

WINNING THE '20s IN HEALTH CARE

- A LEADERSHIP AGENDA FOR THE NEXT DECADE
- PREPARING FOR A NEW KIND OF SHAKEUP IN HEALTH CARE
- THE NEW LOGIC OF COMPETITION
- THE COMPANY OF THE FUTURE
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- MEDICARE ADVANTAGE IS BOOMING. WHY ARE SO FEW PAYERS WINNING?
- CHASING VALUE AS AI TRANSFORMS HEALTH CARE
- CREATING THE CRITICAL-CARE SERVICE OF THE FUTURE
- LEVERAGING VR TO TRANSFORM ASSESSMENT AND TREATMENT OF DISEASE
- REWRITING THE RULES OF THE GAME IN HEALTH CARE
- WOMEN DOMINATE HEALTH CARE—JUST NOT IN THE EXECUTIVE SUITE

LESSONS FOR
PAYERS, PROVIDERS,
SYSTEMS & SERVICES

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Preface



Over the past decade, the health care services landscape has shifted significantly. Former pure-play organizations have become integrated, diversified businesses, blurring the lines between payers, providers, and services (PPS) organizations. New entrants from the consumer, retail, and technology spaces are reshaping boundaries as well. Such seismic shifts in the competitive environment will continue in the next decade. What will it take to be a winning PPS organization in the '20s?

Like organizations in any other industry, PPS organizations must prepare to respond to megatrends such as digital technologies and slowing global growth. Here are five ways to do that:

- **Master the new logic of competition.** The ability to scale data-driven solutions will be key.
- **Design the organization of the future.** Reimagine how to finance, provide, and manage care.
- **Apply the science of organizational change.** Overcome slowness to change, and build repeatable transformation capabilities.
- **Embrace the business imperative of diversity.** Create a culture that welcomes new ideas from diverse sources.
- **Optimize for both social and business value.** Develop sustainable relationships with social, political, and environmental systems.

Our feature article delves into these imperatives. We follow that with a piece looking at PPS organizations' future challenges; a sharp focus on consumer experience will help organizations attract and retain customers.

We also explore the advantages of service lines such as Medicare Advantage; the impact of digital technologies; how national health systems must rethink health care governance; and the need for C-suite gender diversity. Several pieces here come from BCG's Winning the '20s series—applicable across industries, but with many interesting links for PPS organizations.

Big changes provide plenty of food for thought. In the pages that follow, we've set a table of probing ideas.

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A LEADERSHIP AGENDA FOR THE NEXT DECADE

by Rich Lesser, Martin Reeves, Kevin Whitaker, and Rich Hutchinson

THE WINNERS IN BUSINESS have shifted markedly in the last decade. When the 2010s began, the world's ten most valuable public companies by market capitalization were based in five countries, only two of them were in the tech sector, and none was worth more than \$400 billion. Today, all of the top ten are in the US and China, the majority are tech companies, and some at least temporarily have surpassed \$1 trillion in value.¹

Given the relentlessness of change on multiple dimensions, the keys to success are likely to be just as different in ten years' time. What will it take to win in the 2020s?

Emerging Challenges Will Reshape Business

The future competitive environment will likely be shaped by multiple trends that are already unfolding today:

- Artificial intelligence is rapidly advancing, and pioneers are advancing beyond spot applications to implement AI at scale.
- Businesses are increasingly organized into multicompany "ecosystems" that defy traditional industry boundaries and blur the distinction between competitors and collaborators, and between producers and consumers.

- Technology is beginning to redefine the nature of work, as well as the relationship between the company and the individual, as both employee and customer.
- The rise of China is challenging the global economic order and the institutions and rules that have defined it.
- Long-term global growth projections have been falling, driven in part by an ongoing deceleration in working-age population growth across major economies.
- Society is increasingly scrutinizing the social impact of technology and the sustainability and broader contribution of business.
- Investor activism and the role of private capital are rising in many parts of the world.
- The combination of these forces is producing multidimensional uncertainty, which confounds traditional forecasting and planning-based approaches for harnessing the future.

To stay ahead of these trends, leaders need to question their current assumptions and re-tool their companies for the coming decade. This goes for both traditional incumbents *and* younger digital giants, who will face very dif-

ferent but equally critical challenges in the 2020s—and would do well to learn from each other’s strengths.

Many of today’s leading tech companies have succeeded by building highly scalable digital platforms. But as purely digital opportunities (especially the opportunity to dominate broad, consumer-oriented digital ecosystems) are depleted, new opportunities will come increasingly from combining digital technology with existing physical assets.

