



Connected Health: The new reality for healthcare

KPMG International

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Contents



03

**The new reality:
The light at the end of the
tunnel?**



07

**COVID-19:
Springboard for a new reality**



16

**Drinking from the fire hose:
Managing the pace of
digital transformation**



19

**KPMG Connected Enterprise for Health:
A digital blueprint for
sustainable and scalable change**



24

The way forward

The new reality: The light at the end of the tunnel?

The emergence of the SARS-CoV-2 virus, and the devastating impacts of COVID-19 disease in countries and territories around the world, has brought irrevocable changes to our lives, the global economy, and the industries of which it is comprised. While the immediate focus for health systems globally has been in preparing for and responding to the health crisis precipitated by the pandemic, health leaders around the world are increasingly looking toward the post-COVID-19 new reality for healthcare.

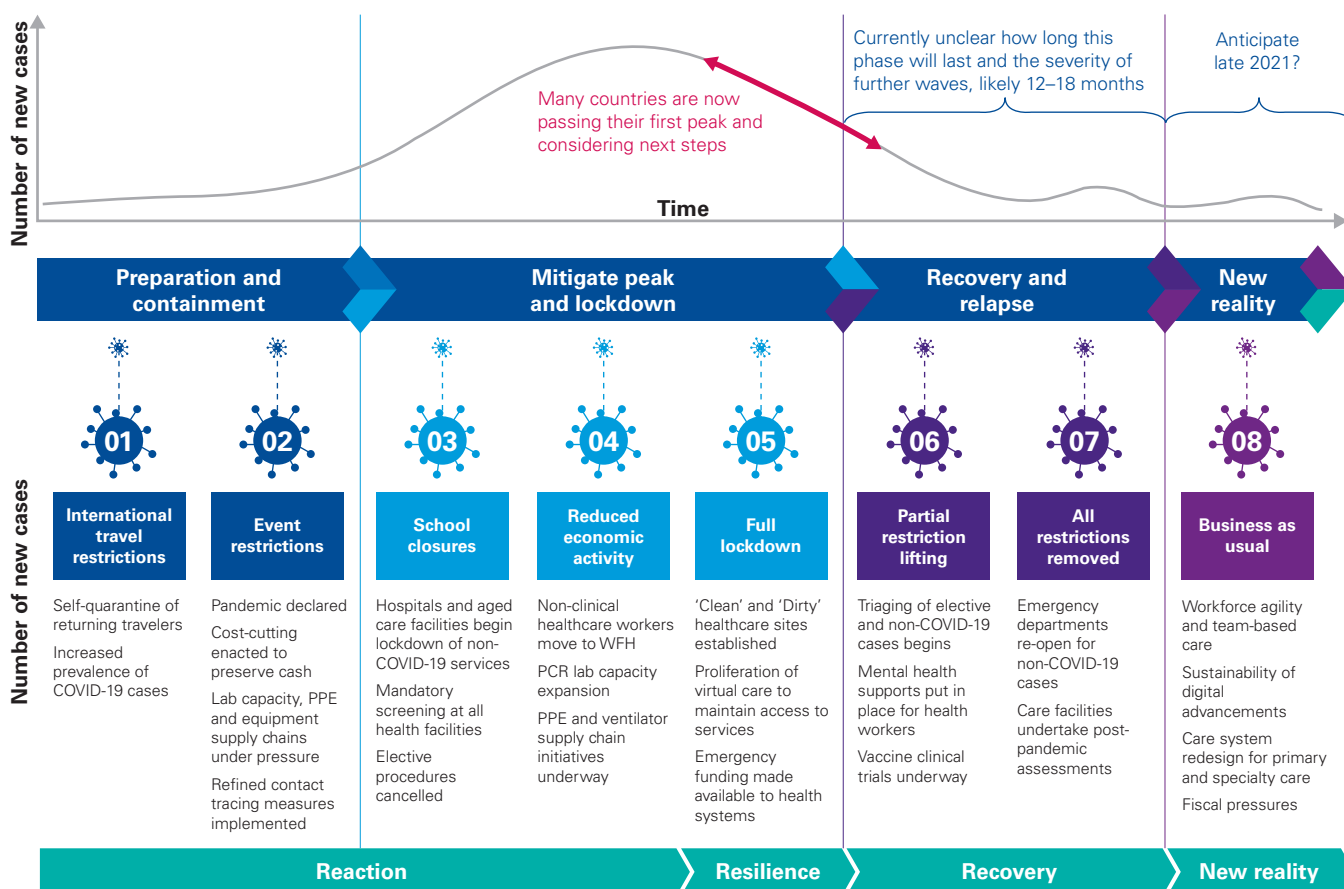
Though the foundations of this new reality will have at their core the objectives of financial sustainability, safety and quality in the delivery of care, and access to services, the world's leading health systems are questioning whether this new reality demands more than simply another incremental improvement. The lessons they have learned through the COVID-19 crisis point perhaps to a more troubling conclusion: that we have allowed our deference to the complexity of our health systems to drastically limit the scale, scope and speed of the transformation that they very much need.

Few examples of the opportunity and demand for this change stand out more than the need to transform experiences of care for patients and carers (hereafter referred to as consumers) as well as those for healthcare workers. Other industries, facing a similar rise in consumer expectations, have met this new challenge through digital transformation. They have provided more seamless experiences that consumers value while fundamentally changing the way their businesses operate. In entertainment, organizations that previously focused on content creation, have pivoted successfully into new distribution channels that connect them directly with consumers at lower costs. In retail, organizations with

long-term investments in store-front infrastructure have refocused on omnichannel strategies, allowing them to be more responsive to the dramatic shifts in their sector.

The emerging evidence from health systems around the world is that COVID-19 will provide the impetus for similar, long overdue changes to the way that we receive and deliver care. The new reality for healthcare will require redesign of care systems to address primary, secondary, community and acute care in a post-COVID-19 world. It will demand a more agile, inter-professional workforce that will deliver team-based care; with empowered front-line staff leveraging technology (including virtual care) to allow them to focus on higher-value work. And it will need to sustain virtual care and digital advancements that healthcare consumers have now come to expect to ensure continuous access to health services in a safe and convenient way.

