¹ In short, illustrating outcomes, both clinically and financially, is becoming table stakes to succeed in the competitive digital health solution marketplace (see Figure 1).

Figure 1

Digital health landscape

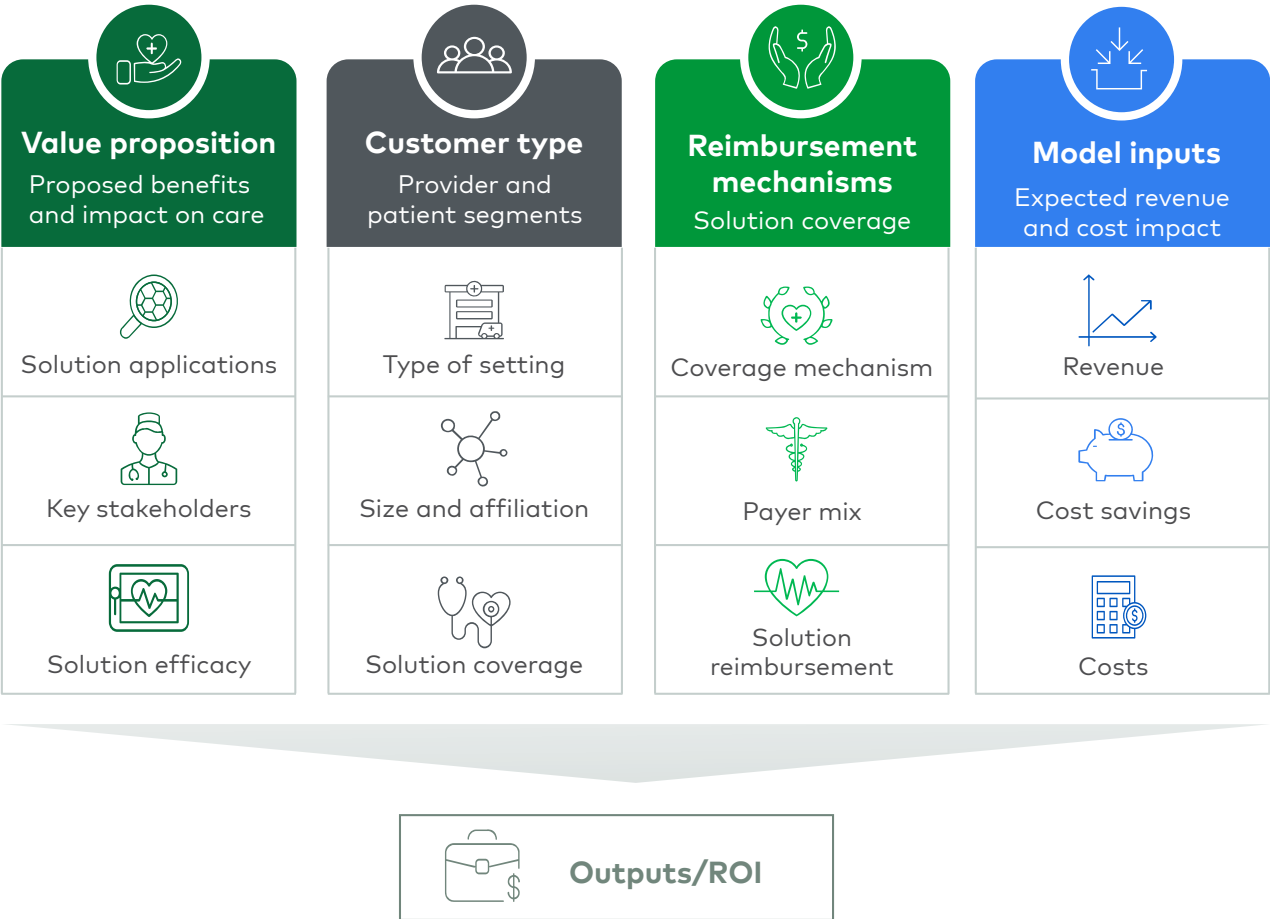


Source: L.E.K. research and analysis

Building an ROI tool – What do I need to consider?

