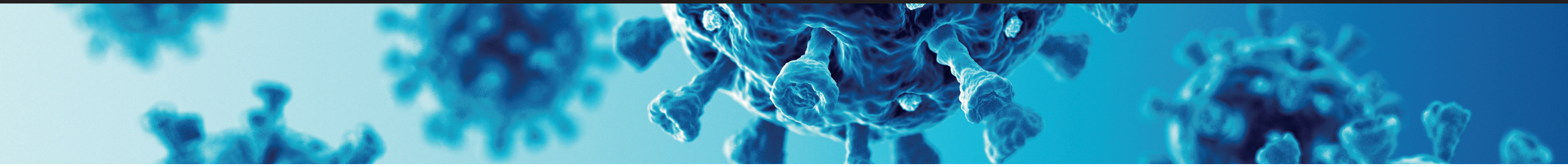




# Inaugural Health Systems' Climate Study 2021

Jiban Khuntia, Xue Ning, Naser Shekarian and Rulon Stacey





## Inaugural Health Systems' Climate Study 2021

The new normal for health systems is aspirational but burdened with complex challenges and disruptions.

More than  
**64%**  
of CEOs are concerned about the challenges in the new normal.

Only  
**35%**  
of CEOs believe the new normal is presenting opportunities.

**43%**  
of CEOs believe the new normal increases their opportunities to identify new revenue growth.

This climate study is the outcome of survey data reported by 135 Health System CEOs, representing \$0.3 trillion in revenues and 1.1 million employees across the United States.

## FOREWORDS

### Business School Dean

Providing cutting-edge and actionable research to the healthcare industry reflects one of the Business School's most salient strategic priorities. The **Health Administration Programs in the Business School** are nationally recognized for the last 30 years. The recent **Health Administration Research Consortium (HARC)** is an excellent initiative and addition to the program, with a bench of 15 faculty publishing important research addressing pressing issues in the industry. Along with these developments and the ties to the Anschutz Medical Campus, the Business School is uniquely positioned to serve as a thought leader for the healthcare sector.

Looking ahead,  
**Scott Dawson**, Ph.D.  
Dean, CU Denver Business School

### Health Administration Program Director

Several months ago, in an effort to produce industry leading research, the **Health Administration Program** of the **University of Colorado Denver School of Business** created the **Health Administration Research Consortium**. For the past several months now, HARC Director Jiban Khuntia, Ph.D., and his team have been diligently working to bring to the industry the most comprehensive study of the post-COVID climate achieved to date. Mission accomplished!

Dr. Khuntia and HARC researchers have gathered data that will provide academicians, clinicians, practitioners and everyone else who may be interested with the most up-to-date research available. Through this research we learn crucial information such as:

- **We can expect hiring to increase in the industry in the next 12 months**
- **Mergers and acquisitions will increase in the next 12 months with a focus on community systems engaging with academic health systems**
- **Information technology, which saw its long-awaited acceptance in 2020, will continue to see logarithmic growth in the next few months. Organizations which prepare now for this growth will be more prepared to meet the needs of their patients than others.**

And the list goes on.

In considering how best to publish these data we considered a series of articles which would allow a large portion of this information to become publicly available over time. However, the findings of the study turned out to be so meaningful to the current environment that we chose to publish all of the information on the HARC website for all to see and analyze independently. I am confident that this will make as much of an impact on the industry as anything I have been involved with during my career.

Thanks to Dr. Khuntia, his research associates, including graduate students, and to those CEOs who gave of their time to provide this impressive work.

Sincerely,  
**Rulon F. Stacey**, Ph.D., FACHE  
Director, Graduate Programs in Health Administration

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## PROLOGUE

# Remodeling Health Systems Businesses in the New Normal

The challenges and uncertainties that the COVID-19 pandemic has presented to the health systems in 2020 were unprecedented. All health systems in the United States faced financial devastations and operational disruptions during COVID-19. As the pandemic hit, most health systems activated emergency plans, canceled elective procedures, patient visits, and non-essential activities while attempting to create a meaningful response to the pandemic. Health systems moved their non-clinical employees to work from home using remote and virtual communication tools. They faced issues with supply chains, shortages of personal protective gear, and other essential supplies. All these led to a significant loss in revenue and disruption of everyday activities.

As we write this report in mid-March 2021, the vaccine strategy that was developed in 2020 to curb the pandemic is starting to be implemented to its fullest. As the vaccines are distributed and the dust begins to settle, CEOs of health systems will face new normal challenges. The “restart” of businesses will not follow the pre-COVID-19 pandemic situation. The return to services will be an unprecedented and distinct approach, as almost all systems and consumers have shifted to the digital delivery models. Undoubtedly, all health systems will return to services for elective and non-emergent procedures. However, several challenges seem to be apparent for health system CEOs as they move to the new normal.

First and foremost, many health systems are **facing financial distress**. Delivering quality care in a financially sustainable way will be complicated while health systems work to address financial recovery. During this process, an important question will be how health systems rebuild their economic strength? Furthermore, how will they prioritize the ‘bounce back’ within the economic devastation of the past 12 months?

Plausibly, given the scale of challenges and uncertainties in the new normal, most CEOs have **to adapt and be agile** in their outlooks, business models, and future approaches. As emphasized, the regular models of health systems operations have been tested to their limits during the pandemic. In this report, analysis of the survey data collected from 135 health system CEOs shows:

**64 percent of the CEOs are worried about the new normal presenting challenges, while 35 percent believe that the new normal will present new growth opportunities. However, only 43 percent agree that the new normal will increase opportunities to identify revenue growth. Moreover, less than 40 percent of CEOs think revenue and employees will return to normal within the next 3 to 6 months.**



**PROLOGUE** Remodeling Health Systems Businesses in the New Normal

We see a degree of confidence and some aspirations towards growth, but the new normal is burdened with challenges and disruptions. Considering the aspirational yet burdensome new normal growth imperative, health systems need to shape their strategies and concerns for the future. As such, three aspects of the strategies emerged to be critical during the pandemic. Specifically:

**1** The pandemic propelled the **transformative and disruptive powers of digitalization to the forefront**. The unprecedented surge of telehealth, remote and virtual care reshaped delivery models and the relationship between patients and care providers differently. It broke some parts of the **institutionalized walls of healthcare models** that used to dictate to bring the patients into the inside of hospitals and clinics to provide any treatment.

**2** With the digital development during the pandemic, patients start demanding personal care that was not available broadly. The pandemic has created a surge in consumerism that we have not seen before. The challenges created by the digital disruption in the pandemic are set against a competitive landscape that will rapidly and radically change. **Competition in the new normal** will be different, possibly coming from unknown and previously unseen sources. For instance, new entrants that provide telehealth are gaining momentum in the healthcare market. A mix of regulatory issues, new patterns of consumer behavior, and the increasing competition will make the CEOs scramble to orient their focus.

**3** Finally, aggravating the situation more, **retaining skillful staff and a talented workforce** will be a growing problem. Almost all health systems are faced with staffing issues. Apart from stay-at-home and work-from-home patterns, staff burnouts and turnover were prevalent in hospitals facing COVID-19 surges. There have been retrenchments, furloughs, and layoffs as well.

Our research effort was designed to understand these three aspects of the healthcare business through feedback from CEOs of health systems. We want to draw insights into how leaders will try to navigate the disruption, understand the technological imperatives to improve operations, re-engage customers, embrace internal and external collaborations to face competition, and identify a rich and diverse healthcare workforce talent pool. We highlight a few findings in the executive summary section, and the detailed results are presented in the subsequent four sections of this report.



## EXECUTIVE SUMMARY

# How are Health Systems Poised to Face the New Normal in the Post-COVID-19 Pandemic Situation?

**In our survey with 135 health system CEOs, the majority (64%) are concerned about the new normal challenges.**

Furthermore, among those CEOs who believe new normal is presenting opportunities, only 43 percent see opportunities to identify new revenue growth. Nevertheless, the CEOs are expecting the aspirational growth that follows an unprecedented path. Eighty-five percent of the CEOs consider remote, virtual, and telecare as the most critical health services in 2021 when pandemic relevant uncertainty will be the most pressing issue (93%). The top three primary future concerns identified by the CEOs are workforce and talent acquisition, viability and crisis response strategies, and digital transformation and relevant growth. With this overview, we describe the role of digital and intelligent technologies in transformation, the importance of a new strategic mindset for new competition, and the significance of workforce talent and diversity in new normal in sections 2, 3, and 4, respectively.

**CEOs now realize the need to leverage more from digitization.** Service delivery models, leveraging more from data and intelligence tools and application, have emerged as a critical factor that adds to the central point of discussion across all healthcare entities and stakeholders. According to the survey results, 92 percent of CEOs emphasize the crucial role of cybersecurity-relevant technologies for health systems. Additionally, 72 percent of CEOs agree on the importance of data mining and analysis for health systems.

Moreover, mobile technologies, artificial intelligence, and virtual monitoring technologies are considered by 66 percent of CEOs as necessary technologies for health systems. Taken together, **all CEOs (100%) agree on the vital role of digital technologies** in their health systems.

Indeed, digital technologies provide a more holistic view of the business processes through increased transparency, information quality, and security. The result of this survey shows similar advantages by investing in digital technologies. More specifically, most CEOs believe digital technologies are creating value for their health systems through several avenues. Specifically:

**85%** of health system CEOs believe that digital technologies are helping to streamline workflows and business processes,

**80%** confirm that digital technologies enable data-driven administrative and clinical decision-making,

**75%** plan to re-engineer significant business functions,

**68%** agree that digital technologies would play a significant role in rendering higher customer-oriented services,

**61%** believe that digital technologies would help to increase operating efficiency, and

**55%** see the value of digital technology in creating innovation opportunities within and between different organizations.

While health system CEOs see the value, as described above, in staying current with digital technology, it is clear that to do so, they will need equally significant digital investment to maintain competitive advantages. The question is how to achieve competitive advantages through digital investment. This study found several key factors that the health system CEOs plan to adopt to facilitate investment in emerging digital and intelligent applications. For example:

**More than 80%** of health system CEOs believe their chances to stay current on technology will rely primarily upon:

- CEO serving as the organization champion for digital investments,
- Cohesive and meaningful organizational digital strategy, including financial and clinical targets,

**78%** believe that defining and measuring success measures will also lead to improved chances for digital investment, and

**72%** believe that a clear vision of digital investment's competitive advantage will differentiate their organization.





## EXECUTIVE SUMMARY How are Health Systems Poised to Face the New Normal in the Post-COVID-19 Pandemic Situation?

**The challenges emerging in the new normal are set in the realm of either a geographic or value-proposition competitive landscape.** New entrants, disruptive business models, and technology advancement are posing concerns in health systems to allocate more resources for operations improvement to stay competitive. To illustrate:

**79%** of CEOs believe transformation through digital to be a core strategy to compete in the new normal,

**77%** believe in building a diverse yet aligned partnership, and seventy-eight percent believe in a re-evaluation of current business models is essential for competing in the new normal,

**90%** agree on the concern of the importance of service quality in the competitive landscape, and

**90%** also reported the concerns relevant to new entrants with disruptive business models and keeping current with new technologies for competition.

Understandably, health systems are planning or currently engaged with various partners through joint ventures, strategic alliances, or informal collaborations to stay competitive and build capabilities. Survey results show that:

**81%** of health systems are already collaborating or planning to collaborate with academia,

**76%** seek help from supply chain and logistic organizations to stay competitive and provide high-quality services, and

**85%** concerned about the quality of care are already collaborating or planning to collaborate with academia.

**We think health systems have to plan to increase the workforce during the new normal to keep up with talent and skill requirements.** As expected, the survey results are:

**76%** of health systems expect the employee headcount in their health systems to increase in the next 12 months, and

**96%** reported acquiring new skills for existing employees through continuous learning.

Diversity is also crucial for creating the talent pool that CEOs must draw on to gain competitive advantages.

**87%** plan to collaborate with universities, and

**82%** will look for a much broader range of skills during the hiring process.

It seems health system CEOs will face many challenges in the new normal, and that is a **herculean task for all health system CEOs**. However, the challenges will enable CEOs to develop a flexible vision that allows them to identify and rely on the strengths of digital technologies, a new strategic mindset, and diverse talent. We believe health systems can do well even the customers, business models, competitive landscape, and market dynamics may change in the new normal.

Our sincere thanks to the active and candid participation of the CEOs from 135 health systems.

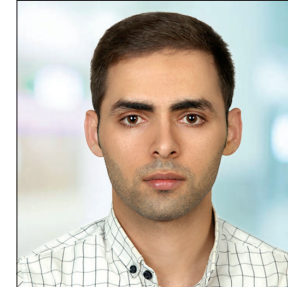
## The Research Team



**Dr. Jiban Khuntia** is an Associate Professor of Information Systems at the Business School of the University of Colorado Denver. He is also a faculty in the health administration program. He directs the Health Administration Research Consortium and CSIS Business Ph.D. program. He received his Ph.D. from the Robert H. Smith School of Business, University of Maryland. Dr. Khuntia's research is in the areas of health information technology and service innovation. His work has appeared in top journals, including Journal of Medical Internet Research, Information Systems Research, Production and Operations Management, Journal of Management Information Systems, Decision Science, Decision Support Systems, Communications of the Association for Information Systems. Earlier, he had a decade of professional and consulting experience in supercomputing, the IT industry, and government.