These shifts were clearly being felt in healthcare systems prior to the onset of COVID-19, albeit at much slower rates of change than in other industries. Through a Forrester survey, KPMG International (KPMGI) asked four hundred health leaders in nine jurisdictions to shed light on what they felt were the most important changes coming to healthcare and how they were preparing for these changes.¹



Globally, this survey found that while the vast majority of healthcare leaders listed consumer centricity as a high priority, they felt that they were being limited by barriers (of which digital-related barriers were the most significant) and gaps in capability.²

In other words, we have allowed the complexity of our systems to prevail over our expressed desire to put patients at the very center of care and the systems that deliver it. As a result, only ten percent of respondents truly believe that they are consistently exceeding patient expectations.³

So if the experience of consumers is to be the 'true north' of our health systems, how should executives, clinicians, payers and policy makers navigate toward it as the pandemic subsides? How can they embrace the promise of digital to give consumers what they need and expect while managing within a new era of austerity and fiscal constraint that will arise from a long-term recession? And how fatigued workforces should be balanced against the substantial shift in ways of work that the digital age of healthcare will almost certainly herald?

To support health systems in this shift, KPMG Healthcare specialists seek to set out how healthcare organizations can deliver the digital transformation needed to be successful in this new reality. KPMG's vision is of a truly connected health system, where digital transformation allows healthcare consumers to experience a seamless care journey that is:



Connected across channels;



Connected across care settings;



Delivered by healthcare organizations that better connect their front, middle, and back offices;

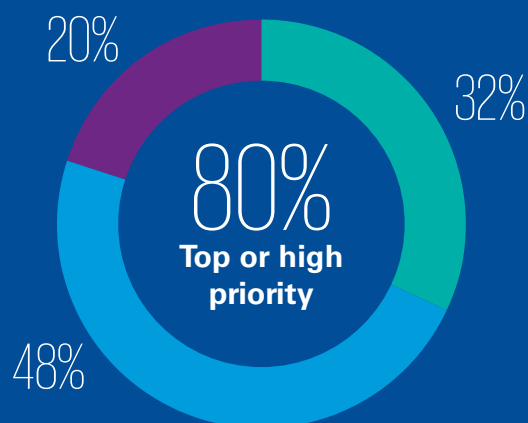


Underpinned by harnessing enterprise technology for the benefit of consumers; and



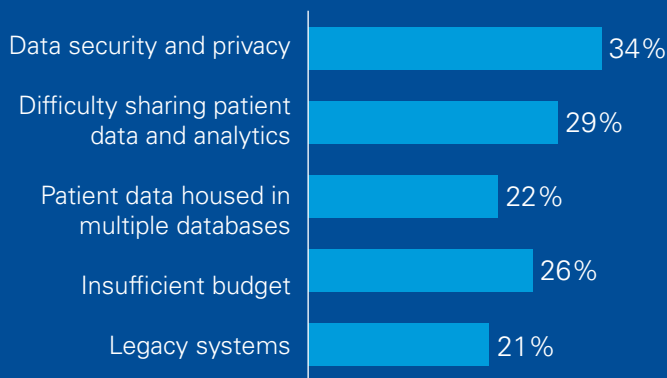
Supported by investment in the human capabilities needed to deliver the promise of this technology.

What priority is your hospital/facility placing on its customer-centric strategy?

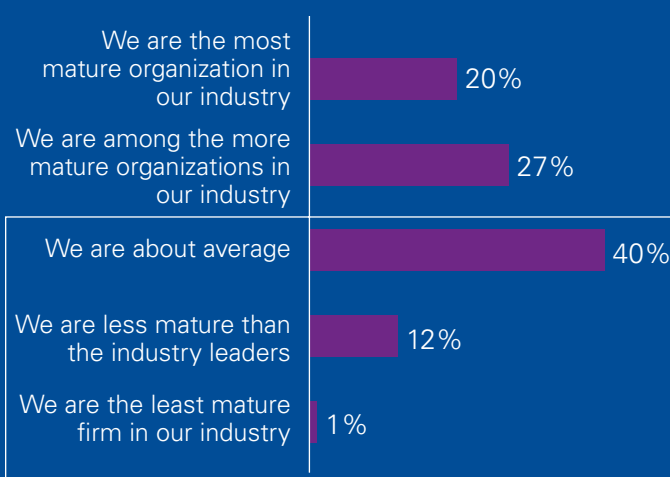


- Among our top priorities
- High priority
- On par with other priorities

What are the top obstacles to the successful execution of your hospital's/facility's customer-centric strategy (all responses >20% are shown)



How mature do you think your hospital's/facility's customer-centric capabilities are compared with your competitors



Source for above data charts: Forrester Consulting. (2019). *Healthcare Providers Data Review*.

KPMG's Connected Health vision and the practical framework that underpins it, seeks to enable organizations to orchestrate the myriad of interconnected changes required to deliver this vision. KPMG Connected Enterprise for Health was developed through KPMG member firms' experience of working with clients in healthcare systems in 46 countries and territories around the world prior to and during the COVID-19 crisis.

This document outlines our framework in the following sections:



COVID-19: Springboard for a new reality

As with many aspects of our lives, COVID-19 has drawn into sharper focus how quickly aspects of our health systems that we took for granted can change. Experience from the 46 countries and territories in which KPMG member firm healthcare teams operate show six clear trends as we head towards the new reality. The individual and cumulative effects of these trends are to strengthen the case for better connected healthcare.

1. Digital front doors are here to stay

COVID-19 brought wholesale disruption to our healthcare systems and the global supply chains that support them. It also provided a catalyst for disruption to the traditional channels through which care has been delivered for decades.

For example, in order just to maintain access to services, US telemedicine visits surged by 50 percent in the first month of the pandemic and virtual visits are predicted

to top 200 million this year, up sharply from the original prediction of 36 million visits for all of 2020.⁴ Health systems worldwide have leveraged digital technologies in order to deliver care through new channels, support disease monitoring and contact tracing, and enable more integrated care. The very nature of what healthcare consumers now expect from health systems has changed overnight.



Remote consultations

In the US, Florida's Baptist Health swiftly managed an anticipated surge in demand at its 11 sites through the creation of a telephone hotline service that repurposed 60 staff to handle calls with scripts and protocols. Chat bots were also introduced to manage online inquiries.



Remote monitoring

In Switzerland, the Canton of Basel-Stadt launched the country's first app to provide care to people who have contracted COVID-19 and are in isolation. This app facilitates communication between patients and caregivers, in addition to supporting contact tracing efforts by the Canton's Health Department.



Personal Health Records

In Canada, Alberta Health worked with a telecommunications company to rapidly roll out online personal health records that integrate primary and secondary care, empower patient editing rights and feature secure messaging functionality.