An ROI tool can be critical to driving adoption, but there is a wide range of factors to consider in order to ensure that it is designed to resonate with potential customers. Digital health vendors must consider the nature of the value proposition, the business model of the solution (e.g., customer type, reimbursement mechanisms), inputs (e.g., revenue, costs) and outputs (e.g., time horizon) to design the right model. A poorly designed ROI tool could cause more harm than good as it may cause customers to doubt the upside of adopting the solution (see Figure 2).

Figure 2
ROI considerations



Note: ROI=return on investment
Source: L.E.K. research and analysis

Value proposition

Before beginning to construct an ROI tool, it is imperative to develop a thorough understanding of the digital health solution's value proposition and impact on the patient care journey. Comprehending whom the tool benefits and how is critical to designing the tool and, ultimately, driving adoption:

- **What does the solution do?** First, digital health vendors must identify the target clinical applications, pinpointing relevant medical indications (e.g., diseases, procedures) and patient demographics (e.g., age, gender). It is critical to define where in the medical paradigm the solution fits (e.g., as a complement to or disruptor of standard of care), its use case (e.g., single vs. continuous use) and the key changes/shifts it generates relative to current standard practices (e.g., early diagnosis vs. acute incident avoidance).

- **How effective is the solution?** The next step is to define efficacy, determining how successful the solution is at performing its intended function (e.g., patient triage, diagnostics) relative to the current standard of care. For example, if your digital solution is diagnostic related, what percentage of patients are identified who had been previously overlooked? Alternatively, for patient triage-focused AI, how much is the time to intervention reduced? Understanding how success is quantified and what data is available are important to translating the value proposition into defensible financial implications.
- **Who are the key stakeholders?** Digital health providers must also understand the unique interests and needs of a variety of key stakeholders. Core stakeholder groups to consider include clinicians (e.g., physicians, clinical personnel), patients, economic buyers (e.g., C-suite, finance, procurement personnel) and payers. Each stakeholder group interacts with the digital health solution differently and may approach its value with a different lens.

Business model

Once the value proposition has been assessed, digital health vendors can turn to the business model of the solution. This will be critical in determining ROI inputs and structuring the model properly. Specifically, it is important to define the relevant customer types and reimbursement mechanisms that will have a direct impact on adoption and the magnitude of cost and revenue inputs.

Customer type

The ROI tool should be tailorable to the specific customer, accounting for the type of setting, the size of the patient population and the breadth of specialties. These factors influence the addressable patient population and thus the magnitude of benefit derived from the digital health solution:

- **Type of setting:** Identification of the customer type (e.g., hospital/health system, imaging center, outpatient setting); influences the type(s) of procedures and/or patients.
- **Size and affiliation:** Indication of the number of patients addressable by the digital health solution, which can be measurable by the number of beds, operating rooms or relevant employed physicians/clinicians or by patient throughput.

- **Solution coverage:** Number of relevant specialties, which influences the ability to capture ROI potential; if the digital health solution is diagnostic, for example, providers with the relevant downstream departments can treat patients in-house rather than referring them out, increasing the magnitude of benefit.

Reimbursement mechanisms

Reimbursement is also a key part of ROI calculation, determining revenue potential for patient care. Reimbursement can vary vastly across different digital health applications; for instance, a diagnostic triage AI tool might be reimbursed directly for use, but a workflow management solution might only be reimbursed indirectly (e.g., no direct payment but more cases that are reimbursed per day). There are several reimbursement factors that must be considered:

- **Nature of payer contract:** Broadly, there are two reimbursement types, fee for service (FFS) and value-based care (VBC). Under FFS, reimbursement is based on the volume and type of services rendered; values are contingent on the Medicare Physician Fee Schedule, Current Procedural Terminology (CPT) and Diagnostic Related Group (DRG) coding, which are updated annually. VBC contracts may be capitated or non-capitated. Under a non-capitated model, reimbursement incentives are tied to meeting specific care quality metrics; under a capitated VBC contract, providers are allotted a fixed sum in advance of care delivery based on the patient's risk-adjustment values.
- **Government vs. commercial payer mix:** Providers typically have a mix of patients insured under government plans (i.e., Medicare, Medicaid) and commercial plans. Payment values for care delivery vary widely between payer types and plans, with significant reimbursement and thus revenue implications. For example, a recent Radiological Society of North America study² found that commercial payments are three to four times Medicare payments for imaging services.
- **Solution reimbursement:** Many digital health solutions currently lack designated Centers for Medicare & Medicaid Services reimbursement. To qualify, digital health solutions must pursue Category I CPT (which involves a roughly five-year approval timeline and significant data requirements) or New Technology Add-On Payment (NTAP) reimbursement status. Introduced in 2001, NTAP was created to provide timely access to innovative therapies that are novel, demonstrate substantial clinical improvement and are not adequately covered under existing DRGs. Several AI image evaluation and care coordination technologies (e.g., Viz LVO for stroke