**Xue (Nancy) Ning** is a Ph.D. candidate in Computer Science and Information Systems in the Business School at the University of Colorado Denver. She is also working as a research fellow of the Health Administration Research Consortium. Ning co-edited a book on business intelligence in healthcare with Dr. Khuntia. This book highlights the role of information technologies in the healthcare organizations, such as data-driven business intelligence for health systems. One of her current research projects is focused on exploring leadership gender diversity to steer businesses and health systems with teleworking modes during the COVID-19 crisis. Before joining the Ph.D. program, Ning worked with an international organization for four years on coordinating projects relevant to healthy and sustainable communities.



**Naser Shekarian** is a Ph.D. candidate in Computer Science and Information Systems at the University of Colorado Denver. He is a research fellow of the Health Administration Research Consortium. He received his Master of Business Administration and Bachelor in Information Technology Engineering from the Sharif University of Technology in Iran. Naser's research focus is on health information technology, data analytics, and operations management. His work has appeared in conference proceedings such as AMCIS. His salient current projects focus on investigating operational resiliency aspects of businesses and health systems during crisis times, such as the recent COVID-19. Before his Ph.D., he worked in the e-commerce industry for more than five years.



**Dr. Rulon Stacey** is the Director of Programs in Health Administration at the University of Colorado Denver. He comes to CU Denver after five years as a partner with Guidehouse consulting. During his distinguished career, Dr. Stacey has served as CEO of several different health systems, including the Poudre Valley Health System in Colorado. Dr. Stacey has served as the Chair of the Board of Governors for the American College of Healthcare Executives, was appointed by three different United States Secretaries of Commerce to multiple terms as the Chair of the Board of Overseers of the Malcolm Baldrige National Quality Award, was twice selected by Modern Healthcare as one of the top 100 most influential people in US healthcare, and is currently the Chair of the CEO Circle of the International Hospital Federation based in Geneva, Switzerland.





SECTION 1

# Strategies and Concerns

# The Aspirational Growth that Follows an Unprecedented Path

Because of the pandemic, health system CEOs have become more aware of technology-oriented growth prospects for their systems than was previously understood. Before the pandemic, the healthcare industry was struggling to leverage the transformational power of information technology. However, for the “new normal” era after the pandemic, telehealth and virtual care models have been propelled to the forefront of strategies reported by 85 percent of CEOs (see Figure 1). Nevertheless, against this optimism, alignment of the digital delivery models to revenue sources remains a concern.

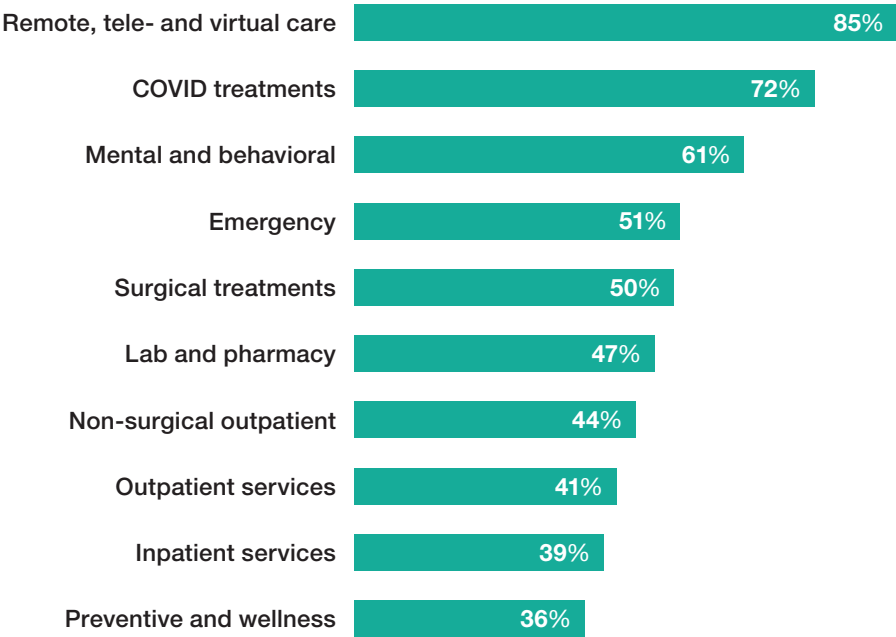
It is notable that CEOs understand that digital transformations are inherently risky. Still, with high risk comes the potential of high-reward, as optimistic CEOs will agree. Thus, although inherently risky, there is a sense of optimism for many CEOs that the future will bring relief from the disrupted business environment in the move to newer remote, telehealth, and virtual models.

Health systems may deter regular services (outpatient, surgical/non-surgical, inpatient, and wellness), given the continued COVID-19 prevalence burdens, and move towards remote, telehealth and virtual models as growth aspects (85%).

FIGURE 1

## Most Important Health Services for Overall Growth this Year

The health services most important for your overall growth prospects over the next 12 months:



### Top 3 Important Health Services







The uncertainties in the healthcare environment continue to be on CEOs’ minds in healthcare systems, as demonstrated by 93 percent of our respondents. However, 73 percent are concerned about fiscal stimulus.

Beyond these, the most significant concern (80%) remains about keeping up with technology developments (i.e., aligning health systems’ other operational aspects to keep up with tele-, remote and virtual care models). Finally, out of the 85 percent of CEOs who mentioned remote, telehealth, and virtual care as a growth prospect, 81 percent are concerned about this as a pressing issue (correlating Figure 2 with Figure 1). In other words, 68 percent of the CEOs still do not know how to align the digital models to revenue growth.

FIGURE 2

## Health Systems are Facing Issues in Growth this Year

The most pressing issues facing the growth of my health system in 2021 are:



93%

Pandemic relevant uncertainty remains the primary challenge for 93% of health systems.

80%

of CEOs expressed concerns about keeping up with tele- and virtual health.

73%

Regulation relevant uncertainties are in the prime concern spot.

73%

The fiscal burden is a concern to 73% of CEOs, followed by the concern to manage cyber threats (69%).

The healthcare industry has been at the center of the COVID-19 crisis. Although health organizations have the primary responsibility of treating COVID-19 patients, there remain other challenges to consider in the new normal. Health systems need to embrace recent changes and apply those changes in their business processes to keep their quality of services high. One area that is continuously changing and posing concerns is consumers’ preference and behavior changes. Our research finds that changing consumer behavior to new models (84%) is perceived as the most critical trend (see Figure 3). Health system CEOs fear that this behavior can pose new challenges and disrupt current business models.

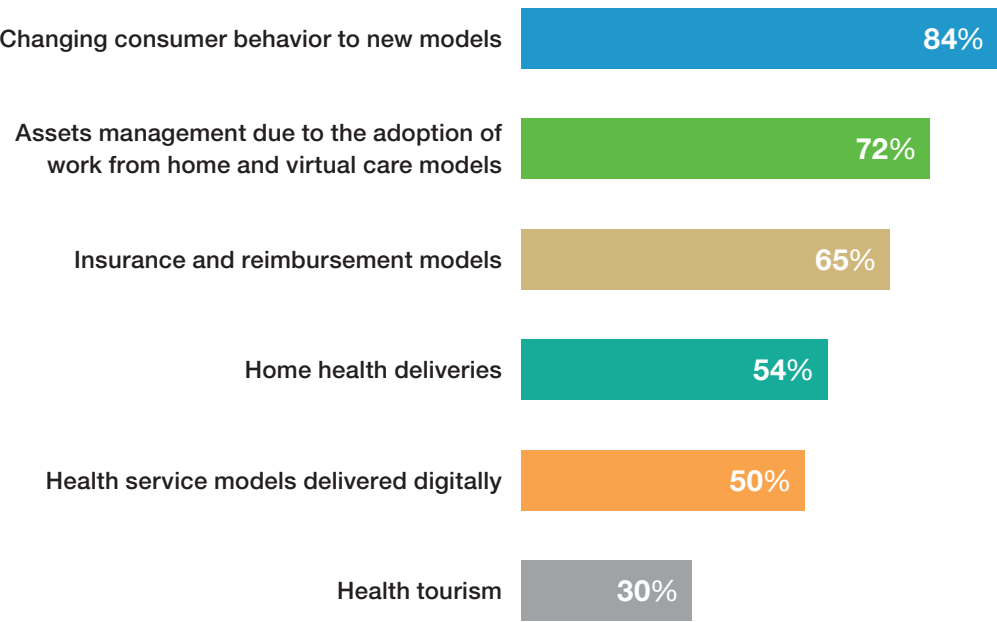
Moreover, out of 84 percent of CEOs who perceive disruption in changing consumer behavior, 96 percent are worried about pandemic-related uncertainties. Therefore, the new normal and disruptions and uncertainties caused by the COVID-19 crisis have created significant changes in consumers’ preferences and behavior. The next important trend is the challenge of asset management with the changing work-from-home and virtual care models. As new virtual care models are emerging, health systems are adopting or increasing their remote workforce. Therefore, technological infrastructure and technology-enabled capabilities are necessary for such transitions in the new normal. Interestingly, 90 percent of CEOs who perceive asset management with the changing work-from-home and virtual care models as a disruptive trend consider keeping up with technology as a significant concern for the future growth of health systems.

The third disruptive trend is insurance and reimbursement models, which are supported by 65 percent of CEOs. Due to the COVID-19 crisis, the healthcare industry will probably move from fee-for-service reimbursements to value-based care. Additionally, insurance and reimbursement models have to accommodate the emerging care models.

FIGURE 3

## Disruptions Trends in the Health Sector

The health sector will see disruptions of the following trends:



50%

While in total, 50% in our sample mention digital delivery is a disruptive trend for healthcare, out of that, only 91% think that remote, tele- and virtual care is a growth prospect, and 94% are concerned about that as a pressing issue.

84%

Out of 84% of CEOs that perceive disruption in changing consumer behavior, 96% are worried about pandemic-related uncertainties (correlating Figures 2 and 3).



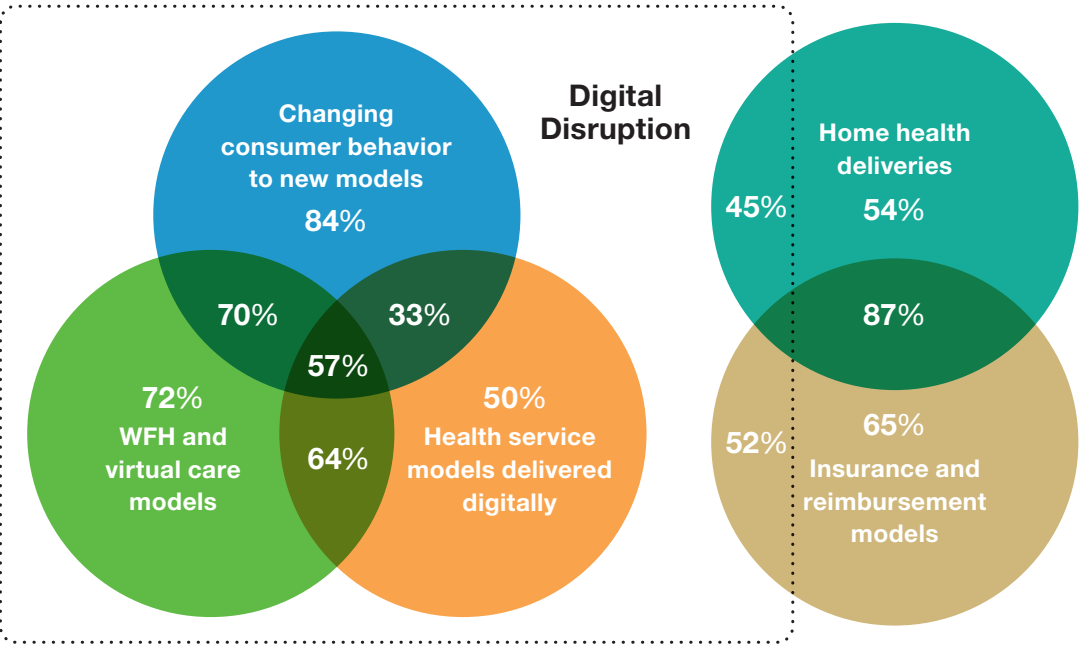
FIGURE 4

# CEOs' Concerns on Disruptive Elements

As shown in Figure 4, the survey results indicate that a cross-section of 57 percent of CEOs have expressed concerns about all the three disruptive elements: changing consumer behavior to new models, work from home and virtual care models, and health service models delivered digitally. In other words, when combining all these as disruptive digital models, more than 50 percent of CEOs are highly concerned about the future. To state differently, only 57 percent of CEOs think they will simultaneously face all three of these concerns.