With the pandemic, there has been a proliferation of new companies, technology solutions and virtual services that have rushed to fill the void of healthcare consumer experiences. COVID-19 has created a global opportunity to stress test the business case for a range of digital

care modalities. Even in jurisdictions like Canada where healthcare is a covered public service, consumers are paying out-of-pocket for the ability to access care that is timely and convenient.⁵

2. Redesign of the health system is needed to deliver resilient, patient-centered care

The 2019 KPMGI/Forrester survey revealed that nearly 8 out of 10 healthcare leaders believe they have a good handle on crafting care delivery systems and co-designing care pathways with consumers, but creating a holistic consumer-centric strategy still eludes a significant number of those organizations.⁶

Being consumer-centered requires a care system designed to support the entire care journey, not just discrete episodes of care within a hospital, clinic, or a doctor's office. COVID-19 has placed a spotlight on the high levels of fragmentation and poor coordination common in many health systems. It has demonstrated the need for more integrated care systems that span primary, secondary, acute, and community settings, in order to strengthen the resilience of the system overall. Importantly, this integration is not only about better

handovers of patient care. Integration of middle and back-office functions — particularly as they relate to supply-chains, workforce and finance — have been essential to the continuity of services of many health care systems around the world in recent months.

It has also demonstrated that implementing the changes that emerge from this redesign process need not be a generation in the making. Health systems in Australia, the UK, US, Canada, Italy, China, and Singapore (among many others) demonstrated that new care models can be designed and implemented quickly, proving that where there is a will, there is a way. In many of these jurisdictions, new fever clinics emerged in only a few days, while field hospitals of unprecedented scale with full-scale EMRs were brought to life in a few short weeks.

Rapid transformation for resilience — NHS Nightingale

When COVID-19 emerged in the UK, the NHS (National Health Service) took the decision to set-up seven field hospitals across the country. The first of these was the Nightingale in London. The key aims of the Nightingale were to “reduce deaths”, to provide resilience as part of the wider London NHS critical care system, and “provide hope”. The challenge was not only to provide a safe hospital for patients and staff but to deliver a fully-connected hospital with no reliance on paper which could be a source of transmitting the virus. This had to be done in seven days. Interoperability was key for all the components of the patient's pathway from admission to discharge to the community. Security was key so importance was due given to deliver an end-to-end encrypted platform for the hospital to function. In the end, every hospital bed was connected to Wi-Fi. This allowed for patients to be treated in-person or when required, specialist input accessed via video calls.

The scale, pace and delivery of NHS Nightingale London provided much needed capacity and resilience to the capital's critical care system in a matter of days.



Health systems that emerge will not only have durability for the coming decades (which may very likely include emergency response systems to address subsequent pandemics) but also provide the flexibility required to accommodate the significant shifts that digital transformation will bring. The length of this planning horizon demands an emphasis on both short and long-term impacts of digital disruption on healthcare.

To deliver more seamless consumer experiences, drive better health outcomes, and reduce cost and harm

associated with unwarranted variation in care, healthcare systems around the world have recently been pursuing greater levels of integration. Innovative care systems are also partnering with non-traditional providers such as retail and new digital channels to deliver services which can respond to consumer need more flexibly and cost effectively. COVID-19 has simply accelerated this trend. The emergence of integrated care systems already visible in a range of jurisdictions will be a powerful enabler of this redesign effort, as shown in the examples below.

	Accountable Care Organizations^{7,8} (USA)	Clusters (Saudi Arabia)	Ontario Health Teams⁹ (Canada)
# of covered lives	32M	30M	14M
Unique design feature(s) of integrated care	<p>Stimulates integrated care among provider networks through shared savings incentives with the Medicare program</p> <p>Receives risk-adjusted payments (per patient per month) to deliver a wide array of care types and achieve certain outcomes</p>	<p>Accountable care organizations consisting of primary, secondary, and specialty care providers</p> <p>Standardized models of care and interventions across six systems of care from wellness to end-of-life, with clear pathways for patients to navigate</p> <p>Enhanced primary, community, and home-based care</p>	<p>Integrated care network with shared governance and accountability amongst providers in a specific geography to enable improved outcomes for the targeted patient populations</p> <p>Coordinated care delivery across a patient's continuum, including 24/7 patient access to navigation and care coordination</p>
Key digital elements	<p>Hospital information systems</p> <p>Electronic health records</p> <p>Health information exchange</p> <p>Telemedicine and a range of digital care platforms</p>	<p>Integrated personal health records</p> <p>Virtual self-care, education and navigation tools</p>	<p>A "digital first" approach including:</p> <p>Virtual visits, online appointment bookings and direct access to integrated personal health records</p> <p>Jurisdictional longitudinal patient records that integrate the continuum of care, e.g. acute, primary, community, behavioral health, homecare, etc.</p>

These forms of health system integration will demand:

- **New and different capabilities:** There will be a need for new and different capabilities that enable more personalized care, better influence over the technology architecture of the system as a whole, new approaches to intake and referral management, and an ability to more flexibly deploy new channels of care to respond to emerging needs. Though health leaders generally recognize the importance of these capabilities, our research indicates a majority of healthcare providers identified significant capability gaps as a barrier to implementing better interactions with consumers.¹⁰
- **Rethinking the architecture of our systems:** In many cases, achieving better care integration requires health care leaders to rethink the architecture of their delivery systems, the alignment of incentives toward greater value, and the way in which technology enables information to follow patients across care settings. Until recently, large scale national investments into health technology projects (for example national health records), have all struggled to bridge the gap between the needs of health systems today and those that clinicians and consumers will demand in the future. To respond to COVID-19, jurisdictions around the world have invested in new technologies (for example digital platforms to enable more rapid and effective contact tracing such as the COVID Safe app developed by the Australian Government¹¹), alongside the treatment of traditionally-expensive platforms (like EMRs) as utility services appropriate for rapid generic deployment.
- **Activation of consumers and patients:** Perhaps the most challenging frontier for better integration however lies in better mobilizing the most important resource available to health systems: consumers. Improved activation of technology-literate consumers and their healthy behaviors are critical ingredients for digitally-enabled population health management.¹² Smart devices (like phones or wearables) now touch almost every part of our life and healthcare is not immune. Though hundreds of thousands of applications are available to consumers and health professionals, the evidence for behavior change and improved population-level outcomes through scale implementation of digital health solutions (in particular mobile solutions) remains limited.^{13,14} COVID-19, and the widespread adoption of digital platforms to enable contact tracing, monitoring, and consumer education provide an unprecedented opportunity for large-scale evaluation of digitally-enabled public health programs in order to inform future policy.



