The Role of Digital Health Platforms in
Accelerating Healthcare's Digital Transformation

FROST & SULLIVAN VBOOK

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INTRODUCTION

Frost & Sullivan spoke with four healthcare leaders who are guiding their organizations through digital transformation, to understand their digital health vision

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These leaders outlined key trends they believe will transform healthcare, and how their digital initiatives will achieve their goals. Patient-centric care models, personalized healthcare, evidence-based medicine, and integrated, coordinated care are all enabled by the digital capabilities these healthcare leaders are building.

The discussion also covered the challenges they face in achieving these goals, namely legacy systems that silo data and make integration challenging, complex data that is difficult to aggregate and utilize, and support models and tools that make innovation costly and time-consuming. The two main limitations of traditional approaches in achieving their goals are the complexity created by a fragmented ecosystem of applications or, at the other end, using monolithic solutions that lack flexibility and impede innovation.

The foundational investments organizations have made in electronic medical records (EMRs) resulted in successfully digitized data and processes, representing a significant advancement in healthcare infrastructure. But now the healthcare industry needs a new paradigm to advance digital transformation. A digital health platform represents a better approach for **simplifying execution, encouraging innovation, increasing operational efficiency, and managing change and growth.**

These healthcare leaders described an inspiring next phase of digital transformation in healthcare, as well as a realistic view of the challenges they will need to overcome to achieve that vision. All described an industry that is at the beginning of this next phase of digital innovation, and many are still working to identify the best path forward. These leaders will work closely with their partners to find the right approach, and digital health platforms will play a key role in achieving their goals.

In this paper, Frost & Sullivan will share the leaders' perspectives on their current objectives, the challenges in achieving their goals, and the new capabilities they will need to succeed.

This presentation will illustrate how those objectives, challenges, and needs align with a platform approach to digital transformation, and specifically how a platform's core features can create the foundation these healthcare leaders need to accelerate into a new era of digital health.

Digital Health Platform

Infrastructure & Integrated Data Fabric

- Data aggregation and storage
- Cloud infrastructure
- Security tools
- Management of subscriptions and digital assests

APIs & Packaged Developer Tools

- Access to validated integrated and thrid-party apps
- Tools creating consistant user interface (UI), simplifying integration
- Access to AI and other advanced tools targeting specific use cases

Composition Tools

- AI development tools, supporting internal innovation
- Workflow optimization tools

Organizational Objectives

Although our healthcare organization leaders represent a diverse group of healthcare systems, they shared a common perspective on their objectives. At its core, each organization's essential goal is to improve patient outcomes while providing care in a way that maintains its financial capacity to do so.

Managing Change to Support Innovation

"Coming up with the digital operational model for the future is much harder than the technology questions. First, how do we digitally enable innovation? How do you identify opportunities with clinicians and even insurance companies? And finally, how do [you] implement them? Because this will require something different from our normal operational model. How do we leverage technology to bridge those gaps?"

—Weiman Dai, Wellstar Health System

Simplify Systems to Improve Efficiency

"We're focused on rationalizing and standardizing, from security and the safety of our assets to consolidating our EMRs to managing over 5,000 applications … there are a lot of opportunities to increase efficiencies. This isn't something everybody does, or does well, but these are the best practices from other industries that we need in healthcare to compete and differentiate ourselves."

—Craig Richardville, Intermountain Health

Build on Legacy Systems to Improve Outcomes

"Now that we have digitized the data, we have the opportunity to create new care models that better serve patients, better empower our providers, and increase access for our patients…. Our job is to piece together the existing digitized processes, digitize new ones, and piece those together into a program that creates a better care model for our patients."

—Dr. Ron Li, Stanford Mediciney

Creating an Integrated Patient View

"Investing in integration has so many advantages. You can transfer patients seamlessly. Referrals are essential to our business, so integrating our 287 remote sites means we get referrals from those very easily. You can track patients, so now all the labs go to one place. Data moves very quickly no matter where you are, so now it's seamless. So from a clinical perspective it's been very good."