The health sector will see disruptions of the following trends:



57%

Looking closely into the disruptive elements, 57% of CEOs are worried about a cross section of consumer, digital models and WFH and virtual care models. All these are because of some or other forms of digital disruption.



We also analyzed health sector disruptions in four income groups, including:

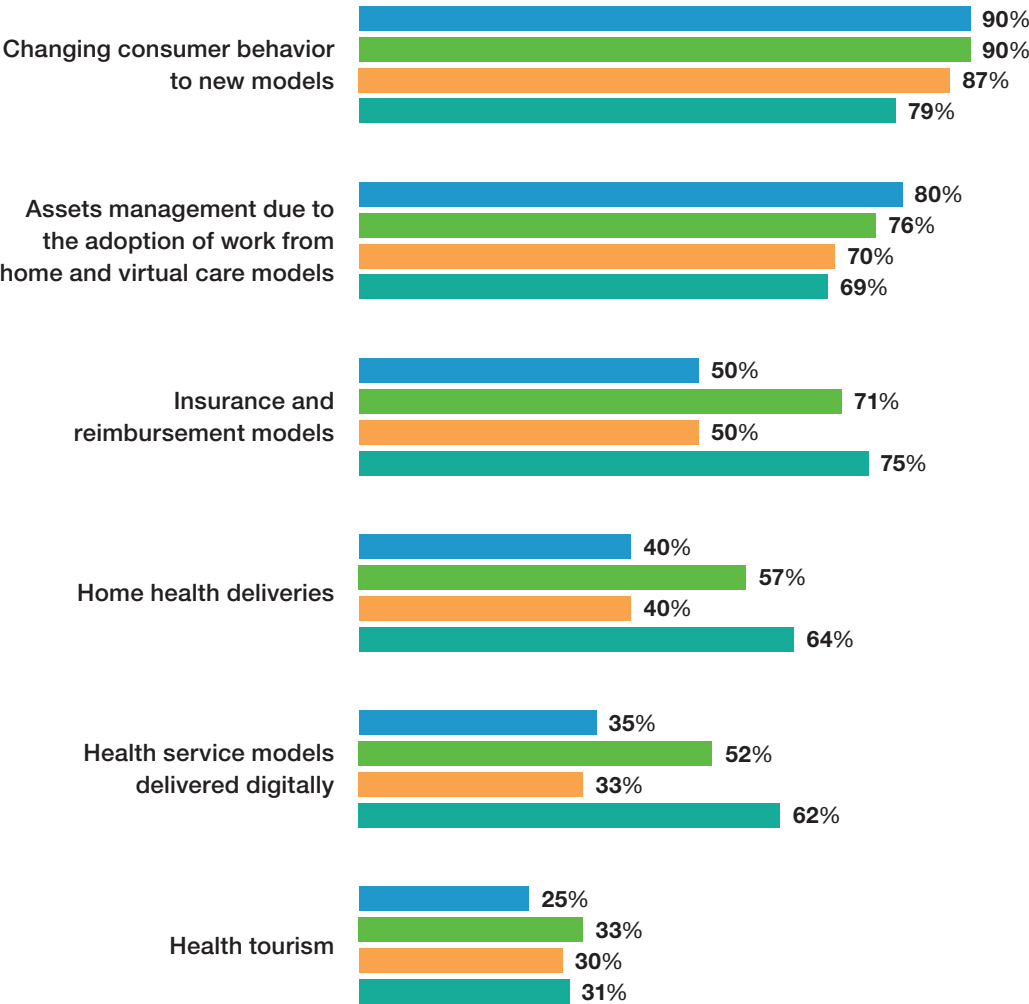
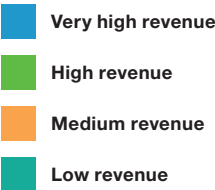
- **Very high revenue**
- **High revenue**
- **Medium revenue**
- **Low revenue**

Our findings are consistent with the overall samples, although minor variations exist across the four income groups (see Figure 5). This similarity indicates that regardless of the revenue levels, CEOs of health systems see similar disruption trends in the health sector. Figure 5 shows that changing consumer behaviors and asset management concerns have higher significance for the high and very high revenue groups. Plausibly, they are worried that consumers will move; the capital fixed costs associated with buildings and operations will be difficult to manage, leading to higher financial burdens.

FIGURE 5

## Disruptions Trends in the Health Sector in Four Groups

The health sector will see disruptions of the following trends:



CEOs of all four groups of health systems with different amount of revenue have the similar belief pattern about the disruptions trends in the health sector.



With the new changes in the competitive landscape and consumers' preferences in the new normal, health systems need to develop or improve their capabilities through several mechanisms to (1) stay competitive, (2) provide high-quality services, (3) address new consumers' needs, (4) execute new functional and corporate strategies appropriately, and ultimately (5) create a resilient business model. Health systems can utilize several mechanisms to achieve such benefits and long-term advantages.

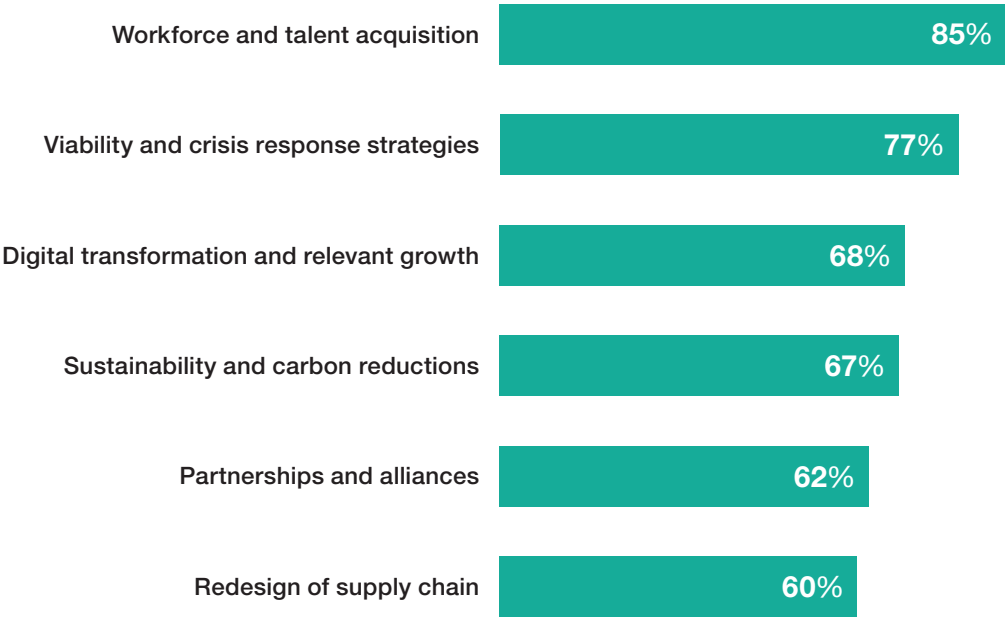
Our survey findings show that workforce and talent acquisition will be a significant future focus for health systems as it has been supported by 85 percent of health system CEOs (see Figure 6). Indeed, workforce and talent, as primary human resource capabilities, can help health systems to absorb and materialize the technological advantages and transform the health system into an innovative and agile organization.

The next major focus is viability and crisis response strategies, as supported by 77 percent of CEOs. Indeed, different situations and uncertainties demand a dynamic business model to execute appropriate strategies swiftly and efficiently. Therefore, health systems need to build a flexible business model through technology-enabled capabilities and a talented workforce to manage continuous disruptions in the new normal. This fact is also reflected in our survey findings as 91 percent of CEOs who focus on viability and crisis response strategies in their health systems are concerned about keeping up with technologies to make appropriate responses to new industry changes. The next major focus areas are digital transformation, relevant growth, sustainability, and carbon reduction, as supported by 67 percent of CEOs. Moreover, out of 68 percent who believe the digital transformation and relevant growth as the future orientation, 83 percent put this as a growth prospect, and 89 percent have concerns about it as a pressing issue (see Figure 6 and Figure 2).

FIGURE 6

## Major Future Focus for Health Systems

What is the major future focus and orientation for your health system?



85%

of CEOs will focus on workforce and talent acquisition in their health systems.

77%

will focus on viability and crisis response strategies.

68%

will focus on the digital transformation and relevant growth.



SECTION 2

# Digital and Intelligent Technologies



# The Balancing Act of Current Trends and Future Real Options

One of the disruptions by the unprecedented COVID-19 pandemic is the increasingly critical role of digital and intelligent technologies. However, we believe that health systems can use digital and intelligence technologies to increase customer engagement even during the lockdown. Other functions enabled by digital and intelligence technologies include virtual monitoring, data analysis, pattern recognition, and decision-making support. CEOs of health systems identify the importance of both current and futuristic technologies.

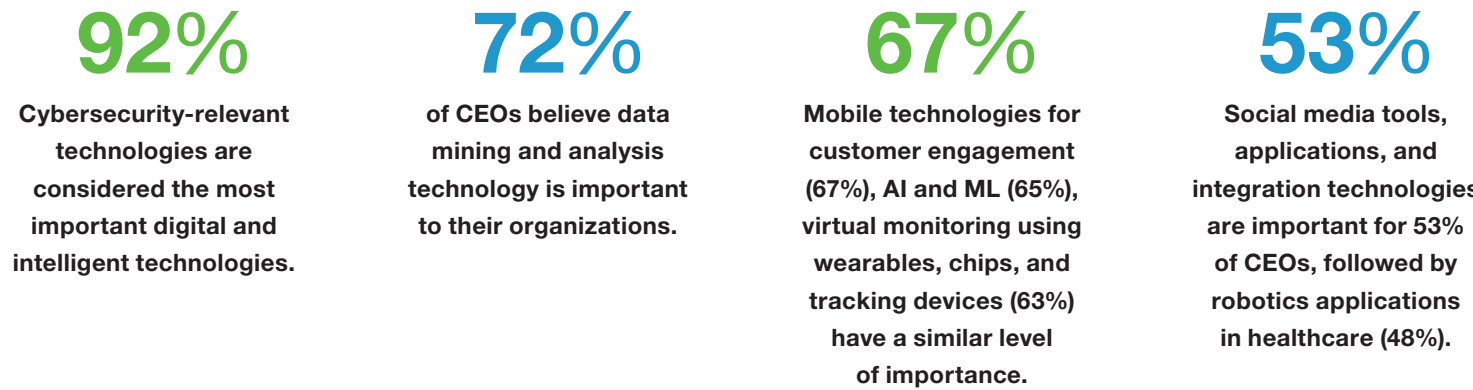
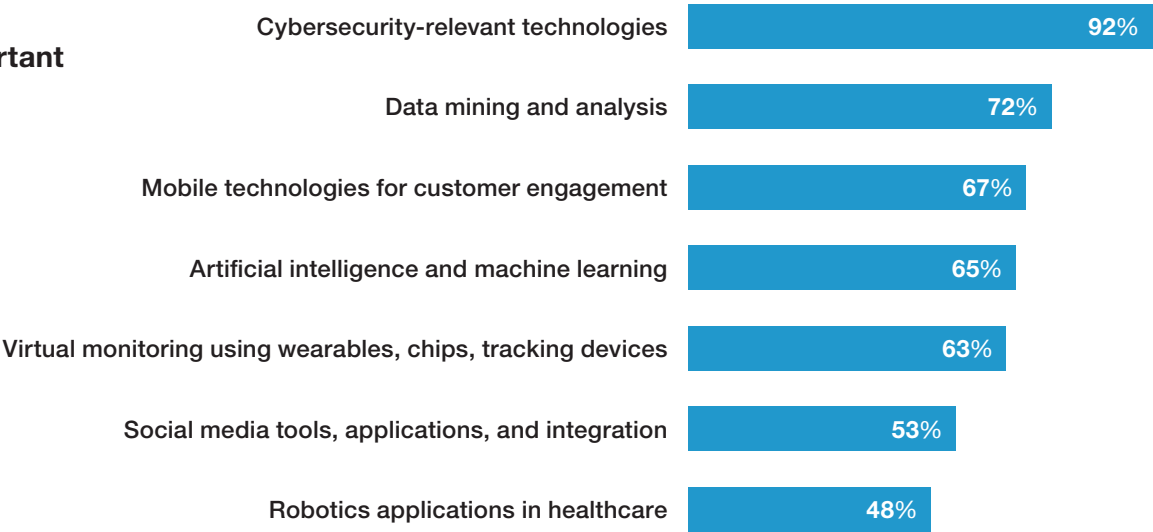
CEOs are quite aware of the focus on the disruptive power of digital and intelligent technologies. Thus, all of them have ascribed some importance to one or more aspects of the technologies. However, the concerns are quite significant because more than 92 percent of CEOs place importance on cybersecurity and want to acquire technologies that can prevent the widely happening cyberattacks and ransomware (widely reported to be five to six trillion-dollar cost in 2020).

