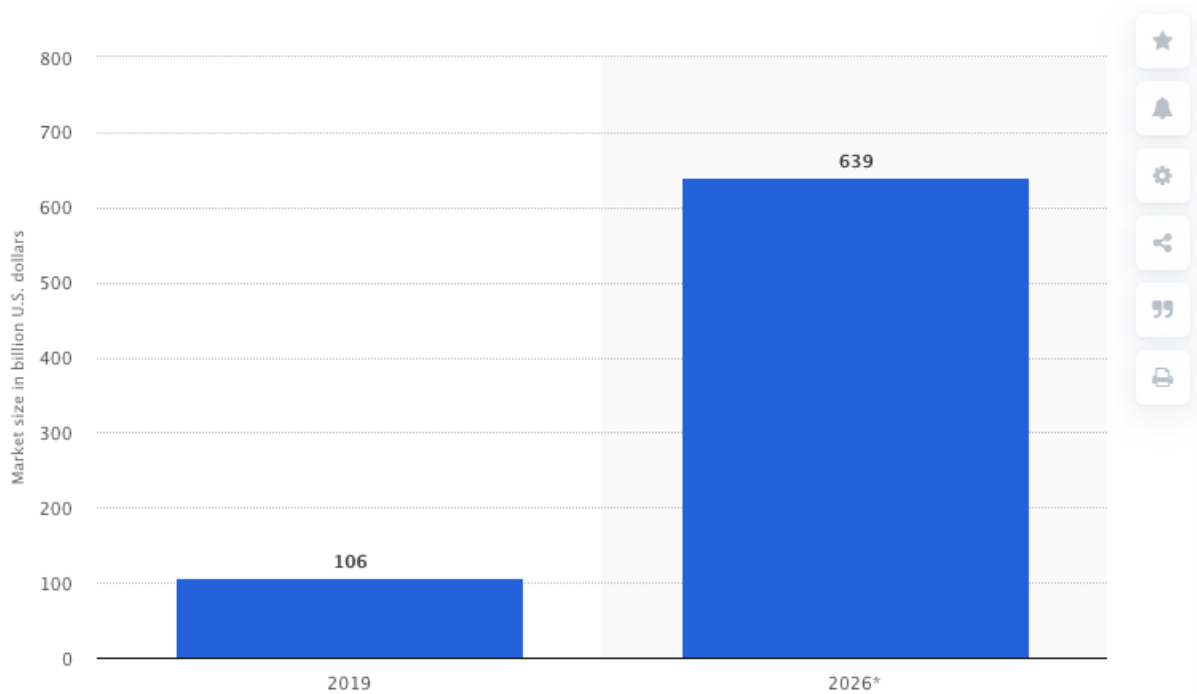


Meta description: Find out how the latest technologies can reshape your healthcare business models by offering breakthrough treatment capabilities and efficient medical processes.

5 Ways Technology Revolutionizes Healthcare

The healthcare industry has been constantly facing such challenges as inefficient treatment practices, limited access to care, skyrocketing hospital costs, frequent data breaches. [Digital healthcare transformation](#) can be a driving force behind breakthroughs in safe and advanced data collection, research, and more progressive treatment predictions. From wearables and 5G technologies to artificial intelligence and blockchain, emerging technologies transform the way patients are treated and how data is protected.

Statista predicts the global digital health market size to grow to nearly \$640 billion by 2026.



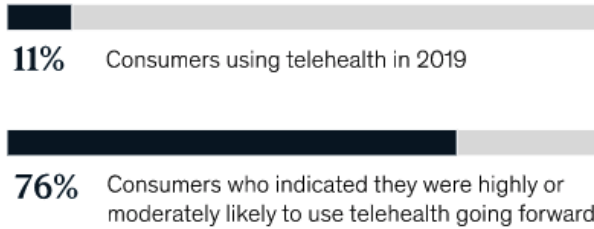
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According to McKinsey analysis, due to COVID-19, the [era of exponential improvement in healthcare](#) has started: by 2025, technology-driven progress will be delivering new medical advancements and creating \$350 billion to \$410 billion in value annually.