care) are currently covered by NTAP, providing a compelling financial incentive for healthcare providers to use these solutions.

Inputs

ROI inputs constitute the bread and butter of the ROI model and include revenues, cost savings and costs. Revenues and cost savings quantify the positive financial impact and costs quantify the customer expenditure associated with adopting the solution (solution purchase, ongoing expenses, additional physician time requirements, etc.). Specific inputs vary based on the benefits and drawbacks associated with the nature of the solution and where it fits in the patient journey/clinical operations.

For example, time may be a cost savings value proposition for one digital health solution but an indirect cost for another. The examples below are designed for an FFS system, but the same digital health solution for a VBC system would have a very different set of benefits and costs (e.g., higher ROI by providing coverage of a sicker patient population and treating them using minimal intervention).

Revenues

Revenue streams are typically defined by an increase in patient care (e.g., consultations, diagnostic tests, treatments) due to digital health solution adoption. Changes that yield positive financial impacts for a provider include:

- **New patient identification:** This revenue stream is relevant to diagnostic solutions, which comprise a vast majority of FDA-approved solutions. Digital health solutions, notably AI, augment the diagnostic process by enhancing incidental findings and/or reducing missed diagnoses. In either case, the solution identifies a patient who otherwise would have been missed, providing an opportunity to provide care for that patient, improving their health while also generating revenue.
- **Greater quality of care:** The digital health solution yields changes in the volume and value of medical treatments due to early detection, early intervention or enhanced interventional techniques. The increased level of care drives additional revenue for the customer. This may be the result of an additional test, a higher cost associated with a similar test (e.g., an add-on code or another increased billing mechanism) or a shift toward a higher-cost treatment. The increase in quantity of care delivered is justified by improved patient outcomes.

- **Higher patient throughput:** Digital health solutions focused on augmenting workflow efficiencies (e.g., time to read a medical imaging study, procedure time) reduce the time associated with key tasks, thus increasing throughput potential. This enables clinicians to accommodate increased patient flows, generating additional revenue during a comparable time period.
- **Indirect monetization:** Integrating digital health solutions can also lead to indirect benefits as patients are more involved in their healthcare journeys. Integrating digital health solutions can lead to marketing opportunities and the opportunity to increase patient satisfaction and star ratings, stimulating additional business across service lines.

Cost savings

Complementary to revenue, digital health solutions often provide cost savings that should be factored into ROI development to show the favorability of adoption:

- **Time savings:** Digital health solutions may generate financial savings derived from improved efficiency. As noted, many digital health solutions enhance workflow efficiencies and thus reduce task time. Higher patient throughput represents the revenue potential, but it is also important to quantify the cost savings. Time savings may be measured by the value of a clinician's time (e.g., billing rate) or the cost of a specific room (e.g., per-minute costs associated with an operating room). This can allow a hospital at capacity to add additional procedures per day.
- **Reduced burden on clinical staff:** Digital health solutions may also help lessen the burden on clinical staff via increased workflow efficiency and the automation of key tasks. This is especially beneficial in light of recent healthcare practitioner shortages attributable to a myriad of factors, notably COVID-19 and physician burnout. Reducing or simplifying workloads — freeing up clinicians' time for other tasks and avoiding overwork — may help enhance clinician retention.

