

**Insights Series**

# Achieving Operational Excellence

Perspectives on leading  
your healthcare institution  
through workforce and  
climate crises



# Preface

The pace of change throughout the healthcare industry remains extraordinary, with startling new challenges as well as dazzling new breakthroughs seeming to appear almost daily.

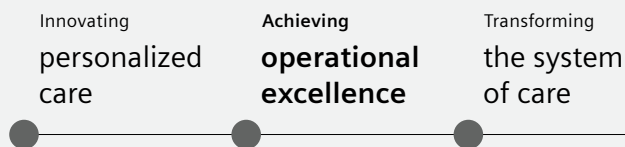
Many of the profound changes redefining today's global healthcare landscape were unimaginable just a few short years ago. A global pandemic has upended long-held assumptions about how to deliver care and respond to crises. Digital advances are revolutionizing the way patients manage their own health and treatment. Technological progress including Artificial Intelligence (AI) is building on many of our previous achievements while sparking rapid new changes.

Developments like these vividly demonstrate how difficult it is to predict the future. Nonetheless, **we believe that healthcare in the years ahead will be defined by three overarching themes**—three broad trends that encompass the most remarkable advances in healthcare as well as the most promising opportunities and the most pressing challenges.

These three themes are the improved patient outcomes made possible by advances in personalized care; the increasing importance of operational excellence; and the essential effort to continually upgrade and transform systems of care allowing for better access and greater health equity.

This thematic framework can make it easier to tackle day-to-day issues, providing a context in which to better understand how topics interrelate and how to develop long-term strategic goals that can be transformed into achievable and realistic targets.

At Siemens Healthineers, our purpose is to pioneer breakthroughs in healthcare. For everyone. Everywhere. Due to our unique capabilities in patient twinning,\* precision therapy and digital, data and AI, we believe we are uniquely positioned to help our customers and partners better understand these themes and successfully tackle them.



This paper explores one of these themes—**Achieving operational excellence**—offering both an in-depth analysis of how this issue is unfolding, and a detailed look at actionable steps towards realizing this goal.

\* Patient twinning is currently under development. It is not for sale. Its future availability cannot be guaranteed.

# Background

**Doing more with less** has never been more essential throughout the healthcare sector.

All providers, large and small, are today confronted with similar challenges: serving more patients including a growing, aging population; expanding access to care to underserved communities; responding to higher patient expectations in terms of quality and availability; staying on top of accelerated technology innovation cycles; evaluating an exploding amount of information from new clinical insights and patient data; and complying with growing requirements on documentation. Simply put, they have to do more.

While tackling these challenges, they must at the same time deal with heightened scarcity in many essential areas. The most essential, and increasingly scarce, resource of all is qualified healthcare professionals. Workforce shortages are a challenge in every part of the world, including wealthier nations, and these shortages are likely to intensify as workers retire or leave the healthcare sector. At the same time, there is greater awareness regarding the consumption of environmental resources and the

emission of greenhouse gases. On top of this, financial pressures are increasing. Simply put, healthcare providers have less to work with.

This paper examines a range of ways in which operational excellence can help to address these challenges. A range of solutions are required, in some cases technical, at other times cultural or institutional. Some established ways of doing things must be re-examined, and some issues must be approached in a more holistic way.

Recruiting and retaining the best workforce, simplifying their operations, achieving productivity gains in a sustainable way, and institutionalizing a culture of continuous learning and improvement all contribute to success.

Three broader strategies for achieving operational excellence are:

- **Empowering care teams to focus on what matters most**
- **Embracing and utilizing new models of work**
- **Ensuring technological and operational sustainability**



The WHO estimates a projected shortfall of 10 million health workers by 2030, mostly in low- and lower-middle income countries.<sup>1</sup>

## Achieving operational excellence

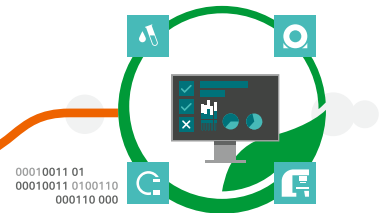
Empower caregivers to focus on what matters most



Embrace and utilize new models of work



Ensure technological and operational sustainability



**Automate** everyday tasks and **augment** care teams with decision support, enabling you to **free up your caregivers' time** while reducing the workforce burden.

