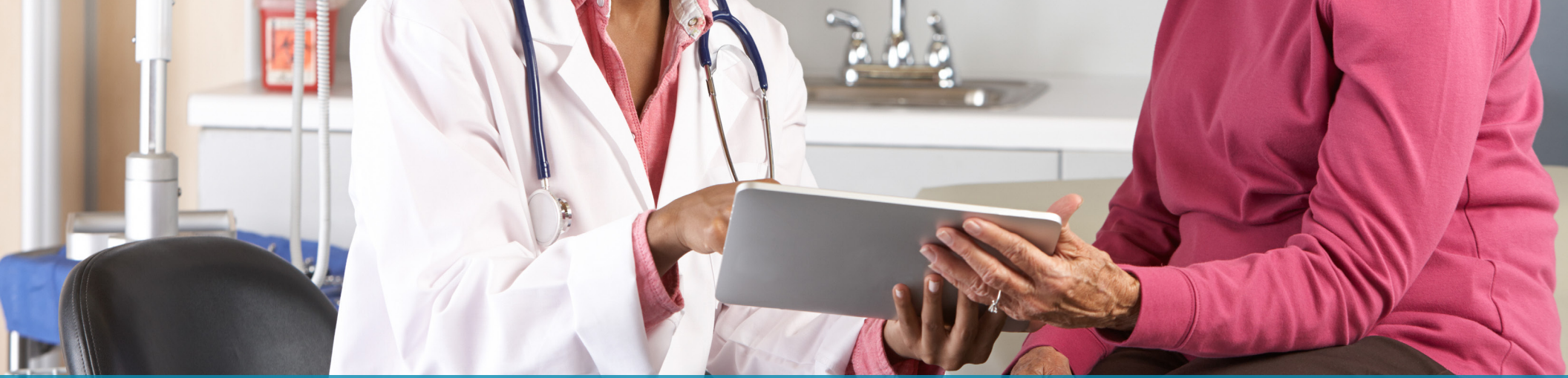


ANATOMY OF INNOVATION:
Digital infrastructure readiness

Digital health innovation is at the forefront of hospitals' and health systems' business strategies. A recent study found that eight of 10 hospitals and health systems are engaged in digital health initiatives.[1] These initiatives include everything from offering telehealth services to extend access to care, to using HDTV to enhance patient experience, to implementing big data-ready networks.

Digital health innovation is a necessity, but innovation also brings challenges. HIMSS Media, in collaboration with Spectrum Enterprise, conducted a three-part research series titled "Anatomy of Innovation" to identify the key foundations and challenges of digital health innovation.[2] The research methodology is composed of surveys of 200 information technology (IT) decision-makers and influencers across a wide variety of healthcare facilities and roles.[3] Survey respondents represent multi-hospital systems (40 percent), standalone hospitals (23 percent), academic medical centers (22 percent), integrated delivery networks (14 percent) and specialty hospitals (2 percent).

Individual respondents comprise members of the C-suite (40 percent), senior management (28 percent), middle managers and supervisors (14 percent), and individual contributors (19 percent). Just under half (49 percent) of respondents identified their job role as within IT/technology; 32 percent are in business/administrative roles; and 18 percent in clinical roles.

The second phase of the research series, and the focus of this report, aimed to understand hospitals' and health systems' digital infrastructure readiness. Questions the research sought to answer included: What are the priorities driving innovation initiatives? What role does digital infrastructure play in supporting digital health innovation? What different types of solutions comprise a robust digital infrastructure? Do hospitals and health systems feel equipped to support their digital innovation goals? What role do technology vendors have to play in digital innovation? Here are five key takeaways from the second phase of the research:

Key Takeaway No. 1: Innovation is being driven by a number of priorities

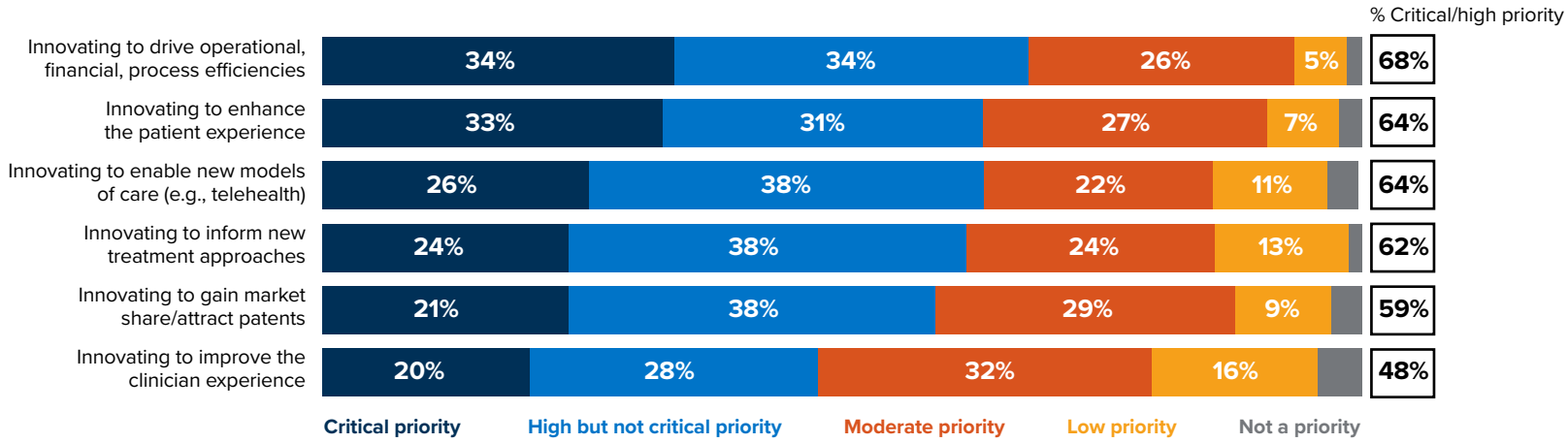
Six significant factors emerged when respondents were asked to identify the priorities driving innovation initiatives at their organizations (Figure 1). The top priority, with 68 percent of respondents identifying it as "critical" or "high," was "innovating to drive operational, financial [and/or] process efficiencies." Hospitals and health systems are increasingly being called upon to "do more with less," which makes achieving operational and financial efficiencies essential.

"Innovating to enhance the patient experience" and "innovating to enable new models of care (e.g., telehealth)" were both identified by 64 percent of respondents as either "critical" or "high" priorities. Patient experience is becoming increasingly important for several reasons. One reason is that patients are beginning to approach healthcare from a consumer perspective, by "shopping" for providers based on value, cost and quality. At the same time, payers, such as the Centers for Medicare and Medicaid Services (CMS), have incorporated patient satisfaction into payment formulas. The onus is now on providers to deliver a positive and accessible patient experience via patient-centric digital innovation initiatives.

Sixty-two percent of respondents identified "innovating to inform new treatment approaches" as either a "critical" or "high" priority. Fifty-nine percent of respondents said "innovating to gain market share/attract patients" was either a "critical" or "high" priority. In addition, just under half (48 percent) selected "innovating to improve the clinician experience" as either a "critical" or "high" priority.

It may seem challenging for hospitals and health systems to address this chaotic whirlwind of different priorities. But these seemingly disparate priorities actually have something in common: None of these priorities can be achieved without having the right underlying digital infrastructure in place. The right connectivity infrastructure — supported by the right connectivity partner — can provide the common foundation needed to support multiple innovation priorities.