—Patrick Mohr, Montefiore Health System

Infrastructure Constraints

EMRs laid the foundation for digital health. This was an important step, but now overreliance on EMR vendors for new features often limits the pace and direction of innovation for healthcare providers. Achieving the promise of digital health will require building on the foundation of legacy systems by introducing digital health platforms. The healthcare leaders Frost & Sullivan talked to described some of the challenges inherent in their current infrastructure that they will need to overcome to achieve their goals.

Implentation Process

Legacy Systems
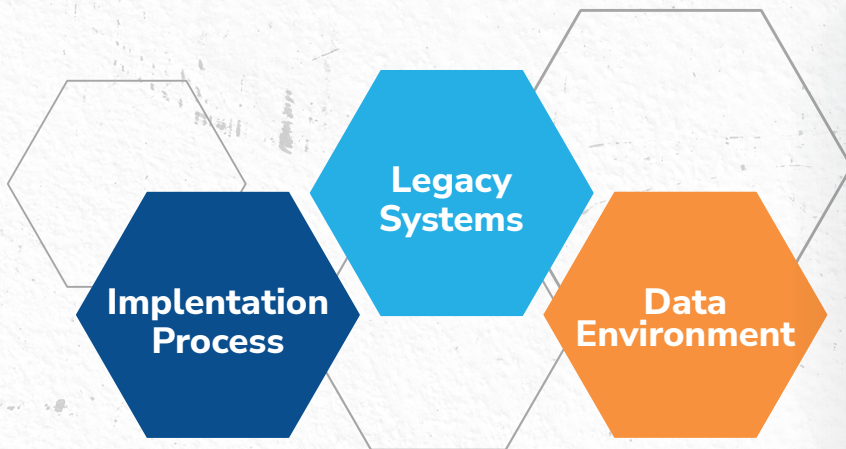
Data Environment

Complicated Environment of Legacy Systems

Legacy Systems

- Numerous, disparate EHR systems
- Competing best-of-breed solutions
- Lack of integration between systems

First, the healthcare leaders described the complexity of their legacy systems, where data is often siloed in multiple disparate, disconnected systems.

In addition to this diverse environment of EHR systems, healthcare systems continue to maintain numerous, often overlapping categories of software. This ecosystem of digital solutions grew organically, adopted to meet the needs of individual providers and practices, but resulted in a patchwork of solutions across these increasingly integrated healthcare systems.

To evolve into a digital health system, healthcare will need to increase interoperability between these systems and create a comprehensive view of the patient, a difficult task within the currently inflexible environment.

> "Remember, everyone was on paper not too long ago, and they had to go to EMR… it took a lot of time and money to integrate all the other legacy systems, so sometimes they didn't do it. They're completely separate."
>
> —Patrick Mohr, Montefiore Health System

The average hospital uses solutions from 16 disparate EMR vendors at its affiliated practices.

75% of hospitals are dealing with 10+ disparate outpatient vendors.

Only **2%** of hospitals have a single vendor in use at affiliated practices.

—HIMSS Analytics

Uniquely Complex Data Environment

Complex Data

- Clinically critical data
- Spread across siloed systems
- High security, integrity standards

Our conversations with the digital health leaders emphasized the need to unlock the value of data, from basic patient history to massive genetic data sets and complex imaging records. The leaders highlighted the competing challenges of protecting data while rapidly implementing new applications, such as the effort needed to define security roles for each new application.

The security and integrity of data is critical, therefore tightly controlled and highly regulated. Strict processes are required to protect the security and integrity of data and ensure that changes do not impact other systems in the interconnected environment.

As healthcare accelerates to embrace a digital health model, the challenge will be maintaining these protections while creating an environment that is flexible and responsive enough to meet the needs of innovators working to advance digital health.

> **"It seems like everyone was going with their individual best of breed, but no one agreed on what the best of breed was."**
>
> —Patrick Mohr, Montefiore Health System

> **"Data will drive the digital transformation – we have lots of clinical data, demographic information, and other information that can help us tailor care to the patient … the data is the pillar for digital transformation, and that's going to be the engine for everything else."**
>
> —Weiman Dai, Wellstar Health System

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Challenging Processes for Implementing New Applications

Implementation Process

• Vendor selection
• Application evaluation / validation
• Support for internal development
• Seamless integration

As healthcare systems work to achieve their digital transformation goals, they face challenges in implementing that vision. The process of identifying, evaluating, and executing the innovative applications they need is inefficient and unsustainable. These healthcare leaders described the issues they face in evaluating and selecting applications – choosing robust, reliable vendors; verifying device compatibility; validating solutions; and ensuring interoperability (which is often difficult to assess but critical to successful implementation, from selection through go-live and beyond). These significant hurdles to change and growth are precisely where a digital health platform approach can streamline innovation.