To succeed, digital natives will need to embrace the messier world of specialized assets and industrial customers. They will also need to “come of age” by managing leadership transitions, avoiding the bureaucracy and inertia that generally come with greater size and a longer history, and developing new strategies to preserve trust among users and society at large—challenges that traditional companies have considerably more experience with.

Meanwhile, a new era of competition will provide an opportunity for the resurgence of some incumbents. But the ones that succeed in the 2020s will look very different than they do today—they will have evolved their businesses to harness new technologies and reshaped their external relationships, organizations, and approaches accordingly.

So, how should you prepare your company to avoid being left behind in the coming decade and emerge as a winner in a rapidly evolving landscape?

A Leadership Agenda to Win the '20s

While many aspects of the agenda will vary by industry and region, we see five powerful emerging imperatives that will cut across industries and geographies.

Master the new logic of competition. Internet and mobile technology ushered in the information age, profoundly affecting technology-intensive and consumer-facing industries such as electronics, communications, entertainment, and retail. But the emerging wave of technology—including sensors, the Inter-

net of Things, and artificial intelligence—will turn every business into an information business. The combination of an exponential increase in data, better tools to mine insights from that data, and a fast-changing business environment means that companies will increasingly need to, and be able to, *compete on the rate of learning*.

Scale will take on a new significance in the learning economy. Instead of the “economies of scale” that today’s leaders grew up with—based on a predictable reduction of marginal production costs across a relatively uniform offering—tomorrow’s leaders will pursue “economies of learning,” based on identifying and fulfilling each customer’s changing needs by leveraging data and technology.

Tomorrow’s leaders will focus on “economies of learning,” not “economies of scale.”

The arenas of competition will also look different in the 2020s, requiring new perspectives and capabilities. The familiar picture of a small number of companies producing a common end product and competing within well-defined industry boundaries will be replaced by one where competition and collaboration occur within and between *ecosystems*. Because ecosystems are fluid and dynamic, and not perfectly controllable even by the orchestrator, companies will need to be much more externally oriented, to deploy influence indirectly through platforms and marketplaces, and to coevolve with ecosystem partners.

Orchestrators of ecosystems can leverage the assets of other participants, and ecosystem-based competition tends to have a winner-take-all nature. These factors are already causing rapidly rising valuations relative to tangible assets for the top companies, as well as an increasing gap between the profitability of high and low performers. But there is not yet any playbook for how to harness this premium: practice is racing ahead of theory, and pioneers who can crack the code on ecosystems will be greatly advantaged.

Finally, companies will increasingly compete on *resilience*. Accelerating technological change, political gridlock, a shifting geopolitical power map, the increased scrutiny of business, and the polarization of society all point to an era of protracted uncertainty, in which corporate life cycles are likely to continue shrinking. Companies will therefore need to worry not only about the competitiveness of their immediate game but also about the durability of that game and their ability to weather unanticipated shocks.

Most of today's incumbents—which were designed for relatively stable, classical business environments—are not well adapted for this more dynamic environment. Therefore, today's leaders need to fundamentally reinvent the organizational model in order to become future winners.

Companies will increasingly compete on their ability to weather unexpected shocks.

Design the company of the future. Big data and deep learning have transformed our ability to learn, and the next generation of technologies will undoubtedly bring even more possibilities. History has shown, however, that applying new technologies to existing processes and structures generally yields only incremental gains. To unlock the learning potential of new technologies, leaders need to reinvent the enterprise as a *next-generation learning organization*.

Merely applying AI to individual process steps is not enough: To increase the ability of organizations to learn in aggregate, they must build integrated learning loops that gather information from data ecosystems, continuously derive insights using machine learning, and act on those insights autonomously, all at the speed of algorithms rather than the speed of human hierarchies.

But organizations must not learn only on algorithmic timescales—they must also better understand and position themselves for the

slow-moving forces, such as social and political shifts, that are increasingly transforming business.

To learn on *multiple* timescales, leaders will need to design organizations that synergistically combine humans and machines. Algorithms should be trusted to recognize patterns in data and act on them autonomously, while humans should focus on higher-order tasks like validating algorithms, imagining new possibilities, and designing and updating the hybrid “human + machine” organization itself. This division of labor also requires rethinking human-machine interfaces so that humans can trust and productively interact with machines. Collectively, these imperatives demand a massive evolution of organizational capabilities and the creation of new “learning contracts” between employees and enterprises.