Additionally, futuristic technologies are essential to more than 65 percent of CEOs. The spread of futuristic technologies is reflected in the importance in various dimensions, such as 65 percent of CEOs reporting focus on artificial intelligence and machine learning, 63 percent on virtual monitoring, and 48 percent on robotics applications. This is in parallel to the importance of concurrent digital and intelligent technologies. Additionally, 72 percent of CEOs mention that data mining analysis is essential for their organization, placing a high demand on the intelligence-driven healthcare paradigm shift. Similarly, 67 percent of CEOs are steered towards consumers by keeping mobile technologies for customer engagement essential in their digital strategies (see Figure 7).

FIGURE 7

## Digital and Intelligent Technologies Valued by CEOs

Digital and intelligent technologies are important for our organization:

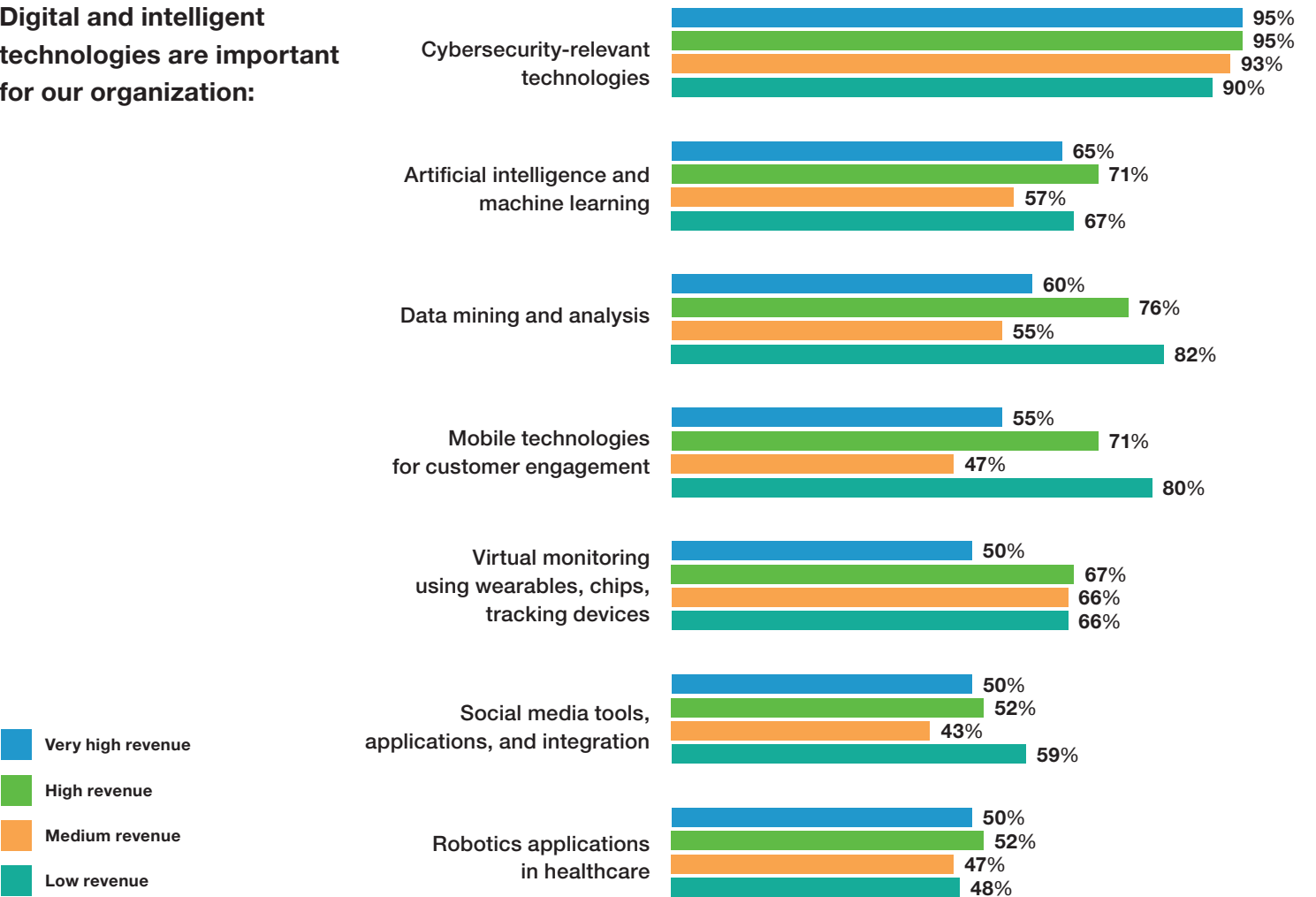


We again look at the variations of digital and intelligent technologies valued by CEOs in four economic groups (see Figure 8). The group wise results are broadly consistent with the overall sample results. However, there are some nuanced differences. First, for the very high revenue groups, CEOs consider artificial intelligence and machine learning as more critical technologies than data mining and analysis and mobile technologies for customer engagement. This result indicates that this group of health systems may already have quite mature data mining and analysis and mobile technologies. Therefore, they are moving to the emerging artificial intelligence and machine learning technologies. Their high revenue can back up their path towards creating values via artificial intelligence and machine learning as two primary emerging technologies. Similarly, for high revenue groups, after data mining and analysis, CEOs value both artificial intelligence and machine learning, and mobile technology equally. For the medium revenue group, CEOs put more value on virtual monitoring using wearables, chips, and tracking devices after cybersecurity.

- 90% Cybersecurity-relevant technologies are considered by more than 90% of CEOs in all four groups, followed by different types of digital and intelligent technologies.
- 65% of CEOs of health systems with **very high revenue** believe artificial intelligence and machine learning as important digital and intelligent technology.
- 76% of CEOs of health systems with **high revenue**, data mining and analysis technologies are the second important option. 82% of CEOs in the low revenue group also selected this option.
- 66% In the **medium revenue** group, 66% of CEOs value the virtual monitoring using wearables, chips, and tracking devices.

FIGURE 8  
Digital and Intelligent Technologies Valued by CEOs in Four Groups

Digital and intelligent technologies are important for our organization:





Digital transformations and changes are inherently risky. High risk also has high returns—any optimistic CEO will agree. Thus, underlying the move to newer remote, telehealth and virtual models, there is a sense of optimism for many CEOs as a relief from the disrupted business environment. Digital technologies can bring value to health systems in different ways. By combining digital technologies and healthcare processes, health systems can automate their workflows and processes. The communications between various functions units become more efficient, while staff in each unit can have more authority to manage the process through empowerment. Figure 9 shows that 85 percent of CEOs see digital technologies’ value in streamlining workflows and processes.

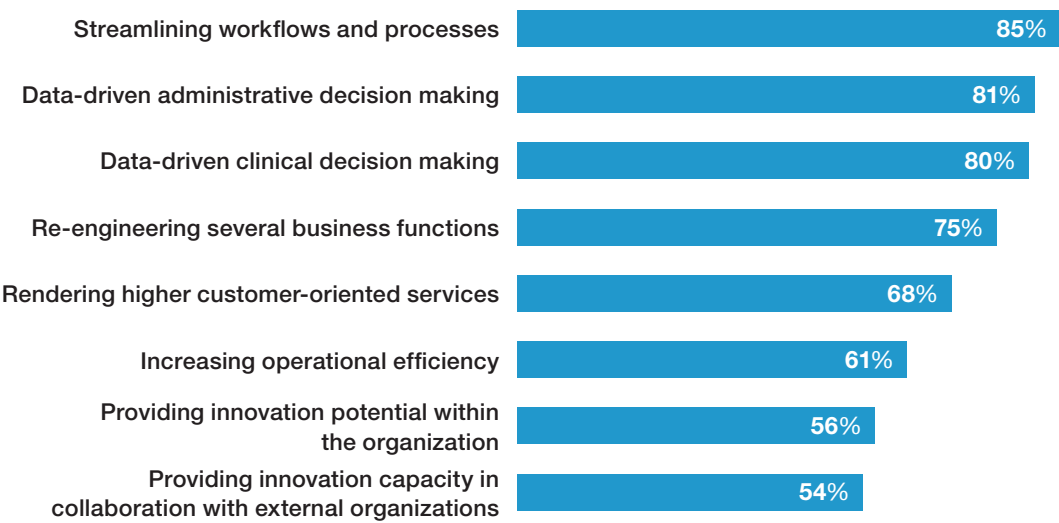
It becomes easy to collect, collate, and analyze data in the digital era’s health systems. With digital technologies, massive data use and management become feasible, which provides an excellent opportunity for both administrative and clinical decision-making. Thus, we found that more than 80 percent of CEOs selected data-driven administrative and clinical decision-making as mechanisms to create value for their health systems.

Digital technologies allow the health system to put the decision points when performing the work and build controls over the healthcare process. Without digital technologies, health systems might need staff to perform one process. Still, now armed with digital technologies, even one staff can handle the overall process, leading to re-engineering of processes (75%). Digital technologies enabled healthcare can balance patient and provider power and shift health systems’ focus from a provider-oriented model to customer-centered health care (68%). Compared to the disruptive innovations in other industries, there are delays and lags of IT-enabled innovation in the healthcare area. Nevertheless, more and more health systems are trying to leverage digital technologies to provide innovation internally and externally. While these are possible assertions, to validate how CEOs are moving in these directions, we asked the CEOs to evaluate these mechanisms through which the healthcare system can create value by using digital technologies.

FIGURE 9

## Mechanisms that Digital Technologies Create Value for Health Systems

To what extent are digital technologies creating value for your health system through these mechanisms, such as:



**85%** of CEOs believe through streamlining workflows and processes, digital technologies can create value for their health system.

**81%** Data-driven administrative (81%) and clinical (80%) decision making are another two prominent mechanisms of IT-enabled value creation.

**75%** consider using digital technologies for business process re-engineering.

**68%** Rendering higher customer-oriented services through digital technologies is reported by 68% of CEOs, followed by increased operational efficiency (61%).

**56%** also identified providing internal (56%) and external (54%) innovation as potential value creation mechanisms through by digital technologies.



We examined the four economic groups’ differences regarding the CEOs’ viewpoints on how digital technologies create value for the health systems (see Figure 10). We observed that low revenue groups’ health systems focus on data-driven clinical and administrative decision making as a value creation process from digital technologies. However, the focus shifts more to workflow and process streamlining and business re-engineering aspects with increasing revenues (i.e., the high and very high revenue groups focusing on the latter, as shown in Figure 10). Undoubtedly, digital technologies’ locus has moved to be enterprise- and business-wide transformations for large and affluent health systems.

**90%** For both **very high revenue** and **medium revenue** groups, more than 90% of CEOs consider streamlining workflows and processes as the mechanism that digital technologies create value for health systems.

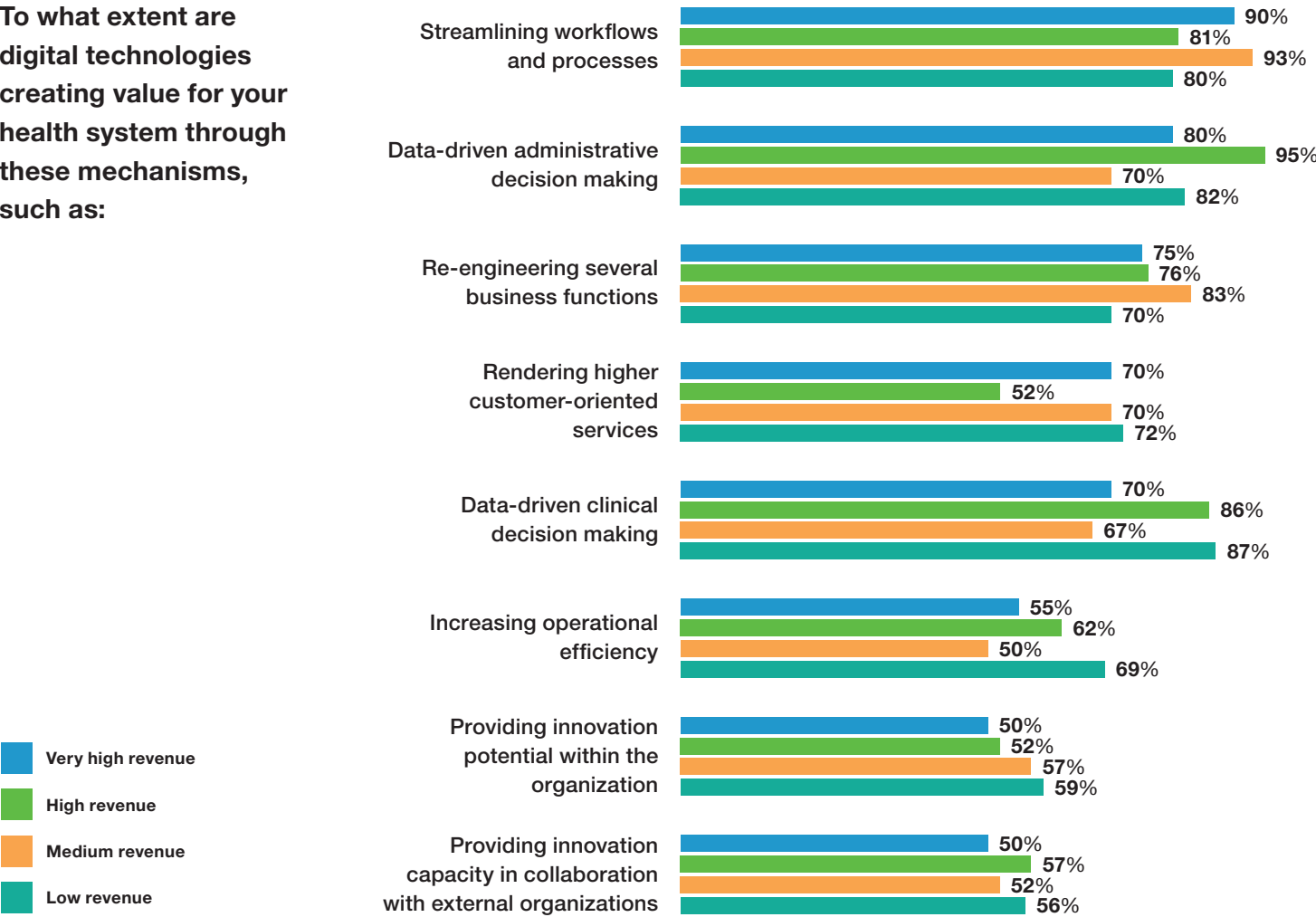
**95%** of CEOs in the **high revenue** health systems think data-driven administrative decision making is the most important mechanism (95%), followed by the data-driven clinical decision making (86%).