Costs

The ROI tool must also account for costs over the forecast period. Costs include both the digital health solution and ancillary factors that result from its adoption:

- **Digital health solution costs:** Digital health solution costs are dictated by the vendor-elected pricing model. This typically includes an upfront expense associated with solution purchase and/or installation fees (i.e., integration with existing capital and IT infrastructure). There may also be an ongoing fee associated with

device use; most often, this will be a subscription model (e.g., Viz.AI, Rapid.AI) tiered according to the provider size/case volume, though some solutions employ a per-study pricing model. The pricing model may include maintenance/upgrades, or this cost may be allocated its own contract. It's important for the ROI tool to capture both first-year (e.g., upfront installation) and future costs.

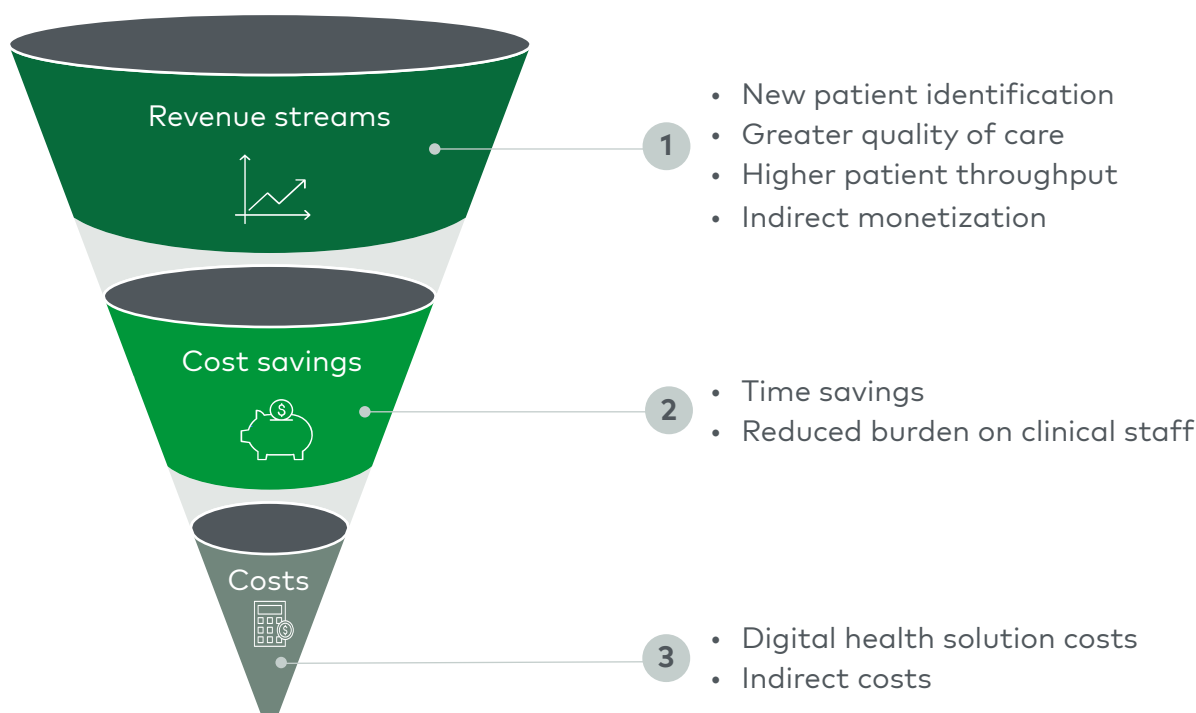
- **Indirect costs:** Indirect costs will vary significantly based on a solution's value proposition and positioning within the clinical workflow. If there are costs associated with the use of the technology, either during care delivery (e.g., longer procedure or read times, additional setup/cleanup requirements) or administrative processes (e.g., radiology report writing, coding/billing), these impacts should be quantified and incorporated. Similar to time savings, physician billing rates and costs per minute of certain rooms or facilities may be used to quantify these costs.

Outputs

Provider budget cycles are typically annual, with department funding, staffing needs and other resource requirements outlined on a yearly basis. Thus, to provide meaningful insight for customers, ROI tool inputs (i.e., revenues, costs, cost savings) and outputs (i.e., financial ROI) should be structured to reflect annual returns. However, some patient journey paradigms may not be easily quantifiable on an annual basis.

