



How Connected Health Strategies Enable Resilience in Healthcare Organizations

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The global pandemic created a pivotal moment for connected health technologies, as healthcare accelerated digital transformation strategies to respond rapidly to COVID-19.

Key Stats

- ▶ **52.6% of healthcare respondents reported that having a digitally resilient organization will help them introduce new business model innovation.**
- ▶ **65.7% of healthcare respondents ranked business operations resiliency a high (39.4%) or top (26.3%) priority.**

In this Spotlight

The Connected Health Opportunity	2
Industry Definition and Core Attributes	2
Key Business Priorities	3
Considerations	3
Considering Tech Data as a Supplier of IoT Solutions	5
Takeaways	6
About the Analysts	7
Message from the Sponsor	8

The Connected Health Opportunity

One of the industries hit hardest by the global pandemic, the healthcare industry undertook two-plus years of digital transformation initiatives in the early months of the global pandemic. These efforts to digitize what were once in-person or on-premises experiences have accelerated the adoption of connected health technologies, including AI chatbots for patient triage, unified communications and collaboration solutions for virtual care and clinical workflows, and remote health monitoring to reduce exposure between patients and healthcare workers. These new digitally enabled processes will create more digitally resilient organizations, which 52.6% of respondents to IDC's *COVID-19 Impact on IT Spending Survey (Wave 14)* reported would help them introduce new business models.

IoT-based sensors will increasingly play an important role in digital transformation efforts. Notable use cases include real-time location services and RFID tags to track ventilators, personal protective equipment and other critical resources, occupancy monitoring to support contact tracing and identify potential hotspots where too many people congregate, and air-quality monitoring to measure airflow circulation and detect pathogens in the air.

The adoption of these connected health strategies, including IoT-based sensors, has become more critical than ever — not only to respond to the current environment but also to generate future business

operations resiliency. According to IDC's *COVID-19 Impact on IT Spending Survey (Wave 4)*, 65.7% of healthcare respondents ranked business operations resiliency a high (39.4%) or top (26.3%) priority. COVID-19 has highlighted even more the need for healthcare organizations to be able to adapt rapidly to disruptions as we enter the second year of the global pandemic. Forward-thinking healthcare organizations will leverage connected health strategies in their journey to the next normal.

Industry Definition and Core Attributes

IDC Health Insights segments healthcare providers into hospitals, offices and clinics, and other healthcare delivery services. The hospital subindustry includes general medical, surgical, psychiatric, and specialty hospitals. This definition includes freestanding hospitals as well as those that are part of hospital networks. Also included in this segment are integrated delivery networks (IDNs). The offices and clinics subindustry includes doctors' offices (both general medical and specialist doctors), standalone emergency medical centers and clinics, and dentists' offices. Other healthcare delivery services include skilled nursing care facilities, medical laboratories, dental laboratories, and home healthcare services.

Efforts to digitize what were once in-person or on-premises experiences have accelerated the adoption of connected health technologies.



Key Business Priorities

According to IDC's *COVID-19 Impact on IT Spending Survey* (Wave 11), the top three priorities for healthcare organizations in 2020 and into 2021 were business operations resiliency programs (50.7%), software development capabilities to drive product/experience innovation (39.9%), and connectivity programs to connect workforce, operations, and partners (37.5%).

Connected health and IoT can help healthcare organizations create business resiliency and agility to respond to the pandemic and subsequent surges of COVID-19 cases by:

- ▶ **Increasing efficiency of operations, reducing cost, and increasing revenue.** To limit direct contact between clinicians and patients, telehealth and remote health monitoring moved from nice-to-have connected health solutions to must-have solutions in the wake of the pandemic. For many clinical services, telehealth and virtual care became a financial imperative to enable clinicians to continue to provide care to their patients and generate much-needed revenue to sustain their practices.
- ▶ **Allowing employees to be more productive while reducing direct contact between clinicians and patients.** Virtual services, such as remote rounding and virtual tumor boards, provided through unified communications and collaboration solutions, enable clinicians to continue caring for their patients whether they are at the hospital or working from home. This shift to work from home, as well as the shift in access to virtual care for patients, has created more remote connections to the hospital network and thus a need for more secure, agile, and elastic network services.
- ▶ **Locating and tracking critical assets.** Asset management systems that combine sensors with real-time location services are critical in crisis situations, where every second counts to locate an available ventilator or essential life-saving device. The less time clinical staff spend locating medical equipment, the more time they have to spend on direct patient care.

- ▶ **Leveraging smart building technology to maintain safety for healthcare workers, staff, and patients.** IoT sensors placed throughout the hospital campus monitor everything from occupancy and movement through the facility to social distancing and support for contact tracing, water usage for hand hygiene, air quality for appropriate ventilation, and even occupants' body temperatures to identify febrile individuals.
- ▶ **Improving patient outcomes and experience.** Ultimately, the healthcare mission is all about improving patient care, outcomes, and experience. Increasing access to information to create actionable insights, providing convenient access to care whether in person or virtually, and removing friction from clinical and administrative processes to enable healthcare workers to spend more time with their patients all help healthcare organizations achieve their credo to improve the health of the communities they serve.