And once they have selected an application, these leaders have faced challenges in actually implementing solutions. Successfully adopting plug-and-play apps in digital health is crucial to accelerating healthcare's digital transformation, and digital health platforms will play a critical role in achieving that vision.

"**The processes by which these EHRs integrate with third-party apps can be fairly archaic, and very costly in terms of the lift involved in making sure the data is interoperable. Plug-and-play … that doesn't actually exist in healthcare.**"

—Dr. Ron Li, Stanford Medicine

"**Help with vendor selection, support finding the best of breed would help. But we need a better way to choose vendors.**"

—Patrick Mohr, Montefiore Health System

And finally, leading academic and research institutions have the additional need for a platform that will support them as they develop their own applications. Many see internal development as one of the most significant opportunities to take advantage of this new digitized environment, but they struggle to support clinicians as they work to develop their own solutions.

The future of digital health will be built from a range of applications; however, as these digital health leaders highlighted, the implementation of new apps with traditional solutions can prove challenging. App vendor selection, evaluation, and validation is the first challenge, followed by the struggle to launch and then support them—all of which are areas where digital health platforms can play a crucial role in enabling innovation.

"We're sourcing ideas from clinicians and building applications, co-developed with industry, for the purpose of looking at emerging technologies that we can use for our health system."

—Dr. Ron Li, Stanford Medicine

Tools Needed to Overcome the Challenges

Talking with these leaders made clear that the next stages of healthcare's digital transformation will require balancing legacy systems with digital health innovations that improve outcomes and increase efficiency. Or as one put it, "we're building the plane while we're flying it."

If healthcare systems are to achieve the promise of digital health, they will need tools that help them overcome these challenges in four key areas:

- Legacy systems that do not enable interoperability

- Disparate solutions that increase cost and complexity

- Processes for selecting, implementing, and supporting solutions that increase the cost and time to adopt new solutions

- Siloed, historic, complex data that is difficult to access

If healthcare systems are to achieve the promise of digital health, they will need tools that help them overcome these challenges in four key areas.

> "I don't think we're quite there yet in terms of understanding digital health as a set of capabilities that everyone really understands and knows how to use and deploy for care models. I think that we're really right at the beginning."
>
> —Dr. Ron Li, Stanford Medicine

Tools to:

Simplify Execution

Encourage Innovation

Increase Operational Efficiency

Manage Change and Growth

Simplify Execution

- Standardized, efficient integration integration process
- Common security
- Comprehensive view of patient

Evolving from digitization to digital health means building on the foundation of legacy systems with new apps that use existing data and processes in novel ways to improve outcomes and increase efficiency.

Integrating those new applications with legacy systems is critical.

However, as these healthcare leaders described, achieving integration is far from simple. Healthcare systems are looking for a single, simple method for integrating new apps with existing systems. That approach includes tools that allow a **streamlined process for managing cybersecurity.**

"

"In healthcare everything is interconnected, and it's rare to have a solution that works in a silo that doesn't depend on other solutions. So the challenge is that if the rest of the system isn't digitized enough, then a solution can't actually work, because there are too many dependencies on things that haven't caught up yet. That's the challenge that'll take a lot of work. It's the integration component."

—Dr. Ron Li, Stanford Medicine

It also requires a tool that provides the **speed and responsiveness** necessary for innovation.

Tools that allow health systems to easily integrate new apps are crucial in overcoming these challenges and supporting the move to digital health.

Digital health platforms are uniquely positioned to address these needs. By creating a standardized, efficient app integration process; common security protocols; and simplified integration that breaks down data silos to provide a comprehensive view of the patient, digital health platforms are critical in simplifying the execution of digital health initiatives.

"From a security perspective it becomes much easier just to have one streamline security process and application that we use. It's helped out greatly."

