

Forrester Study Finds Modernizing Apps Improves Patient Experience

Start Improving Applications Today;
Tomorrow is Too Late

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VMware Tanzu



Executive summary

TABLE OF CONTENTS

- 1 As patients become customers, experience matters more than ever
- 2 Patient experience is tightly coupled with app portfolio quality
- 3 Flexible and innovative environments scale tech innovation
- 4 Keeping in touch with patients and increasing app investments
- 5 With change comes challenges
- 6 Emerging tech and partners can help
- 7 Action is needed now for best returns

A new Forrester Consulting study found more than 92 percent of healthcare executives surveyed believe that improving their app portfolios would enhance their patient experience.

The recent [global survey](#) of 100 healthcare CIOs and SVPs by Forrester Consulting, commissioned by VMware, was designed to evaluate executive sentiment about the state of current application portfolios, technology leaders' ability to create terrific customer—or in this case, patient—experiences, and the connection between the two.



9 out of 10 healthcare CIOs & SVPs are focused on improving patient experience - more than gaining market share and reducing cost.

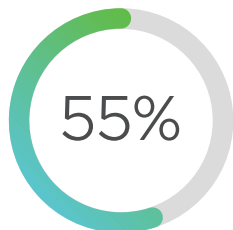


84 percent of respondents surveyed say implementing an agile software development methodology is “very” or “extremely” important to their organizations.

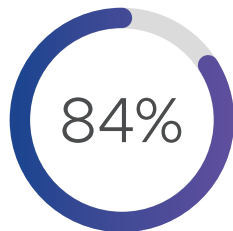


55 percent of those surveyed (more than half) agree containers are a key technology to improve their app portfolio modernization efforts.

This brief explores both the data and implications of the survey results. It highlights the link between apps and patient experience, and thus revenues; provides insight into how entrenched attitudes and technical debt—old technology that is too costly to replace—are dragging down healthcare organizations' ability to modernize apps; and how emerging technologies and tech partners can help address challenges.



of healthcare CIOs and SVPs surveyed rate **customer experience** as a top three business priority.



of healthcare executives say **improving their application portfolio** is now top business priority.

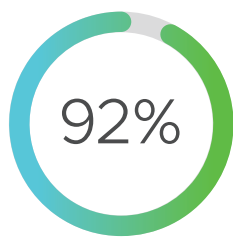
As patients become customers, experience matters more than ever

Driven by high merger-and-acquisition (M&A) activity, mounting regulatory pressure, and most important, healthcare's consumerization, the healthcare industry is evolving at an increased rate. It's now a mandate rather than an option: move to a new, value-based, patient-centered mode of care that prioritizes outcomes and patient experience above all.

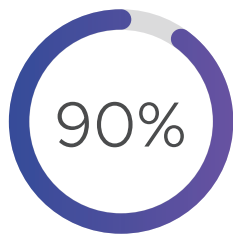
Leading healthcare organizations are building online portals powered by applications that allow patients to book and cancel appointments, check lab results, and even communicate directly with their doctors via text, email, or video. Apps that run on a broad range of mobile devices—smartphones, tablets, netbooks—give patients access to all this from anywhere, at any time. Clinicians, too, are empowered by applications that let them easily register, monitor, and otherwise care for patients. In addition, applications that integrate Internet of Things (IoT) devices into healthcare workflows are becoming increasingly common.

Given all this, the expectation is that healthcare organizations would prioritize investing in new development frameworks and methodologies proven to boost the quality and timeliness of apps. Especially since an overwhelming majority (84 percent) of healthcare chief information officers (CIOs) and senior vice presidents (SVPs) surveyed say improving their application portfolio is now a top business priority.

The truth is there is urgency to move to an agile development methodology where focus is placed on App modernization, Devops team structure, and containers. Yet there also appear to be significant barriers holding healthcare CIOs back from making the changes they know they must.



of healthcare CIOs and SVPs say that **modernizing their application portfolios leads to improved patient experiences.**



of survey respondents agree that promoting **better patient experience through improved apps** is “very” or “extremely” Important.

Patient experience is tightly coupled with app portfolio quality

It's now widely accepted that patient experience in healthcare is positively tied to revenue growth. A large majority, 85 percent, of healthcare tech executives surveyed by Forrester agree, which has been bolstered by other industry studies. This puts the patient experience top of mind for most (54 percent) CIO and SVP respondents, who either already are responsible for revenues—or will have that responsibility in one to two years.

CIOs with revenue responsibility are making patient experience a top priority

Healthcare CIOs have known for some time that delivering innovative experiences that delight patients are the best way to win customer loyalty and attract new patients. But the Forrester survey turned up an interesting link. Nearly all CIOs and SVPs across all industries tie modernizing their application portfolios to improved customer experiences.