3. Insight-led decisions are better decisions, every time



Photo credit: AdventHealth Mission Control (Orlando, USA) — developed and implemented in partnership with GE Healthcare Command Centers (pre-COVID-19 image)

The global pandemic response has demonstrated another priority: the importance of insight in driving strategy and supporting every decision. As health systems have grappled with wholesale disruption to global supply chains, raced to manage capacity within facilities and across networks, and tried to predict and control the spread of a virulent pathogen, they have returned time and again to one critical enabler: data.

COVID-19 has demonstrated that the slow progress made toward the digitization of processes and records of care (for example in EMRs) yields little value if healthcare leaders aren't able to leverage and connect increasing volumes of data to inform their decisions. Moreover, COVID-19 has driven home the importance of that data being available in near-real time.

While 71 percent of healthcare leaders said that data and analytics will remain an investment priority over the next three years, less than one half believe that they have the ability to execute on their desire to have more actionable and timely insights.¹⁵ Improving access to more timely data has been critical for many providers in the search for greater speed to insight, reflected by the increasing prevalence of command centers in healthcare over recent years.¹⁶

Perhaps the most critical change for payers, providers, and policy makers to emerge from the COVID-19 crisis is the mission-criticality of data: not just in responding to the pandemic, but in looking forward to a new reality.

The integrated care systems and digital front doors outlined previously can only function effectively, and create sustained value, if the data they create lead to more timely decisions that improve system outcomes.

While platforms for better integrated decision making — such as command centers — will play an important role in managing more complex systems and the greater number of channels they will employ, influencing clinical performance requires information to be available much closer to where clinical decisions are made. Indicators of operational performance (for example emergency department waiting times) are ultimately aggregates of hundreds of thousands (or millions) of decisions being made each minute by clinicians and managers. Along with presenting the data in a visually compelling manner, however, substantial effort must focus on changing the underlying ways of working to embed an evidence-based operational management system at the core of a healthcare delivery system.¹⁷

Ambulance Victoria

In Australia's second-most populous state, Ambulance Victoria's mission is to provide high quality pre-hospital care and medical transport.

To support this mission and drive performance improvement on the front-line, data is used in day-to-day operations through the organization's descriptive, predictive, and prescriptive data and analytics capabilities. Actionable data insights are made available to staff at all levels, from the CEO to junior-level paramedics. This system gives paramedics a view on their own performance and team management can better understand the root causes of issues and predict future outcomes.

4. Consumer-centricity will be a key driver of how care is delivered

Despite the fact that most healthcare organizations reflect “consumer or patient centeredness” in their strategies, many of them have designed their service delivery models, operational processes and technology solutions to meet the needs and preferences of funders, policy makers and clinicians, rather than patients. For many consumers, particularly those living with chronic diseases, COVID-19 has brought both uncertainty and long awaited change to the way that they access services.

New, technology-enabled service delivery models have emerged in a variety of care settings: virtual access

to primary and secondary care consultations, virtual and remote mental health services, app-based self-assessments for COVID-19 (including on globally available platforms like Babylon and Ada Health) to name a few. These changes have occurred at remarkable speed and, in many cases, have enhanced access and experience for consumers. In large part, this is because the focus of the technology-enablement was on delivering value (even if only through reduced risk) to consumers, rather than to the health system.

The power of electronic prescribing

In Australia, the Department of Health has partnered with the Australian Digital Health Agency to deliver on the 2018–19 budget measure supporting a national electronic prescribing system. Legislative changes, together with a co-design process with the health sector, has led to development of a technical framework to help clinical software systems create, collect and store electronic prescriptions. Electronic prescribing will change the way that consumers will interact with their prescriptions — recognizing an electronic prescription as an alternative legal form by which medicines are supplied.

While the initial rollout was planned to happen over the course of 12 months, the Australian Government’s COVID-19 National Health Plan accelerated the electronic prescribing rollout so that people could obtain medicines without physically going to doctors’ offices or pharmacies (if their pharmacies offer home delivery).

The project has successfully enabled the first Australian electronic prescription, which was transmitted in Anglesea, in the State of Victoria in mid-May 2020. One prescription is expected to become 100 million in the next 12 months, and upwards of 400 million within two years, demonstrating how rapidly digital transformation can change the lives of consumers and the role of care systems.

Globally mental health disorders affected more than one billion people in 2016 and contributed 19 percent of all life-years-lived with disability.¹⁸ While one in two people will experience a mental health disorder in their lifetime, eighty percent of those with common disorder, and up to 50 percent of those with a severe disorder won’t seek or receive treatment.¹⁹ In many cases, historical technology investments provide a platform to record that a patient has a condition and information about the process of care. To date, they have had little role in addressing either the primary diagnosis or its deeper social determinants: vulnerability, loneliness, and social isolation to name a few.

This is rapidly changing however, with thousands of mobile digital solutions now available to help respond to mental and addictive health needs. With the burst of consumer-centered digital disruption that COVID-19 has brought-on however comes uncertainty.²⁰ How should consumers or healthcare providers determine the efficacy or effectiveness of these platforms? How, if at all, should they be integrated into mainstream

technology platforms like EMRs or EHRs as we move toward a new reality? What are the clinical, operational and technology governance considerations associated with their implementation? How should consumer choice be balanced with the need for standardization in a health system and reductions in unwarranted variation? How will safety regulators keep up?

