What's Next for Health System CIO's:

Break Free From Tech Debt of Legacy Systems to Harness the AI of the Future

By Douglas Descalzi

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Healthcare has long been provided by expert clinical staff, who have undergone extensive training to provide quality care. While standards of care emerge, assessment and decision making have long been the domain of clinicians and their teams. Now, Microsoft and AI want to be your doctor. While this may seem bold or outrageous, health is seen as a huge opportunity for AI. Other disruptive technologies are emerging that will also have a large impact on the what, when, who, how, why and where of healthcare. Timing and impact are still a question, but dramatic changes are certainly near. A now rapidly rising, pressing and strategic issue for health systems is how to select, engage, deploy, and utilize new advanced technology. With technology increasingly acting as the provider, healthcare CIO's will emerge as a major enabler of scale in a health system.

The Path to Medical Superintelligence: Microsoft AI

The Microsoft AI team shares research that demonstrates how AI can sequentially investigate and solve medicine's most complex diagnostic challenges.

https://microsoft.ai/news/the-path-to-medical-superintelligence/

2 Role of the **CIO Changing**

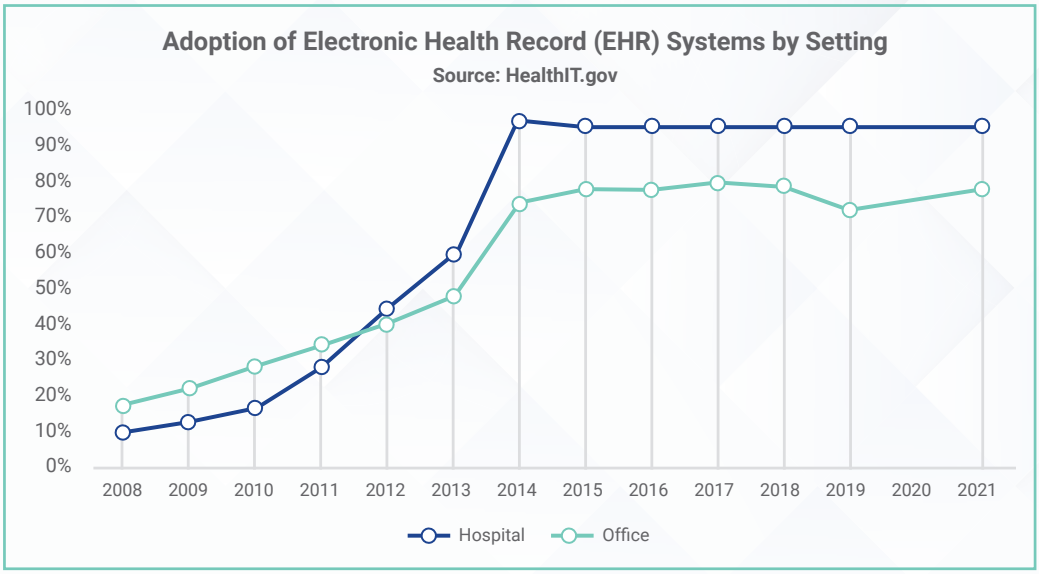
The health system CIO was traditionally tasked with ensuring the reliability and security of IT systems, overseeing data management, and maintaining software applications. Now, advancements in digital health tools, data analytics, and telemedicine are increasingly positioning CIOs as key decision-makers in clinical and administrative strategy. They have a central role in driving digital transformation, enhancing care delivery, and improving patient outcomes.

> **Once a support role, the CIO is becoming more strategic and front line, blending technical, clinical and operational influence to pilot the health system into the new AI frontier.**

To be effective and successful, as well as to ensure the viability of their institution, a CIO now needs to align emerging technologies with the needs of clinicians and patients while ensuring no disruption to current care and operations. As automation and AI hit healthcare, the CIO has to navigate the transition from legacy systems to more modern, scalable, and agile technologies of the future.

3 Legacy Technology and **Tech Debt from the EHR Adoption Wave**

From 2008 to 2014, in just 6-7 years, the US health system rapidly adopted and deployed electronic health record (EHR) systems. These systems transformed how care is provided and recorded, digitizing patient health.