Healthcare executives stress this more than those in any other industry—92 percent of healthcare CIOs and SVPs surveyed agreed with this linkage, compared to 88 percent on average across the six industries surveyed, including financial services and retail.

Apps directly drive success in the business of healthcare

Survey respondents agree that improved apps would promote better patient experiences. Given that revenue growth is a top business priority for healthcare executives, that apps directly drive business success is a significant finding.

More healthcare tech executives are focused on improving customer experience than gaining market share

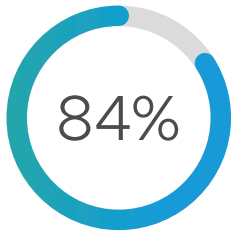
Agreement on the importance of improving experience is reflected throughout the survey. More CIOs and SVPs surveyed are focused on improving experience than gaining market share (76 percent).



Flexible and innovative environments scale tech innovation

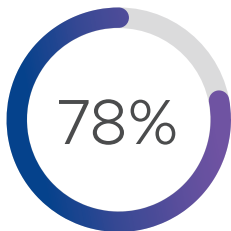
Unfortunately, healthcare CIOs and SVPs are being forced to spend too much time and too many resources maintaining legacy infrastructures. This gives them less time to focus on improving their application portfolios.

Moreover, as healthcare organizations adopt cloud—and in many cases, multiple clouds—application environments are becoming more distributed and complex. Today’s healthcare senior executives are balancing an eclectic mix of public clouds, private clouds, and edge environments. This complexity is only expected to increase within the next three years.



of healthcare tech executives say that **implementing an agile software development methodology** is “very” or “extremely” important to their companies.

In 3 years, **95 percent of healthcare organizations** expect to be managing more than 3 separate environments (public cloud, private clouds/data centers, and edge) and 67 percent of those will be managing more than 6.



of healthcare CIOs say **putting DevOps in place** is “very” or “extremely” important to them.

Senior healthcare tech leaders know they need to move from complex and inflexible, monolithic legacy environments. Only slightly more than half (51 percent) surveyed rate their organization’s ability to innovate as “excellent” or “above average” for that reason.

One way to change this is through agile software development methodology, which is centered around the concept of iterative development. Requirements and solutions evolve through collaboration between self-organizing, cross-functional teams and the users they serve. In this way, apps are developed faster, meet users’ needs more precisely, and have fewer errors.

Organizing app development around a DevOps structure is another priority. DevOps combines agile software development and operations—the IT employees responsible for keeping apps available—with the goal of shortened app development lifecycle and making possible the continuous delivery of higher-quality software.

Keeping in touch with patients and increasing app investments

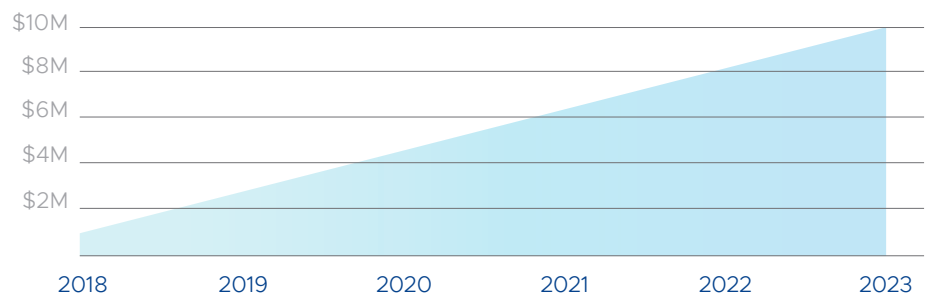
“We’re really forced into much more agile approach for development, and we have to be much faster than we’ve traditionally been.”