Read more on page 5

Create more **flexible and attractive workplaces** that encourage elevating your workforce, sharing skills and adapting capacity, enabling you to **deploy resources and expertise when and where needed**.

Read more on page 9

**Streamline operations**, proactively **manage medical technology**, and monitor resource consumption to enable you to sustainably **optimize system-wide performance** and maximize throughput.

Read more on page 12

# Perspectives

## Empower caregivers to focus on what matters most

**An effort to achieve operational excellence consists of many coordinated initiatives, large and small. Three themes can serve as the cornerstones of such an effort. The first of these is to empower caregivers to focus on what matters most.**

One of the most basic tasks of any healthcare system, particularly during times of workforce shortages, is to enable healthcare professionals to focus on the comfort and well-being of their patients, as well as their own. This is essential for maintaining morale and motivation and for ensuring that resources, including human resources, are deployed for maximum impact.

Insofar as possible, the burdens of repetitive tasks, as well as external challenges that consume time and energy, should be reduced or eliminated, thereby making it possible to pay more attention to more pressing priorities—areas where human attention can create greater benefits, and that provide more satisfaction for employees.

A realistic understanding of what matters most to healthcare professionals is necessary to achieve this. What matters most to healthcare professionals is not necessarily compensation. It plays an important role in recruitment, but research shows that job satisfaction is determined by other factors such as a sense of fulfillment. This is often the key determinant of whether healthcare workers remain in their jobs or leave.<sup>2</sup> Some tasks such as comforting ill patients or listening to them with empathy demand a human connection and enhance healthcare professionals' sense of purpose. Yet there are many unsatisfying or repetitive tasks that could be safely automated.

For example, tasks such as scheduling appointments, patient registration, collecting patient information, or sending reminders are tasks that in many cases can be done more effectively with an app or through a patient portal, allowing patients to perform these tasks without involving healthcare professionals while being available 24/7. Robotics and automation can also perform labor-intensive manual tasks such as opening, closing, transferring, and post-process sorting of patient blood sample tubes much more effectively, with the added benefit of reducing human errors.

AI also can have a huge impact on improving operational efficiency. One established use case is to create value and make the imaging workflow more user-friendly and accurate. Intelligent imaging can guide operators through diagnostic imaging exams so that they can interact easily and naturally with both patient and technology. Other AI-powered image reconstruction technologies can accelerate time consuming MR imaging scans, cutting scan time by more than half. Additionally, there are AI-powered algorithms that can automatically post-process imaging datasets and draw the attention of radiologists to abnormalities and pre-populate reports.

Adopting AI-powered software in radiology is becoming increasingly important as more screening programs are in place due to an increased focus on value-based care and prevention. Interpreting diagnostic imaging results frequently requires two radiologists to read the image datasets to assure quality. With the increase in imaging volume, AI-powered software can improve screening programs by prioritizing cases, notifying medical

*“In today’s job market, we want to be competitive in attracting the best people and we want them to stay long term. We know that a state-of-the-art working environment, including efficient operations, is key to recruiting and retaining the highly sought-after professionals we need.”*

**Dr. Rahel Kubik**

Head of Radiology, Director of Medical Services  
Kantonsspital Baden, Switzerland

professionals about certain issues, analyzing diagnostic data for incidental side findings, and ultimately serving as a second opinion reader, thereby cutting the workload by half. Furthermore, recent studies have shown that AI-based technology enables less experienced radiologists to provide the same level of quality as their more experienced colleagues.<sup>3</sup> Adopting AI in diagnostic routines can help establish higher standards in sensitivity and greater consistency in quality, reducing the incidence of human errors and the work required to compensate for these errors.

The greatest challenge in introducing technologies such as AI is leading an organization through the change management process by gaining trust and building competency from users. Healthcare is one of the most sensitive, personal, and important things in our lives. While machine learning and AI can perform routine tasks as well as complex computations that would be too complicated for the human brain, it is crucial to consider the impact that these tools will have on patients and reserve the tasks that demand a human touch for caregivers. AI tools should only act as decision support, not as decision-makers.

Healthcare leaders must continually embrace a mindset that it is not the workforce that must adapt to technologies, but that new technologies, systems and tools must be built around how humans naturally work. This type of approach ensures that employees do not feel that they must constantly change the way they work because of technology, but that technology is there to support them.<sup>4</sup>

Reducing the variety of tools, user interfaces and vendors helps reduce workplace complexity for employees. Transparency about what types of tools are being introduced, what their purpose is, and how they will support existing processes is also essential.

