

White paper

Shaping the next decade in healthcare

The pandemic, digitalization, and new care paradigms will drive change for the next ten years and beyond

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Edition #10



Executive Summary

COVID-19 revealed critical weaknesses in many health systems, but also accelerated adoption of important new technologies. A panel of experts from Siemens Healthineers discussed the lasting impacts these pandemic-driven adaptations were likely to have.

Many health systems were already moving toward decentralized care. The rapid rise of telehealth utilization showed the potential for this care paradigm to deliver care in a convenient and cost-effective way, while also providing a positive user experience. Healthcare apps will continue to grow in popularity – in 2017, there were already more than 325,000 healthcare apps on smartphones, a number that increases by 200 every day.¹ The global market for Mobile Medical Apps is estimated at US\$4.2 Billion in 2020, and projected to reach a revised size of US\$20.7 Billion by 2027, growing at a CAGR of 25.5%.²

Beyond telehealth, our panelists expect non-traditional locations like pharmacies and mobile clinics to take on more care responsibilities because of their convenience, accessibility, and cost effectiveness. Home-based remote monitoring systems will reduce the need for inpatient or medical office-based monitoring for many patients with chronic illnesses.

The hospital will continue to be a vital center for critically ill patients, and hospital administrators will continue to seek ways of operating more efficiently without compromising quality. Sophisticated performance reporting solutions are growing in popularity, as they allow administrators to balance capacity with demand. These data-driven solutions also enable simulations of complex situations, and help hospitals respond quickly to health crises like the pandemic.

Partnerships between healthcare providers and medtech companies are expected to grow in importance. Effective partnerships help providers advance the pace of innovation in their organizations by co-creating novel solutions to unique challenges. Enduring partnerships also give healthcare providers greater flexibility to respond to rapidly changing conditions in times of crisis like the COVID-19 pandemic.

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COVID-19 uncovered challenges and opportunities in healthcare

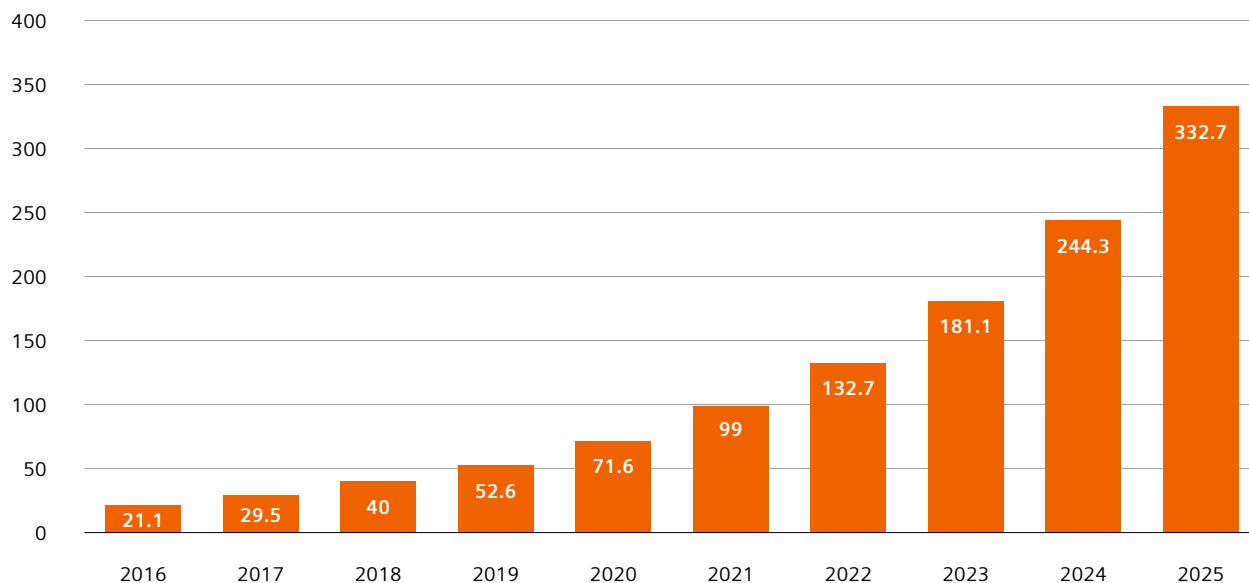
Since the emergence of COVID-19 in late 2019, the face of healthcare has changed dramatically. And while some of these changes seemed to be driven directly and exclusively by the enormous pressure exerted by the pandemic, many of them – including digitalization and telehealth services – were already trending upward but were rapidly accelerated by the pandemic.