**87%** For the **low revenue** health systems, CEOs agree that data-driven clinical decision making is the most important mechanism that digital technologies can create value (87%).

FIGURE 10

## Mechanisms that Digital Technologies Create Value for Health Systems in Four Groups

To what extent are digital technologies creating value for your health system through these mechanisms, such as:





CEOs always need to consider the return on investment (ROI) when deciding the IT/digital investment in their health systems. It is critical to achieving high ROI, while on the other hand, it has never been an easy task. Many factors can influence the outcome of digital investment, amongst which top management support is critical. Figure 11 shows the importance of this aspect, with 82 percent of CEOs in agreement.

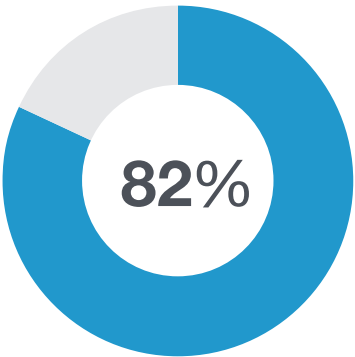
Furthermore, digital investments should be well-planned, along with deliberations and both long- and short-term orientation. This viewpoint is supported by 80 percent of the CEOs. Clear and comprehensive measures are a good checklist before making a digital investment decision. Seventy-eight percent of CEOs from our survey believe so. There are intensive discussions around IT investment and the productivity paradox. The key to adding value through digital investment is a clear vision of using digital technologies appropriately and aligning such investments with the health systems businesses and operations. Our survey found that 72 percent of CEOs selected this factor as the supportive factor.

- 82%** of CEOs agree that their leadership, i.e., CEO champion the use of digital technologies, is the key to gain the benefits of digital investments.
- 80%** pointed out that to harvest the digital investment outcome, a well-thought-out plan for digital investments is important.
- 78%** More specifically, defining and measuring several measures of success with digital investments can help to achieve success (78%).
- 72%** Another important factor for the path from digital investment to competitive advantage selected by 72% of CEOs is a clear vision of how to use digital technologies.

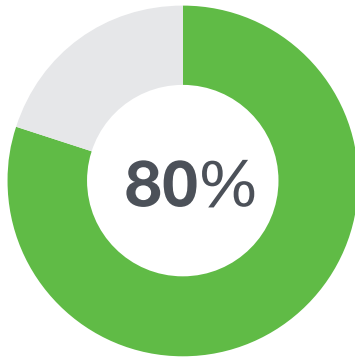
FIGURE 11

## Supportive Factors for Digital Investments

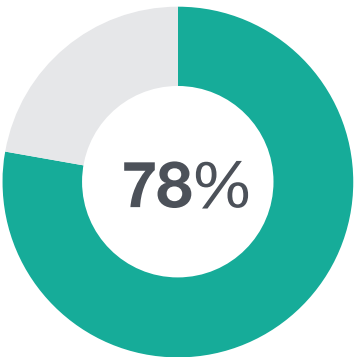
To what extent the following factors are important in helping most out of the digital investments:



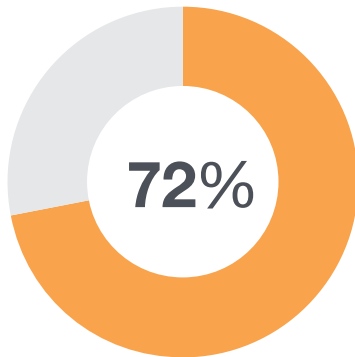
CEO, champion the use of digital technologies



A well-thought-out plan for digital investments



Defining and measuring several measures of success with digital investments



A clear vision of how digital technologies can help achieve a competitive advantage

Drivers for digital transformations will be different based on the hospitals in a health system to add complexity. The inherent complexity of digital investments in complex and sizeable multi-hospital settings need clarities in vision and defined success measures—that the CEOs agree as shown in Figure 12. On the contrary, health systems with fewer hospitals are dealing with plans and championing digital investments. To sum up, CEOs have different preferences on the supportive factors for digital investments.



**82%** For **very large size** health systems, CEOs see defining and measuring several measures of success with digital investments (82%) and a clear vision of how digital technologies can help achieve a competitive advantage are the most important support factors for digital investments (82%).

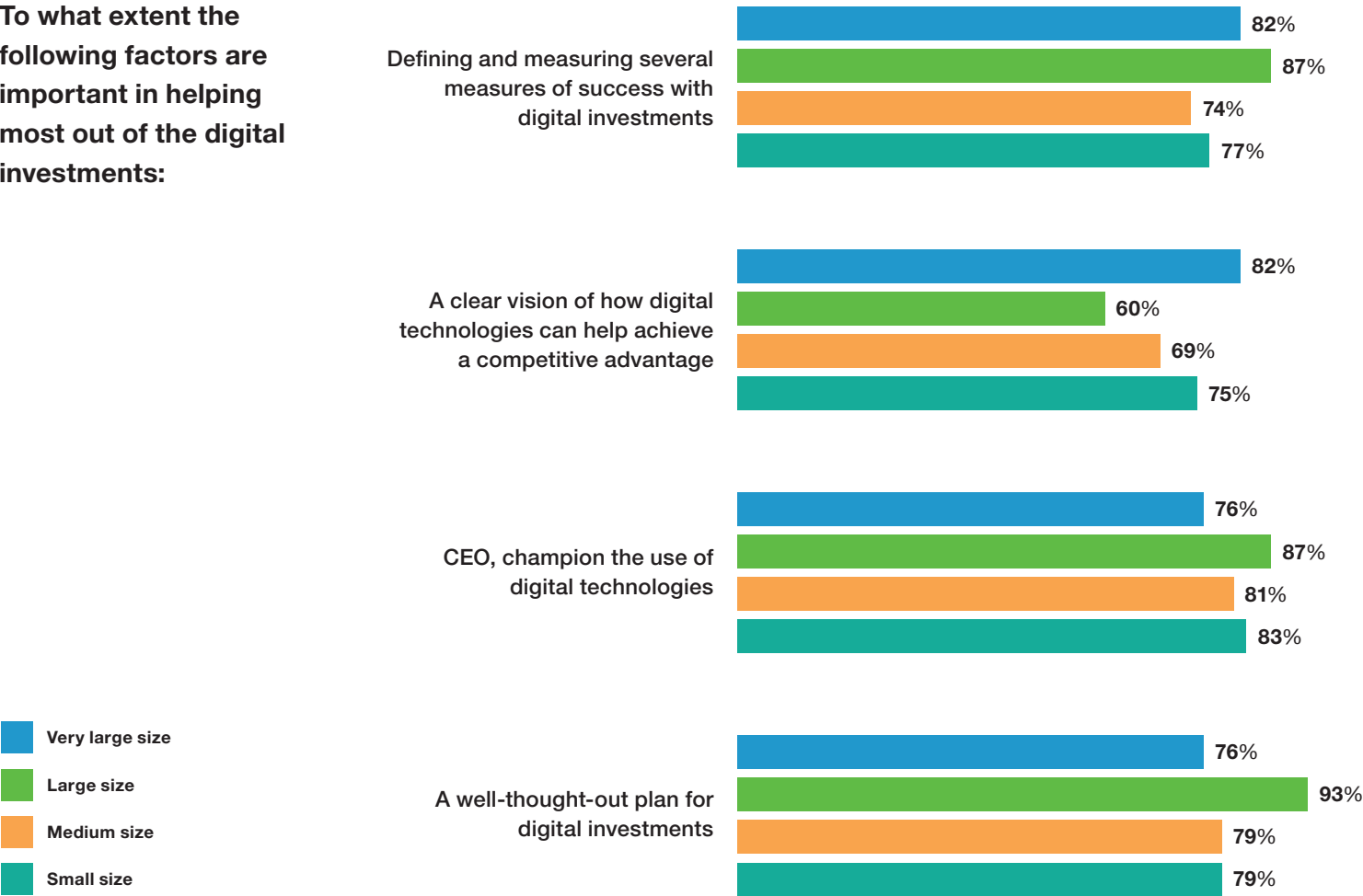
**93%** For **large size** health systems, 93% of CEOs think a well-thought-out plan for digital investments is the most important supportive factor for digital investments.

**81%** of CEOs of **medium size** health systems and 83% of CEOs of **small size** health systems selected championing the use of digital technologies is the top 1 supportive factor.

FIGURE 12

## Supportive Factors for Digital Investments in Four Groups

To what extent the following factors are important in helping most out of the digital investments:







SECTION 3

# Competing in the New Normal

# New Normal, New Competition, New Mindset

**New normal needs a new mindset.** CEOs understand that it is more important to collaborate than to compete with the new normal. Essentially, we believe that the wiser strategy is to be oriented on the future and how best to meet patients’ needs through collaboration.

Health systems should have meaningful strategies to prepare for the new normal in the post-COVID-19 economy. CEOs need to consider changes that are required to achieve competitive advantages. A crisis such as COVID-19 caused increase challenges to organizations, but to those with understanding and strategic insight, many opportunities are beginning to present themselves. Therefore, it remains critical for CEOs of health systems to identify and seize those opportunities to be better prepared to address the new competition in the era of the new normal. The bottom line is for health systems to have a deep and comprehensive understanding of the market, the customer, the competitors, and the business model.

One key lesson we have learned from the COVID-19 crisis is the unprecedented scale and level of teleworking and online business, which significantly expedited the digital transformation in almost all industries. In the healthcare industry, many disruptive transformations enabled by digital technologies are also happening. CEOs witness this transformation and acknowledge the value brought by this transformation. This may be why 79 percent of health system CEOs also see digital transformation as a need for competition in the new normal.

Competition with competitors will always be present. However, the new normal changes the competition format, and 77 percent of CEOs see the value of building diverse but aligned partnerships (e.g., a cooperation or synergetic competition model). Instead of focusing on competition, an organization should enhance its innovation and advantages. For example, redefine and reinvent the services that a health system offers to its customers through

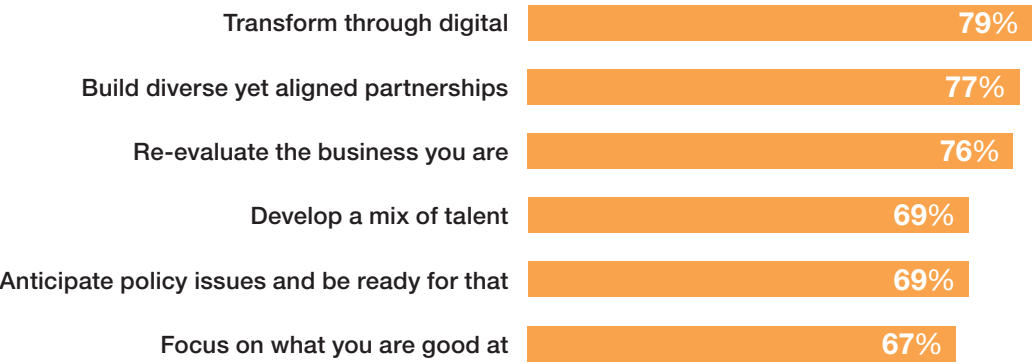
evaluation and re-evaluation. As shown in Figure 13, 76 percent of CEOs selected re-evaluate the business as a need for new competition. In other words, with the new normal, the core to maintain competitive advantages is not competition but innovation. Different ways to nurture and promote innovation include talent development (69%) and focus differentiation (67%).