Another core capability to ensure the smooth integration of technologies is ongoing, easily accessible, on-demand education and training on the job. Upskilling of healthcare professionals is required any time a new technology is implemented or if there is a change to processes or procedures. In addition, many healthcare institutions rely on traveling hospital workers or temporary hires to bridge staffing gaps and they may not be familiar with all technologies within a hospital. Different employees have different lengths and pace in their learning journey. In addition, according to a study in Academic Radiology, as many as 43% of medical students still view AI as a threat to the radiology job market. In contrast, for those individuals who have demonstrated a better basic understanding of AI concepts relative to radiology, only less than 10% of them feel that way.<sup>5</sup> This further underlines the importance of training.

A supportive learning environment is one that allows staff to learn a new procedure or to keep up with new or upgraded features easily. They can conveniently learn by utilizing e-learning or attending virtual classes from where they are and eliminate the need for travel and longer periods of absence.

Another way to gain efficiency is to allow staff to learn through online simulators so they can practice on a simulated version of a medical device, freeing up medical equipment that would otherwise be blocked for training, potentially interrupting clinical operations. One cost-effective way to manage training needs is to take advantage of an integrated workforce management system. These systems can provide access to a growing holistic portfolio of education offerings, help assess the training need of entire teams and departments, assign and track trainings, and streamline audit preparation across an organization at scale.

All of this allows healthcare professionals to focus on what matters most—spending time with and caring for patients. This not only contributes to patient satisfaction, it is also more rewarding for caregivers.

### Key messages

- Use digital solutions, data, and AI to automate manual, mundane tasks and reserve human interactions for care teams.
- Build technologies around the workforce, not the other way around.
- Provide ongoing, on-demand, easily accessible education and training.

### Building a sustainable workforce

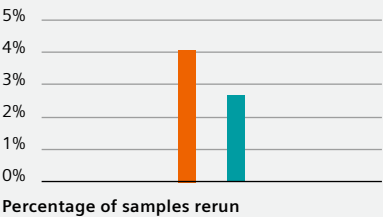


With the rapid development of new technologies, continuous training to upskill hospital staff is a key element to building a resilient workforce.<sup>3</sup>

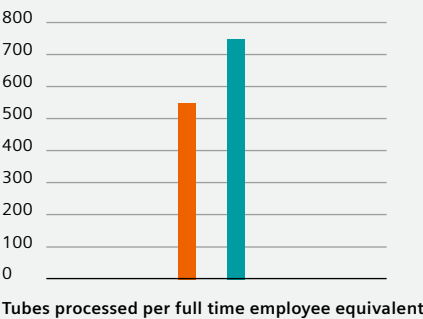
**Key outcomes at Instituto Hermes Pardini SA after adopting an innovative automated solution:**

- Before optimization
- After optimization

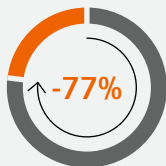
**Repeat testing reduced by 34%**



**Workforce productivity increased by 37%**



**Tube touches reduced by 77%**



**Case study**

Instituto Hermes Pardini SA operates a very-high-volume reference laboratory and its main site, located in Minas Gerais, Brazil, is among the largest diagnostic testing laboratories in the world with a core lab and ten satellite locations generating more than 14 million test results each month.

The biggest operational challenge Pardini faced was the highly segregated nature of the existing operation and the complexity of performing high-volume testing on different platforms, which relied heavily on inefficient, labor-intensive batch processing.

By adopting a portfolio of innovative technologies including high-throughput diagnostic analyzers, open automation, and innovative IT, they redesigned the entire core lab to significantly reduce wait times, reduce manual tube touches and unnecessary movement associated with pushing trolleys and transporting tubes throughout the 4,000-square-foot main laboratory, while improving quality and lower turnaround time.

“Not only did we meet all our design goals for the project, but we also saw a 48% reduction in customer complaints,”<sup>6</sup> said Dr. Junia Pérez, production executive manager.



## Embrace and utilize new models of work

A second strategy for achieving operational excellence is embracing and utilizing new models of work.