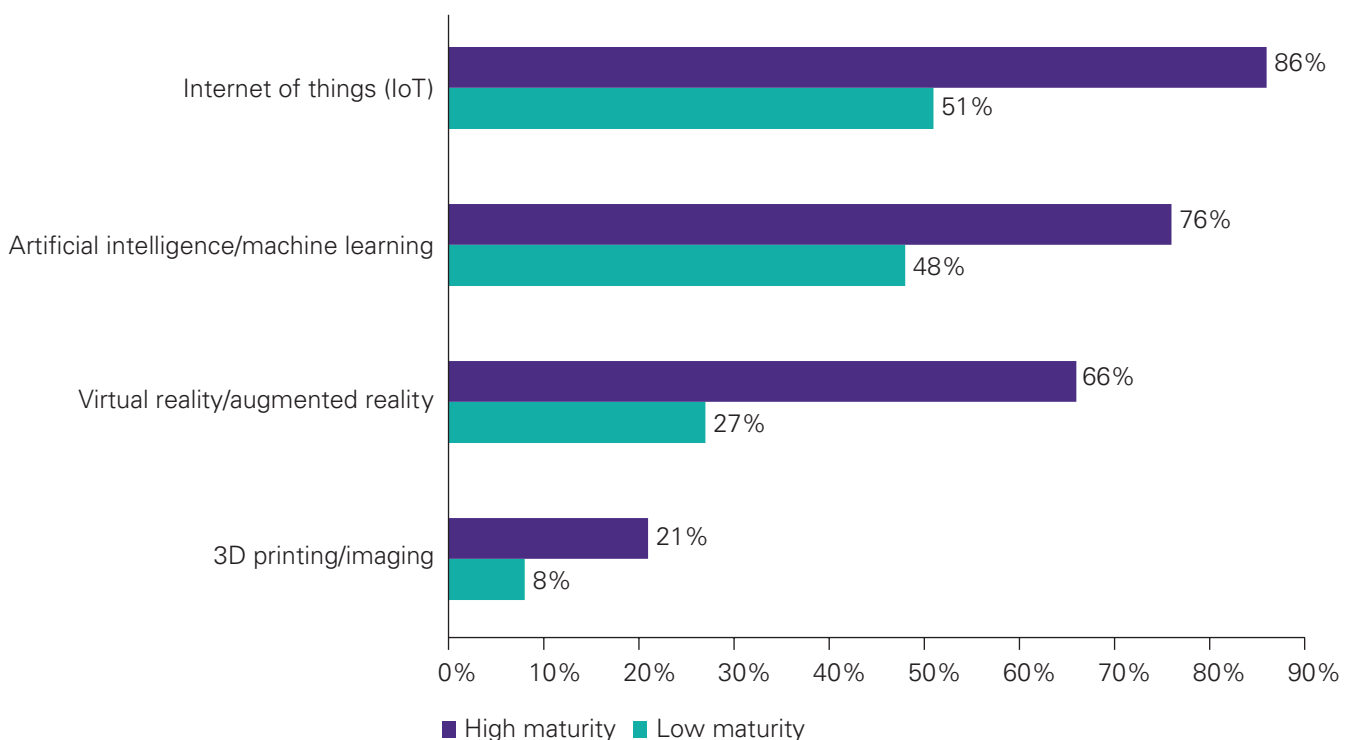
The challenge for healthcare providers is in how ‘enablers’ such as digital and analytical tools can be brought together in a connected way to better respond to the needs and preferences of consumers, while at the same time improving outcomes at a population level in a financially sustainable way. This is at the heart of being ‘patient-centered by design’. Stepping toward a new reality will require health systems to leave their current ways of working behind, to think holistically about the needs of consumers and then retooling the care system, workforce, and use of data, operations, and digital enablement to align to those needs.

5. Enterprise-wide innovation is required to meet the evolving demands of health systems

The understandable focus of health systems on diagnosis and treatment often occurs at the expense of innovation in traditional middle and back-office settings, as digital investment is directed toward clinical enablement and front-line services. Yet this long-term underinvestment in innovative approaches to operational and support functions has left many healthcare organizations with ageing systems and processes that have not kept pace with the productivity improvements realized in other sectors.

Furthermore, the ability of organizations to safely incubate the capability to leverage new, productivity-improving technologies (for example robotic process automation and augmented intelligence more broadly) before scaling them into front-line environments has been stifled. However, the more mature a healthcare provider, the easier these barriers are to overcome, since these organizations are equipped with better capabilities to enable innovation, as demonstrated by the KPMG/Forrester research.

Has your hospital/facility implemented the following 'next generation' technologies as part of its customer-centric strategy?²¹



Global shortages of critical supplies (including personal protective equipment (PPE) and medical equipment) arising from the disruption of supply chains and extraordinary growth in demand as a result of COVID-19 have revealed startling levels of fragility in the resilience of our health systems. These vulnerabilities have greater implications however: COVID-19 has demonstrated the importance of health systems in the economic and security interests of countries and territories. More simply, health is a critical and too-often overlooked determinant of wealth and national security.

Shaping a new reality to respond to the issues identified above will not be achieved through a focus on middle or back-office functions like procurement, or supply

chain, alone. While these functions can be instrumental in bridging gaps in the supply chain, doing so without connecting them into the delivery of care, and the demand for supplies that care creates, will be fraught.

Healthcare providers will fail to realize the enormous benefits available through the application of emerging technologies core to the transformation of middle and back-office functions (for example the use of autonomous vehicles for non-emergency patient transport, or AI chat bots responding to queries from patients or carers), unless they are able to take a more connected approach. The new, digitally-enabled reality that emerges from COVID-19 will only be enabled through the development and sustainment of new capabilities within the workforce.

6. An agile and empowered workforce is required to deliver the required health system outcomes

Shortages in front-line care workers have been a common feature of health systems, with the World Health Organization (WHO) estimating a shortfall of over 18 million by 2030 if no action is taken.²² A trend towards more long-term conditions, coupled with the pace of technological change, mean the skills required of those health workers are also changing. Simply training more workers is no longer sufficient, nor is it sustainable.

While COVID-19 has thrown workforce shortages into sharp relief, it has also accelerated the pace of change. We have seen widespread reforms to scope of practice legislation as well as professional regulation and flexibility. There has been a sharp uptick in the use of technologically

enhanced models of care, and we have seen widespread deployment of volunteer staff to assist with health delivery — changes that have been widely accepted by both patients and staff. And though the pressure on staff has been great, it seems to have generated a much greater appreciation of the importance of staff wellbeing, including the need for more flexible and remote working.

There is a strong desire to maintain the progress that's been made since COVID-19, and not to fall back into old, unproductive ways of working. Equally, any future developments to the healthcare workforce should be considered and coordinated to deliver an aligned and empowered workforce.



Drinking from the fire hose: Managing the pace of digital transformation

In recent years the pace of technological change and the volume of information and data available to healthcare providers has become almost overwhelming.