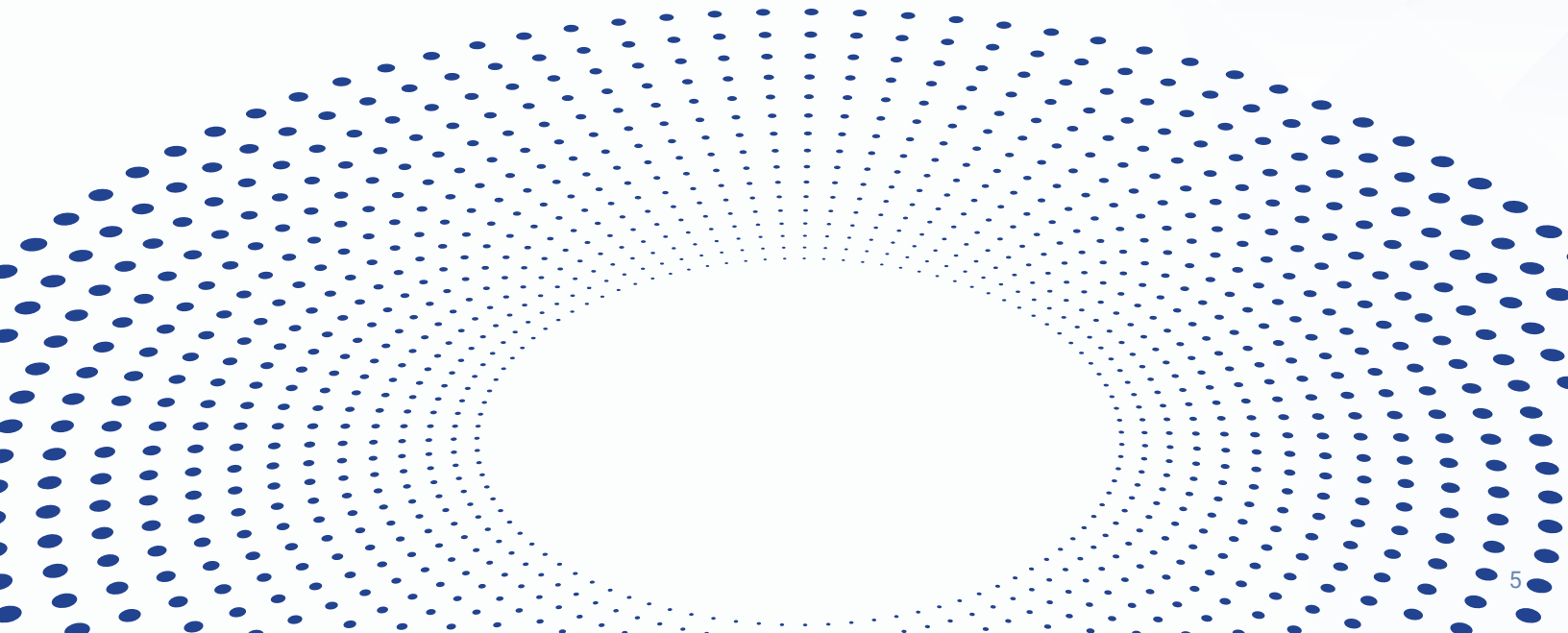
The EHR transition was driven by the HITECH Act of 2009, and its meaningful use provisions. Since then, most health providers have 'digitized' and thus generated an entire industry. Currently, there are estimated to be approximately 400 EHR vendors in the US, but the vast major of major health systems utilize less than five.

While this first wave of EHR adoption wave was a massive and impactful change, digitizing our health records triggered a second adoption wave of software and IT tools to harness the newly captured data and interact with our patient records. There are now approximately 4,000 digital health companies in the US. The result is a health IT ecosystem of hundreds of interconnected applications, a complex co-dependent web with EHR systems firmly implanted the center.

This rapid creation and expansion of IT tools and systems has required considerable investment from health systems. A single implementation of a major EHR system can cost more than $1 billion. Annual IT budgets reach hundreds of millions USD for major health systems and IT departments can have 1,000+ team members, spanning infrastructure, security, compliance, applications, integration, and other groups.