Workforce shortages are one of the most critical issues facing the healthcare sector. Workforce shortages reached a crisis during the pandemic as countless healthcare workers across the globe either fell ill or were overwhelmed by the pressure of the situation and chose to leave the healthcare field. But the end of the pandemic was not the end of the crisis.

Many other sectors now benefit from the “new normal,” offering employees greater flexibility to seamlessly integrate their professional and private lives and leveraging this as a competitive benefit to attract talent. According to McKinsey, “Members of Gen Z rank workplace flexibility as the top reason for staying in a job—as do younger and older millennials.”<sup>7</sup>

Healthcare providers, however, are still learning how to best compete with these other sectors and concerns about future staffing shortages remain acute. According to World Economic Forum data, there will be an estimated shortfall of ten million healthcare workers worldwide by 2030, primarily in low- and middle-income countries.

As other observers have pointed out, few industries have been hit by the mass exodus of unsatisfied workers harder than healthcare. U.S. Bureau of Labor statistics suggest that almost 3% of the total U.S. healthcare work-

force are leaving the profession every month—a worrisome trend.<sup>8</sup> The primary reason appears to be burnout. Another survey indicates that 47% of healthcare workers in the U.S. plan to leave their positions within the next three years.<sup>9</sup>

A top driver for job satisfaction among healthcare workers is a good work-life balance.<sup>2</sup> Flexibility at work is increasingly recognized as an essential determinant of healthcare workers’ well-being, and the lack of flexibility is a key reason why healthcare workers are leaving the sector. They seek flexibility to address their personal and family needs, including childcare, eldercare, schooling, and healthcare. Providing the opportunity to perform their work remotely, even only partly, is a way to address this.

A challenge for all healthcare leaders is to create a modern, attractive, and continually evolving workplace in which employees feel comfortable, safe and motivated. This requires an understanding of what is driving staff burnout, as flexibility means different things to different people. For example, some healthcare workers may appreciate location flexibility, which could mean the ability to work from home or at a location closer to home. Some prefer leave flexibility, which makes it easy for healthcare workers to take time off for family needs. Others value scheduling flexibility, allowing them to change starting and quitting times.

*“We are very satisfied with our decision to bring an expert planning team on board, to help us design an imaging center we can be really proud of. We believe our staff and patients will notice a huge difference.”*

**Dr. Rahel Kubik**

Head of Radiology, Director of Medical Services  
Kantonsspital Baden, Switzerland

Leaders must also create a safe space for open communication and show genuine empathy toward employees' needs and personal situations. While creating the right guardrails is important, one common pitfall is to policy your way to flexibility; a strict policy will not create a flexible workplace. Team leaders need to be empowered to engage with their staff at an individual level to understand their unique needs.

In addition to their emotional and mental well-being, many healthcare workers also have genuine concerns about the physical risks associated with their jobs. Exposure to illness was a pervasive fear during the pandemic. Many workers in hospital settings have concerns about exposure to hazardous substances, dangerous medical waste, and to radiation. Such concerns must also be addressed in order to contribute to employee engagement and productivity.

After creating an attractive and safe workplace, the next step is to connect these workplaces within an organization, not only allowing staff the opportunity to either work remotely at home or from a preferred location, but to connect teams across locations. In this way, staff can receive and provide expertise from remote locations, further improving operational efficiency by supporting less experienced team members. For example, telehealth services allow physicians and nurses to provide their expertise to virtually anywhere in the network or pull in

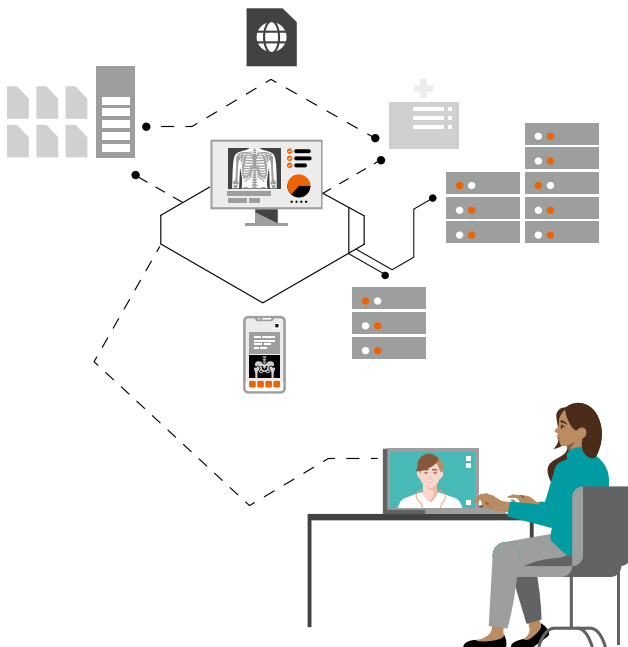
expertise from other specialties or locations for support. Today, connecting workplaces not only makes it possible to connect people, it also allows for connecting to technologies, for example, to perform diagnostic imaging exams remotely.