While it pushed certain solutions to the forefront, the pandemic also exposed critical weaknesses in health systems. Supply chain problems related to personal protective equipment and lab testing supplies and capacity dominated headlines and hampered mitigation efforts that might have curbed community spread and prevented millions of infections. A lack of consistent and trustworthy communication in some countries eroded trust in national health agencies, and even cast doubt as to the threat presented by COVID-19. Gaps in health and digital literacy led to some communities facing particular difficulties in accessing care through digital means.

On the other hand, successful public-private ventures like the push to develop vaccines in the United States and elsewhere yielded strongly positive results and were aided by common-sense adaptation of approval procedures to facilitate rapid clinical evaluation and community use of tests and vaccines. It is hoped that lessons learned from this pandemic will enable a more proactive approach to infectious disease control on a national and international level, including robust international surveillance and data-sharing. Beyond controlling infectious diseases, governments have an opportunity to leverage lessons from the pandemic to increase healthcare access and expand preventive care measures to control costs while improving health and quality of life for their citizens.

In this paper, a panel of experts from a variety of fields within Siemens Healthineers will discuss the ways in which the pandemic and events surrounding it have altered healthcare and offer their thoughts on which changes are likely to have a lasting impact over the next ten years and beyond.

Total global mHealth market forecast from 2016 to 2025
(in billion U.S. dollars)



Statista 2020: <https://www.statista.com/statistics/938544/mhealth-market-size-forecast-globally/>

Decentralized care will become the standard

When we think of healthcare, we often think of our primary care doctor's office and the local hospital. However, that traditional model is incomplete and outdated.

Telehealth

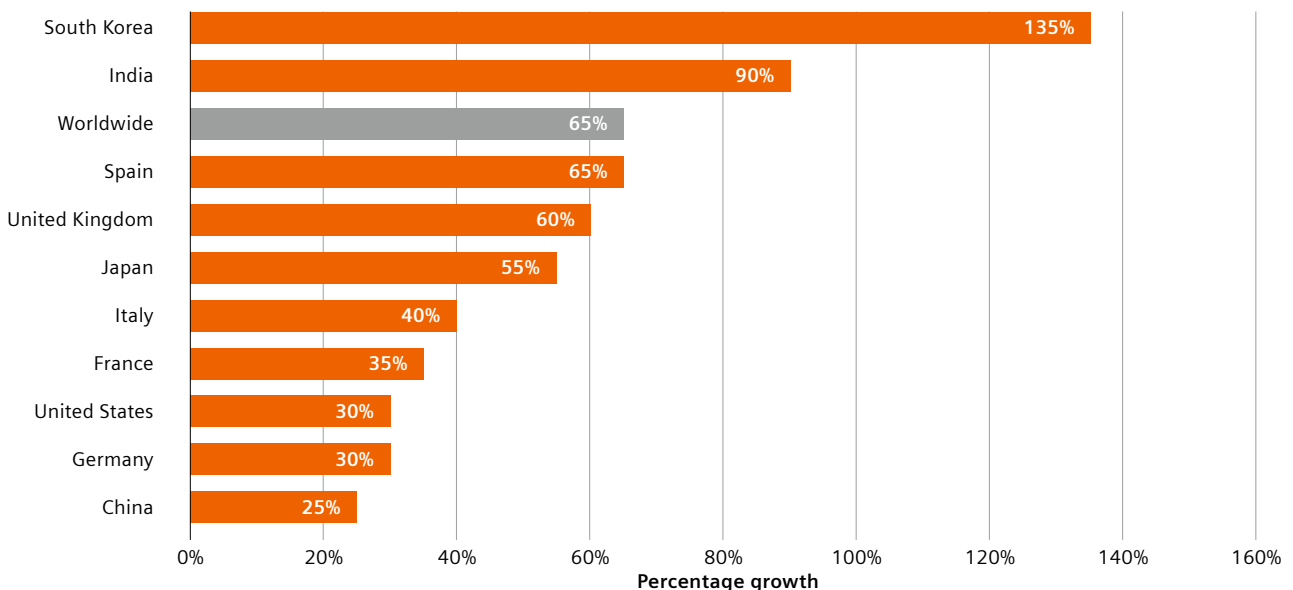
Waiting in a crowded room at the doctor's office or the local clinic became untenable as the pandemic rapidly spread. Healthcare providers and patients had to adapt to this reality quickly, and so telehealth services exploded in popularity. While some organizations had limited experience with telehealth, many found themselves building these services from the ground up in order to serve patients.

