



Technical Debt and the Patient

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Introduction

Technical debt is on the minds of healthcare CIOs. In March 2023, CereCore conducted an [online survey](#) of healthcare IT executives, all CHIME (College of Healthcare Information Management Executives) members, on top industry concerns.

A recent Cost Optimization Report by [Gartner](#) states that priority on strategic initiatives for growth and innovation combined with ensuring efficient operations with minimum resources and cost containment can ultimately lead to the presence of technical debt.

Healthcare IT (HIT) organizations are facing the fall out of quick fix solutions deployed during the pandemic, employee turnover and resulting disruptions, and post-emergency functionality requirements. Too often, patients feel the sting of technical debt — a suboptimal experience that no one in HIT intends.



66%
of CIOs responded they are
concerned about technical debt¹

They shared sentiments like these, too.

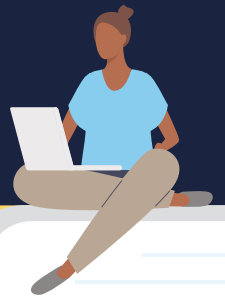
“Post acute EHR vendor offerings are slow to mature and are holding us back.”

“Hospital staffing is having a bigger impact than IT staffing as they are not able to process the amount of change the technology requires.”

“Unable to implement fast enough before priorities shift.”

“Decreased funding and increased appetite.”

What can a HIT organization do to preserve and improve patient care and patient experience while combating the effects of technical debt and preventing further deficit?



This ebook covers options and provides a self-assessment on page 10.





What is Technical Debt?

The term technical debt, while not new, has recently been clarified and defined by McKinsey as the “off-balance-sheet accumulation of all the technology work a company needs to do in the future.” Furthermore, [McKinsey’s technical debt research](#) shows, “some 30 percent of CIOs surveyed believe that more than 20 percent of their technical budget ostensibly dedicated to new products is diverted to resolving issues related to tech debt.”

How Technical Debt Impacts Healthcare IT Priorities

During the COVID-19 pandemic, health systems quickly adapted by deploying new virtual care solutions. Providing the infrastructure to support virtual care on top of existing IT systems has ramped up the importance of addressing technical debt before the fallout becomes overwhelming.

- **Productivity.** In an age where clinical team resources are difficult and expensive to retain, technology should support clinical decisions and patient safety and integrate with workflows for patient care, not distract them from it because of technology issues.
- **Speed to market.** Are your quick-fix solutions sustainable post-pandemic? What was once necessary to accommodate COVID-19 likely will not yield improved outcomes in the future.
- **Product lifecycle.** Maintaining functionality requirements and services for solutions implemented during emergency situations could put a strain on training, development, and support teams.
- **Institutional knowledge.** Since 2020, employee turnover poses a big obstacle when trying to address technical debt, especially if the individual who originally helped implement the solution is no longer with the company.



CIO survey¹ results imply the presence of technical debt is pervasive in HIT, and where there's technical debt, there are cybersecurity considerations.

First priority:

72%

of CIOs surveyed named
“reduce cybersecurity risk”

Second priority:

57% ranked improve or modernize
infrastructure/network


“Portal capabilities and digital applications were adopted very quickly,” said Clay Posey, Assistant Vice President of Technical Services at CereCore. “Healthcare organizations might have taken a lot longer to implement such portal capabilities and digital applications had they not faced these pandemic-related customer experience challenges.”

➤ **Read more from the [Digital Health Most Wired Infrastructure Trend Report: Modernizing IT Infrastructure for Untethered Healthcare.](#)**

How Technical Debt Impacts Patients

Financial and operational implications of technical debt are bad enough, and the impacts it has on patients are contradictory to all we try to achieve in healthcare IT. Intuitive, seamless technology for patients and care providers is the goal that has yet to be fully realized.

Circumstance	Type of Technical Debt	Impact on Patient Experience
Defective software	Quality debt	Risk to quality patient care and outcomes because functionality or interfaces are not standard.
Outdated device compliance	Device debt	Risk to quality patient care because medical devices are not interoperable.
Software in need of enhancement	Feature debt	Unsatisfactory experiences with EHRs, portals, etc. as compared to experiences with tools patients use for banking, etc.
Reactive development	Requirements debt	Lack of accessibility compliance, interoperability standards, or health literacy best practices.
Outdated network compliance	Cybersecurity debt	Increased potential for breach of patient health information.