—Patrick Mohr, Montefiore Health System

"Really all of our decisions are built around this principle, that we need to move to the cloud. Our business change[s] very fast, and our solution needs to be changed accordingly."

—Weiman Dai, Wellstar Health System

Encourage Innovation

- **Quick, safe, cost-effective deployment process**
- **Support for internal app development**
- **Pre-validation of apps, interoperability**

Advances in digital health follow the same model used elsewhere in evaluating any new care practice: quickly trialing new solutions, evaluating the results, and adopting new practices best supported by the evidence.

To support this iterative approach to digital health, health systems are challenged to integrate with legacy systems and **overcome the barriers to adoption, especially at the pace required by innovation**. Enabling this path to progress requires the ability to deploy apps quickly, safely, and securely. And of course healthcare systems need tools that minimize the time and effort necessary to deploy these solutions. Tools that help health systems pre-qualify, select, and rapidly implement solutions will be critical to support this next phase in digital health.

Digital health platforms offer powerful capabilities to encourage innovation. By creating a quick, safe, and cost-effective process for deploying apps as well as a suite of pre-validated apps (tools that support integration and interoperability), digital health platforms are critical to streamline innovation in digital health.

> **"The team needs to quickly get feedback once the application is put into production, and modify it right away. That's the cycle – you no longer just purchase from a third party, take 6 months to implement, and then 3 to 5 years to perfect. This is the rapid development model we've adopted. And it's not only at the application level, but we've adopted this model at the infrastructure level as well. We need to change our business very quickly, and our solutions need to be changed accordingly."**

—Weiman Dai, Wellstar Health System

Increase Operational Efficiency
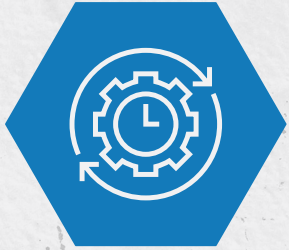
- **Comprehensive app management**
- **Minimize resources required for deployment**

As digital health evolves, these healthcare systems are placing heightened requirements and demands on their ability to **support advanced solutions.** For example, supporting digital health innovation creates significant challenges in ensuring security when new apps are introduced. Although ad hoc integration is possible, tools that streamline security significantly advance both efficiency and security.

Tools that allow IT operations to **seamlessly manage their evolving digital health ecosystem while minimizing the time and effort necessary for support** are crucial to ensuring that resources are available to sustain these digital transformation efforts.

In describing their need for tools that **simplify execution**, the health leaders highlighted challenges with integrating new apps, streamlining security, and building on modern cloud solutions. These are precisely the types of needs that a digital health platform is uniquely capable of meeting; it creates a foundation for rapidly and efficiently deploying innovative digital health solutions while protecting the enterprise's need for reliability and security.

> **"And from a security perspective it becomes much easier just to have one streamlined security process."**
>
> —Patrick Mohr, Montefiore Health System

Manage Change and Growth

- **Standardized requirements**
- **Centralized management**
- **Future-proof environment**

If the past has taught these leaders anything, it is that they will face both challenges and opportunities that would be hard to envision today. Rapid advances in AI, cloud computing, natural language processing (NLP), and a range of other technologies require that they **make decisions and investments now that will position them for the future.** Digital health platforms prepare healthcare for the future, where cloud capabilities, healthcare and specialty-specific NLP, and machine vision analysis of medical images allow systems to incorporate emerging technologies quickly, efficiently, and securely.

Tools that can empower health systems to **future-proof their environment** are essential to realize the promise of digital health, now and in the future.

These include solutions that **encourage innovation**, such as supplying the speed and flexibility to support iterative adoption and evaluation of new applications – needs that can be met by the composition and developer tools available in a digital health platform. Digital health platforms enable the management of these advances. By standardizing solution requirements, centralizing app management, and creating an environment that will support innovation now and in the future, digital health platforms will prove essential to supporting change and accelerating growth.

> **"Internally we're actively building out things so that we can be more flexible, because the last thing we want is for there to be a product that would move the needle in terms of care delivery, but we can't implement it because we don't have the right infrastructure."**
>
> —Dr. Ron Li, Stanford Medicine

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