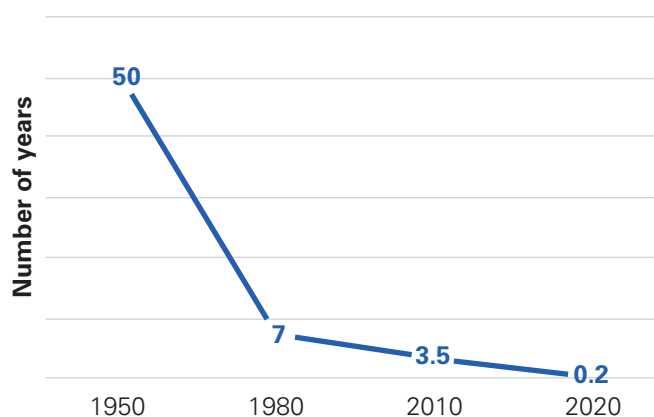
Driven by rapid diffusion of new technologies providing data on an unprecedented scale, some estimates suggest that the time taken to double the volume of medical knowledge will have fallen from 3.5 years in 2010 to 0.2 years in 2020.²³ Alongside this growth, industry estimates indicate that in the direct-to-consumer market in 2017, more than 325,000 healthcare applications were available on smart phones, with downloads of more than 3 billion expected.²⁴ For healthcare leaders, this creates problems in providing advice to patients about alternative care pathways.

As outlined in the six trends in the section previous, the COVID-19 pandemic has simply added to this deluge of information and options. By 7 May 2020, The Economist estimated a total of almost 4,000 peer reviewed research papers had been published on the pandemic, and a further 3,000 preprints (manuscripts published prior to peer review) in just three months.²⁵ The scale of the challenge for clinicians and management to try to make sense of the sheer volume of information cannot be underestimated.

For most health systems, this technological advance has created a tension between spending on technology and patient care, which results in a tentative approach to invest in new areas such as genomics, interventional medical imaging, immunotherapy, therapeutic augmented reality, robotic surgery and nano-technologies to name a few.

In order to make sense of all the options, and to properly assess and evaluate the opportunities that emerging technologies can bring, healthcare leaders must deploy a structured, thoughtful, outcome-led approach that considers how technology can and will support health system strategy and be integrated into the broader enterprise transformation agenda.

Technology — a catalyst for medical knowledge



Looking to the future of healthcare

On the face of it, delivering on the early promise of consumer-centered digital transformation in a post-COVID-19 world poses many challenges:

Increasingly volatile consumer demand for services, increasing expectations driven by access to new channels during the pandemic, and significant gaps in evidence for what consumers want

Entrenched silos that make achievement of scale efficiencies through middle and back-office transformation difficult in multi-organization systems

High-cost systems of record that reflect historical and current approaches to care, and limit more flexible and innovative models of service delivery and its enabling enterprise architecture

A critical lack of alignment between system strategy, business and technology architecture, and the technology investments required for integrated care. This is further exacerbated by the technical debt created through deployment of temporary solutions during the COVID-19 crisis

Significant challenges in balancing increasingly competing demands of public health, population health management and a workforce trained for care delivery rather than preventative health

Our research, however suggests a brighter future. At its heart lies a paradox: the more emphasis our health systems place on technology, the greater reliance they have on the human capabilities required to shape and align it. Therein lies the KPMG Connected Enterprise for Health framework: all the required enterprise-wide capabilities — technology, process, and people — that you need to create better experiences for consumers and the health workforce.

Many of the issues outlined previously stem from a long-term underinvestment in these critical capabilities and the lack of an organizing framework through which to drive better alignment between strategy, business and technology architectures. In so doing, health systems can realize the experiences their patients need and the return on investment from digital transformation that payers and policy makers expect.

Integrating care through the power of digital

Releasing the extraordinary potential of digital will require enterprise-wide transformation of each health organization's business and operating models, from the clinical frontline to every diagnostic and administrative system, alongside major changes to the working lives, skills and culture of the entire workforce in health.

Across the globe, healthcare leaders are struggling with the same profound questions:

- How do I improve patient experience, safety and quality of care?
- How do I integrate care across settings I don't control?

- How do I do more with less money?
- How do I create more value for patients, payers and the community?
- How do I deliver care in the right setting?
- How do I find enough staff and deliver experiences that keep them working here?

Enterprise-wide digital transformation is at the heart of the answers to these questions. Digital strategy is now central to healthcare strategy, and can no longer be developed or implemented in isolation from broader transformation efforts.



KPMG

Connected Enterprise for Health: A digital blueprint for sustainable and scalable change

In response to the six trends identified earlier and the challenges of digital transformation outlined previously, KPMG healthcare specialists have developed KPMG Connected Enterprise for Health, an evidence-based and globally-validated* framework to support the complex, digitally-enabled transformations occurring in health systems around the world. In order to help health organizations deliver on their promise to patients, providers, staff, payers and partners, this framework is built on a health-specific business architecture that is designed to address every aspect of an integrated, digitally-enabled health and care system. The diagram that follows sets out the KPMG Connected Enterprise for Health framework on a page.

* Corroboration: Forrester Consulting. (2019). Healthcare Providers Data Review. Internal KPMG report: unpublished.

KPMG Connected Enterprise for Health framework

Patient experience



"I need access to care"

"I use my digital health record"

"My care is seamless"

"I proactively manage my own health"

"My care journey is planned"



Channels

Phone	Referrers	Portals	IoT/Digital	Funders	Retail	Virtual	In-person
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Care settings

Primary care	Emergency/ Urgent care	Inpatient care	Ambulatory care	Behavioral health	Community care
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Corporate strategy and clinical services strategy



Front office: Core business and clinical processes

Population health management programs

Care delivery

Intake/Care pathways	Patient/ Customer engagement	Care coordination	Clinical support services	Costing and funding models
Health professions and partners			Clinical governance	Academic management



Middle and back office

Governance, strategy and performance management	People and change	Enterprise risk management (inc BCP)	Asset management	Insight and decision support
Financial management	Regulatory, tax and compliance	Sourcing, procurement and materials management	Food, linen, cleaning and waste	Cyber and privacy



Enterprise technology

Electronic medical records, clinical information systems	Medical devices, robotics, modalities	SCM, ERP, Finance, HR, billing, GRC	Analytics tools, Data Lake, MDM	IAM, ESB, EMPI
Clinical trials, research administration and data	Workforce management platforms, rostering, time and attendance	Portals and virtual health, CRM	IT service management, operations management, business management	Enterprise cyber

Think of the KPMG Connected Enterprise for Health framework like a blueprint for a building, starting with the foundations and structure, all the way through to the features and characteristics that make it unique from other buildings. In a similar way, health systems around the world need to define and differentiate their core purpose, which starts with the most important patient experiences. These will dictate the type of channel by which patients will interact with the health system, whether digital or in-person. Clinical and corporate strategies can help to

ensure connectivity between the core clinical workflows, supporting operations and technology platforms required to deliver on the patient experience promises.