Figure 1. Operational efficiency and a desire to enhance the patient experience are driving hospitals' and health systems' focus on innovation



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

Key Takeaway No. 2: The right digital infrastructure initiates and supports digital health innovation

Three of 4 respondents (76 percent) view digital infrastructure as a key enabler for their organizations' innovation and digital health initiatives (Figure 2). Too often, legacy or outdated connectivity infrastructures stifle innovation. Infrastructures based on old technology typically do not offer the speed, bandwidth, security or flexibility needed to accommodate new digital solutions. Legacy connectivity infrastructure can be unstable, expensive to maintain and difficult to modify.

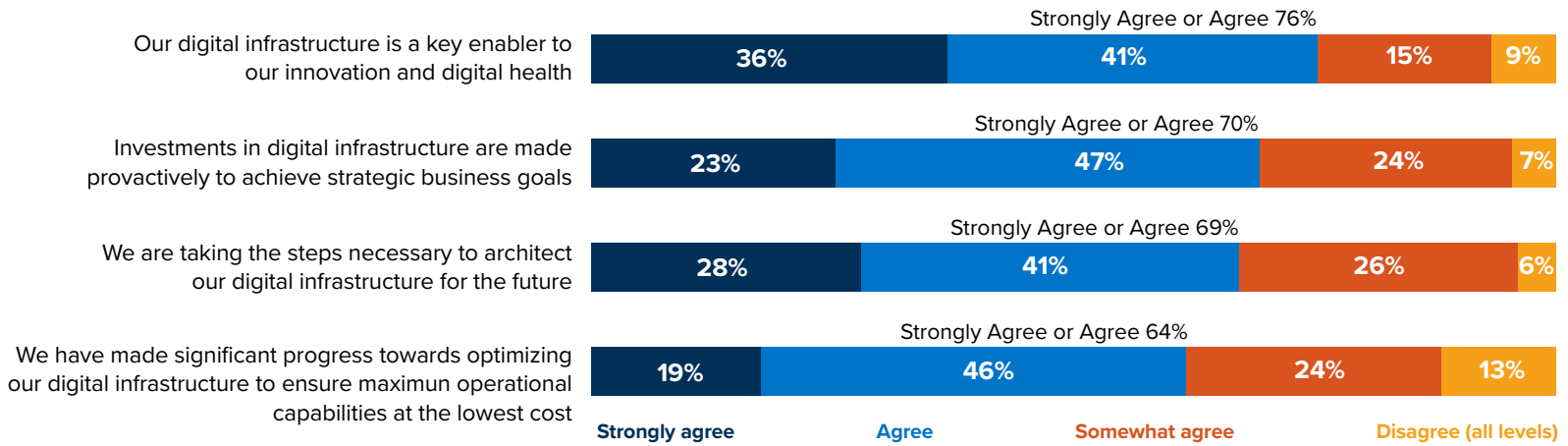
Hanging on to an outdated connectivity infrastructure is like owning a vintage car — it may still get you down the road, but it will never be able to leverage innovations like a dashboard GPS system, in-car monitoring or self-driving technologies — at least not without expensive and time-consuming modifications and workarounds.

Hospitals and health systems cannot afford to continue investing in "vintage" connectivity infrastructure in today's competitive environment. By simply maintaining the status quo with respect to their technology infrastructure, organizations risk losing their competitive edge.

Consumers are increasingly choosing providers that feature digital innovation. For example, a 2019 survey by American Well found that 25 percent of consumers would be willing to switch their primary care physician (PCP) to one who offered telehealth services.[4] This is an increase of 5 percentage points over 2017.[5]

Digital health innovation is essential for capturing an increasingly digital-savvy consumer. That is why seven of 10 of the "Anatomy of Innovation" survey respondents agreed that investments in digital infrastructure should be made proactively to achieve strategic business goals.

Figure 2. Digital infrastructure is widely viewed as a key enabler to digital health innovation



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Percentages are rounded to the nearest whole number and may not equal 100%.