Patients were surprisingly receptive to virtual visits, because in addition to removing the risk of infection, they are generally more convenient. While they can't replace in-person visits for some things, virtual visits have proven effective for routine check-ins and for assessing the need for more intensive care.

So effective, in fact that up to 1 billion virtual care visits took place in 2020. Remote patient monitoring (RPM) has also seen explosive growth, with an estimated 150% increase in demand for RPM service.

Similarly, mobile health apps are poised for significant growth. Even before the pandemic struck, Grand View Research estimated a total global market size for of \$149 billion by 2028.³ However, the sheer volume of mobile health apps available, and the lack of standardization and regulation of these apps, poses challenges to providers and patients. Despite these challenges, patients seem to be more willing to embrace healthcare apps and wearable devices since the emergence of COVID-19 and the changes in healthcare practices it precipitated.^{4,5} To fully realize the potential of medical apps, the medical community must work in conjunction with regulatory agencies to define best practices for app validation.⁶

Increase in medical app downloads during peak of COVID-19 crisis by country 2020



Statista 2020: <https://www.statista.com/statistics/1181413/medical-app-downloads-growth-during-covid-pandemic-by-country/>

“What we are seeing is that health systems are going to look at ways to provide care to the patient at the lowest cost and the right setting.”

Asif Shah Mohammed, Principal, ECG Management Consultants

The other side of telehealth is the ability to share specialist expertise across a far wider geography than is possible with strictly in-person care. “Look at digital pathology. Just like we saw in radiology, the specimen can now be viewed digitally. There are tools that enable sharing of that information, that specimen, anywhere around the world. So you may have a specialized network of pathologists you can call on to look for specific features, specific diseases, even if that expertise is not available in your institution,” states Renas Rechid, SVP, Global Head of Sales for Siemens Healthineers Enterprise Services.

Decentralized point of care

Our panel predicts that remote monitoring solutions prescribed by healthcare providers will increase in popularity. Sophisticated connected monitoring devices can capture and transmit key data in near-real time and may reduce the need for some routine office visits or expensive inpatient monitoring for many patients. The convenience of remote monitoring is appealing to consumers and providers, while the reduced expenditure and access to population-level health insights is very attractive to payers.

Despite the power of telehealth, there will always be occasions that require a visit to a physical care location. The members of our panel were in general agreement that the hospital is becoming the site for the most intensive care only, with less acute needs dealt with through a variety of easier-to-access and less expensive sites. “Patients can be consumers too, and they’re opting-in to virtual services, to vaccinations at the pharmacy, to

monitoring apps. And some providers, like Mayo Clinic, are sending out mobile health teams rather than have the patients come to them,” said Monika Rimmele. She went on to describe an emerging role for medtech companies like Siemens Healthineers as solution providers who can integrate multiple data streams to ensure the highest degree of diagnostic accuracy and personalized treatment.

Laura Comilla, Global Head of Advisory Services for Siemens Healthineers Laboratory Diagnostics, expanded on the importance of decentralized care: “Point-of-care testing is becoming more accurate and more important. If you don’t have to go somewhere to have blood drawn and then wait several days for results, it’s a better situation. The key is to make sure all that testing data travels with the patient, so you have a full clinical picture,” she said.

Decentralized care may also help make up for the shortage of clinical staff that many health systems are experiencing. “We can address the staff shortage of highly skilled individuals using digital tools. Imagine if there was an x-ray machine at your pharmacy, and it’s got AI capability to help the staff position and collimate the patient. This would be a great way to identify patients who might need higher level care,” Wido Menhardt, EVP, Digital Health, Siemens Healthineers.

The key to developing robust, effective decentralized care networks is data fluidity. “Secure and convenient access to medical data will strengthen relationships between patients and their care teams, and will increase the effectiveness of decentralized care teams,” said Laura Comilla.