The framework also includes a collection of target operating models for the core business and clinical processes that give healthcare leaders a plan to organize their operations to deliver the value promised by a digitally-enabled health system. This sophisticated approach is critical in helping to ensure that change is sustainable and scalable.

The eight critical capabilities

Digital transformation cannot be successful — particularly at the current pace of change outlined in this report — without a series of capabilities hardwired into the organization as critical enablers.

The KPMG/Forrester research identified that connected enterprises were delivering substantially higher returns by investing in eight critical capabilities. We found that these capabilities must be built in order to execute successfully against transformation objectives.²⁶

These eight capabilities are critical to the KPMG Connected Enterprise for Health framework. Each of the capabilities has five sub-capabilities that provide additional detail for assessment of the organizational maturity.

We know that deep capability cannot be bought or built overnight. Therefore, each of our 40 sub-capabilities has five maturity level descriptions (totaling 200 maturity statements), tailored to each sub-capability so that organizations can plan and track their journey along the maturity levels to become a truly connected enterprise.

01

Insight driven strategies and actions



The ability to enable, activate and harness data, analytics and actionable insights to develop a real-time, multi-dimensional view of the consumer/patient to inform a consumer strategy and personalization approach. This is enabled through a robust data governance structure and standardized approaches to how data across the continuum is collected and analyzed.

02

Innovative services



The ability to design evidence-based, innovative services that respond to the needs of the population and improve consumer experience and health outcomes. A connected healthcare organization provides the cost efficiency and quality incentives to enable the delivery of value-based care throughout the care continuum.

03

Experience-centricity by design



The ability to design and orchestrate a seamless and personal patient, provider and partner experience by engaging them in shared decision making and using experience as a basis for continuous improvement. A consumer-centric strategy and journey maps can help a connected healthcare organization create the right ecosystem for care delivery.

04**Seamless interactions**

The ability to interact and transact with consumers across marketing, delivery and service domains through channels in a trusted, personalized and integrated manner. The goal for a connected healthcare organization is to enable a seamless consumer experience by delivering care through a connected, flexible and “omnichannel” approach.

05**Responsive supply chain and operations**

The ability for the organization to effectively execute on clinical and consumer needs in an agile, demand-driven, consistent and operationally efficient manner underpinned by advanced analytics. In a connected healthcare organization, the evidence-based decision making enables resiliency and responsiveness of its front and middle office functions (e.g. supply chain, procurement, clinical operations, etc.).

06**Aligned and empowered workforce**

The ability to create a consumer-centric organization and culture that is enabled by an agile workforce strategy and supports ongoing skills development, change management and workforce empowerment. Building a truly connected, consumer-centric healthcare organization requires a clear vision and alignment to this vision between the leadership team, clinical workforce and non- clinical workforce.

07**Digitally-enabled technology architecture**

The ability to architect and engineer intelligent digital services, technologies and platforms to deliver on the consumer promise in an agile, cost-effective and scalable manner while maintaining security. The underlying enterprise architecture and IT operating model show how the platforms, digital channels and integrating infrastructure should enable patients, staff and partners to interact seamlessly with the system to support its core clinical and business goals.

08**Integrated partner and alliance ecosystem**

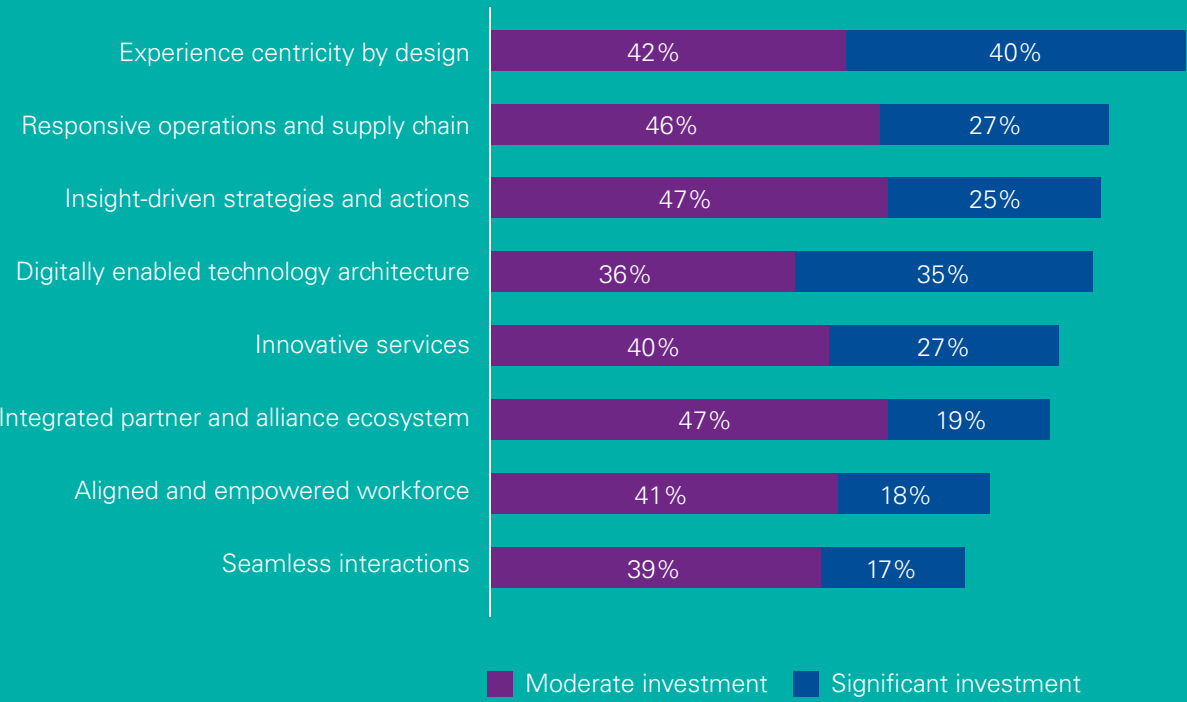
The ability to effectively identify, integrate and manage third-parties to increase speed to market, reduce costs, mitigate risks and supplement capability gaps in delivering the consumer promise. It includes establishing strategic partnerships/ alliances and having effective governance, partner service delivery and performance monitoring in place to support the partnerships.

The KPMG/Forrester study²⁷ has shown that the highest performing healthcare providers are those that invest in these capabilities, with three in particular standing out, as shown below.