Finally, healthcare institutions can further enhance flexibility by contracting external expertise to bridge periods of staff shortage. The advantage of engaging expertise directly from medical technology vendors is that they can provide healthcare professionals who are expertly trained and operationally ready to either provide their digital services remotely or to come on-site to fill staffing gaps without delay. With their expertise, these experts can provide support to junior technologists, or introduce best practices to optimize equipment protocols. The expertise of a nuclear physicist, for example, is rare and difficult to recruit. Engaging an experienced physicist from vendors, even if only for a contracted period, can reduce downtime.

At their core, these new models help to create attractive, connected workplaces that focus on elevating individuals and building a sustainable, resilient workforce. In such an environment, skills can be shared remotely and made available beyond the physical location of the medical professional. The benefits are twofold: Capacity can be shifted to areas with high demand, and rare expertise can be made available across the entire health system.

## Key messages

- Create an attractive and safe workplace for your staff by first understanding their specific needs.
- Connect workplaces to allow flexibility and sharing of expertise.
- Flexibly contract external expertise to bridge periods of staff shortage.



## Case study

The Kantonsspital Baden, a healthcare provider located west of the Swiss city of Zurich, has the goal to design a future-proof diagnostics and therapy center based on current trends and state-of-the-art planning principles.

Ensuring efficient patient and staff pathways and optimized workflows, as well as providing patients and staff alike with the experience of working and being diagnosed in a pleasant and healthy working environment, are their objectives.

At the end of the project, the joint team had designed a new layout for the radiology and nuclear medicine departments that is well positioned to remain effective for many years to come, with an environment that is healing for patients and pleasant for staff.

Today there are shorter travel distances for patients and staff reducing time lost to movement. They also created separate preparation and follow-up rooms and allocated two changing cabins per imaging room for smoother workflow and more efficient use of the scanners for increased throughput.<sup>10</sup>

## Ensure technological and operational sustainability

Taking a more holistic view of operations and technology helps to achieve efficiency gains—gains which not only help to reduce the workload, but also reduce the need for energy and the amount of waste generated.

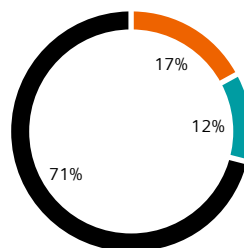
Healthcare is an extremely resource-intensive sector with much of today's sophisticated medical technology consuming significant amounts of energy. This not only drives up costs, it also generates emissions. It has been estimated that healthcare contributes more than 4% of global net emissions. If it were its own country, the healthcare sector would rank fifth in the world for greenhouse gas emissions, ahead of Japan and Germany.<sup>11</sup> Yet the healthcare industry has been slow to embrace the challenge of operating more sustainably. This must change, particularly as our environmental crises intensify creating their own health risks.

The healthcare industry must also address the issue of the waste it generates. Healthcare remains one of the largest solid waste-producing sectors. It has been estimated that hospitals in the U.S. generate more than 29 pounds of waste per bed each day.<sup>12</sup> Much of the waste generated throughout the healthcare and medical industries consists of non-degradable plastics, which present a particularly difficult problem. It is estimated that 25% of the waste generated by a hospital is plastic,<sup>13</sup> which may pose risks to human health when broken down into microplastic or nanoplastic.<sup>14</sup> Recycling, therefore, is unlikely to offer a viable long-term solution to this growing problem. Instead, it is necessary to rethink how products are designed and consumed, and to focus on safe, reusable alternatives as well as preventing waste in the first place. Some of these alternatives already exist today. Many medical devices are designed to receive soft- and hardware upgrades to extend their lifetime while keeping pace with innovation.

Vendor-vetted, refurbished medical systems are another opportunity to provide care services while preserving environmental resources.