Key Takeaway No. 3: A majority of respondents say they are spending "too little" in one or more areas of connectivity infrastructure

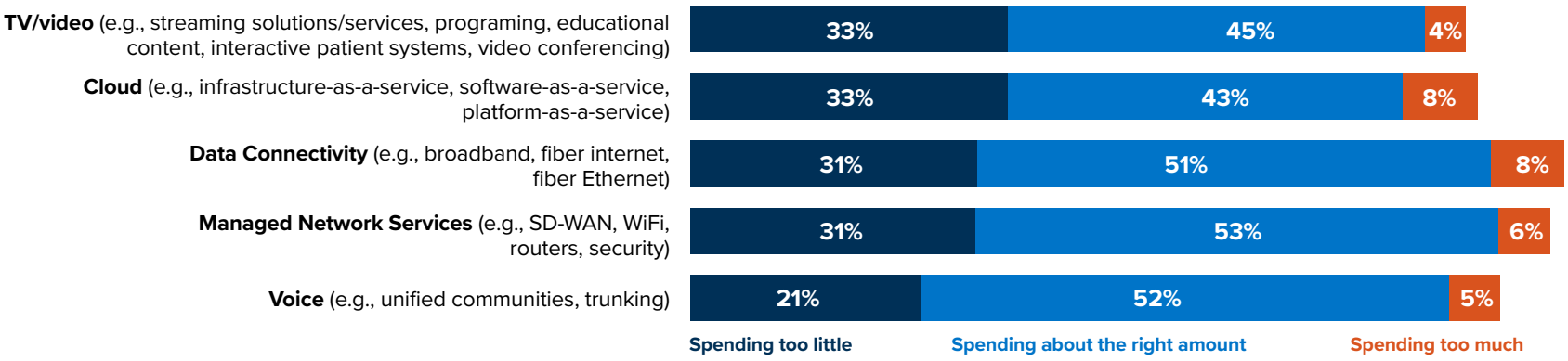
Connectivity infrastructure encompasses more than just a single solution or service. The "Anatomy of Innovation" survey series called out five categories of solutions that contribute to a high-quality digital connectivity infrastructure:

1. Data connectivity — examples include broadband, fiber Internet and fiber Ethernet connections
2. Managed network services — examples include software-defined wide-area networks (SD-WAN), WiFi and/or routers
3. Access to the cloud — ample bandwidth to access cloud services
4. Voice — including unified communications and/or connecting Internet phone systems to the public phone network
5. TV/video — for example, streaming video solutions/services, programming, interactive patient systems and/or video conferencing

Despite acknowledging the role each of these solutions plays in connectivity infrastructure, respondents self-identified as "spending too little" in one or more of these five key areas (Figure 3). One of three (33 percent) respondents stated they were "spending too little" on TV/video and cloud services to support innovation or digital health initiatives. Data connectivity and managed network services closely followed with 31 percent stating they were "spending too little" on both. Just over one of five (22 percent) said they were "spending too little" on voice services.

Organizations that do not invest in connectivity solutions that help them innovate and differentiate themselves from their peers may lag in market share.

Figure 3. One in three feel they are spending too little to successfully support digital health innovation initiatives



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Key Takeaway No. 4: Hospitals and health systems feel well-equipped to support some, but not all, of their digital health innovation goals