In order to improve the efficient communication between providers, clinics, and patients and ensure an optimal engagement throughout the healthcare process, digitally-enabled virtual care comes into play. Telehealth adoption has skyrocketed due to the pandemic and has expanded access to medical care.

COVID-19 and the potential of digitally enabled, virtual care.

Consumer shifts



Health systems, primary care, and behavioral health practices

Reporting up to **50–175x**
or more increases in telehealth visits

~\$250 billion

Potential market size

Source: McKinsey analysis published in Bestsennyy O, Gilbert G, Harris A, and Rost J, "Telehealth: A quarter-trillion-dollar post-COVID-19 reality," May 2020, McKinsey.com.

McKinsey
& Company

How Technology Transforms Healthcare: Top 5 Technologies

The healthcare industry can leverage technology-driven solutions to gain significant advantages in how data is stored, how patients are treated, and how medical care is provided. For example, *cloud-based electronic health records* (EHR) simplify data storage and access via a centralized system allowing to drastically cut costs and ensure the ability to easily manage and access the database. Diabetics, for instance, can apply *IoT-powered mobile medical devices* to permanently monitor glucose levels in their blood to timely prevent hyperglycemia. Also, *Virtual Reality* solutions have been already applied by medical institutions to ease symptoms of depression and anxiety in patients with mental illnesses. And it's only some of the examples.

Before outlining the core benefits it is worth mentioning that big data in the healthcare industry requires approaches to efficiently capture, store, analyze, and [manage data to make comprehensive predictions](#) about possible diseases and epidemics, identify risk factors, enhance clinical researches and trials, prevent deaths, etc. With digital technology and [cloud data storage](#), the healthcare industry is able to facilitate efficient health information exchange and get cost-effective solutions without the need for additional expenses on hardware. Technology-driven data collection is conducted in a much more fast manner and from a much more diverse population than ever before.

Here are the main drivers of technological shifts in the healthcare sector:

- Enhanced and more accessible treatment
- Facilitation of chronic disease prevention and management
- Reduction of care costs

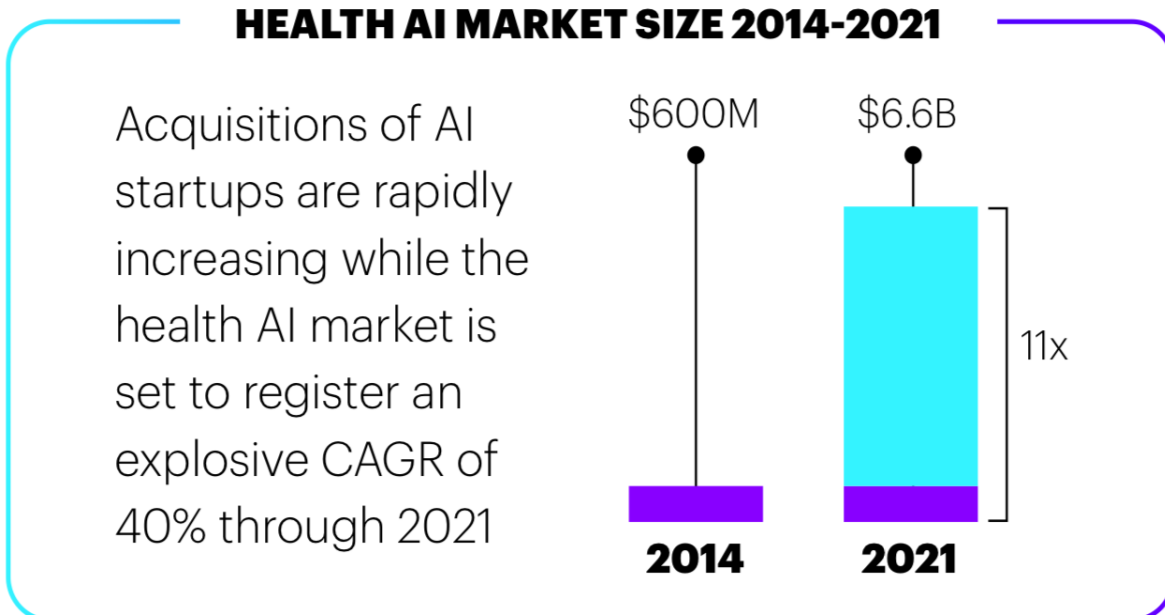
- Remote patients' monitoring and control
- Improved access to medical data
- Improved communication flows
- Better diagnostic support
- Predictive analytics
- Cost reduction