Capabilities with the greatest correlation with maturity



To what degree will your hospital/facility be investing in the following capabilities over the next 12 months to support its customer-centric strategy?²⁸



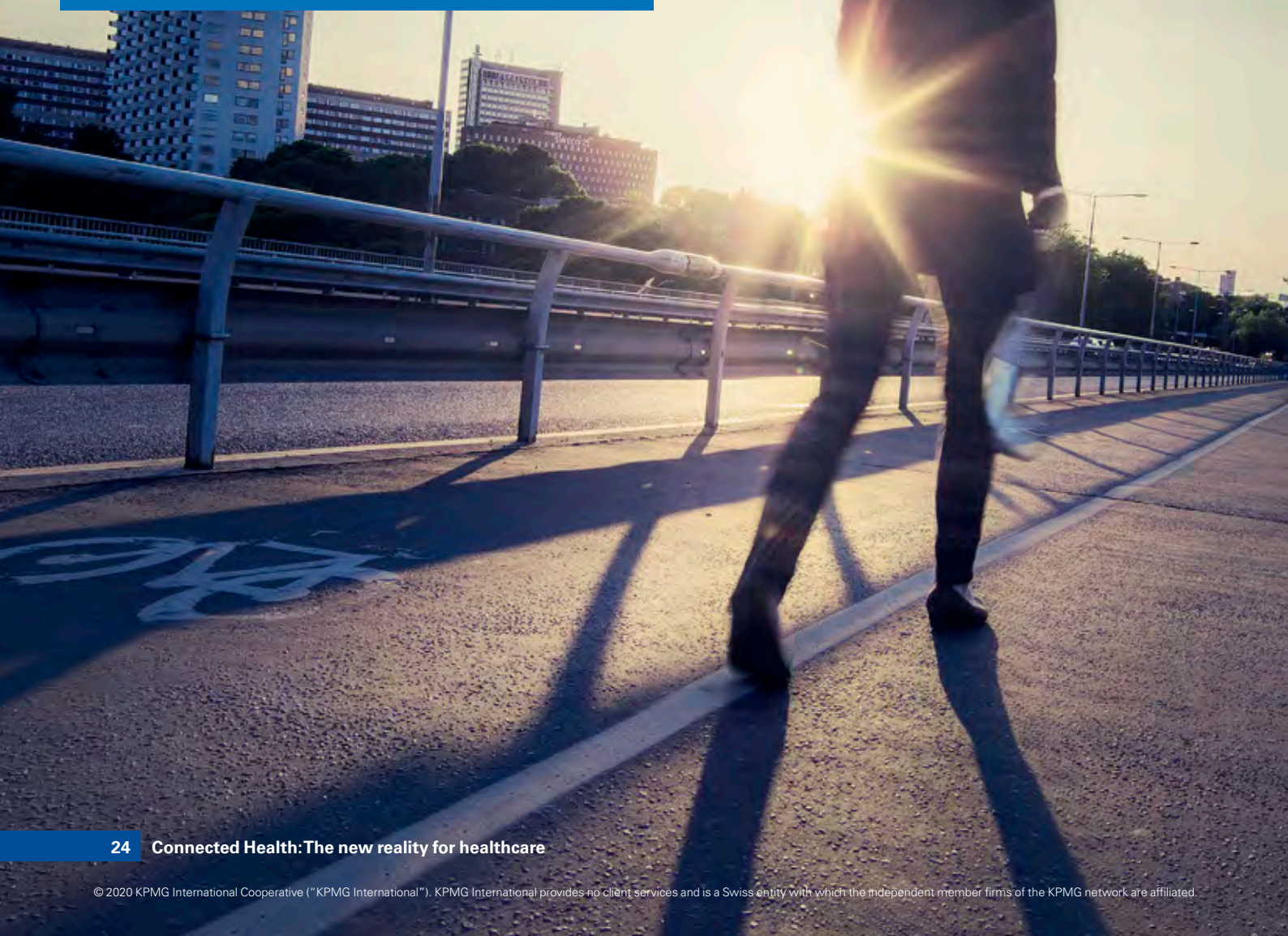
Further, as shown above, at least half of healthcare providers were looking at every one of these capabilities for investment before COVID-19. As the peak of COVID-19 passes, higher performing organizations will have a greater ability to refocus their efforts on these capabilities

and this investment, allowing them to progress even further along the maturity levels.

All organizations must therefore look seriously at building these capabilities if they are to thrive in the post-pandemic new reality.

The way forward

Health and care systems around the world are relying on digital transformation to address the onslaught of disruptions they face. These are complex challenges and require a robust, thoughtful approach to realize the desired value for consumers, providers, staff and health system partners. Moreover, digital transformation needs to include consideration of the target operating models that will be required to scale and sustain the transformation over time. When combined with a clear understanding of the mix of capabilities required to deliver on core business practices, healthcare systems can develop a clear and specific transformation blueprint to lift capability and improve performance.



We have previously said that the next two decades will see digital transformation of every aspect of healthcare – the patient experience, clinical and operational systems and the skills and culture of its staff. The pandemic has proven that this transformation is possible now. The most innovative and ambitious organizations and care systems are already planning for and delivering against this new reality, investing in the right capabilities to effect transformation. At KPMG, we believe that health leaders can deliver higher quality care for less. They can do so by ensuring they have the right business and technology architectures, supported by digitally-enabled operating models to absorb and exploit each new wave of innovation in clinical care and business practice. This brings resilience and adaptability for the long term rather than delivering one-off improvements for a moment in time.

In order to prepare for this new reality, health leaders should ask themselves:

- What are the most important patient experiences that we need to deliver?
- How will we provide more seamless interactions for patients, providers and caregivers to drive better health outcomes, operational performance and experience of care?

- How could we better use data to make decisions in real-time that meaningfully improve the value patients get from the care they receive, and ensure that our operations are more responsive?
- How future-proof are our clinical services, core operations and information infrastructure in the face of technological advances and the changing healthcare landscape?
- What organizational capabilities does my workforce require to prepare for the profound changes in roles and workflow brought about by digital transformation?
- How do we drive better alignment between the true-north of our strategy, and the business and technology architectures that are critical to achieving it?

These questions are complex with many potential solutions and outcomes. The way forward is to design and execute a comprehensive strategy and blueprint for transformation, to make sense of the huge volume of technological change and information that is available to health leaders.

If developing this strategy and blueprint is a priority for you, contact a member of the KPMG global network today to learn how your healthcare system can become more connected.



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