How to do well in the future? Understanding and preparing for the future allows organizations to see both risks and opportunities and plan accordingly. The future-oriented mindset is another need to compete in the new normal. As a result, 69 percent of CEOs believe it is crucial to anticipate policy issues and be ready for the potential changes.

FIGURE 13

## Strategies Needed for Health Systems to Compete Post-COVID-19

What is needed for your health system to compete in today’s post-COVID-19 economy?



**79%** Digital transformation is selected by most CEOs (79%) as a need to prepare for the competition in the post-COVID-19 economy.

**77%** of CEOs believe diverse yet aligned partnerships is needed for the new competition.

**88%** In total, more than 88% of CEOs highlighted the need to focus on seek their own advantages through re-evaluate the business, development a mix of talent, and focus on the strength.

Figure 14 displays the differences in health systems’ strategies to compete in the post-COVID-19 economy across the four groups of health systems based on their revenues. For CEOs of health systems with very high revenue, transform through digital innovation is their preferable strategy. For both high revenue and medium revenue groups, their CEOs’ top 1 selection is building diverse yet aligned partnerships, indicating they want to grow further through partnerships. Nevertheless, the number 2 choices of these two groups’ CEOs are different. CEOs of high revenue health systems think the focus on their advantage is more critical, while CEOs of medium revenue health systems believe transform through digital innovation is more critical.

Interestingly, for CEOs of low revenue health systems, they think re-evaluating the own business is the most important thing. Maybe they want disruptive change to avoid future low revenue. This option is followed by future-oriented anticipation of policy issues. The competition forces in the new normal hovers around several factors, including customer loyalty, new entrants disrupting the business model, service quality and technology usage that cause the threat of substitutes, and existing competitors’ capability and offerings.

**75%** In the **very high revenue** health systems group, 75% of CEOs think transform through digital and building diverse yet aligned partnerships are the strategies needed for health systems.

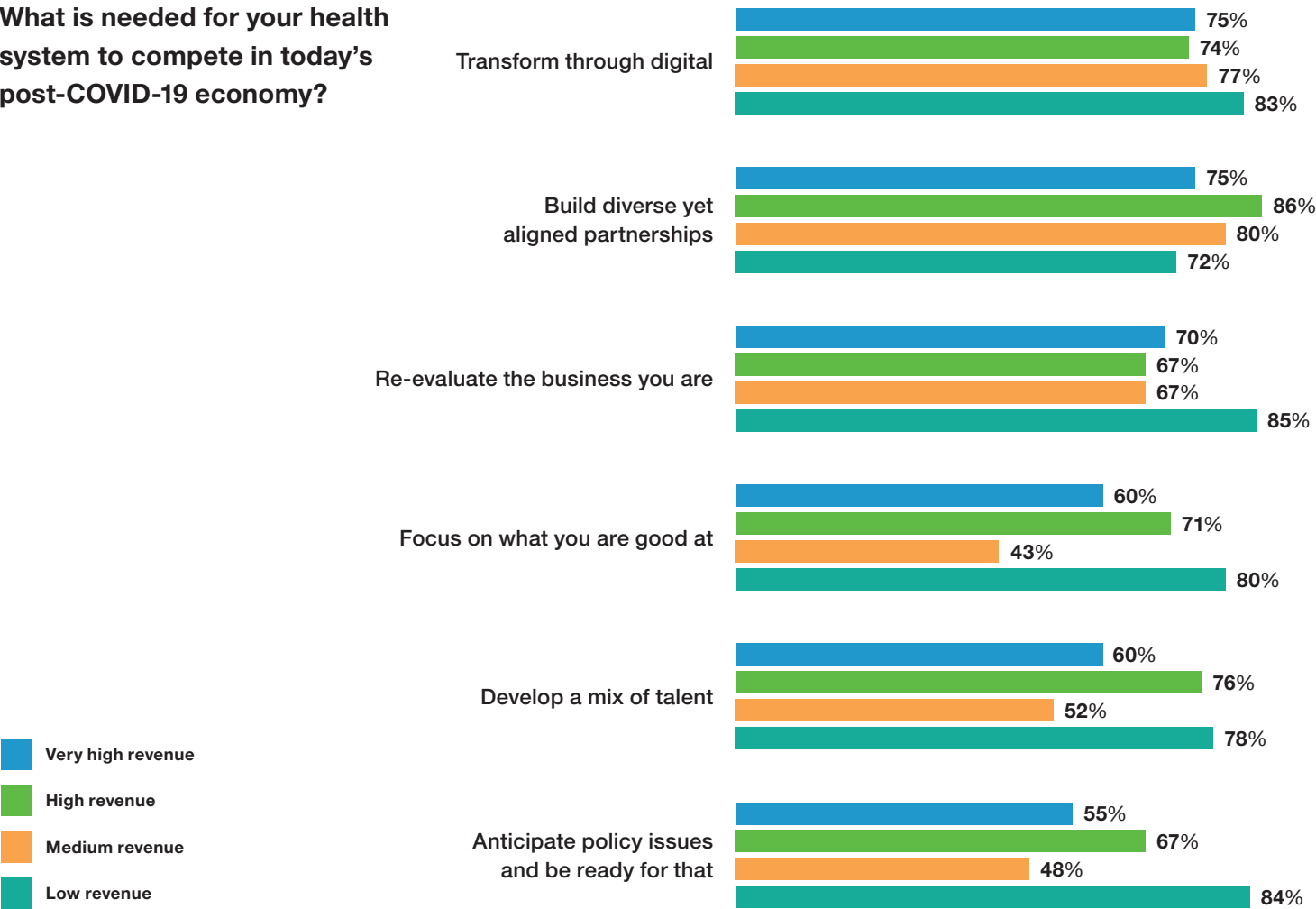
**More than 80%** For both **high revenue** and **medium revenue** groups, more than 80% of CEOs see building diverse yet aligned partnerships as the strategy needed for health systems.

**85%** of CEOs in the **low revenue** health systems group consider re-evaluation the business is the most important strategy needed for health systems.

FIGURE 14

## Strategies Needed for Health Systems in Four Groups

What is needed for your health system to compete in today’s post-COVID-19 economy?





More than 95 percent of CEOs are concerned about the quality of their services or if their health systems can keep current with technologies. If the service quality is not good enough, the health system that offers the services may be replaced by its competitor as the patient will choose to purchase substitute services from another health system. Similarly, if a health system cannot leverage the current technologies such as artificial intelligence and big data analytics, it will not offer good healthcare services to customers. Thus, its services will be surpassed by substitutes.

Next, often the threshold for new entrants in healthcare is relatively high compared to other industries. This survey shows that many CEOs (89%) of the health systems are concerned about the new entrants that can disrupt the traditional or current business model. The power of such new entrants is disruptive, and it seems that for these CEOs, this concern becomes more and more feasible in the new normal since so many disruptive changes have happened (see Figure 15).

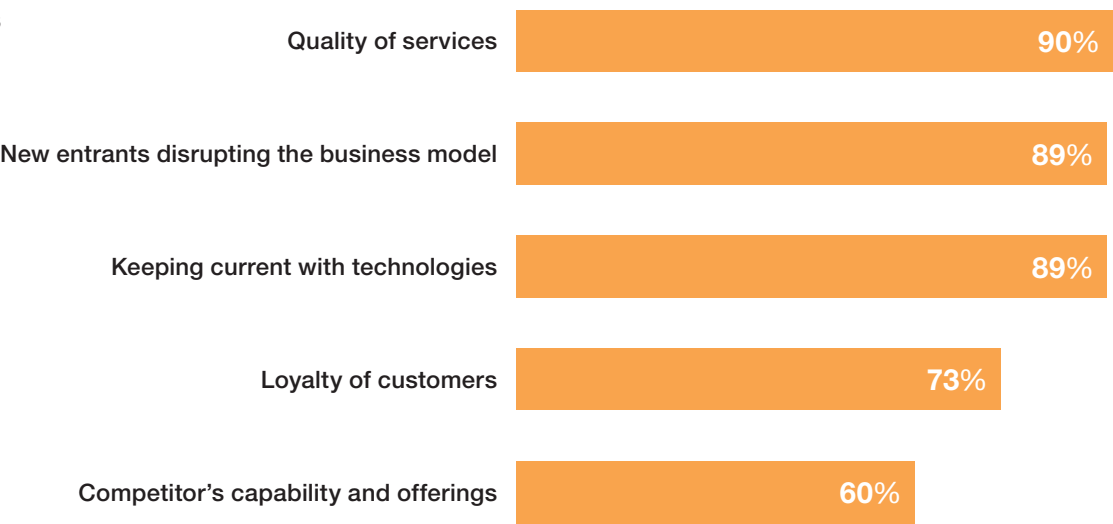
Customer is the key to the competition. Whoever gets the customers, especially loyal customers, can win the competition. Thus, getting and retaining customers' loyalty is a concern for 73 percent of CEOs. The survey result shows that in the new normal, competitor's capability and offerings become relatively less important for CEOs (60%).



FIGURE 15

## CEOs' Concerns in Competition

What are your concerns in competition?



90%  
of CEOs concern  
the service quality  
in competition.

89%  
The external concern of  
new entrants disrupting the  
business model and internal  
concern of keeping current  
with technologies have  
same level of importance  
for 89% of CEOs.

73%  
worry about the loyalty  
of their customers  
in competition.

60%  
consider competitor's  
capability and offerings  
as their concerns.



There are variations across different health systems regarding their annual revenue for CEOs' concerns in competition, and we have some interesting findings (see Figure 16). First, the CEOs of health systems with very high revenue emphasized the quality of services, so their health system can create very high revenue. Second, the CEOs of health systems in the medium revenue group have the most substantial focus on keeping current with technologies. This may be because health systems with low revenue do not have the budget to have this concern, while very high and high revenue systems already on that track. Third, again, CEOs of health systems with medium revenue are worried about the new entrants. They are on the edge of high and low revenue; new entrants may reduce their revenue significantly. Fourth, CEOs of health systems with low revenue are concerned the most about customer loyalty and competitors' capability and offerings. One reason can be these two factors influence their overall revenue more compared to other health systems.

**100%** For all the CEOs (100%) in the **very high revenue** group and 90% of CEOs in the **high revenue** group, quality of services are their top concern.

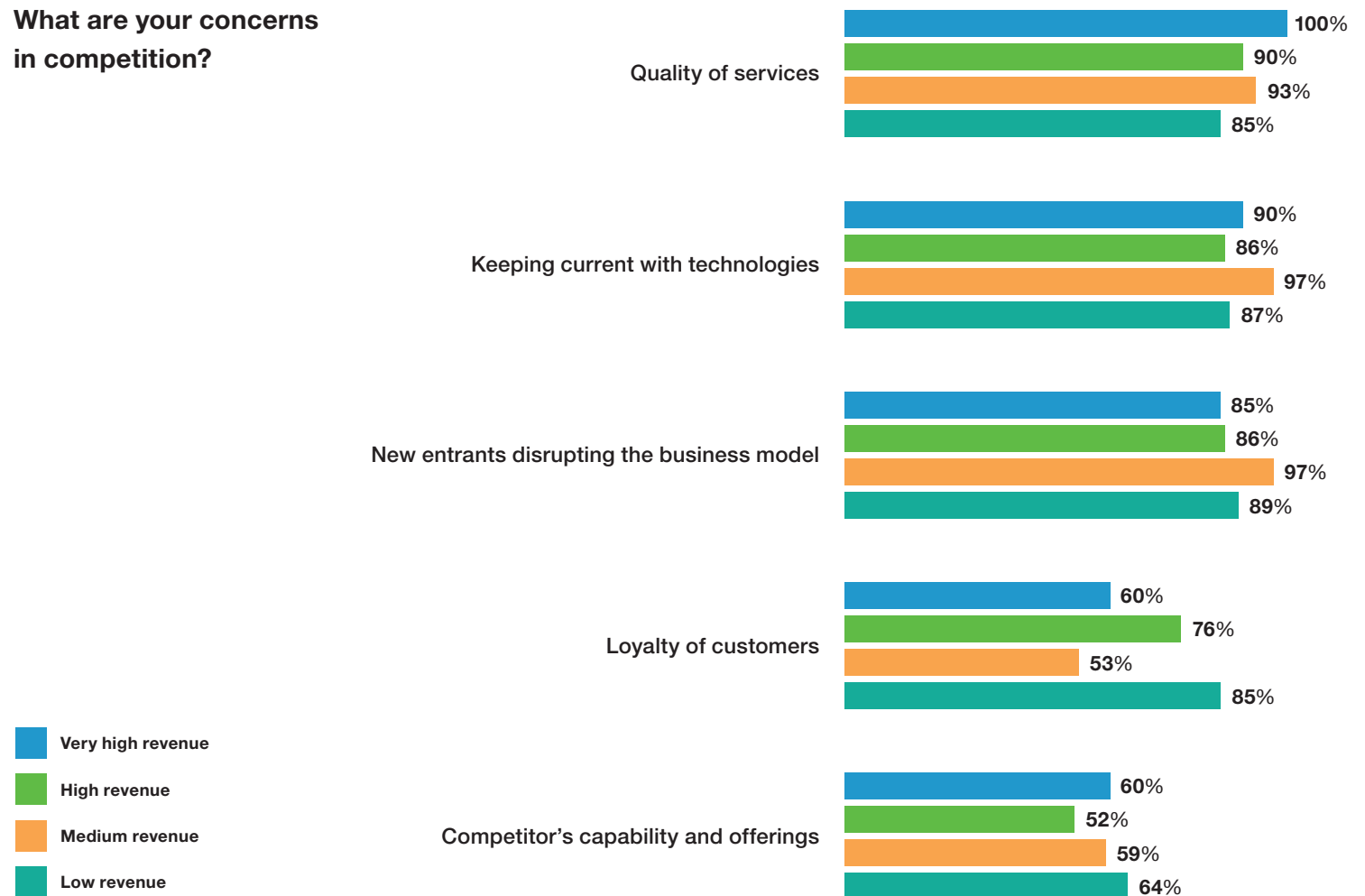
**97%** of CEOs of health systems that have **medium revenue** concern both how to keep current with technologies and the new entrants that may disrupt the business model.