Hospital wastewater is another serious source of environmental contamination, posing a threat to our ecosystem and to human health. To truly deliver the commitment to “do no harm,” healthcare institutions must proactively take steps to do no harm to the planet.

### Healthcare's climate footprint<sup>11</sup>



- **Scope 1:** Emissions directly from healthcare facilities and healthcare-owned vehicles
- **Scope 2:** Indirect emissions from energy consumption such as electricity, steam, cooling and heating
- **Scope 3:** Emissions generated by suppliers through the production, transport, and disposal of products such as pharmaceuticals, food and agricultural products, medical devices, and hospital equipment

The good news is that there is a strong business case for operating more sustainably. More efficient processes not only save energy and reduce CO<sub>2</sub> emissions, but in a time of rising electricity costs, reducing consumption can also have a direct impact on providers' bottom line.

### **There is a strong business case for operating more sustainably**

To sustainably optimize system-wide performance and maximize throughput, the first step is to have a complete and accurate overview of technology and operations. Transparency, combined with monitoring and measuring capabilities, is essential. This can be achieved with power meters, interactive trackers, and standardized reports to monitor workforce and patient walkways, energy consumption, and the status and location of medical equipment. This can all serve as a basis to provide valuable insights for leaders to make quick and well-informed decisions on how to reduce workload or energy consumption.

Many of these solutions do not need to be built from scratch; there are off-the-shelf, easy-to-use solutions for performance monitoring. For example, for managing human resources, cloud-based system-wide capacity management platforms allow an overview of staff availability. There are also tools that support fleet management by monitoring equipment status and giving instant, centralized access to operational, technical, and clinical data to help optimize operations and to deliver high-quality care more efficiently. This is most beneficial if it can be done centrally, for all medical devices or by one contracted supplier.

Digital twins offer another opportunity to make such decisions more easily. These make it possible to plan, design, visualize, and implement service lines, clinical departments, or entire facilities for brownfield or greenfield projects to create a sustainable, healing environment that positively impacts patient experience and staff satisfaction.



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### **Case study**

By replacing its previous system configuration with new, innovative automation, analyzers, and IT solutions, Dr Lal PathLabs, an Indian service provider of diagnostic and related healthcare tests, eliminated the need for more than 90% of their aliquots (lab samples split into smaller plastic tubes for testing), resulting in a reduction of more than 5.2 tons of plastic waste per year. This is equivalent to the elimination of 21.5 tons of CO<sub>2</sub> emissions annually. Reducing unnecessary aliquots also results in annual financial savings of €4.8 million.<sup>15</sup>

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*“Working together brings breakthrough opportunities to enhance clinical care through the latest medical technology, streamlining our processes, and bringing new advances in disease prevention, early diagnosis and treatment.”*

**Mark O’Halla**

President and CEO

Prisma Health

South Carolina, U.S.

A second step is to proactively manage medical technology to maximize availability and performance. This includes proactive remote maintenance to maximize availability of medical devices, measures to better understand resource consumption, data on peak time usage and idle times, and measures of performance relative to established benchmarks. This information can help not only to improve workflows but also reveal opportunities to reduce energy consumption, identifying safe times to turn off computers or energy-intensive medical equipment.

Healthcare institutions should also be more conscious during contracting, identifying suppliers who are committed to sustainability and seeking medical equipment that fosters a circular economy with a long life cycle and high reusability.

#### **Key messages**

- Make performance measurement a priority and have a bird's-eye view of technology and operations.
- Proactively manage medical technology and resource consumption.
- Partner with vendors who are committed to reducing waste and carbon emissions in order to achieve sustainability goals together.

# Strategies and future outlook

There are many reasons to be optimistic about the future of operational excellence in the years ahead. Technological advances continue at a remarkable pace. Healthcare leaders and decision-makers have a more holistic understanding of the issue and of its importance. Further, patient expectations have been raised to a level where substandard service is simply no longer acceptable. For all of these reasons, operational excellence is more attainable today than ever before.

Digitalization, data, and AI will serve as the primary innovations to advance healthcare operations. Augmented reality, virtual reality, and mixed reality are already erasing borders between the digital and physical, providing tremendous opportunities for enhancing staff development and patient experience. On the staff side, these technologies can be used for training healthcare professionals on equipment operation or workflow simulation. On the patient side, they can improve the remote consultation experience and complement post-consultation education, for example with self-guided physical therapy exercises. Such options reduce travel needs for patients and free up time of healthcare professionals.