For example, chronic diseases (e.g., coronary artery disease) have long-term treatment paradigms with revenue potential evaluated on a five-to-15-year time horizon. Solutions targeting chronic paradigms should convert revenue forecasts to annual projections. If a treatment paradigm is thought of on a five-year timeline, calculating the average revenue and costs of care on an annualized basis will better convey the ROI potential (see Figure 3).

Figure 3
ROI tool inputs



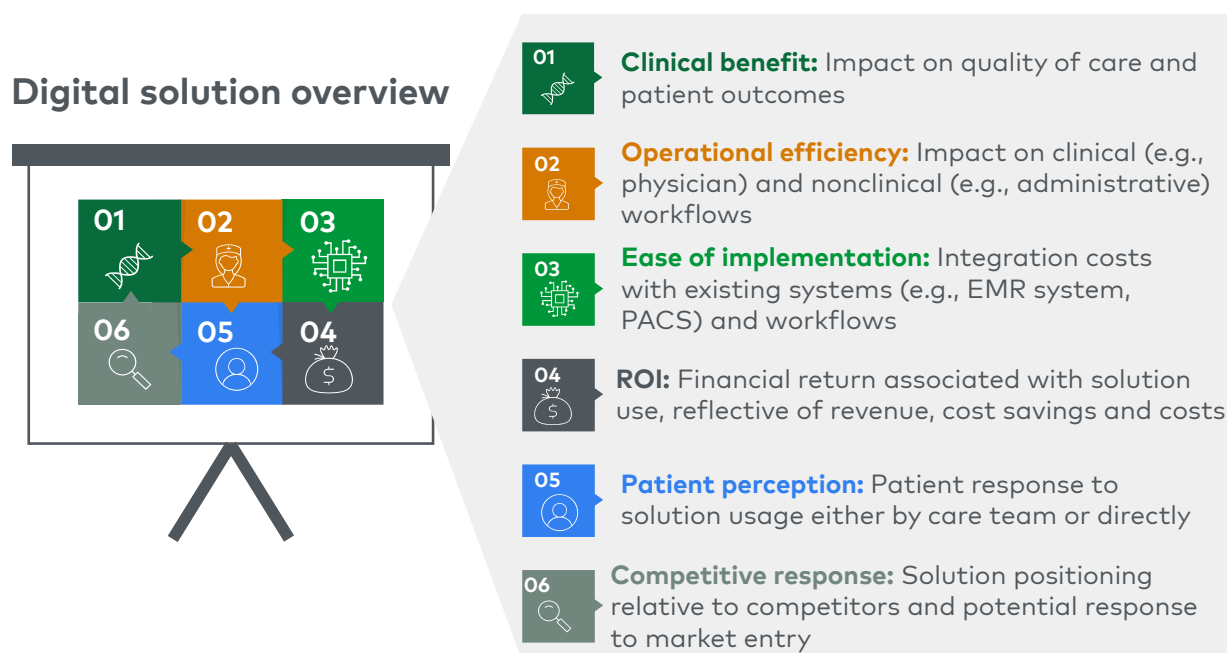
Note: ROI=return on investment
Source: L.E.K. research and analysis

So, I have an ROI tool — What do I do with it?

Once an ROI tool has been drafted, tested and refined, it can be leveraged in a variety of ways to drive adoption, such as triangulating reasonable pricing, supporting sales pitches, segmenting and prioritizing customers, and engaging with AI marketplaces. However, it is important to remember that the ROI tool is just one factor accounting for customer interest in the digital health solution and should be part of a holistic pitch that includes the clinical benefit, the operational impact, implementation considerations, the potential competitive response and the intangible value that cutting-edge technology provides (e.g., patient perception/hospital marketability).

Additionally, the ROI may be different depending on customer stakeholders. While a clinician will prioritize the clinical benefits a solution provides, an administrator might be looking to a clinician to confirm the clinical benefit while primarily looking to the vendor for justification of costs and expected revenue/cost savings resulting from adoption. This increases the importance of delivering the right messaging to the right people (see Figure 4).