> **While the massive investment in digitizing health has improved quality of care, safety, access to records, and efficiency, we are now on a plateau where big gains from the legacy technologies that underpin most health IT systems are more difficult to realize.**

Regular upgrades and new versions are continuously deployed, but in many cases the core platform is monolithic with older databases and on-premise installations. Integrations are more numerous, complex, fragile, and costly. Data between vendors is not readily shared. Security is a major concern, and high maintenance costs leave little room or resource for more disruptive innovation. The costs are starting to catch up to the benefits. What is next to advance outcomes and efficiency?



4 Interest in Technology Rising, but Decisions of **When and Where to Invest Are Not Easy**

Many health systems recognize the change and opportunity that is coming, and are open to exploring new technologies. Recent surveys highlight the increasing appetite for leveraging new systems.

Healthcare IT Spending: Innovation, Integration, and AI

Providers and payers are more willing to experiment with advance technologies.

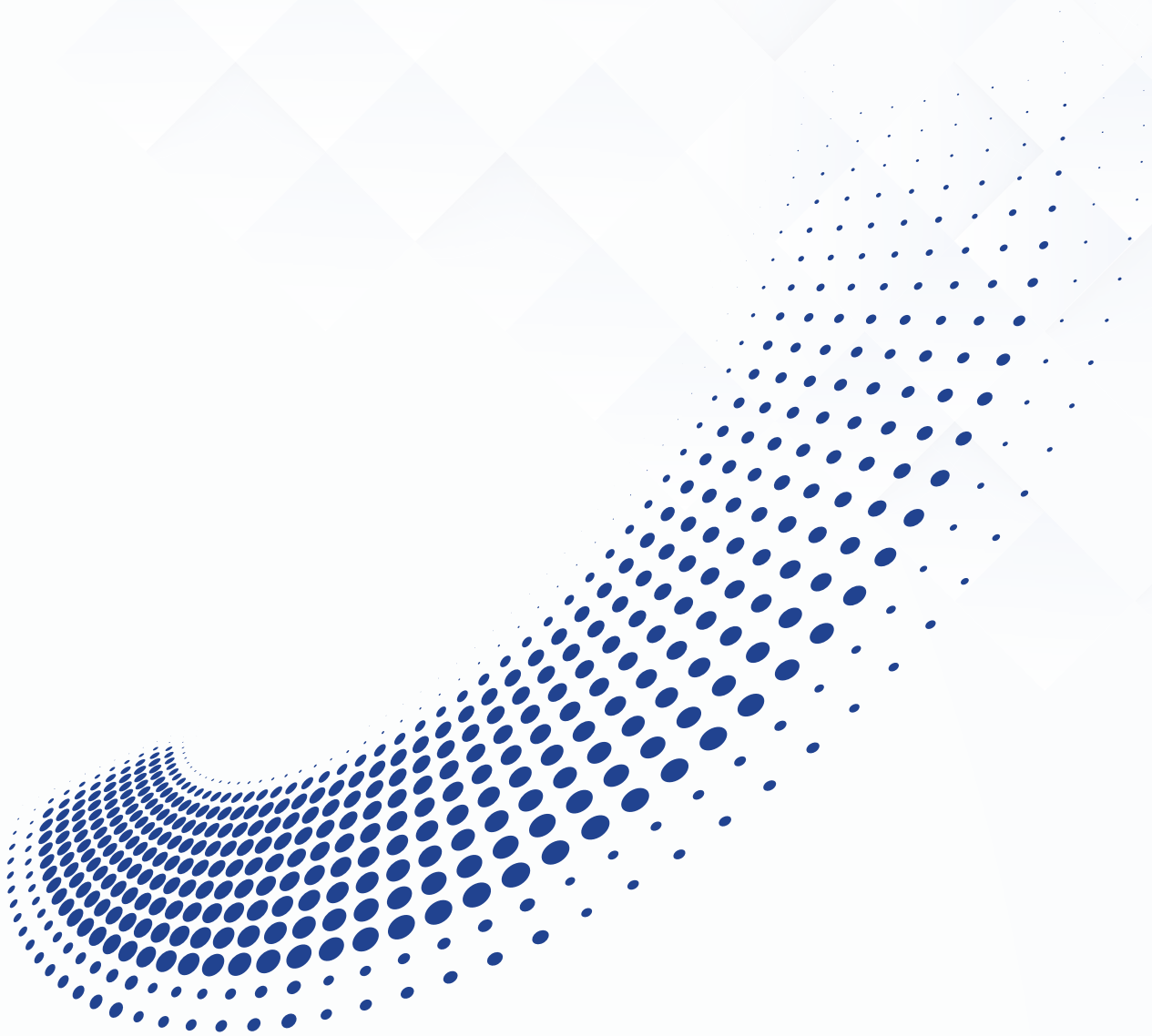
https://www.bain.com/insights/healthcare-it-spending-innovation-integration-ai/

