The Key to Increased Security and Clinical Productivity: Network Modernization

Healthcare organizations must solve today's most pressing challenges, including staffing shortages and cybersecurity issues, using a modern, reliable network as their foundation

W e've just been through one of the most significant accelerators of global digital transformation in history. Healthcare organizations are still recovering from the resulting operational and technological whiplash. While U.S. healthcare organizations are making large investments in new information technology (IT) systems and solutions to meet evolving consumer demands and to improve clinician and patient experiences, they often hit myriad technical and organizational roadblocks.

To better understand these challenges and how they affect hospital and health system technology strategies, HIMSS Market Insights conducted a survey with healthcare IT stakeholders in late 2022 and early 2023, *IT Strategies: Emerging from the COVID Pandemic*.[1] The results of this survey demonstrate that healthcare organizations are committed to their digital transformation efforts but are still grappling with financial concerns and critical staffing shortages. This is hardly a surprise, said Doug McDonald, a former hospital executive who is now Director of Extreme Alliances in the Office of the Chief Technology Officer at Extreme Networks.

"Hospitals and health systems have finite budgets. They are struggling to keep doctors and nurses on board," McDonald said. "They are fighting to find and keep the right people on their IT teams. As healthcare organizations think about how to improve patient outcomes and the overall experience for users of their IT systems, they must ensure they are making smart investments.

If you don't have a strong, agile infrastructure that can support these next-generation applications – and that can do so in a secure manner – you are ultimately setting yourself up for failure. That infrastructure is truly a strategic asset that will help today's organizations overcome the many challenges they face."
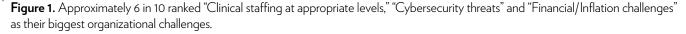
Ongoing staffing shortages

While headlines about ongoing clinical staffing shortages abound, the lack of experienced staff in hospital IT departments hasn't gotten as much attention.[2] Certainly, when survey respondents were asked to rank their biggest organizational challenges, clinical staffing at appropriate levels topped the list, with 32% of participants ranking it as their number one challenge. The next three challenges were cybersecurity threats (23%), financial/inflation challenges (19%) and providing modern patient care due to the cost of technology investments (10%) (Figure 1).
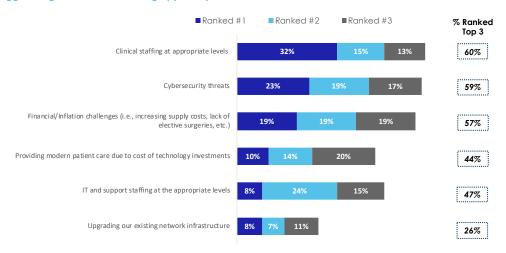
Figure 1. Approximately 6 in 10 ranked "Clinical staffing at appropriate levels," "Cybersecurity threats" and "Financial/Inflation challenges" as their biggest organizational challenges.

What are your biggest organizational challenge(s) today?

'Other': 1st (0%), 2nd (1%), 3rd (3%), not shown
What are your biggest organizational challenge(s) today? Rank in order of 1 through 3, with how challenging each area is: Base: Total Respondents; n = 100

"There's a major shortage of doctors right now," said Paul Dausman, a network engineer at Bowen Center, the largest community mental health center in Indiana. "To overcome this problem, we use technology to connect doctors with patients regardless of distance. Providing a quality telemedicine experience requires a reliable, secure solution."

McDonald sees important links between all the responses. Certainly, the lack of clinical staff is an ongoing concern, and many organizations, like the Bowen Center, are looking for IT solutions to fill in these gaps. Reading between the lines, McDonald points out that respondents are citing IT staffing shortages as a top organizational challenge. The lack of a skilled, capable IT team makes it harder for clinicians to do their jobs, leading to staff burnout and poor patient outcomes. Mounting financial issues make it harder for hospitals to recruit and retain both clinical *and* IT staff. And, of course, without a strong IT team, it's more difficult for hospitals to put systems in place that are needed to support modern care delivery and to improve patient outcomes and experience, such as telemedicine applications.

"These topics really do blend together," he said. "Many IT systems are quite complicated. There are only so many folks out there who can help with these new applications as well as with security. And if you don't have the right staff to keep your network up 24/7/365 and to support these more modern applications, it's going to impact your clinicians, it's going to impact how well you can respond to cyber threats and it's going to impact your bottom line."