Many of these principles are already being implemented in isolated domains, such as the operations of digital marketplaces. But to win the '20s, the same principles must be applied to all parts of the organization in order to create a “self-tuning enterprise” that constantly learns and adapts to the environment. Such organizations must be designed with flexible backbone systems, evolving business models, and, above all, a new model of management—one that is based on biological principles such as experimentation and co-evolution, rather than traditional top-down decision making and slow cycle planning. Management needs to shift its emphasis from designing hardwired structures and procedures to orchestrating flexible and dynamic systems.

Apply the science of organizational change. Reinventing organizations to compete in the 2020s will not be a trivial task. Whether because of risk aversion or complacency stemming from today's increasingly concentrated industries and elevated profitability levels, leading companies may be understandably reluctant to unleash fundamental change preemptively. But our research shows that the single biggest factor influencing the success of major change programs is how early they are initiated. It is therefore critical to create a sense of urgency within the

organization to ensure that everyone truly understands the need for change.

Even for companies that are committed to such transformation, it can be a risky endeavor: our research shows that most large-scale change efforts fail. Therefore, leaders need to employ *evidence-based transformation*—understanding empirically what works and why, rather than relying on plausible assertions and rules of thumb. In an era when many powerful forces are revolutionizing how organizations function, building repeatable transformation capabilities will be more important than ever.

Leaders also need to de-average and differentiate their approaches to change. Large-scale transformation programs comprise multiple change challenges, from exploring new fields and approaches, to adaptively refining new models, to implementing structured change with clear objectives and means. Leaders will need to diversify their approaches to change accordingly, moving beyond the monolithic programs centered only on PMOs and Gantt charts. By adopting continuous change as the default, episodic change programs will give way to change as an ongoing operating imperative.

Embrace the business imperative of diversity. Diversity is not only a moral imperative—it can also make businesses more effective in the long run. Our study of more than 1,700 companies around the world shows that diversity increases the capacity for innovation by expanding the range of a company's ideas and options. And as the speed of change accelerates, innovation and reinvention are increasingly necessary to stay on top.

The most obvious sources of diversity, such as gender, ethnicity, and sexual orientation, are indeed important in driving innovation, but variety of work experience and educational background is also meaningful. Importantly, these factors are mostly additive, so companies that are diverse on multiple dimensions are even more innovative. Structural diversity alone, however, is insufficient. Organizations also need an environment conducive to embracing new ideas, and they must install open communication practices, participative lead-

ership, commitment to building diversity in top management, openness to testing multiple ideas, and other measures to unlock the full potential of diversity.

Diversity also increases resilience. Like biological communities and organisms, companies that encompass more heterogeneity are likely to withstand unanticipated changes better. Enterprises that embrace diverse talent, ideas, and sources of growth will have an advantage in understanding and adapting to external shocks—which increasingly threaten the survival of individual businesses.

In the long run, diversity can make businesses more effective and more resilient.

Optimize for both social and business value.

Several trends are fueling resentment toward business. The climate crisis and other negative externalities are increasingly visible, automation is sparking fear about the future of work, trust in technology is falling, inequality has risen markedly within many countries, and the most successful companies are becoming larger, more visible, and more powerful. As a result, the role of business in society is coming under question, risking the sustainability of the current model of corporate capitalism.

Political institutions are not likely to address these concerns effectively in the foreseeable future. Demographics that portend lower global growth, massive public debts that limit investment, tensions resulting from international migration, and a social media landscape that amplifies extreme voices are all likely to continue fueling divisive, populist politics. The rise of China, and the growing US response, challenge the stability of multinational institutions that businesses rely on. In an era characterized by polarization, everything in business will likely become “political.”

To keep the game of business going, business needs to be part of the solution. All stake-

holders increasingly expect companies to play a more prominent role in addressing social challenges, which will be reinforced as newly adopted metrics and standards make their efforts and impacts more transparent. Leaders need to focus on their companies' *total societal impact*—in other words, they need to make sure that their businesses create social as well as economic value. Not only can this increase financial performance in the long run, but it can strengthen the social contract between business and society, ensuring that the relationship is able to endure. Leaders will need to master the art of corporate statesmanship, proactively shaping the critical societal issues that will increasingly change the game of businesses.

WINNING the present is challenging enough, but the more essential task of leadership is winning the future. The fast-changing world will test our status quo assumptions, and it is critical to look forward in developing an agenda for the next decade. Here we've offered a starting point for that journey, presenting themes that we will further elaborate in subsequent publications. We invite all leaders who aim to win the '20s to join the conversation.