Considerations

All IoT projects have three fundamental components:

- **Devices** that emit information
- **Networks** that carry the information
- **Software** that collects and analyzes the data

Organizations must build architectures in which these components work together in a harmonious and secure fashion, but this can be a difficult task in a heterogeneous endpoint environment with distributed data processing capabilities. When IoT is deployed in a regulated industry such as healthcare, compliance mandates add another layer of complexity to these multifaceted projects.

In IDC's worldwide IoT surveys, healthcare organizations consistently rank cost as their top concern with IoT initiatives. While there is cost associated with the new technology that must be procured for the project, a significant amount of the project funding will lie within the integration work that needs to be done to make the solution functional. This integration work is necessary

After cost, the next two IoT project challenges that healthcare companies most commonly cite are SECURITY and PRIVACY.



to gather data across disparate IoT endpoints, and it also includes activities to integrate that data with a variety of back-end enterprise systems. In some cases, IoT data may primarily flow over an enterprise LAN, such as Wi-Fi, but in other environments, a wide area network may be necessary. Wide area networks, such as cellular networks, come with recurring charges that must be accounted for in the total cost of ownership of the solution.

After cost, the next two IoT project challenges that healthcare companies most commonly cite are security and privacy. In other industries, IoT data often reflects the status of a non-living thing, such as a piece of industrial equipment—and while the owner of that machine may want to keep the data private for its own reasons, it is usually not held under strict national, federal, and local privacy laws. In the healthcare realm, on the other hand, IoT data derived from patient monitoring systems are held to federal privacy laws such as HIPAA (the Health Insurance Portability and Accountability Act) and the GDPR (General Data Protection Regulation). In these use cases, it is important to put comprehensive data-governance policies in place to ensure that patient data is protected in compliance with HIPAA mandates. Healthcare companies also use IoT for the management of medical devices; in this case, it is of utmost importance to secure the endpoint and the connection to the endpoint so a hacker cannot interfere with the function of the equipment. COVID-19 has brought additional security concerns to the forefront, as medical professionals are now often working outside of the confines of their secure office networks.

IoT projects can be complex from a people, process, and technology standpoint. Healthcare organizations must first do the work to understand how IoT projects

tie into broader business goals. This strategic thinking will allow them to develop the optimal road map for the IoT initiatives. They must then figure out if they have the right people within the company to design and deploy the system. This step in the process often presents a major stumbling block, as these projects usually require employees with skills in embedded development, cloud development, data engineering, analytics, networking, and security to be involved, along with the business leaders. Even if employees with the required skills are in the company somewhere, they may not have the resource bandwidth to take on this additional project.

Even if employees with the appropriate skills and bandwidth are available, the technical aspects of IoT projects can be challenging. Oftentimes, the things that organizations want to gather data from speak a variety of communication protocols (if they “speak” at all), making it difficult to get access to the data and to get the data into a common format for a single application.

As referenced earlier, the things may be connecting over different network types — private or public, wired or wireless, etc. While some of those networks may be highly available, in other cases network reliability could be spotty. For some applications, real-time response isn’t required, so a round trip to the cloud may be perfectly acceptable; in other cases, the healthcare organization will want to have computing capabilities very close to where the data is being generated to keep latency as low as possible. Developing software for a distributed computing architecture such as this requires a specific skill set. Due to the broad variety of challenges presented by IoT projects, IDC often finds organizations supplementing their existing staff with third-party resources for some aspect of the project.

Considering Tech Data as a Supplier of IoT Solutions

Tech Data is a global provider of technology products, solutions, and services. The company provides channel partners with the expertise and the market reach to help bring their products to market in an efficient way. In the IoT space, Tech Data acts as a solutions aggregator, working with a variety of partners to bring comprehensive IoT solutions to market. These solutions span several vertical markets, including healthcare, manufacturing, energy, logistics, retail, and Smart Cities. In addition to the market-ready solutions Tech Data delivers, the company can also work with partners to develop custom proofs of concept and solutions.

Tech Data's process to develop repeatable, scalable, market-ready, or custom solutions with partners and vendors is delivered through a methodology called the Solution Factory (**Figure 1**).

After this process is completed, the aggregated solution can be included in the Tech Data IoT and Analytics Solution Catalog. Tech Data offers three levels of solutions (referred to as starter, transformer, and accelerator) to partners, based on the technical expertise and industry acumen required to successfully deliver a given offering. The Solution Catalog lowers partners' barriers to entry and speeds their time to market by delivering proven enterprise and healthcare solutions focused on specific business outcomes to fulfill their customers' needs.

The ability for a healthcare organization to leverage a pre-integrated and tested solution (or work with a trusted partner to develop one) offers a variety of benefits—especially for risk-averse healthcare IT buyers—in terms of speed to market, cost reduction, and risk avoidance. The intensive process Tech Data goes through to ensure that each solution component works well with the others, can scale over time, and is secure by design is required for any successful IoT project. Healthcare organizations that leverage these solutions remove the time it would take for them to go through each of these steps themselves (with no guarantee of success on the first try). They also remove the cost associated with trial and error, and/or developing a solution that fails to scale. Business risk is decreased by relying on a pre-tested solution, especially one that has been vetted for security throughout.