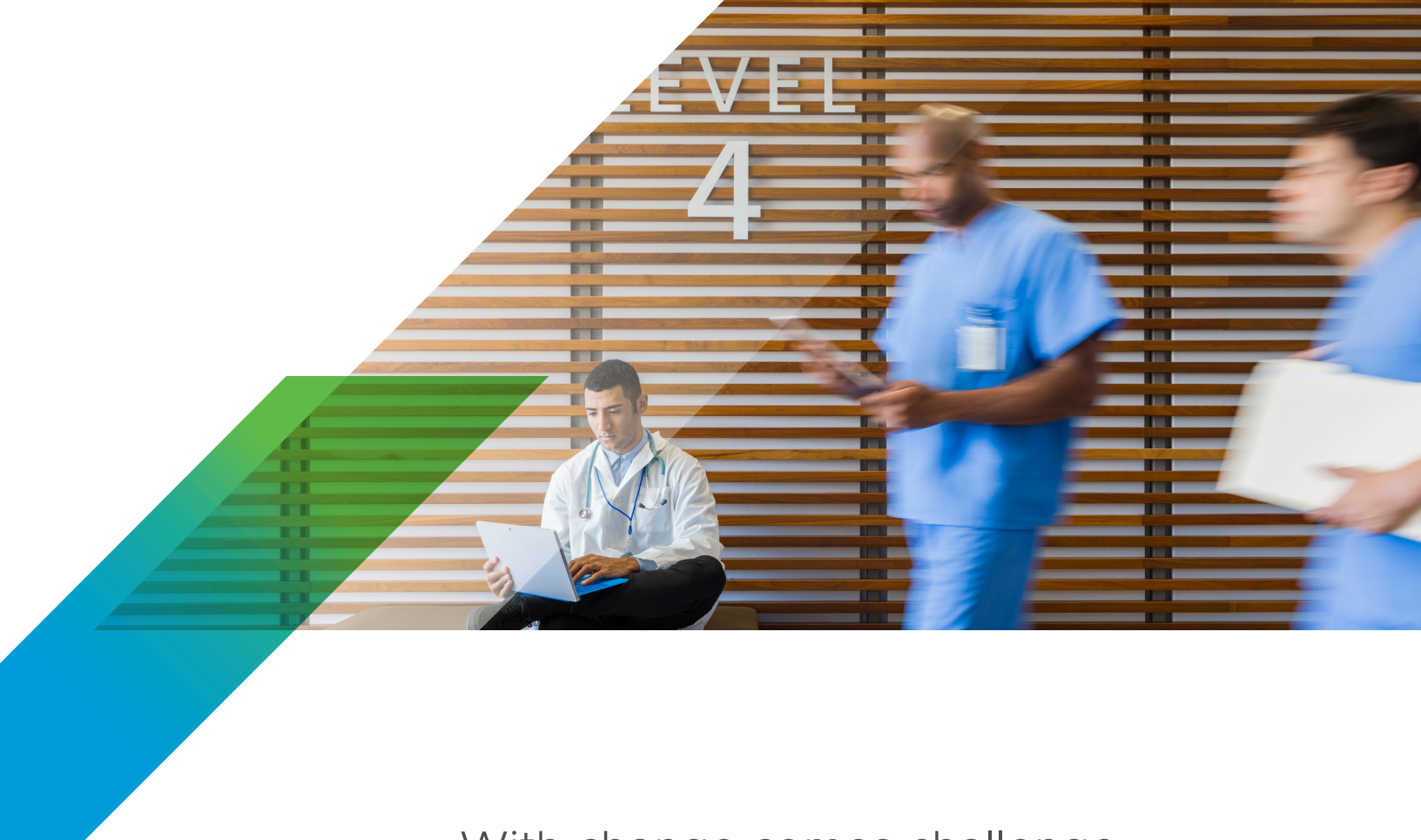
CIO, U.S. HEALTHCARE ORGANIZATION

Senior tech leaders in healthcare also understand the importance of being in close touch with their patients to understand how investments in technology, specifically app development, impact their experience. A full 64 percent surveyed say spending at least 10 percent of their work weeks interacting directly with patients is a “very” or “extremely” important priority.

Moreover, healthcare IT leaders surveyed seem willing to spend the money to modernize their applications. Three years ago, most healthcare organizations surveyed were spending less than \$1 million improving their application portfolios. Today, the number is between \$500,000 and \$5 million. And 3 years from now, most surveyed intend to spend a minimum of \$1 million and as much as \$10 million, with 10 percent spending more than \$10 million, to develop superior apps.

Average healthcare application portfolio investment, 2018-2023





With change comes challenge

“The move to cloud delivery of software services... allows us as a software provider to scale a lot of the great solutions that we’ve built across a vast number of hospitals in a very efficient manner.”