Delayed digital transformation

Sixty-five percent of respondents said that IT staffing shortages have been "very impactful" or "somewhat impactful" in terms of having to delay important IT projects. Nearly the same percentage of participants (66%) said that routine tasks now take longer due to a lack of staff, with another 55% reporting that resolution time to solve errors and other issues has increased. These findings show the importance of solving IT staffing problems, according to McDonald. IT staffing problems can be a focal point for addressing other
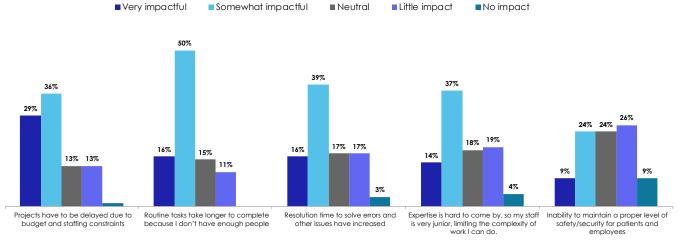
Figure 2. More than 3 in 5 organizations are being impacted with projects being delayed and routine tasks taking longer to complete, due to IT staffing shortages.

How much of an impact, if any, does the IT staffing shortage have on your ability to support the organization?

■ Very impactful   ■ Somewhat impactful   ■ Neutral   ■ Little impact   ■ No impact

	Projects have to be delayed due to budget and staffing constraints	Routine tasks take longer to complete because I don't have enough people	Resolution time to solve errors and other issues have increased	Expertise is hard to come by, so my staff is very junior, limiting the complexity of work I can do.	Inability to maintain a proper level of safety/security for patients and employees
Very impactful	29%	16%	16%	14%	9%
Somewhat impactful	36%	50%	39%	37%	24%
Neutral	13%	15%	17%	18%	24%
Little impact	13%	11%	17%	19%	26%
No impact			3%	4%	9%

Data labels under 2% not shown
'I'm not impacted by an IT staffing shortage' 8%, not shown
How much of an impact, if any, does the IT staffing shortage have on your ability to support the organization? Base: Total Respondents; n = 100

challenges, as well as being a catalyst for supporting the digital transformation investments hospitals and health systems are making (Figure 2).

"The reality is that when you don't have enough IT people, you are going to be firefighting all the time," he said. "You don't have the resources to be proactive and to prevent issues from happening. When something unexpected does come up, you don't have the right person on hand to address it because they are busy handling something else. Once you address these IT shortages, you can be more *proactive* instead of just reactive. You can strategically head off issues so you can improve response time and focus on new and exciting projects that will help improve your user experience."

Securing your network

As healthcare organizations consider how to leverage IT solutions to improve the patient experience, they must do so in a way that protects their networks from cybersecurity
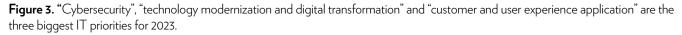
threats. Cybersecurity threats were ranked by 29% as the number one priority, with 59% of respondents ranking it among the top 3 organizational challenges (Figure 3). "There are huge multi-million-dollar investments in different solutions, but organizations don't always think about their holistic security strategy," said McDonald. "As health systems expand to offer different solutions to improve care, they may not be protected. A device, maybe an Internet of Things device, may not be hardened and secure. A bad actor could compromise that device and gain access to that network segment. As organizations consider these cybersecurity and digital transformation investments, it's important to realize that they go together. You also need to invest in a more modern architecture that will allow you to fend off attacks from all areas."

Unsurprisingly, cybersecurity is also where the vast majority of respondents are making significant IT investments (85%), along with advanced software applications (85%) and artificial intelligence and machine learning (AI/ML) applications (67%) (Figure 4). Without the right network infrastructure in
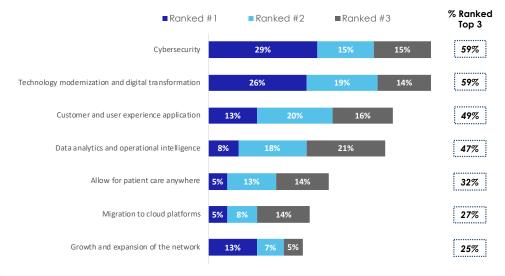
> *Our wireless network is the central nervous system of our operations – driving everything from access to patient records to blood pressure monitoring to advanced radiology applications and everything in between."*
>
> **ANDREW SMITH** | Head of Digital Service Delivery | West Suffolk NHS Foundation Trust

Figure 3. "Cybersecurity", "technology modernization and digital transformation" and "customer and user experience application" are the three biggest IT priorities for 2023.