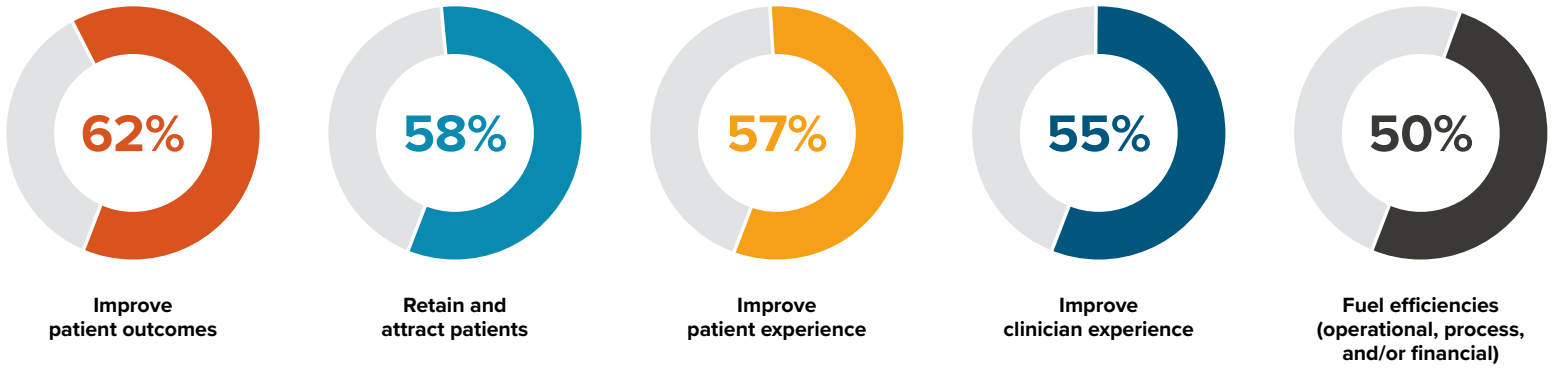
Hospitals and health systems leverage digital innovation with the goal of achieving several outcomes. Although respondents generally believe their respective organizations are well-equipped when it comes to supporting patient-centered outcomes, they feel less prepared to fuel operational efficiencies (Figure 4).

Topping the list of areas where respondents reported their digital infrastructure is "extremely" or "generally" well-equipped to support digital health innovation were efforts to improve patient outcomes (62 percent), retain and attract patients (58 percent) and improve patient experience (57 percent).

This confidence in the organization's ability to leverage digital infrastructure to improve patient outcomes, retain and attract patients, and improve patient experience may be related to the impact of CMS's electronic health record (EHR) incentive program. The CMS EHR incentive program, which began in 2011, now known as Promoting Interoperability programs, incentivized and measured the "meaningful use" of EHRs to improve patient engagement and outcomes. This has had a lasting impact on hospitals' and health systems' deployment of patient-centric digital technology.

Meaningful use did not focus on — and therefore had less impact on — improving the clinician experience and fueling operational or financial efficiencies. This may be why survey respondents said they felt less well-equipped to support digital health innovation in these two areas.

Figure 4. Health systems feel their digital infrastructure is best equipped to improve patient-related outcomes and experience, but lag on efficiency



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

Key Takeaway No. 5: Hospitals and health systems are becoming increasingly reliant on their technology vendors as innovation partners

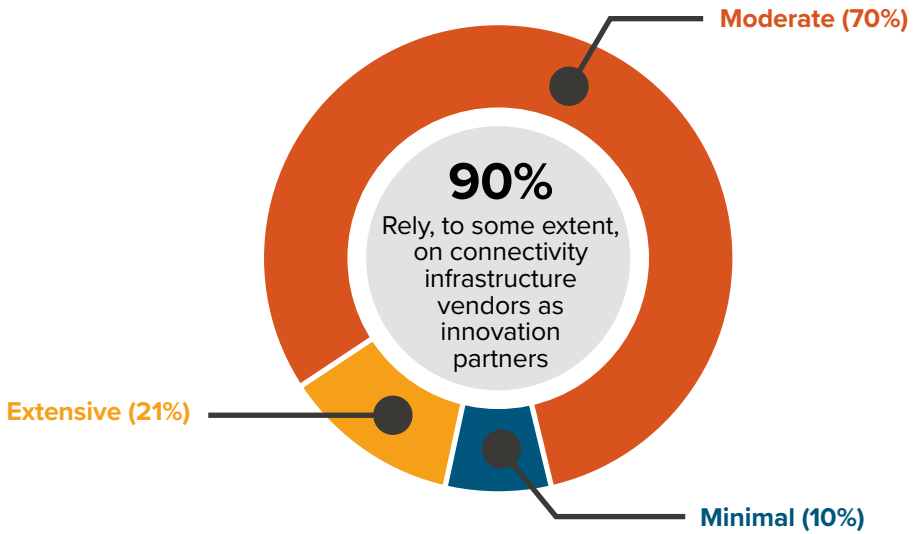
Of course, digital health innovation is a complex undertaking. It requires a reliable, modern and flexible connectivity infrastructure to support patient-centric innovations, the clinician experience, operational process and financial efficiencies.