BRANDON ZAHAROFF, DIRECTOR OF BUSINESS OPTIMIZATION AT SHIELDS HEALTHCARE, IN AN INTERVIEW WITH VMWARE

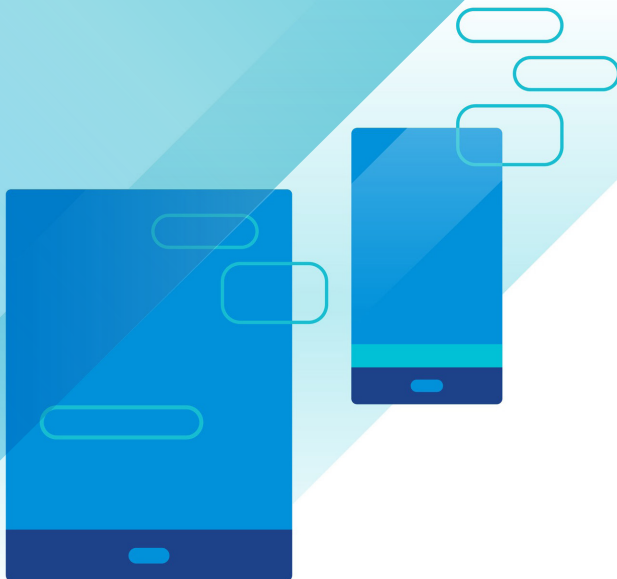
Despite focus on experience—and prioritizing technology investments to improve app development—senior healthcare executives are concerned about roadblocks that lie ahead.

A number of goals healthcare executives cite as critical are ranked as “very” or “extremely” challenging:

- 85% Choosing the right platform for each application
(on-premises, private cloud, public cloud, or hybrid)
- 76% Achieving better patient experience with improved applications
- 74% Moving to a DevOps culture
- 72% Gaining market share through improved applications
- 67% Moving to an agile development environment

But they need to actually commit the funds. More than half (54 percent) of healthcare IT executives surveyed haven’t made any improvements to their app portfolio in at least a year.

From a business perspective, senior tech leaders agree two main barriers prevent funding and buy-in to improve apps: first, they are frequently asked to prove that investing in apps will indeed positively impact patient experience. This type of quantifying can be difficult. Second, most face intense resistance to change from their own internal IT teams—especially when it comes to the significant moves to agile or DevOps cultures.



Healthcare executives order their highest priority app investment:

1. Impact on patient experience
2. Eliminating the highest ongoing maintenance costs
3. Finding low-hanging fruit (fastest initiatives to implement)

Emerging tech and partners can help

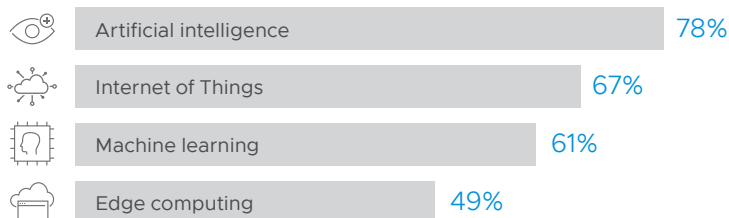
A first step to better experience is improving underlying infrastructures. Senior technology executives are turning to partners to help them identify which apps can be migrated to public or private clouds fastest, easiest, and without compromising security.

Moving to containers and services will also help. More than half (55 percent) of respondents agree containers are a key technology to improve their app portfolio modernization efforts.

How will healthcare CIOs and SVPs prioritize investment, deciding which technologies and infrastructure? More than eight in ten (81 percent) surveyed say that how an app will impact the customer experience plays a “major” or “critical” role in helping them prioritize.

But that’s not the whole story. Healthcare CIOs, more than senior tech executives from any other industry, look to competitors for guidance on where to make technology investments. Almost four in ten (39 percent) surveyed rely on partners.

Emerging technologies cited as most likely to improve the application portfolio:



Some healthcare organizations are already seeing success. A full 7 out of 10 CIOs and SVPs in healthcare say they have already started modernizing their application portfolios. Nearly half (45 percent) have seen customer satisfaction rise.

Action is needed now for best returns

This Forrester study shows that healthcare CIOs and SVPs are indeed passionate about their patients. It identifies a strong link between modernizing application portfolios, and enhancing patient experience.

Acknowledging this, senior healthcare tech executives say they are willing to invest the money and have prioritized what they need to do—both technically and organizationally—to succeed. But many challenges—including technical debt—stand in the way of success. Emerging technology and the right tech partner they believe can help break the impasse.

In addition to deploying newer technologies like AI, IoT, and ML, most healthcare CIOs and SVPs are asking partners for “discovery services,” maturity assessments, and application inventory analyses.

C-level technology leaders turn to consulting or technology services to help improve their application portfolios

67% Discovery services	64% Maturity assessment	62% Application inventory analysis
51% Security and compliance assessment	35% Staff training	31% Migration services

With the help of trusted partners, healthcare organizations will jumpstart the boosting of customer experience that begins with better apps and ends in higher patient satisfaction—even in times of uncertainty.

[Schedule a free, virtual consultation with the VMware Pivotal Labs team today.](#)

Reserve Your Free Consultation Today

