



DIGITAL INFRASTRUCTURE IS CRITICAL FOR INNOVATION

HIMSS research identifies five connectivity solutions key to enabling digital health innovation

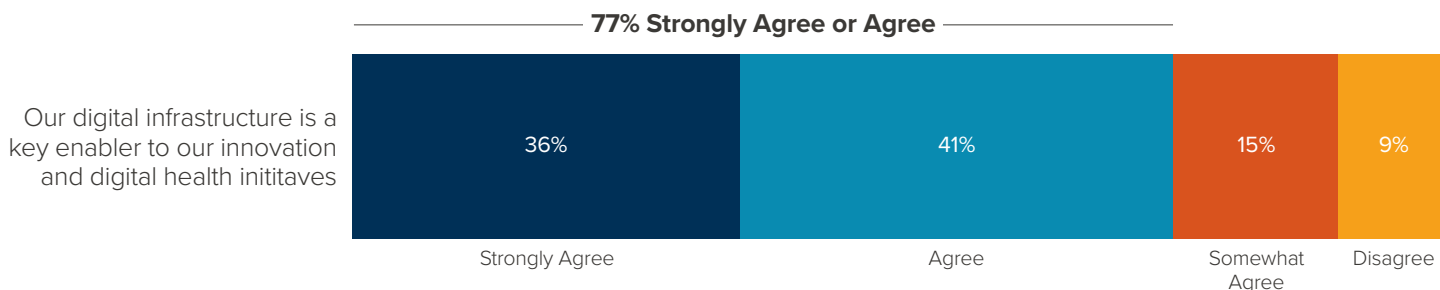
Digital health innovation is critical for today’s hospitals and health systems. Patients expect these organizations to operate like every other modern-day industry. That means leveraging data and technology to increase the timeliness, effectiveness, accessibility and personalization of patient care. Provider organizations are working hard to meet this expectation.

HIMSS Media, in collaboration with Spectrum Enterprise, conducted a three-part research series titled “Anatomy of Innovation” to identify the foundations and challenges of digital health innovation within these organizations.¹ One of the findings of the first phase of the research was that 83 percent of respondents are leading or actively contributing to digital

health technology initiatives in their respective organizations.² But what does digital health innovation look like in a hospital or health system? And what does it take to support digital health innovation?

Digital health innovation is taking many different forms in healthcare. For some organizations it may mean rolling out telehealth services. For others, it may mean enabling interactive TV services in patient rooms to enhance the patient experience. But those are today’s innovations. Tomorrow’s digital health innovations may look completely different. That is why it is important for hospitals and health systems to invest in resources that not only support today’s technology, but also

Figure 1. Digital infrastructure empowers digital health innovation



Anatomy of Innovation: Digital Infrastructure Readiness, conducted by HIMSS Media and sponsored by Spectrum Enterprise, September 2019. Percentages are rounded to the nearest whole number and may not equal 100%.

have the capacity and flexibility to support yet-to-be-imagined innovations. Many resources come into play to support innovation in organizations, including skilled staff, allocated time, support from leadership and budgetary considerations. And while it may be overlooked, the most foundational resource where investment has proven key is in a high-quality, reliable connectivity infrastructure.

The right digital infrastructure is key to initiating and supporting digital health innovation

When it comes to innovation, an organization’s digital infrastructure can be an asset or a liability. A powerful, secure and modern digital technology infrastructure can support enterprise-wide digital health innovation in many ways. In fact, 3 of 4 respondents (77 percent) agreed that digital infrastructure is a key enabler of their digital health initiatives (Figure 1).³ In addition, the majority of respondents (70 percent) also “strongly agree” or “agree” that investments in connectivity solutions and services should be made proactively to achieve strategic business goals.

The right digital infrastructure provides the speed, bandwidth, security and adaptability that healthcare organizations need to roll out innovative digital health solutions. An IT project manager explained, “By investing in a strong and redundant wide area network (WAN), reliable and redundant Internet service, and a quality local area network (LAN) infrastructure, we ensure we are prepared to handle any [innovations] that rely on uptime and constant connectivity, either local or remote.”

On the other hand, an inadequate or outdated digital infrastructure can present serious challenges to digital health innovation. Out-of-date network architecture may not support solutions that require access to big data, the cloud, Internet of things (IoT)/Internet of medical things (IoMT) technologies or mobile technologies. Outdated infrastructure may also

lack the speed, bandwidth, security and/or flexibility to support innovative digital health initiatives. As a research scientist at one organization said: “Connectivity is the baseline for web and mobile app development for research. When we have challenges in this area, everything grinds to a halt.”