Let's take a look at the most applied tech trends and their use cases in the healthcare sector.

1. Artificial Intelligence

The AI market is growing rapidly. In 2016 [Frost and Sullivan](#) stated the AI healthcare market would grow more than 10x times by 2021; and indeed, their estimations were confirmed.

The AI health market is seeing explosive growth



Source: Accenture analysis

By 2026, there are predictions from Accenture that AI-powered applications can help save up to \$150 billion annually for the US healthcare economy.

[Startups are leveraging AI technology](#) to facilitate individual consumers, clinicians, and entire hospital systems by discovering new drugs, securely transferring patient data, remotely monitoring patients, using applications to track fitness, or adopting virtual assistants to inquire about symptoms.

90+ Healthcare AI Startups To Watch

Imaging & Diagnostics



Drug Discovery



Predictive Analytics & Risk Scoring



Genomics



Fitness



Virtual Assistant



Hospital Decision Support



Remote Monitoring



Clinical Trials



Nutrition



Compliance



Mental Health



Created by You. Powered by CBINSIGHTS

According to Deloitte's [State of AI survey](#) conducted in 2019, healthcare organizations adopt artificial intelligence to get more efficient processes (34%), enhance existing products and services (27%), and reduce operational costs (26%).

The AI use cases in the healthcare space are manifold. The [top three applications representing the greatest value](#) are *robot-assisted surgery*, *virtual nursery assistants*, and *administrative workflow assistance*. Other use cases include: medical imaging and diagnostics, predictive analytics and risk scoring, remote monitoring and treatment, clinical trial participant identifier, dosage error detection, medical data mining and management, drug discovery, chronic illnesses prediction, and much more.

Let's take a closer look at the most valued AI applications.

Use case #1: *Robot-assisted surgery* allows enhancement of surgery precision that goes beyond human capabilities and reduction of invasiveness by integrating information from pre-operational medical records with real-time operating metrics. Robotic surgical assistants can be presented as tiny bots inside human organs or giant robots assisting in large-scale procedures. With robot-assisted surgery, patients can have fewer complications, less pain, and faster recovery.

[Vicarious](#) Surgical uses virtual reality-enabled robotics for performing minimally invasive surgery. By virtually transporting shrunk surgeons inside the patient, doctors are able to explore the patient's body much more precisely.

Use case #2. *Virtual Assistants* are aimed at interacting with patients remotely, analyzing their responses, and assessing their symptoms. On data obtained, AI algorithms deliver alerts to clinicians in the case of care necessity.

[Sensely](#) AI-based nurse assistant platform allows patients to communicate with Molly and interact with doctors in real-time. Molly is a nurse assistant who answers a patient's questions and understands their needs for further risk assessment and coordinating a care plan.

Use case #3. With *Administrative workflow assistance*, administrative health teams can efficiently streamline patients' flows and handle their growing workloads. [Olive's AI platform](#) is designed to optimize workloads and improve effectiveness by automating everything from eligibility checks to un-adjudicated claims and data migrations so medical staff can focus on patients' care and high-level tasks.

2. IoT-powered Virtual Healthcare

In order to improve the efficiency of communication between patients and healthcare providers and enable accessibility and convenience to healthcare services remotely, healthcare organizations are empowered with the technology presented in the form of electronic communication (digital communication), aka *telehealth* or *telemedicine*.

Telehealth allows not only streamlining the patient's experience and saving time but also cutting costs, improving health outcomes, and taking preventative care to the next level.