“The consumer’s home will become the center of care”

Monika Rimmele,
Head of Digital Transformation, Siemens Healthineers Digital Health

Performance reporting solutions for hospitals and health systems

As decentralization of care proceeds, the role of the hospital is likely to change. The services and specialist expertise available at hospitals will still be necessary for critically ill or injured patients, and for those requiring access to highly specialized equipment and procedures. Managing costs and capacity, and responding to health crises effectively, calls for a new degree of data-based

oversight. A key challenge to adopting enterprise-wide performance reporting solutions lies in getting departmentalized institutions to embrace a more holistic, patient-centric approach to patient care. This is an important area where Chief Executives of hospitals and health systems can model the desired approach and enact meaningful change.



“Managing clinical pathways must start from the top. The head of radiology is going to think primarily about their department. However, different things that happen in other departments potentially have effects across the board. So, if we can improve patient flow and track their pathway through the system, it is going to provide more predictability and improve workflow for everyone,” said Alexander Raiser, EVP, Global Head of Finance, Siemens Healthineers Enterprise Services. He went on to point out that healthcare is conservative by nature, and that moving to data-driven workflows and processes will take time – but is inevitable.

Despite this conservative nature, hospital administrators are expressing interest in performance reporting solutions to help them manage patient flow, bed capacity, staff availability, technology utilization, and more. The potential value of a centralized system to balance capacity and demand is clear. Healthcare leaders are eager to make the best use of their resources in order to deliver high value care to more patients. And the rise of value-based care makes it imperative to deliver excellent clinical outcomes and a great overall patient experience.

The pandemic may have heightened interest in centralized control systems as well, by exposing the weaknesses in many “business as usual” approaches. “The pandemic put such huge pressure on hospitals, that hospitals also realize that they need to manage resources probably in a better way. You must have up-to-date information: how many ICU

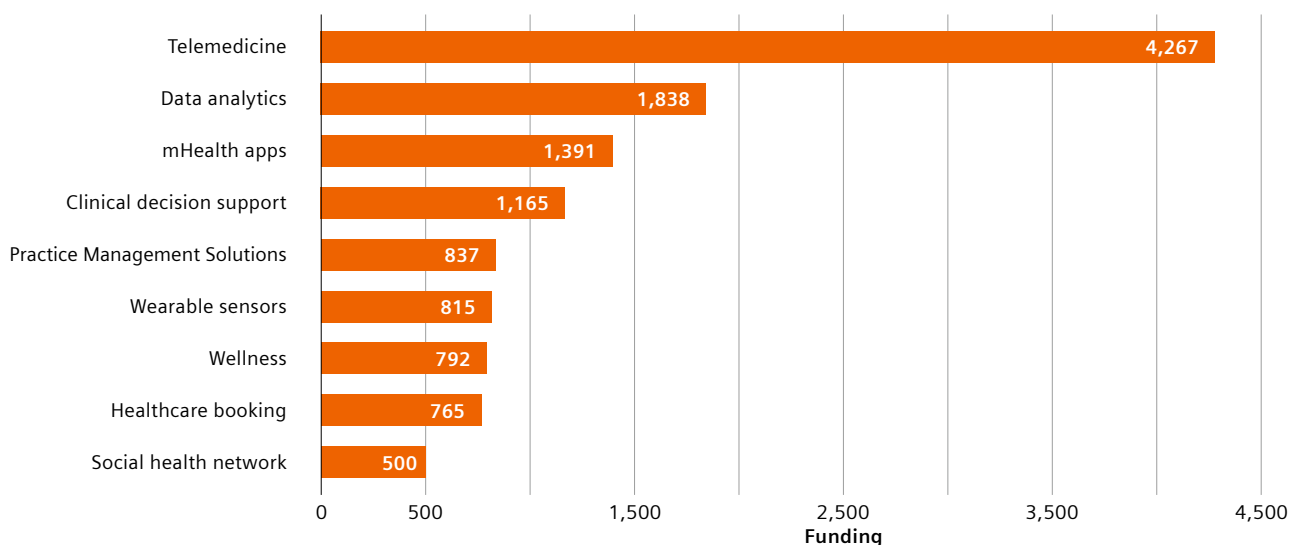
beds do I have available across the hospital? Can I convert recovery rooms or recovery beds into ICU beds? How many ventilators do I have in the hospital? Many hospitals were caught off-guard by COVID-19 and are now looking to prevent something similar from happening again,” said Joao Seabra, Global Head of Siemens Healthineers Enterprise Services.