The vast majority of providers, greater than 75%, cite increasing IT budgets and more than 50% state that they are more willing to experiment with new technology. There is an optimistic view of AI, with 15% of health systems saying there is a AI strategy in place (up from 3% in 2023). While all of this research suggests an environment favorable to new technology adoption, most investment is still flowing to more incremental projects that protect, support, or maintain the existing IT ecosystem including cybersecurity, interoperability, workflow optimization, and revenue cycle management. And, historically, health systems are typically risk adverse and not early adopters.

Thus, even with high interest, there are still very real hurdles and challenges to resource the potential opportunity, including:

1. A bias toward 'good enough' solutions from current vendors and legacy technology, which eases contracting and deployment. While this reduces initial costs, it also reinforces the current IT ecosystem and can be suboptimal over the longer term. It also can reduce the potential solution set for challenges that lay ahead.

2. The regulatory and liability landscape is still foggy, which makes risk and compliance staff uncomfortable.
3. Ever present resource constraints make carving out funds for new technology challenging.
4. Most health systems do not yet have the technical expertise to fully understand, leverage and manage new systems and technology.
5. Payer policy toward new technology, which does not provide special or additional reimbursement or any accommodation for additional costs.



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What's Next **and Path Forward**

With the EHR adoption wave now 15 years in the past, does the health IT ecosystem need renewal? Can health systems afford and operate both - the legacy systems operating today and a more modern IT ecosystem of the future? The answers are yes, it is time for renewal to unlock better outcomes and greater efficiency, and no, two systems will not be sustainable (but a switchover period, just like EHR adoption, is likely).

This next technology transition may be more challenging for health providers than the EHR adoption, as there may be no central authority that essentially mandates the change.

> **The forcing function for change with EHR adoption was government driven health policy. For the next transition, the forcing function will be the immense opportunities provided by new technology.**

AI and emerging technology will simply make laggard adopters unable to provide the capabilities and service patients will expect. This leaves health system CIO's to initiate, lead, and drive the navigation to the new IT ecosystem of the future. While each provider will have their own roadmap and no two paths will be identical, future health system IT ecosystem will share the following core principles:

1. There will still be a need for an EHR core, but it is not likely to be on-premise, monolithic, and with numerous, custom interface types. The core will be defined and measured by interoperability, rather than purely internal functions.
2. AI and automation capabilities will strip out layers of processes, approvals, and bureaucracy, as well as provide direct patient care. These tools will more seamlessly engage the EHR core.
3. The focus of the next health IT ecosystem will shift to the patient, creating a digital experience that enables self ownership for care and ability to share health information.
4. The IT ecosystem will expand to include additional settings, wearables, IoMT/remote monitoring, surveillance data, genomic information, and population health measures.

5. The new health IT ecosystem will re-imagine patient communication; care and engagement will be less about specific events, such as periodic appointments with clinicians, and more continuous, risk-based, and proactive such that interactions are higher impact and driven by outcomes

While seemingly overwhelming, the key to any change is to start and to have a plan. CIO's will be key to this strategic transition, which must be driven internally, and that will increasing impact patient care. Every opportunity to deploy new technology early should be leveraged, and every effort should be made to not inadvertently 'double down' or 'dig deeper' with legacy systems. Vendors should be challenged to provide roadmaps to help the health system navigate to a future that incorporates technologies and capabilities critical to success. Perhaps most importantly, CIO's and health system leadership cannot underestimate the effort, diminish the value, or miss the need to transition.