“
Think about the security risks most pertinent for your direct line of business at your hospital or health system. An effective way to do this is by completing a Business Impact Analysis (BIA). This exercise assesses the consequences of disruption of a business function and process, while gathering information needed to develop recovery strategies.

Sese Bennett,
 Virtual Chief Information Security Officer (CISO),
 CereCore



Ways to Mitigate the Impact of Technical Debt on Patients

As members of the healthcare IT community, let's take the actions necessary to address technical debt and mitigate the risks and inefficiencies it poses. *These are some priorities:*

PRIORITY

1 **protect patient information**

ASSOCIATED RISK

- Routine maintenance has fallen behind and only select fixes are applied.

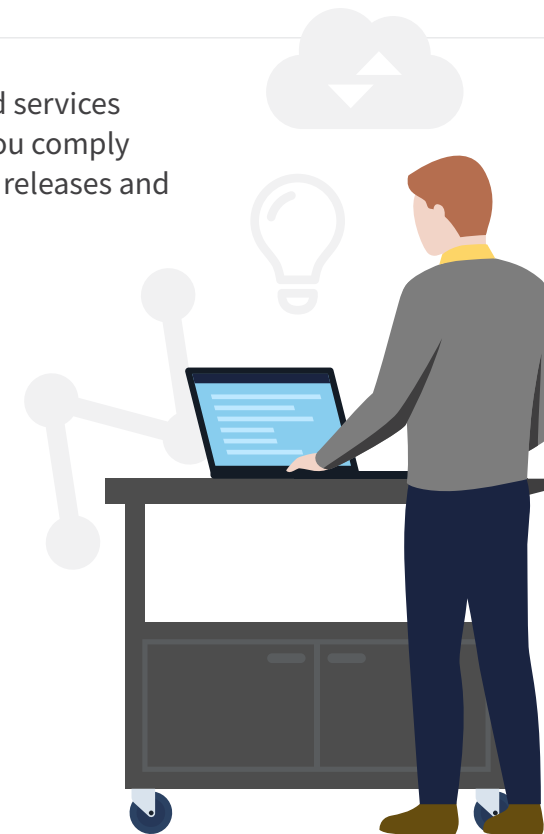
POSSIBLE MITIGATION STRATEGY

- Consider cloud or network management services for addressing technical debt associated with cybersecurity.

2 **maintain regulatory compliance**

- Failure to configure, test, and move software update to live by indicated date.

- Contract with a managed services provider who can help you comply with regulatory software releases and reporting deadlines.



Ways to Mitigate the Impact of Technical Debt on Patients

PRIORITY

3 embrace digitization

ASSOCIATED RISK

- Delivery of new functionality is compromised or postponed.
- New functionality is not integrated with workflows.
- Users perform workarounds.

POSSIBLE MITIGATION STRATEGY

- Partner with an EHR implementation partner to improve speed to market for upgrades and optimization.


4 invest strategically

- Forbes** study finds:
- Engineers spend about 33% of their time dealing with technical debt.
 - The average organization wastes 23 to 42% of their development time on technical debt.

- Develop a roadmap for infrastructure and application refresh and modernization.
- Consider partial or full healthcare IT outsourcing for day-to-day operations so engineers can focus on development.

Highest priority for CIOs driving cost savings and efficiency¹

- 40%** | Application rationalization/optimization
Top strategy last year, too
- 44%** | Automation
- 33%** | Cloud migration and/or other data center reductions



Ways to Mitigate the Impact of Technical Debt on Patients

PRIORITY

5 optimize technical resources

ASSOCIATED RISK

- Insufficient employee bandwidth leading to missed deadlines.
 - Increased staff turnover and burnout.
- » Access to more qualified IT staffing is the top priority of CIOs we surveyed.¹**

POSSIBLE MITIGATION STRATEGY

- Analyze problem areas, IT tickets, and other documentation to find ways to resolve repeat problems. Also consider moving repeatable workloads to a managed services partner who can adjust to demand fluctuations and also provide skilled IT labor for temporary project needs.

6 audit and act

Leadership does not understand the organization's technical debt situation.