One concern about adopting a more data-driven mode of operation is preserving data security and patient privacy. This concern extends beyond the hospital setting to include multiple points of care and provider contacts. Technical data privacy solutions are available but getting patients to understand and endorse secure data sharing across health systems may be the bigger challenge. However, patient experience with consumer data ecosystems created by tech giants like Apple, Google, and Amazon may have primed patients to expect – or even demand – a similar level of access and portability when it comes to health data.

“Medtech partners that offer performance reporting solutions are in high demand, as these relationships help health systems to identify and improve predictable workflows based on key performance indicators.”

Renas Rechid, SVP, Global Head of Sales, Siemens Healthineers Enterprise Services

Top funded digital health categories worldwide in 2020 (in million U.S. dollars)



Statista 2020: <https://www.statista.com/statistics/736163/top-funded-health-it-technologies-worldwide/>

The growing value of partnerships between providers and medtech

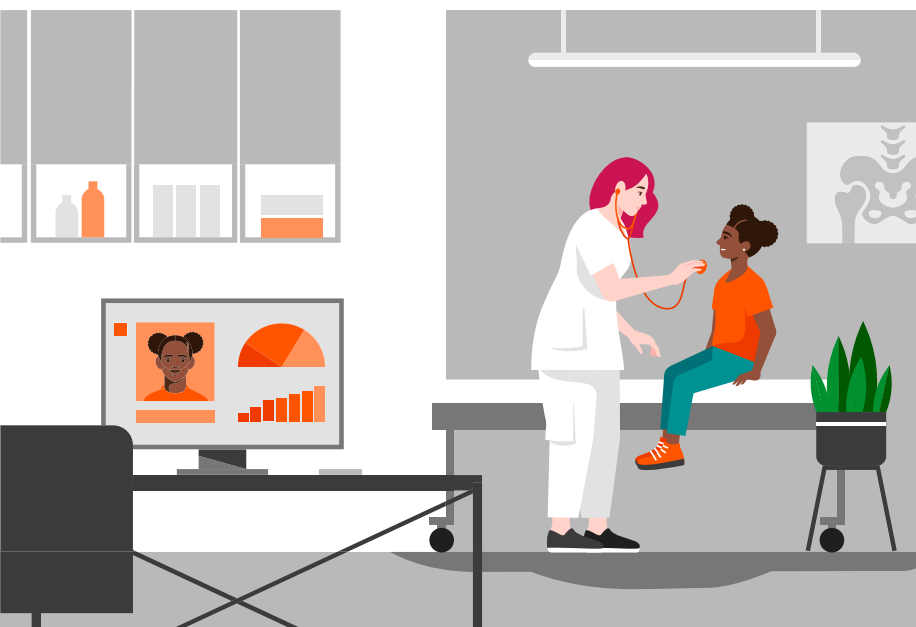
Medtech companies are seen as drivers of innovation by their customers, but this relationship runs both ways. “Our customers come up with some of our best ideas that we then implement. They’re at the heart of our user requirements, our design requirements,” said Laura Comilla.

True partnerships, as opposed to strictly transactional relationships, enable both partners to gain a deep understanding of each other’s capabilities, and give rise to co-creation of novel solutions. There are clear benefits to strong, enduring partnerships in the best of times, but when a crisis strikes, the value of strong partners is magnified.

When the COVID-19 pandemic hit, plans for modernization and expansion at many institutions ground to a halt. Hospital administrators were dedicating every available resource to battling the pandemic and may also have been unwilling to commit to significant capital outlays in the face of an uncertain financial future.

Strong partnerships mitigated some of these effects on healthcare providers. “We have Value Partnerships with some customers, where if you have an increased need for example, for CTs, for ultrasound, in order to increase diagnostic services for the pandemic, you don’t have to run a tender process, you don’t have to secure financing. The Partnership allows for this equipment, and the training and maintenance and implementation. It’s all defined beforehand, so we just sign the contract and go. It let’s our partners respond very quickly,” said Renas Rechid.

Joao Seabra offered similar thoughts on the role of partnerships during the pandemic. “Our partners suddenly faced these new circumstances. Some of them needed flexibility on payment plans because of lost patient volume; some needed help establishing COVID wards; some needed additional lab and imaging equipment to meet the new diagnostic burdens of the pandemic. Some needed all of these things, and we were able to help them quickly adjust to these new demands and deliver the best care possible under the circumstances.”