Critical connectivity infrastructure includes a breadth of services

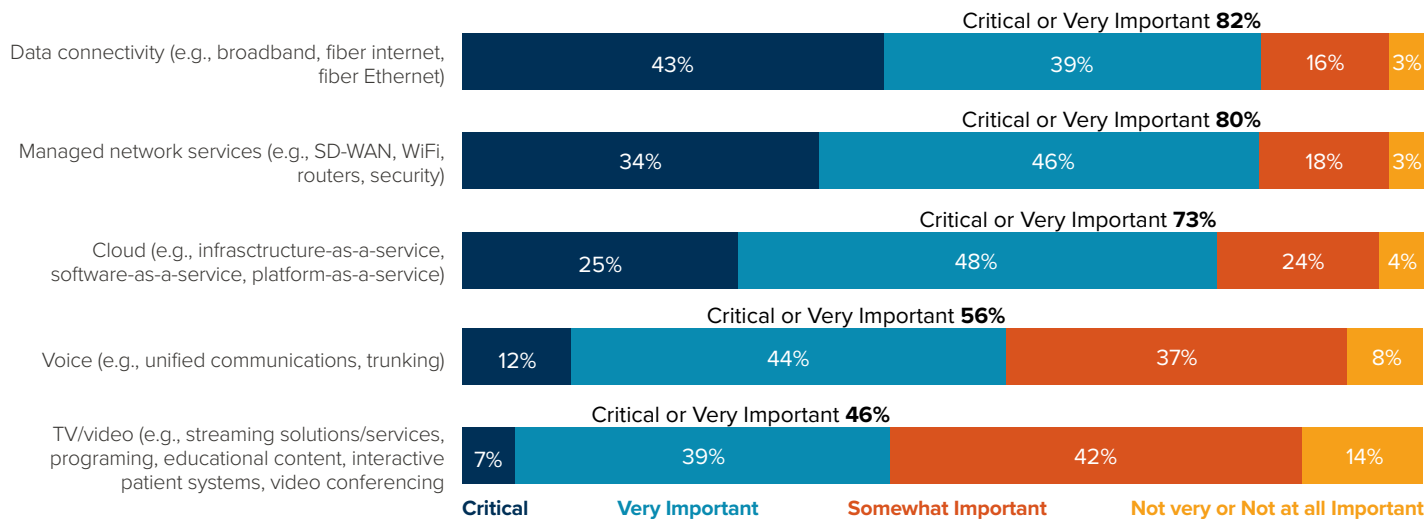
Another way in which an organization’s digital infrastructure can prove inadequate is if it fails to offer the breadth of services needed to support enterprise-wide digital health initiatives. That means accommodating connectivity across the entire ecosystem of needs in the organization rather than focusing on any single component.

Survey respondents identified five types of solutions as being “critical” or “very important” to digital health innovation (Figure 2).

- 1. Data connectivity.** Eighty-two percent of respondents identified data connectivity as either “critical” or “very important” to the advancement of their digital health innovation initiatives. Data connectivity includes solutions such as broadband, fiber Internet and fiber Ethernet. Fast and secure connectivity and ample bandwidth are essential for supporting everything from clinical decision support tools to telehealth services to interoperability between and among hospitals and health system facilities.
- 2. Managed network services.** Eighty percent of respondents identified managed network services as either “critical” or “very important” to the advancement of their digital health innovation initiatives. Managed network services include software-defined wide area networks (SD-WAN), WiFi, routers and/or security. Managed services improve workflow efficiency and reduce the network administrative burden on internal IT departments, enabling staff to focus resources on innovative health applications of digital technologies.

Figure 2. A breadth of solutions are important to advancing the digital innovation agenda

How important are these ICT solutions to the advancement of your digital health innovation initiatives?



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- 3. Cloud.** Seventy-three percent of respondents identified cloud access as either “critical” or “very important” to the advancement of their digital health innovation initiatives. A stable, low-latency connectivity infrastructure enables organizations to leverage cloud services — such as software-as-a-service (SaaS) solutions — to support innovation.
- 4. Voice.** More than half of respondents (56 percent) identified voice services as either “critical” or “very important” to the advancement of their digital health innovation initiatives. Voice solutions include unified communications and/or connecting Internet phone systems to the public phone network. Unified communications technology enables innovation by facilitating telehealth applications, simplifying collaboration across providers and staff, and supporting patient engagement.
- 5. TV/Video.** Just under half of respondents (46 percent) identified TV as either “critical” or “very important” to the advancement of their digital health innovation initiatives. TV services include streaming video solutions/services, programming, interactive patient systems (IPS) and/or video conferencing. Innovation use cases are composed of patient education, patient-to-provider communication, provider-to-provider communication, patient entertainment and self-service functionality for patients. IPS software platforms themselves are innovating to improve the patient experience utilizing the TV as the conduit.

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At the same time, connectivity providers themselves continue to innovate, looking to the evolving needs of hospitals and health systems to guide future generations of solutions.

Connectivity infrastructure challenges

Respondents were asked to identify their most significant digital infrastructure challenges (Figure 3). Topping the list was “limited budgets,” with 40 percent of organizations naming this as their “most significant” challenge and 78 percent placing it among their top three challenges. An IT network manager said, “We need an increased budget to make sure we do not fall behind as a company in our ability to innovate and advance digital health initiatives.”