Because of this complexity, the relationship between hospitals and health systems and their technology partners is changing. As healthcare organizations now view their digital technology infrastructure as more than just a commodity, they see their connectivity infrastructure vendors as strategic business partners that can help them achieve their digital health innovation objectives.

In fact, 90 percent of respondents reported that they rely to some extent on their connectivity infrastructure vendors as innovation partners (Figure 5). Twenty percent reported they rely on their connectivity infrastructure vendor extensively to support organizational innovation needs; 70 percent said they moderately rely on their connectivity infrastructure vendor to support organizational innovation needs.

In other words, by definition, "innovation" — not just keeping tech solutions running — is a part of the service respondents expect from their connectivity infrastructure vendors. They want vendors to serve as partners in incubating and developing innovative solutions, and to provide support for cutting-edge innovation and transformation strategies.

Figure 5. Hospitals and health systems are increasing their reliance on technology vendors as innovation partners



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Percentages are rounded to the nearest whole number and may not equal 100%.

Conclusion: Digital health innovation is a necessary part of doing business

Digital-savvy consumers expect hospitals and health systems to leverage digital infrastructure to deliver care. At the same time, payers — including CMS — expect hospitals and health systems to leverage their digital infrastructure to improve patient experience and outcomes. Healthcare organizations are trying to meet this demand by developing and implementing digital health solutions. However, challenges such as competing priorities and limited resources can impede innovation.

One solution to the challenges of innovation is to engage a connectivity infrastructure partner. The right connectivity infrastructure partner can support digital health innovation in a number of meaningful ways:

- Help hospitals and health systems support multiple innovation priorities simultaneously by providing a modern, secure and flexible connectivity infrastructure.
- Support a breadth of solutions (data, cloud access, voice, TV/video and managed services) concurrently. Leveraging a connectivity provider with a full portfolio of solutions can simplify services by eliminating the need to interact with multiple vendors and can also be an efficient and a cost-effective way of meeting connectivity infrastructure needs.
- Reduce the administrative and maintenance burden on IT by offering managed services so that the organization can focus on core competencies (healthcare applications of technology) instead of managing the technology itself.

Hospitals and health systems are increasingly recognizing the potential of their connectivity infrastructure vendors to serve as innovation partners, rather than just commodity vendors. Ultimately, the right connectivity infrastructure partner can help hospitals and health systems coordinate their approach to digital infrastructure in a cost-effective way that enables them to advance their digital health initiatives.

This research report is based on the second research phase 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. The first phase of the research focused on the role of information technology decision-makers. The third part in the series looks at the role connectivity infrastructure partners can play in supporting digital health innovation.

[1] *Anatomy of Innovation, Overcoming the Challenges of HIT Innovation: The ITDM Perspective*, conducted by HIMSS Media and sponsored by Spectrum Enterprise, August 2019.
[2] *Anatomy of Innovation: Digital Infrastructure Readiness*, conducted by HIMSS Media and sponsored by Spectrum Enterprise, September 2019.
[3] 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.
[4] Telehealth Index: 2019 Consumer Survey, American Well, https://static.americanwell.com/app/uploads/2019/07/American-Well-Telehealth-Index-2019-Consumer-Survey-eBook2.pdf.
[5] Ibid.