**89%** For the **low revenue** health systems group, 89% of CEOs concern the new entrants the most.

FIGURE 16

## CEOs' Concerns in Competition in Four Groups

What are your concerns in competition?



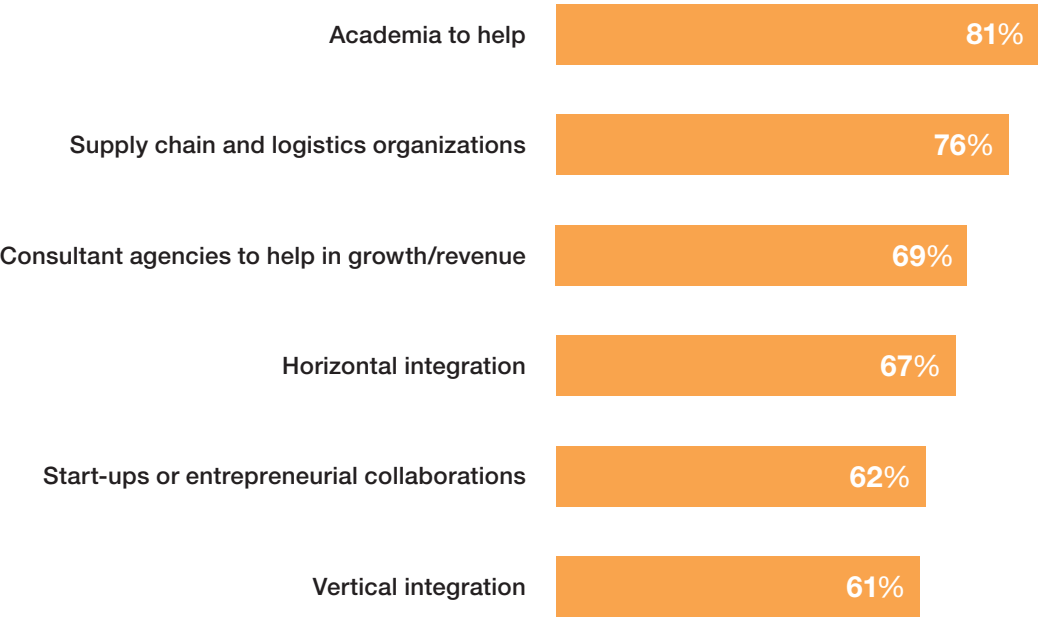
When partners’ needs and importance become clear for competition in the new normal, building the partnership is a new question for health systems and their CEOs. Organizations have different ways and channels to support their growth, including joint ventures, strategic alliances, or informal collaborations. CEOs need to decide whom to engage with to support their health systems’ growth. Our survey found that establishing a partnership with academia is the top 1 option for CEOs (81%) to get help for the new normal growth (see Figure 17). One potential reason is that, as mentioned above, innovation is critical for competing in the new normal; the research by academia can help organizations promote and enhance organizations’ innovation.

The collaboration with supply chain and logistics organizations allows health systems to improve their agility when facing a crisis like COVID-19. So, in the new normal, this type of partner is also essential for 76 percent of CEOs. For some specific questions, health systems can get specific help from consultant agencies that can offer particular knowledge or expertise. Thus, 69 percent of CEOs choose to work with this type of partner. Start-ups or entrepreneurial collaborations can also bring innovative ideas to the health systems. Maybe this is the reason that 62 percent of CEOs would like to engage with them. Partnership through horizontal integration and vertical integration both have advantages and disadvantages. More CEOs selected the former (67%) than the latter option (61%). It seems that compared to expand more diverse businesses; more CEOs prefer to enhance their core business. This finding is consistent with the new mindset that internal innovation is better than external competition.

FIGURE 17

## Partnership Options for Health Systems

Are you currently engaged with or considering engaging with any of the following types of partners through joint ventures, strategic alliances, or informal collaborations to support your growth?



81%

of CEOs agree that the partnership with academia can help the growth of their health system

76%

would like to build the partnership with supply chain and logistics organizations.

69%

Consultant agencies were selected by 69% of CEOs to seek help for growth.

67% vs. 61%

For CEOs, horizontal integration is a slightly better way than vertical integration for the partnership (67% vs. 61%).

62%

Another type of partner to engage with is start-ups or entrepreneurial collaborations for 62% of CEOs of health systems.





SECTION 4

# Workforce, Talent and Diversity

# Build a Talent-Driven System to Flourish in the New Normal

The workforce is an essential element for health systems to prepare for the new normal. Figure 18 shows how CEOs of health systems plan to hire workforce in the new normal. Mainly, they focus on the existing employees and plan to offer their opportunities to acquire new skills through continuous learning or mobility programs (96%), or CEOs plan to train existing employees through collaboration with universities (87%). This makes much sense because the existing employees know the business of an organization very well, and often they are loyal employees of the organization. Therefore, this internal focus is a more effective way to enhance the workforce’s ability. The next part is about future hiring.

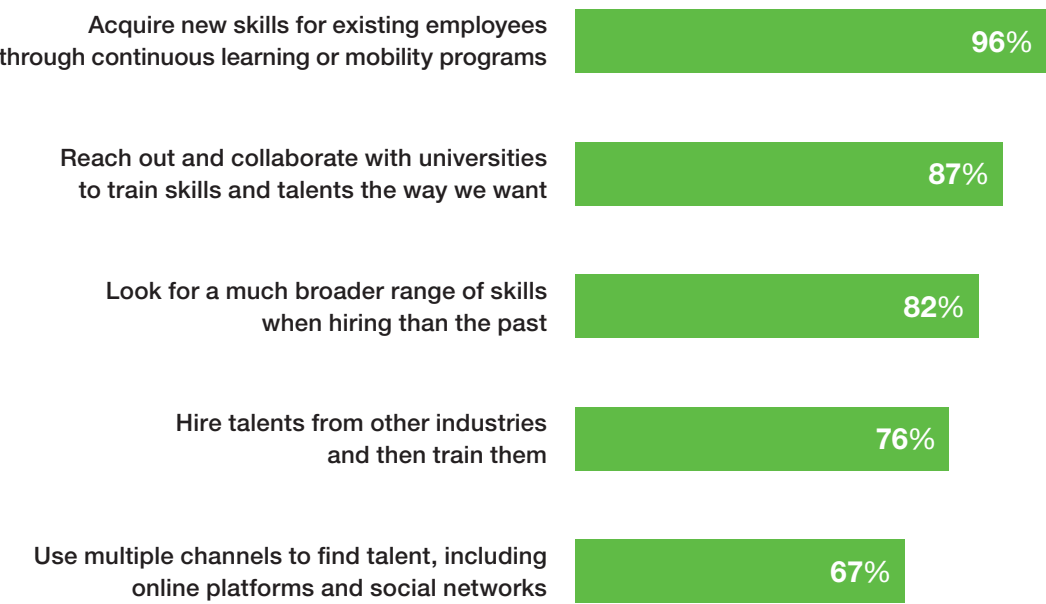
On the one hand, CEOs agree that new employees should have a much broader range of skills (82%). To achieve this goal, CEOs even plan to hire talents from other industries and then train them (76%). Moreover, hiring should also be digitalized through online platforms and social networks (67%). All together, 87 percent of CEOs of health systems want to take these avenues collectively to fill up and acquire manpower.

We mentioned earlier in the “Strategies and Concerns” section that 85 percent of CEOs focus on workforce and talent acquisition in their health systems. Through correlating the results to this “Workforce, Talent and Diversity” section, we found 99 percent of those CEOs will acquire new skills by relying on existing employees through continuous learning or mobility programs. Moreover, due to significant uncertainties that the COVID-19 crisis created, firms may invest more in their employees as it is a more reliable option in uncertain times and will cost less in the long-term.

FIGURE 18

## Health Systems Methods to Fill Up and Equip Manpower and Talent

How would you fill up and equip the manpower and talent in your organization?



96%

of health systems fill up and acquire manpower by acquiring new skills for existing employees through continuous learning or mobility programs.

87%

of health systems fill up and acquire manpower by reaching out and collaborating with universities.



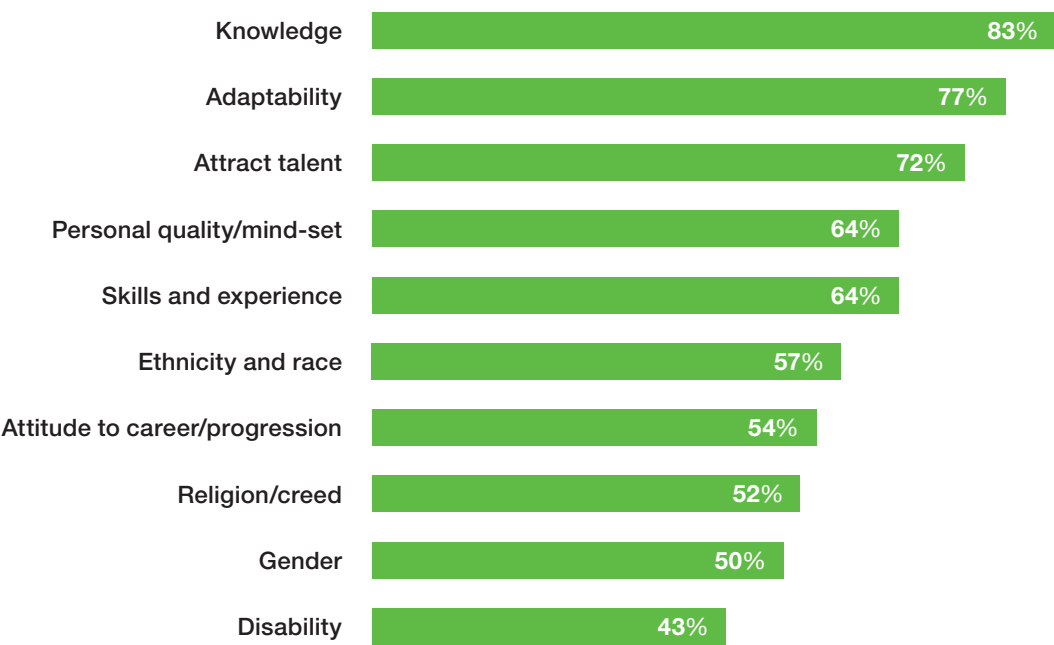


As health systems are planning to fill up workforce and talent in their organizations, they also address several dimensions of talent diversity and inclusiveness. More specifically (see Figure 19), health systems are planning to improve the following key dimensions: knowledge (83%), adaptability (77%), and attracting talents (72%).

FIGURE 19

## Dimensions of Talent Diversity and Inclusiveness to Address

Which dimensions of talent diversity and inclusiveness do you specifically address or plan to address in your company’s talent strategy?



**In total 95%**  
of health systems are currently addressing or planning to address knowledge, adaptability, or attract talent dimensions of talent diversity, collectively.



Moreover, health systems have obtained several benefits from their strategy to promote talent diversity and inclusiveness. More than 88 percent of health systems have strengthened their brand and reputation through talent diversity and inclusiveness strategies, followed by more internal and external innovation (85%) and enhanced business performance (65%) (see Figure 20).