Tech Data ensures that partners are enabled to sell these solutions using their Practice Builder methodology. Within healthcare, Tech Data offers a Healthcare enablement program with access to several offerings to help partners grow their knowledge about this space. These offerings include:

- **Healthcare University**, a comprehensive training program that focuses on gaining a understanding of the industry and business priorities.
- **Healthcare Internship**, an opportunity to see the inner workings of a hospital firsthand to better understand the challenges these organizations face.

FIGURE 1

Tech Data Solution Factory works with ecosystem partners through the following steps to develop IoT solutions:



- **Healthcare Practice Builder**, which provides partners with a road map to sell into healthcare that includes business analysis, training and enablement, marketing, and services with execution tactics.
- **Sales Enablement**, coaching and services to educate partners on the complexities of the healthcare ecosystem and how to communicate effectively with their customers about their challenges and how Tech Data solutions can address them.

- **Industry specific events and marketing**, which provide opportunities for impactful conversations as well as lead generation and lead conversion services.

Table 1 identifies representative Tech Data partners across four critical solution categories in healthcare. Solutions and technologies leveraged within each of these categories also promote staff efficiency and cost reductions. For example, telehealth enables organizations to reduce non-emergent office visits and shift patients to lower-cost settings, and facilitates efficient and better management of patient populations.

TABLE 1
Representative Tech Data Partners by Solution Category



Telehealth

AWS, Cisco, Ergotron, HP, Lenovo, Logitech, Microsoft, VeeMed, ViTel Net, WiCis Health



Multiclinic Consolidation

Accreon, Advantech, Alteryx, AWS, Hitachi Vantara (Pentaho), IBM, Microsoft



Compliance Requirements

AWS, Axis, Cisco, Dell, Hitachi, IBM, Microsoft, Monnit, Novi Systems, Verizon



Patient Experience

Automation Anywhere, AWS, Cisco, Microsoft, Phunware

Source: IDC, 2021; Tech Data, 2021

Takeaways

Healthcare organizations have faced unparalleled changes over the past decade with the requirement to meet electronic health record mandates and achieve the Triple Aim objectives of health reform. The global pandemic exacerbated this phenomenon to the point where change needed to be managed not just daily but hourly—and, in extreme cases, seemingly minute by minute—as new advancements in COVID-19 understanding (and the resulting protocols) became known.

Working with a solutions aggregator will remove complexity, increase speed to market, and lower risk.

To respond to the rapidly evolving clinical, business, and technology requirements brought about by new mandates and crises, healthcare organizations should look to packaged solutions that are easy to deploy, fully tested, certified to work together, and compliant with national and local regulations. These solutions will be fully integrated with existing clinical and enterprise systems. While key for all healthcare solutions, secure interoperability is especially critical for connected health solutions that collect and aggregate data from IoT sensors for further analysis, to create actionable insights about the next best clinical or administrative step to take. Working with a solutions aggregator will remove complexity, increase speed to market, and lower the risk of accelerating the deployment of technology to achieve business outcomes.



ABOUT THE ANALYSTS



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Lynne Dunbrack is Group Vice President for Public Sector, which includes IDC Health Insights and IDC Government Insights. She manages a group of analysts who provide research-based advisory and consulting services for payers, providers, accountable care organizations, IT service providers, and the IT suppliers that serve those markets. Lynne also leads the IDC Health Insights' Connected Health IT Strategies program.

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Stacy Crook is a Research Director with IDC's IoT Ecosystem and Trends Research Practice. In this role, she provides coverage of key software trends across the IoT landscape, including the platforms organizations leverage to: manage IoT endpoint devices and connectivity; collect, process, visualize, and analyze IoT data; and integrate IoT data into other applications, systems, and services.

[More about Stacy Crook](#)

Message from the Sponsor

Tech Data is the premiere, global solutions aggregator of IoT and Data solutions. We strive to accelerate our partners adoption of next gen technologies, enable them through a unique value delivery model supported by our Solution Factory, Solution Catalog and Practice Builder [Methodology](#), and generate outcome-driven success within Healthcare, Industrial, Retail and Smart Cities verticals.

As the world adapts to the ever-changing landscape spurred by COVID-19, we have crafted a specialized catalog of solutions specifically designed to support customer's growing needs around safety and business resiliency.

Visit our IoT Resources & Events page to download our *COVID-19 Response Solution Catalog* and learn how we are helping customers solve for immediate needs around Thermal Temperature Monitoring, Social Distancing, Workplace Safety and more.

[Access the Response Solution Catalog](#)

Learn more about all of Tech Data's current IoT solutions spanning the Healthcare vertical as well as our other strategic verticals (Industrial/Manufacturing, Retail, and Smart Cities).

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