Figure 4
Sales pitch considerations



Note: EMR=electronic medical record; PACS=picture archiving and communication system; ROI=return on investment
Source: L.E.K. research and analysis

Triangulating pricing

While digital health solutions can be very expensive to develop and bring to market, once a solution is deployed, it typically does not carry significant variable costs for the manufacturer. Solution providers will need to address the fine line between a price that helps recover invested capital but does not provide a barrier to customer adoption. Understanding the expected ROI is critical to triangulating pricing to ensure investment in the solution makes financial sense for the customer. Customer expectations in terms of ROI can vary significantly and depend on a number of factors, including length of time and risk. In this sense, an ROI assessment can help justify the cost to potential customers and ensure the digital health solution is launched at the right price point.

Supporting sales pitches

The primary value of an ROI tool is supporting sales pitches to potential customers. While hospitals are typically able to grasp the clinical value or benefit resulting from a digital health solution, they are generally unfamiliar with what the financial implications will be. Given the uncertainty surrounding digital health solutions in terms of reimbursement, price, utilization and efficacy, potential customers need as much evidence as possible to justify their purchase. An ROI tool can be the most effective way of clearly communicating the costs and upside — and thus the value — associated with adoption.

Customer segmentation and prioritization

ROI tools enable digital health vendors to segment customers based on the magnitude of return potential, identifying combinations of provider type, size/affiliation and solution coverage that generate the highest return. The magnitude of return potential reflects the financial value a customer can extract from the solution in addition to the proposed clinical benefits; thus, it serves as a proxy for overall solution attractiveness, with higher attractiveness indicating a higher likelihood to adopt. Customer segmentation may then be used to inform go-to-market strategy and account prioritization. Vendors should prioritize customers with the highest ROI potential to ensure the initial adoption and gain market traction.

Engaging with AI marketplaces

With so many AI solutions for hospitals to choose from, AI marketplaces are becoming more commonplace to help streamline solution adoption. While some AI marketplaces provide customers a laundry list of potential solutions, others vet AI solutions to provide customers a tailored/triaged list of the best AI solutions to address their needs.

Regardless of marketplace type, the marketplace sales representative is likely to be the primary contact with the customer. An ROI tool can be a critical resource for that sales representative to use to communicate the value of the AI solution, making the sales process easier and potentially increasing the sales representative's willingness to promote and prioritize the sale of the solution.

What should I expect moving forward?

The healthcare industry's utilization of digital health solutions has been focused on certain areas (e.g., revenue cycle management), as the ROI is clearer. To penetrate clinical care more directly, it is vital for customers to understand and achieve the financial and clinical promises provided by digital health vendors. Olive, an AI startup company, shut down as a result of overpromising financial returns to customers; similarly, medical software company Pear Therapeutics filed for bankruptcy for overpromising results. These examples provide a cautionary tale about ensuring that solutions can deliver clinical outcomes.

Despite these recent challenges, the future for digital solutions in healthcare remains bright. The healthcare industry has only begun to dip its toe in the vast potential that digital health represents. There is little doubt that digitization and AI have the potential to completely transform the world of healthcare as we know it today, but as with all transformation, critical stakeholders are going to need help in order to visualize, understand and metamorphose.

L.E.K. Consulting can be a valuable partner in creating and integrating ROI tools into digital sales pitches to help potential customers understand the clinical and financial benefits of these tools' adoption and visualize their future. Digital health provides tremendous opportunities and will become more prevalent across the industry as payers, providers and medtechs work to transform care. Building a strong, comprehensive ROI tool that can understand and empathize with customers and address their current challenges is the strategy a digital health vendor needs to set its solution apart and lead the charge in driving change.

For more information, please **contact us**.

Endnotes

1. Forbes.com, "Digital Health ROI Should Be Powered By Empathy, Not Calculators." <https://www.forbes.com/sites/sethjoseph/2024/03/07/digital-health-roi-should-be-powered-by-empathy-not-calculators/?sh=2e8e211656e3>

2. RSNA.org, "Commercial Negotiated Prices for CMS-specified Shoppable Radiology Services in U.S. Hospitals." <https://pubs.rsna.org/doi/full/10.1148/radiol.2021211948>

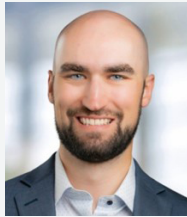
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