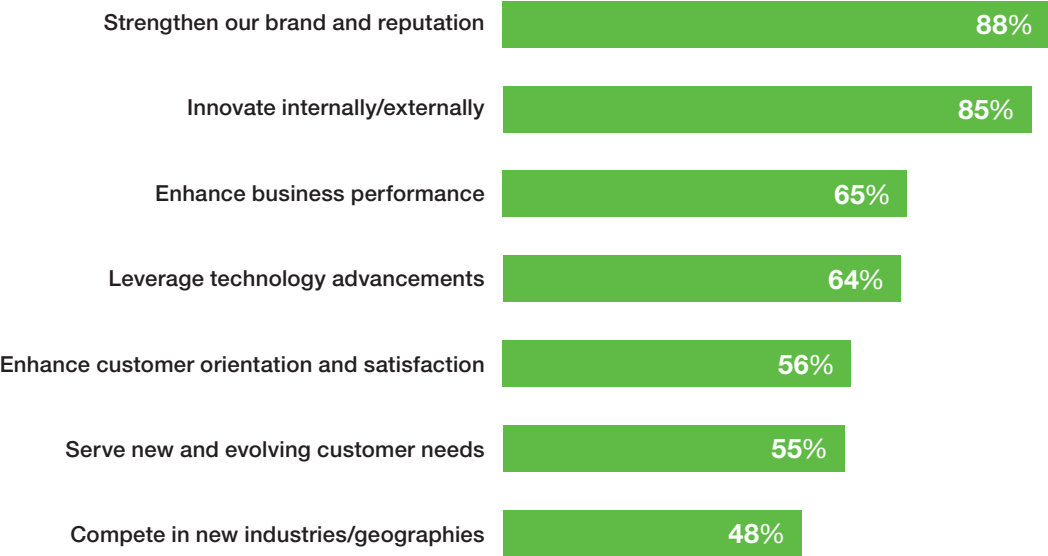
We mentioned earlier in the “Strategies and Concerns ” section that 85 percent of health systems focus on workforce and talent acquisition in their health systems. We found out of those 85 percent of health systems, 92 percent have obtained brand and reputation improvement due to talent diversity and inclusiveness promotion.



FIGURE 20

## Benefits Health Systems Obtained from Talent Strategies

Which of the following benefits, if any, has your organization obtained from its strategy to promote talent diversity and inclusiveness?



**In total 96%**  
believe new adjustment in their talent strategies has led their health system to be more innovative, create a more reputable brand, or enhance business performance, collectively.



Additionally, we review the benefits health systems obtained from talent strategies in four groups based on health systems’ size (see Figure 21). First, it is quite reasonable to see that small size systems CEOs do not consider strengthening the brand and reputation as the most critical talent diversity benefits. They may even do not have a brand. For them, they expect talent diversity and inclusiveness can bring internal/external innovation. Second, CEOs of very large size health systems see serving new and evolving customer needs as another vital benefit with diversity hiring. Third, compared to all three other groups, CEOs of medium size health systems think their talent’s diversity and inclusiveness can leverage technology advancements. The authors of this research believe this is an interesting finding worth more in-depth exploration and understanding, considering almost all health systems see the value and importance of technology advancements.

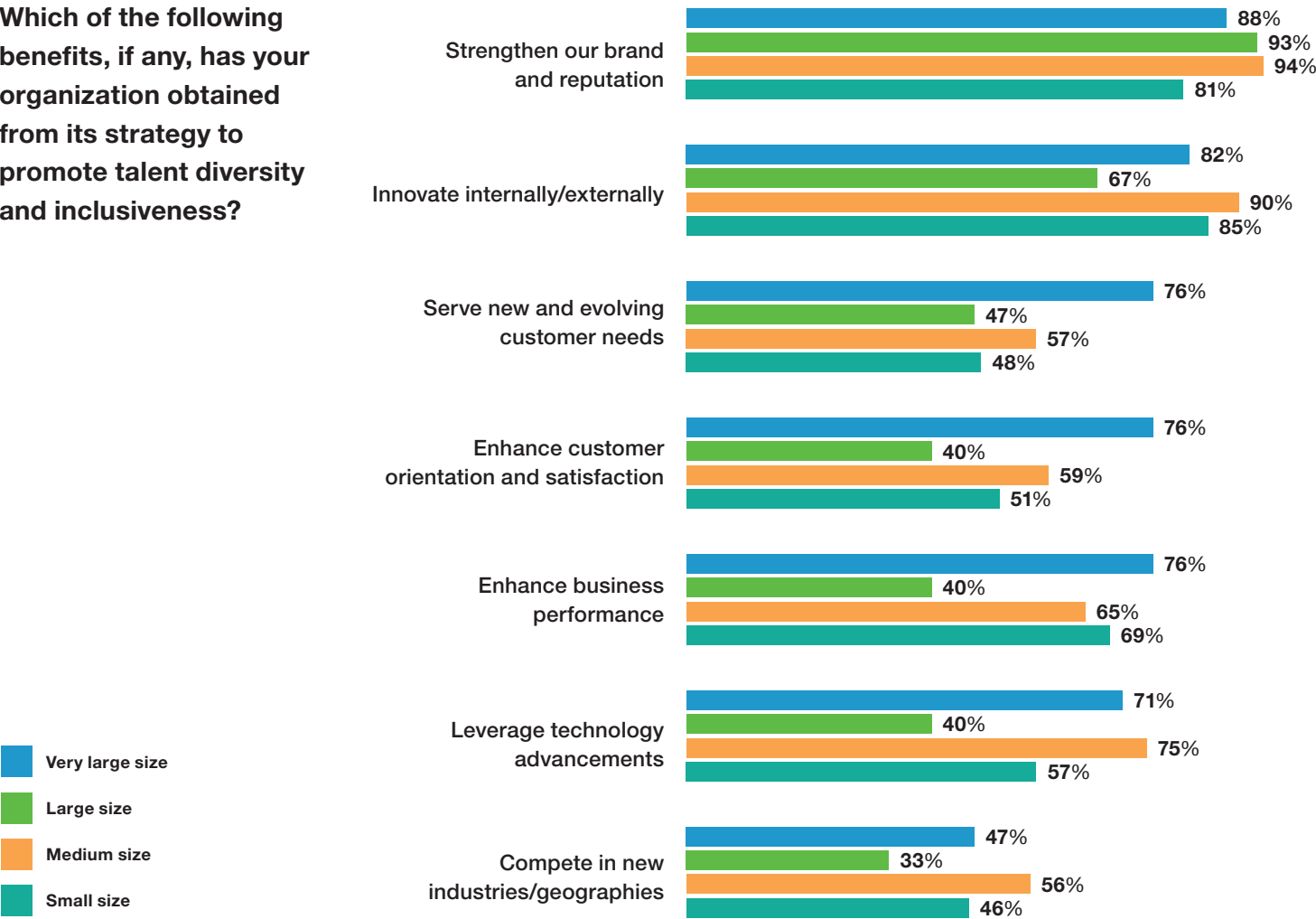
About **90%**  
For almost all sizes of health systems, CEOs see the enhanced brand and reputation as the most important benefit they can obtain from talent strategies (all about 90%).

**85%**  
of CEOs of **small size** health systems agree that through talent strategies, they can obtain internal/external innovation.

FIGURE 21

## Benefits Health Systems Obtained from Talent Strategies in Four Groups

Which of the following benefits, if any, has your organization obtained from its strategy to promote talent diversity and inclusiveness?







# Research Methodology



# Procedure

The purpose of the Inaugural Health Administration Research Consortium Health Systems’ Climate Study of 2021 is to conduct primary research to understand the current state of health systems in the United States following the first ten months of the COVID-19 pandemic. The idea of monitoring the climate of health systems emerged from our observation and conversations with CEOs during the COVID-19 pandemic. We believe the insights of health systems’ CEOs will help inform policymakers, practitioners, and academic stakeholders as they collaborate to create ongoing strategies to help the industry respond to this pandemic and prepare for the next crisis.

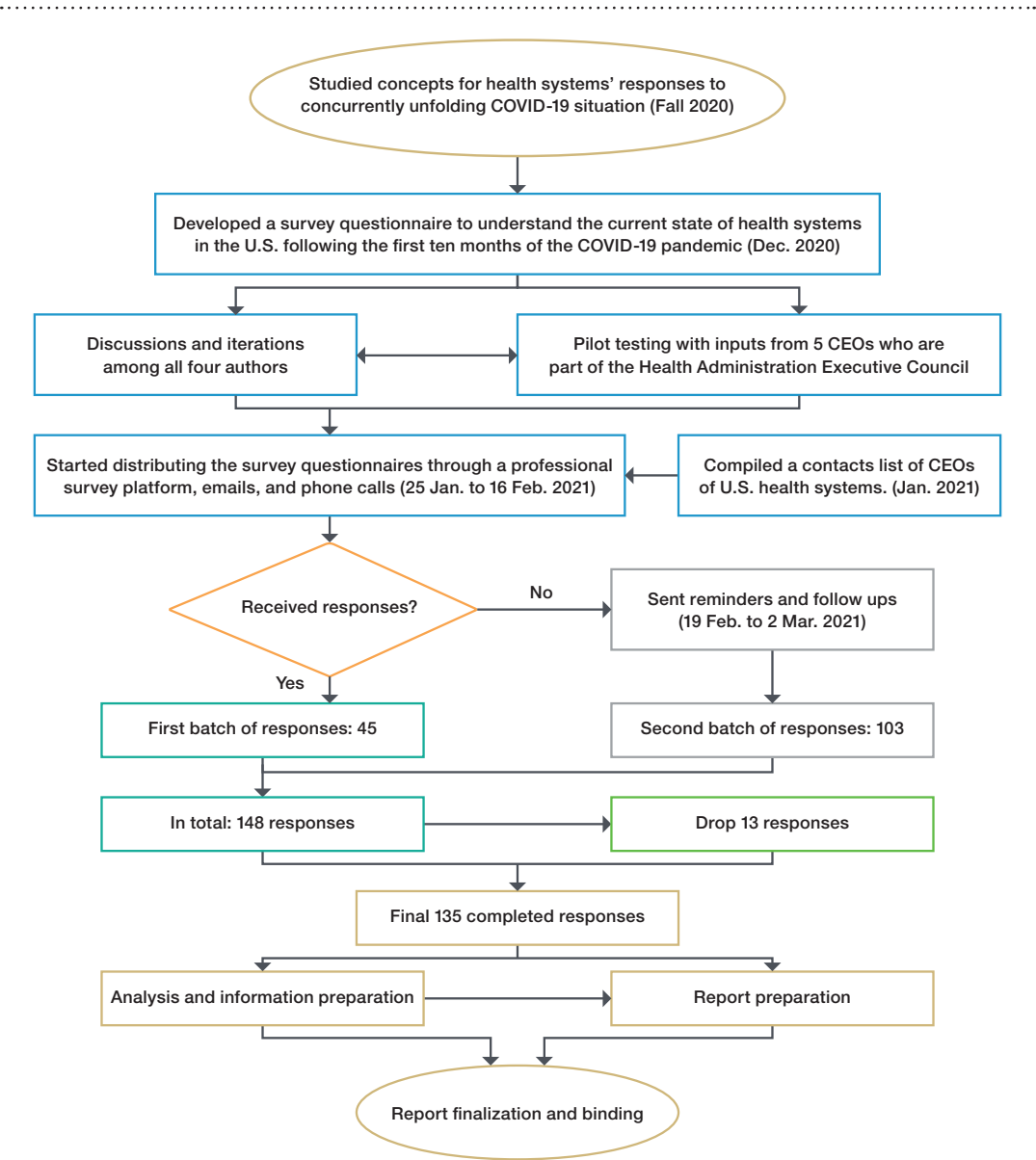
To collect data from more health systems and scientifically study the climate that health systems are facing, we developed a survey questionnaire in December 2020. Inputs were taken from researchers, consultants, and executives with the expertise to design the questions. The survey pilot tested with five CEOs who are part of the Health Administration Executive Council. The survey questionnaire was revised and finalized in January 2021.

We compiled a contacts list of CEOs of a total of 624 health systems across the United States using information from multiple sources, contacts, professional collections, websites, and annual reports. We mounted the survey instrument on a professional survey platform. We mapped the emails to the platform to create unique trackable links for each health system. We sent the invitation and solicitation emails to the CEOs in multiple rounds between January 25 to March 2, 2021. Along with this, the authors called several CEOs and solicited filling up the information in the survey instrument, both online and in paper formats. The researchers also requested CEO friends to spread the survey links to other CEO colleagues. Altogether we received 148 responses, with a 24 percent response rate. We could not use 13 incomplete responses, leaving 135 final usable responses for analysis and reporting.

The size of the 135 health systems represented in this survey varies from 1 to 18 hospitals, with 176 employees to 75,000 employees. The annual revenue of 2020 of the health systems ranged from \$0.7 million to \$14 billion, as reported. The health systems aggregately represent \$0.3 trillion in revenues and 1.1 million employees across the United States.

FIGURE 22

# Flowchart





**Under the Aegis of Health Administration Programs | [business.ucdenver.edu/faculty-research/health-administration](https://business.ucdenver.edu/faculty-research/health-administration)**

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