Please rank, up to, the 3 biggest IT priorities for 2023:

'Other' 1%, not shown
Please rank up to the 3 biggest IT priorities for 2023: Base: Total Respondents; n = 100

place, however, it can be difficult for organizations to drive the innovation they seek – and to get the results they want from these new applications.

"Cybersecurity remains a huge challenge for many organizations," said McDonald. "If you are still working with a legacy infrastructure, it's going to be that much harder for you to put the right protections in place. It's also going to be difficult to drive digital transformation because you need a more agile architecture to support it."

The network as a strategic asset

Collin Summers, Director of Network Services at OSF Healthcare in Illinois, said that healthcare organizations need to find ways to balance these too often competing organizational issues. "It's very rare to find a solution that drives automation, minimizes security risk and reduces costs without sacrificing one of those options for another," he noted.

McDonald agreed. Addressing these challenges is daunting for many organizations, especially smaller, nonprofit healthcare
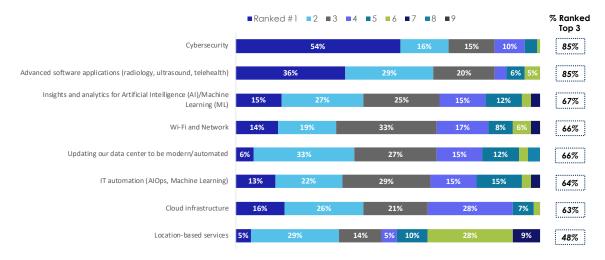
centers. But, he argued, that's why healthcare organizations of all sizes need to consider their network as they lean into technology such as automation and machine learning to help fill these significant gaps. When the right infrastructure is in place, the network becomes a strategic asset that helps organizations manage staffing shortages and cybersecurity threats, while also improving user experiences and reducing overall IT spend.

"A lot of organizations focus on new applications, cybersecurity efforts or the patient experience and lose sight that their network infrastructure is the core that makes all of those applications succeed," he pointed out. "If your network architecture isn't up to speed, it doesn't matter what else you invest in; those different systems won't function as they should, and there will be a major problem."

When healthcare organizations invest in a higher-grade network infrastructure to facilitate their IT expansions, they can rest assured that their environment will be agile and strong enough to bring on the new applications and devices they want without sacrificing cybersecurity or the user experience. By

Figure 4. "Cybersecurity" and "advanced software applications" are ranked as being the most important technology investments in the next 12-18 months.

Ranking in order of importance, which areas are the most important technology investment(s) for your organization in the next 12-18 months:

	Ranked #1	2	3	4	5	6	7	8	9	% Ranked Top 3
Cybersecurity	54%	16%	15%	10%						85%
Advanced software applications (radiology, ultrasound, telehealth)	36%	29%	20%		6%	5%				85%
Insights and analytics for Artificial Intelligence (AI)/Machine Learning (ML)	15%	27%	25%	15%	12%					67%
Wi-Fi and Network	14%	19%	33%	17%	8%	6%				66%
Updating our data center to be modern/automated	6%	33%	27%	15%	12%					66%
IT automation (AIOps, Machine Learning)	13%	22%	29%	15%	15%					64%
Cloud infrastructure	16%	26%	21%	28%			7%			63%
Location-based services	5%	29%	14%	5%	10%	28%		9%		48%

'Other' 3%, not shown
Ranking in order of importance, which areas are the most important technology investment(s) for your organization in the next 12-18 months: Base: Chosen as an area organization focuses on for technology investments in the next 12-18 months; n = 21-82

maximizing the value of their networks, they can support the digital transformation initiatives that will have the most impact across the enterprise. More progressive IT leaders understand this – and that is likely why 25% of survey respondents noted that growth and expansion of their network was a top 3 priority for their organization. They understand that without adequate investment in their networks, their digital transformation efforts will not meet expectations.

"If your network isn't up 24/7/365, you cannot support your clinical staff. You cannot get better patient outcomes. You cannot deploy these new applications that are changing the face of healthcare," said McDonald. "To meet the moment and future-proof your organization's technology footprint, you need to ensure that you are investing in this critical asset so you can do more of what today's healthcare industry demands with fewer resources. It's going to be the thing that ensures you can provide that great patient and clinical experience each and every day."

Learn more at
extremenetworks.com/healthcare.

References

1. HIMSS Market Insights, sponsored by Extreme Networks. February 2023. *IT strategies: Emerging from the COVID pandemic*.

2. Johnson, S.R. 28 July 2022. Staff shortages choking U.S. health care system. *U.S. News & World Report*. https://www.usnews.com/news/health-news/articles/2022-07-28/staff-shortages-choking-u-s-health-care-system.

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