“It’s all good to deliver services and products to a hospital provider. But who connects the dots? Who helps you integrate your operations and plan for the future? You need a partner for that.”

Carsten Glombeck, Global Marketing Manager,
Siemens Healthineers

Conclusion

Healthcare is changing rapidly, spurred on by the realities exposed by the pandemic and the emergence of powerful new communication and informatics technologies. Our panel expressed optimism that the difficult lessons learned from COVID-19 would lead to greater cooperation and information sharing within and between nations and increase government investment in healthcare. "In the next few years, hospitals and providers and health authorities will be seen as critical infrastructure, and no longer as a profit center. It will be like the fire brigade or your water supplier in your community," said Carsten Glombeck.

Most of our panelists agreed that decentralization of care was likely to continue, with hospitals evolving to serve the most critically ill patients, while easier-to-access locations like pharmacies, mobile health units, and telehealth appointments taking on more of the preventive and routine care tasks. A key to success here is the portability of healthcare data, so that it is available in a secure manner to providers across the extended care continuum.

The hospital will continue to be relevant as it serves those patients whose needs can't be met through other care centers. With an ever-growing focus on critically ill patients or complex cases, hospitals will continue to seek greater efficiency, operational predictability, and resilience in times of crisis. Performance monitoring solutions, which integrate multiple clinical and non-clinical data streams to present a holistic picture of operations in the hospital, will grow in popularity as hospitals continually seek to balance capacity with demand while delivering high value care and an excellent patient experience.

Another common thread through these conversations was the importance of partnership. The transactional relationships between healthcare providers and medtech companies are too limited. Healthcare providers recognize the value of co-creating a solution specific to their needs with their medtech partners. Siemens Healthineers Value Partnerships gave customers the flexibility to pivot quickly when the pandemic struck and adapt their institutions to this crisis.

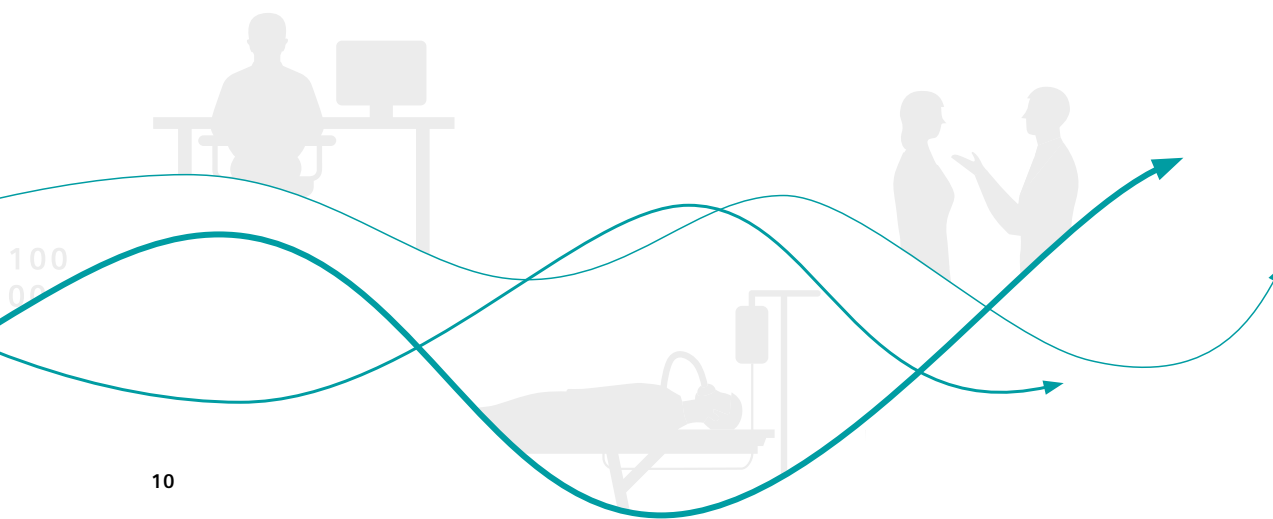
Underlying all of these changes to healthcare is digitalization. Technologies that are emerging now give healthcare providers unprecedented visibility into their operations, powerful new telehealth capabilities, and the ability to simulate complex multi-variable situations and predict outcomes. Siemens Healthineers is proud to partner with healthcare providers to digitalize healthcare and increase the value of the care they deliver.