In the future, adaptive algorithms and large language models (LLMs) such as ChatGPT are likely to be integrated into core healthcare operations or used as medical scribes to solve administrative bottlenecks. Some likely applications include facilitating clinical documentation, creating discharge summaries, generating clinical and procedural notes, obtaining insurance pre-authorization, summarizing research papers, or serving as a chatbot to answer routine patient questions. In the future, LLMs could also be helpful in assisting physicians in diagnosing conditions based on medical records, diagnostic images, or laboratory results, or even in suggesting treatment options or plans.

More accurate and comprehensive data on operations along with contextual information will not only make it possible to simulate workflows by means of digital twins, but also to predict future caseloads and patient mix. Interactive digital twins will allow for the simulation of tactics to manage various scenarios and help to put the most appropriate plans in place.

As these technologies continue to evolve and their uses continue to grow, it is important to keep the human concerns of both patients and employees in mind.

*“We are not facing the end of work, but we are facing the end of work as we know it.”*

**Dr. Reena Nakra**

Principal Director of Lab Management and Technical Excellence  
Dr Lal PathLabs, India

Many employees are concerned about being replaced by machines or technology, and patients worry about a loss of human contact or empathy when they are sick or hospitalized.

Such concerns must be addressed proactively, through training, open communication, flexibility and by ensuring a level of human oversight over all operations. It is the responsibility of healthcare leaders and decision-makers to embrace new technologies and take steps to facilitate their seamless introduction, making necessary adjustments to processes and workflows. A priority must be to ensure that changes are introduced in such a way that technology adapts to humans, rather than demanding that humans change and adapt to new technology.<sup>4</sup>

On the sustainability side, an awareness of the environmental impact of their work is an issue healthcare leaders cannot afford to ignore. A greener, more sustainable company culture is increasingly a business necessity—and it is certainly a priority for patients. Successfully creating sustainable operations means not only digitalizing

processes and adopting new technologies, but fundamentally reimagining things like workflows, processes, and established ways of doing things.

**Achieving operational excellence** is a complex challenge, one which requires support for both humans and for the systems they operate in. Identifying and implementing ways for people and technology to work more seamlessly together are key to facilitating this transformation. Creating a truly intelligent health system also demands creativity, compassion, and a clear understanding of the needs of employees and patients. A more satisfying workplace for employees, greater efficiency, less waste, reduced costs—all are vital elements for allowing healthcare systems to perform at their best.

*The results and statements by the Siemens Healthineers customers described herein were achieved in the customers' unique setting. Since there is no “typical” hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.*





## Suggested follow-up:

If you are interested in exploring the solutions offered by Siemens Healthineers on addressing the healthcare workforce shortage and promoting environmental sustainability, please see:

**[siemens-healthineers.com/insights/achieving-operational-excellence](https://www.siemens-healthineers.com/insights/achieving-operational-excellence)**

- Insights Series, Issue 45: “Do no harm” to the planet. Available at: **[siemens-healthineers.com/insights/news/do-no-harm-to-the-planet](https://www.siemens-healthineers.com/insights/news/do-no-harm-to-the-planet)**
- Insights Series, Issue 26: How are innovators driving digital transformation in healthcare?; A thought leadership paper with ECG Management Consultants. Available at: **[siemens-healthineers.com/insights/news/digital-maturity-in-the-era-of-patient-consumerism](https://www.siemens-healthineers.com/insights/news/digital-maturity-in-the-era-of-patient-consumerism)**



## Information:

The Siemens Healthineers Insights Series is our preeminent thought leadership platform, drawing on the knowledge and experience of some of the world's most respected healthcare leaders and innovators. It explores emerging issues and provides practical solutions to today's most pressing healthcare challenges.

All issues of the Insights Series can be found here: **[siemens-healthineers.com/insights-series](https://www.siemens-healthineers.com/insights-series)**



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André Steinbuss has spent almost ten years in various positions in marketing with a focus on diagnostic imaging at Siemens Healthineers. André graduated in medical technology engineering at the University of Applied Sciences in Luebeck. Before joining marketing, he spent ten years in research and development in the hearing instrument business of Siemens. During this time, he has authored multiple patents and publications.

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