NOTE

1. Based on market capitalization at the end of 2018 Q3.

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PREPARING FOR A NEW KIND OF SHAKEUP IN HEALTH CARE

by Sanjay Saxena, Nate Holobinko, Cristian Liu, and Amika Porwal

IMAGINE THIS: YOU HAVE a health crisis. You pull up the health app on your phone and dictate your symptoms to an AI assistant. Then you are quickly connected via video chat to a coordinator in your health system who consults with specialists and comes back to you with a customized prescription on the basis of your medical history and personal genomics. Your tailored treatment is “manufactured” at a nearby lab and delivered to your workplace via drone—all before you’ve left the office for the day. Far-fetched as it may seem to many incumbent payers, providers, and health services companies, this scenario could soon be a reality.

Of course, industry shakeups are nothing new. But this time the disruptive forces barreling toward the health care sector are different. In the past, incumbents could rely on the fact that new entrants faced high barriers to entry: the extreme complexity of managing the cost of care and the highly regulated, capital-intensive, and very low-margin nature of the sector. Players with strong local-market positions and relationships with key stakeholders—from employers and physicians to regulators and policymakers—largely won out regardless of the challenge. Entering this space used to be akin to scuba diving without a tank. Not anymore.

Consumer-friendly tech giants have set their sights on health care. They don’t yet command

the landscape, but their disruptive power could bring dramatic changes. And if adversity strikes the market, it could create just the opening these formidable companies need to gain a foothold over sleepy incumbents. Meanwhile, medical advances and new forms of treatment will demand alternative business and reimbursement models. True, a handful of savvier existing players—such as those in the US Medicare Advantage market—have been building up capabilities to meet these new disruptive forces, establishing models that will be hard to dislodge.

Yet many others are asleep at the wheel or, worse, sinking vast amounts of time and capital into capabilities that do little to future-proof their businesses and instead put them in an even more vulnerable position.

Not Your Usual Adversity

Historically, adversity in the health services industry has been caused by economic downturns and changes in the regulatory and legislative environment—which in turn have driven bad debt, led patients to defer elective procedures (and sometimes even preventive care), and increased the number of uninsured. These threats will not disappear. But as medical advances and the growing presence of tech giants reshape the sector, what it takes for incumbents to weather the next storm will look very different.

In the future, the impact of recession and legislative changes may be more muted and profit pools will shift. As an example, we see new profit pools, such as data and analytics, supplanting the more traditional insurance segments. (See Exhibit 1.) In a recession, we expect government to be the key source of funding for the sector. In the US, for example, this puts at a relative disadvantage those payers and health systems whose strategy is to chase commercial business for the higher fees, while players pursuing members of government-sponsored health plans will likely see a boost to their business. Sweeping legislative changes such as Medicare for All or the creation of Medicare buy-in options for older adults who have not yet reached Medicare eligibility age could accelerate this trend, resulting in a substantial expansion of government-funded health care.

Of course, while legislative changes could be highly disruptive, the direction they take will depend on the outcome of the 2020 US election. Regardless of political shifts, however, medical advances and changes in the nature and cost of cures will have a significant impact on health care business models, threatening to upend the viability of year-to-year care financing, disrupting the essence of what payers and providers do. For local plans and