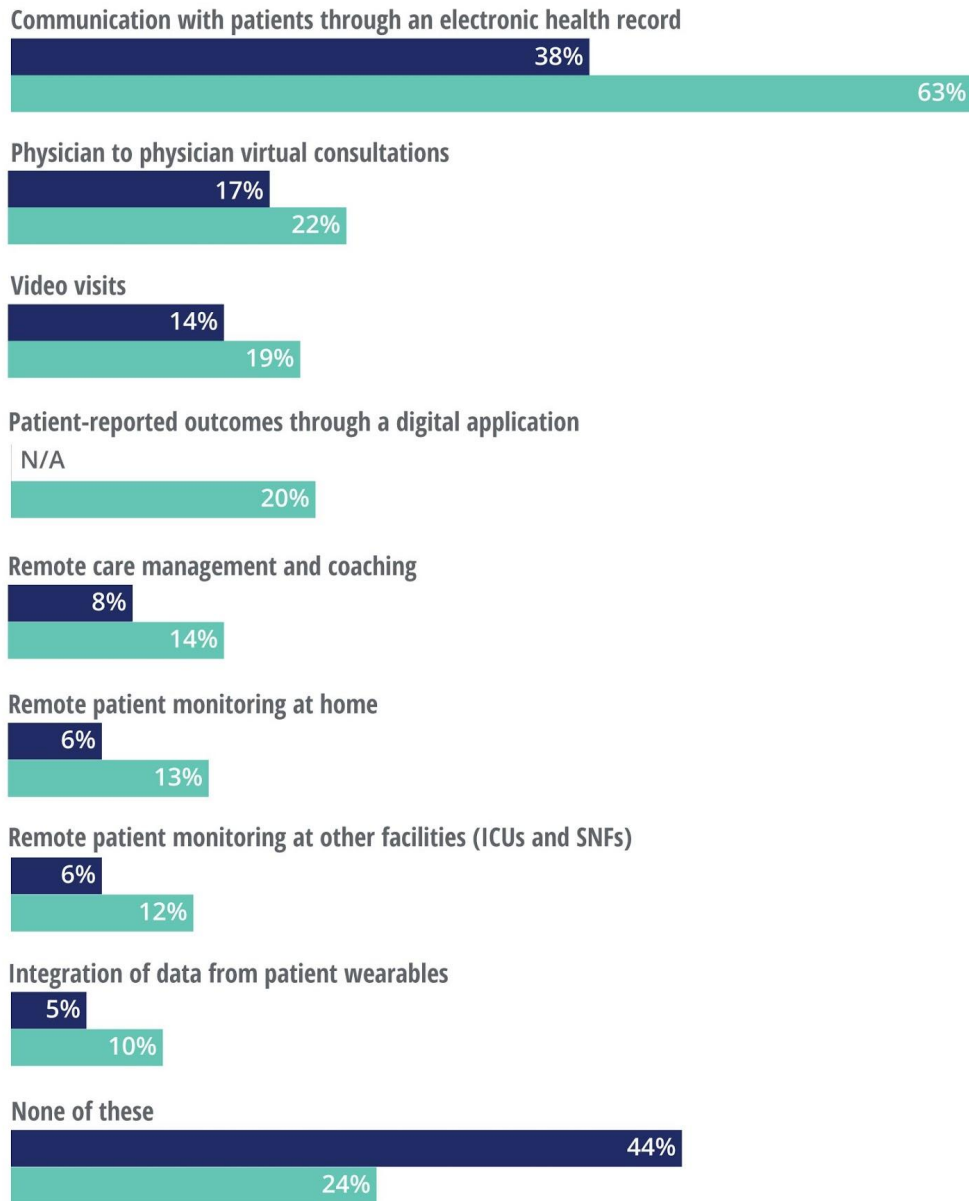
According to a Deloitte survey conducted among US physicians in terms of virtual health perspectives, we can see that most physicians were not intending to use most of the virtual health solutions before COVID-19. However, in March-May 2020, there was an unprecedented shift and gradual increase in the use of virtual health.