Is your organization facing any of the challenges described here?

Contact Siemens Healthineers Enterprise Services to see how we can help you shaping the next decade of healthcare:

 [siemens-healthineers.com/value-partnerships](https://www.siemens-healthineers.com/value-partnerships)

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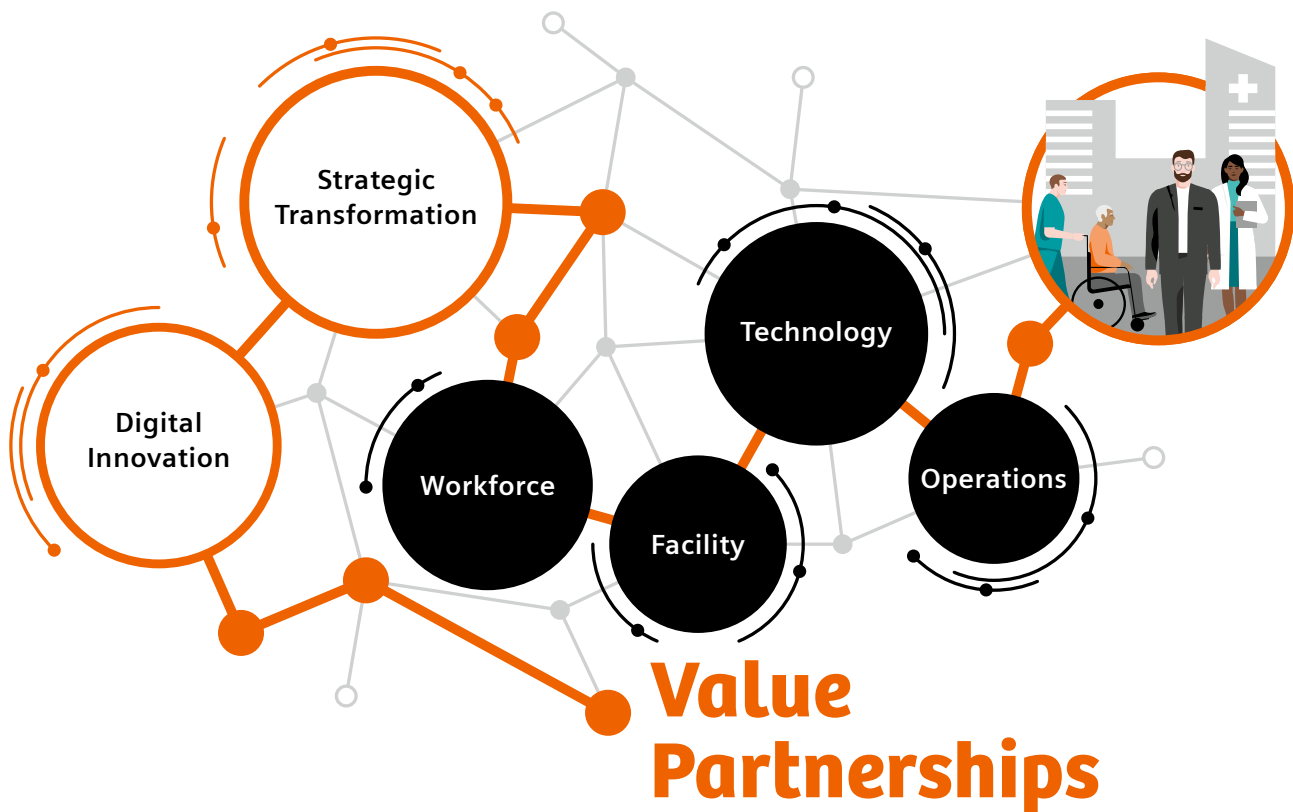




About Value Partnerships

Siemens Healthineers Value Partnerships are long-term, performance-oriented, collaborative engagements. We bring a combination of clinical insight, medical technology innovation, strategic vision, implementation expertise, and operational excellence to the table for you. As trusted partners, we help you formulate and achieve your strategic goals, increasing enterprise-wide value.

Value Partnerships drive value across your entire enterprise with focus on four domains: Technology, Operations, Workforce and Facility. Furthermore, together we enable breakthroughs through holistic and transformative initiatives such as Strategic Transformation and Digital Innovation.



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The scientific overlay on the title is not that of the individual pictured and is not from a device of Siemens Healthineers. It is modified for better visualization.

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