- Determine what solutions in your portfolio are leading or lagging (due to integration, automation, aging, resources, etc.) and execute a meaningful response to the findings.
- Fully document the risks of inaction so senior leadership understands.



Most significant challenges for CIOs¹

22%

said insufficient employee bandwidth, capacity to manage and/or execute on IT initiatives was their most significant challenge.

Self-Assessment: Overcoming Technical Debt in Your Healthcare IT Organization

Addressing technical debt requires honest answers to some tough questions about your organization. Here are questions to consider when starting to tackle technical debt.

1. Was my organization in need of modernization before the public health emergency and are we now even further behind?
2. Are we considering all forms of technical debt—remediating quick fixes and imperfect code, supporting processes, downstream and upstream from impacted functionality?
3. What do we need to implement, replace, or sunset in order to modernize our EHR?
4. Do we have the resources to support legacy system requirements as well as requirements for defining and supporting future solutions?
5. What is our knowledge of, response to, and capacity for quality debt (system defects)?
6. What new skills does our resident technical team need to develop?
7. Which resources will work for priorities such as digital transformation efforts to address feature or experience debt?
8. Which resources will be assigned to operational tasks, such as configuration management?
9. What processes should we establish for assessment, prioritization, and tracking?
10. Do we have the budget to hire the talent we need?
11. Can we locate and recruit the talent we need?
12. What can we do to prevent technical debt?



Avoiding Technical Debt: An Ongoing Commitment to Patients

Once technical debt is addressed, it needs to be incorporated into an annual assessment so that companies are continually assessing the impact of technical debt and providing remedies to the most critical ones immediately rather than dealing with a mountain of debt that accumulates over time. As [Gartner research](#) shows, using technology until it is obsolete is believed to save money, but the reality is it incurs more expense in remediation, risks, and lack of functionality for patients.

Peyman Zand | Chief Strategy Officer, CereCore

CIOs have instituted these technical debt preventive measures in their healthcare organizations¹

80%

Mature upgrade and system maintenance processes

80%

Roadmap for technical refresh and lifecycle maintenance

60%

Ongoing professional development and certification programs

We won't overcome technical debt in healthcare IT overnight. Each entity will require a path customized for their organization's goals, talents, and starting point. The complications are real but surmountable with awareness of the options and definition of the details. As members of the healthcare IT community, we are uniquely positioned to move closer to the ultimate goal of intuitive, seamless technology by minimizing the impact of technical debt for patients, their families, and their care teams. Technical debt hinders the progress of transformation and is a problem in healthcare, but it need not be a patient's problem.

Recommending Reading

- **[The Big and Small Ways Healthcare IT Can Address Technical Debt](#)**
with a series of questions for identifying technical debt in your organization.
- **[Bridge the Health Literacy Gap for Your Patients with These Top Tips](#)**
that physicians and clinical teams at any hospital can use to help patients navigate their care in the best possible way.
- **[Can a Good Network Management Partnership Give your Healthcare IT Organization New Focus?](#)**
Gives details on why healthcare orgs turn to network staffing partners given the complexities of administrating cybersecurity, change management, remote connectivity, and configuration compliance on 24/7 basis.
- **[The Buyer's Guide to MEDITECH Hosting](#)**
Don't get caught off guard by hidden costs or put your healthcare operations at risk. Instead, assess business continuity, compare cloud and hosting options and more.
- **[Digital Health Most Wired Infrastructure Trend Report: Modernizing IT Infrastructure for Untethered Healthcare \(for CHIME members\)](#)**
For findings about CHIME's Digital Health Most Wired Survey 2022 results that show pockets of health systems continue operating on "patchy" foundations which are less than optimal in supporting the digital services today's healthcare stakeholders seek.

ABOUT CERECORE

The information in this ebook on technical debt was provided by CereCore leaders who have decades of experience in healthcare IT operations, EHR implementation and optimization, IT managed services, technical staffing, strategic IT consulting, and advisory services. Our team is comprised of former CIOs, IT professionals and clinicians who have experience working in major health systems. We know firsthand the power that the right technology can have in delivering quality patient care. Combating the effects of and preventing technical debt can allow health systems to place technology in the hands of providers, nurses and clinical staff to better serve patients.

[Connect with us](#) to learn more about the ways we can partner with your organization.

¹2023 data based on responses from 27 CIOs who are CHIME members, surveyed March 2023.

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