FIGURE 1

Over the last two years, there has been gradual increase in use of virtual health technologies by physicians

Survey question: Which of the following virtual health approaches have you implemented at your primary work setting?

■ 2018 ■ 2020



Note: "Patient-reported outcomes" was not an option for the 2018 survey question.

2020 base=680 (all physicians); 2018 base=624 (all physicians).

Sources: Deloitte 2018 Survey of US Physicians; Deloitte 2020 Survey of US Physicians.

As per Frost and Sullivan, nearly 60 percent of healthcare organizations have already adopted the Internet of Medical Things (IoMT). [IoT-powered devices and sensors](#) can provide near real-time data in terms of patient monitoring and care and management of medical assets. Connected wearables are designed to monitor health conditions and gather necessary data to further make meaningful predictions. There are even ingestible sensors allowing to monitor medications inside a human body and transmit data to smartphones. Remote patient monitoring enables medical staff to ensure qualitative treatment and make proven and informed decisions. Doctors are able to make more accurate diagnoses by staying closer with their patients.

Additionally, healthcare organizations can leverage the values of IoMT to track inventory and assets in real-time which will ensure transparency leading to saving millions of lost equipment. Therefore, virtual health can be beneficial for patients, hospitals, and doctors.

3. Blockchain

As per Deloitte's survey in 2019, 55% of respondents assume that blockchain technology has enormous potential to transform the healthcare industry in the near future.

The driving factors for [blockchain adoption](#) in the healthcare field are recurring attempts of data breaches, skyrocketing hospital costs, and inefficient practices. Being a decentralized technology, blockchain has the power to analyze and record patients' information accurately, facilitate secure medical data transfer and access, and help transparently manage supply chains.

The [blockchain market is anticipated to grow](#) 65.0% CAGR from 2019 to 2025.

The healthcare industry players have already invested millions in the blockchain market since ledger-based health data allows protection of electronic health records from being an appealing target from attackers. For example, [Medicalchain](#) is a decentralized platform, allowing patients and health providers to securely exchange medical data and control their EHRs via encryption.