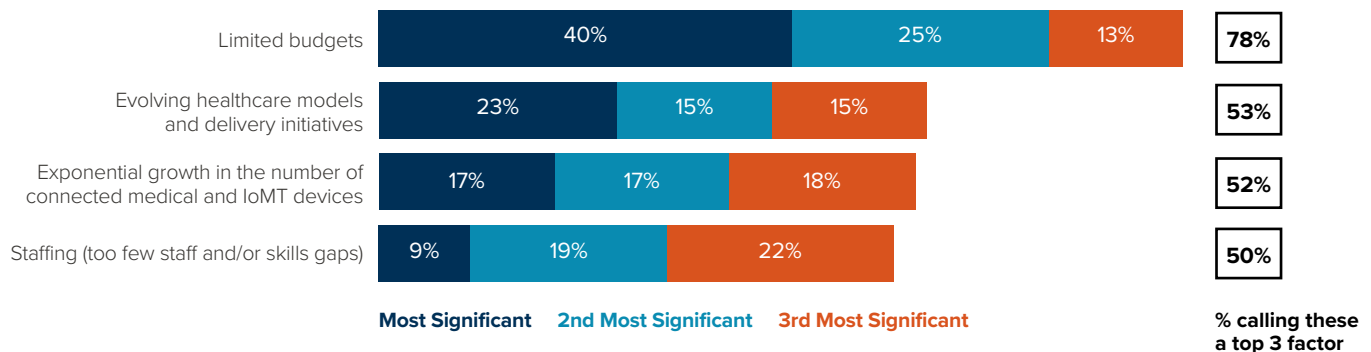
“Evolving healthcare models and delivery initiatives” was number two. Twenty-three percent of organizations named it as their “most significant” challenge, and 53 percent placed it among their top three.

Next was “exponential growth in the number of connected medical and IoMT devices,” with 17 percent of organizations naming this as their “most significant” challenge and 52 percent placing it among their top three. A clinical informatics director said, “[Innovation] is an ongoing, ever-present challenge as we add more and more devices and services requiring connectivity.”

Finally, 9 percent of organizations named “staffing (too few staff and/or skills gaps)” as their “most significant” challenge and 50 percent placing it among their top three. A director of clinical informatics said, “We need a talented staff to improve our organization’s ability to innovate.”

Figure 3. Organizations face multiple digital infrastructure challenges

Which factors are the most significant contributors to your digital infrastructure challenges?



Anatomy of Innovation: Digital Infrastructure Readiness, conducted by HIMSS Media and sponsored by Spectrum Enterprise, September 2019.

The difference between a hospital or health system that has the capacity to innovate, versus one that doesn't, frequently comes down to the power of the organization's digital infrastructure and their relationship with the service provider.

The right partner can help organizations implement an infrastructure that supports innovation

Many respondents suggested that the single best thing their respective organizations could do to advance innovation was to work with the right connectivity partner. A research scientist said, “[We need to] increase our reliance on external services providers.” Likewise, a chief medical officer said the best thing his organization could do to improve the digital infrastructure would be to “outsource it to a highly reliable organization.”

The right connectivity partner can help organizations implement a digital infrastructure that supports innovation while simultaneously addressing infrastructure challenges. Respondents said that the right connectivity partner can support digital health innovation by offering the following:

- Expertise in the healthcare industry
- Guidance on implementing a digital infrastructure that will not only support current innovation efforts, but also enable future innovation initiatives

- Future-ready, reliable and secure digital infrastructure solutions
- A breadth of coordinated solutions (e.g., data connectivity, managed network services, cloud connectivity, voice and TV/video services) to efficiently enable digital health initiatives across the organization
- The capacity to serve as the sole source for services and solutions to reduce administrative complexity and ensure cost-effective services

The difference between a hospital or health system that has the capacity to innovate, versus one that doesn't, frequently comes down to the power of the organization's digital infrastructure and their relationship with the service provider. The right connectivity partner can help organizations overcome digital infrastructure challenges and optimize the infrastructure to support current and future innovation and digital health initiatives.

Listen to our webinar to discover to explore ways your organization can enable digital health innovation.

This white paper is the second of a three-part series by HIMSS Media, in collaboration with Spectrum Enterprise, to uncover what differentiates innovation-ready healthcare organizations from organizations that are struggling to innovate.

¹ *Anatomy of Innovation* research series, conducted by HIMSS Media and sponsored by Spectrum Enterprise, August, September and October 2019.

² *Anatomy of Innovation: New Insights into the Role of the Healthcare ITDM*, conducted by HIMSS Media and sponsored by Spectrum Enterprise, August 2019.

³ *Anatomy of Innovation: Digital Infrastructure Readiness*. In September 2019, HIMSS Media conducted an online survey of individuals employed at U.S. hospitals and health systems with 26 or more beds. Respondents were employed in a mix of IT, business/administrative and clinical functions in both management and staff-level roles.



About Spectrum Enterprise:

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