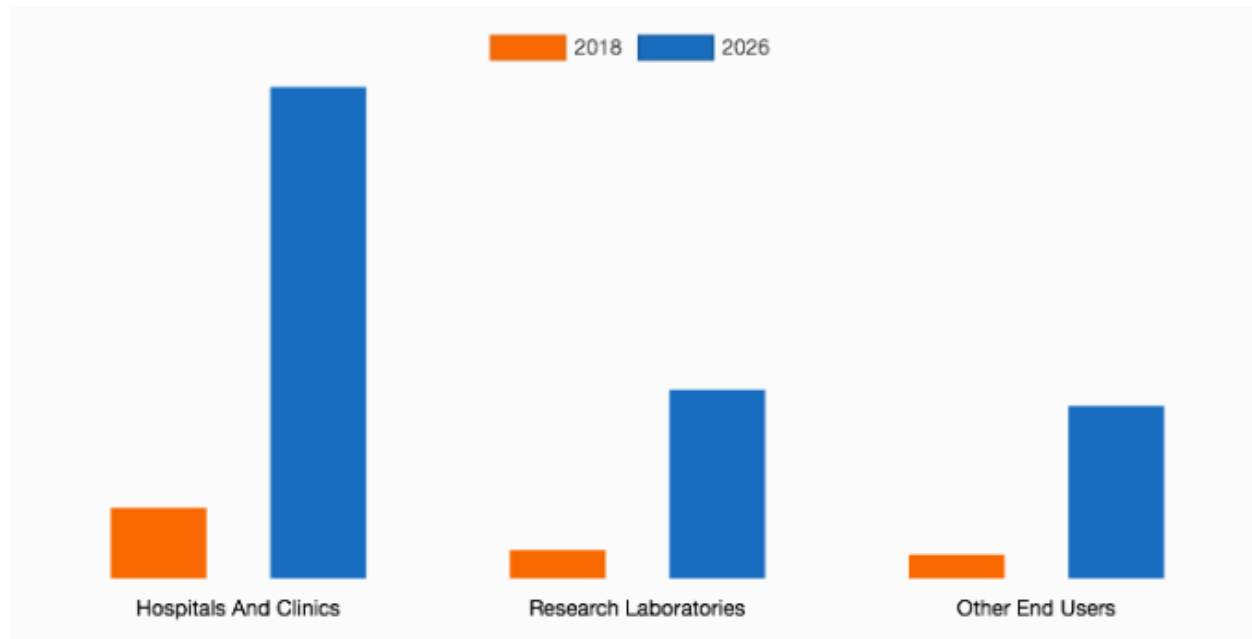
4. Virtual Reality/Augmented reality

Traveling to the Maldives while you are lying on the hospital bed sounds pretty exciting. Virtual reality is a proven solution in healthcare as exposure therapy or to reduce pain and anxiety both for patients with physical and mental issues.

Virtual reality enables healthcare reinvention by offering non-pharmacological alternatives to pain management and medical costs reduction. Injured patients suffering from pain are addicted to opioids and other related drugs to mask their pain. Every day 128 people die from [opioid overdose](#). Thus, wearable technologies with VR can be safer and more efficient alternatives to drugs preventing dangerous opioids addiction. Considering opioid abuse reaching pandemic proportions, [Samsung](#) in partnership with Cedars-Sinai, designed Gear VR to treat pain management by triggering pain-relieving endorphins.

Augmented reality (AR) is in line with VR, the main distinction lies in that AR users do not lose touch with reality. Therefore, AR is on its way to becoming a driving force in the future of healthcare as well. Healthcare organizations and hospitals are highly interested in the technology since with AR solutions, patients can get interactive experiences, for example, illustrative elements can help them better understand new treatments, how new drugs interact with their bodies, or how specific conditions can have an impact on them. [EyeDecide](#) is a medical app using a camera to display the impact of various disorders on a person's vision. For instance, the app can demonstrate the impacts of cataracts or AMD to better provide patients with visions about their actual medical states.

According to Allied Market Research, in 2018, the global AR in healthcare market size was valued at \$609.60 million and is forecasted to reach \$4,237.60 million by 2026.



5. Robotics

There are a variety of robotics applications available in healthcare and medicine. The most popular use case of robotics is surgical robots who are used in operating rooms to facilitate the surgical process. Besides, robotics abound in other healthcare realms:

- *Modular robots* can help patients rehabilitate from traumatic brain injuries, strokes, paralysis, etc. by monitoring the patient's state and measuring degrees of motion, and afterward, precisely track the progress in contrast to the human eye.
- *Service robots*. By handling routine tasks, service robots can relieve the daily burden on healthcare workers, thus, allowing them to be focused more on their patients. Such

robots can track medical supplies, prescription drug dispensing, manage sanitation and clinical arrangements. For example, [Diligent robots](#) assist clinical staff with time-consuming routine activities.

- *Social robots.* Interacting directly with humans, social robots (robot companions) can encourage patients to adhere to treatments, keep them alert and positive, or help reduce anxiety and depression affected by loneliness. Let's take an example: [Jibo](#) robot equipped with a three-axis motor system can express a variety of human-like emotions through sophisticated body movements which makes patients more positive and treatment-oriented. Jibo is designed to provide connection with medical devices (hospitals, doctors), so in case there are health issues, it can take care of patients and provide them with appropriate recommendations.

Final Word

Emerging technologies promise an array of opportunities for the healthcare sector that have already been embraced by healthcare specialists and providers who want to adapt to new realities caused by COVID-9 and provide more advanced and progressive medical treatments and capabilities for their patients. Moreover, technology-driven applications enable cost-efficient solutions by streamlining the patient care process (for example, wearable technologies and connected devices, remote monitoring, VR, etc.), facilitate secure medical data transfer and access (blockchain technology), and help prevent chronic diseases (predictive maintenance, AI).

If you need more insights and use cases on how technologies can be applied in your healthcare business process [let us know](#). Our specialists can help you develop appropriate solutions toward [digital transformation of your business](#).