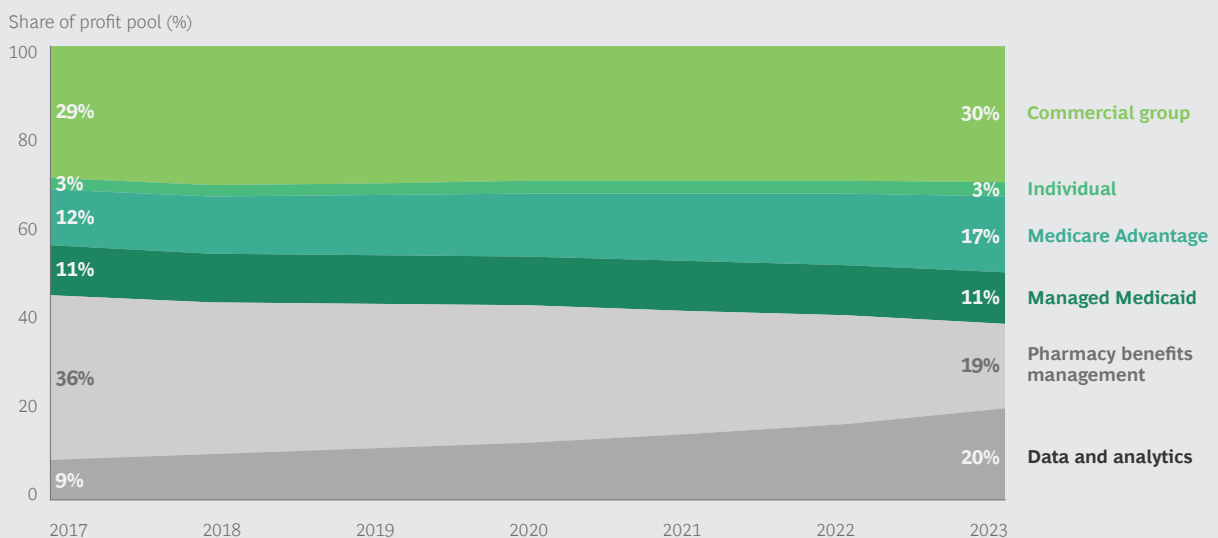
pure plays by lines of business, survival will be all but impossible.

Weathering adversity will be made harder by the advent of expensive new treatments and care that the traditional system will struggle to pay for and supply. Only a few providers are currently able to deliver these types of treatments. As more come online and demand for them grows, those who can't provide this new type of care may be left by the wayside.

Over the long term, new treatment paradigms, such as cell and gene therapy and customized treatments, will disrupt the demand for and delivery of care. Some will require a break from annual insurance cycles and a shift to population-based drug and therapy reimbursements. Indeed, the advent of expensive but life-altering treatments—costing from hundreds of thousands to, in some cases, millions of dollars per patient—will require new constructs that enable payment to manufacturers over many years, pooled risk sharing across multiple payers (given the churn among customers), and outcomes-based guarantees from biopharma companies.

Another existential threat to the payer business model is the rapidly advancing understanding of genomics. This means payers will

EXHIBIT 1 | Data and Analytics Will Take on a Larger Share of Profit Pools by 2023



Sources: BCG Healthcare Profit Pool Projection Model; BCG analysis.

Note: Data and analytics include systems that perform the following for payers and providers: population health management, imaging analysis, clinical decision support, patient engagement, administrative-processing solutions, risk-based analytics, plan design and financial analytics, claims processing, and member engagement.

likely have to fund—and providers will have to treat—patients who are in a state of “pre-disease.” The Centers for Disease Control and Prevention has already certified three Tier 1 conditions for which advanced screening and even surgery can be performed in the absence of any indication of illness, on the basis of an individual’s genetic makeup. These include hereditary breast and ovarian cancer syndrome, Lynch syndrome, and familial hypercholesterolemia. As such conditions multiply, the year-over-year funding mechanism that fuels payer profits may begin to break down.

Then there’s the power of the tech giants to disrupt. As these companies make a rapid entrance into the sector, they bring with them new business models and access to diverse sources of capital. Moreover, given their ability to build trust with consumers and harness their data to create scale—something that payers and providers have struggled with—they are well positioned to compete in the business of health care delivery.

It’s easy to imagine the scenario. A large tech giant invests in building a consumer-directed electronic health record (EHR) on its digital platform and offers it to payers, providers, and patients free of charge. As this platform becomes the primary method by which consumers choose health care, the company starts buying payers to round out its financing and actuarial capabilities. It then partners with a leading online retailer’s drone and drug distribution division to deliver treatments to consumers. Traditional payers, providers, and health systems cannot compete.

Your Playbook Needs an Upgrade

Medical advances and the presence of tech giants are not the only reason health care incumbents need to reexamine their strategies. In the past when adversity hit, usually because of an economic downturn, the standard playbook of incumbent responses was well known: cut costs by 5% to 10%, centralize and modernize functions to increase efficiency, and use those who can pay to subsidize low-margin populations. When payers and providers were competing only with one another, these tactics worked. In the next downturn, however, they are likely to be competing for

customers with new entrants to the market. Yesterday’s playbook will still have a role—but it won’t be enough on its own.

In a world where employer-sponsored insurance is shrinking in volume and becoming more susceptible to negative economic forces, cost cutting will no longer work as a backstop during a recession. Shifting insurance pools from private health insurance to government insurance results in lower industry profits, even when the overall pool of enrollees and revenue grows larger. (See Exhibit 2.)

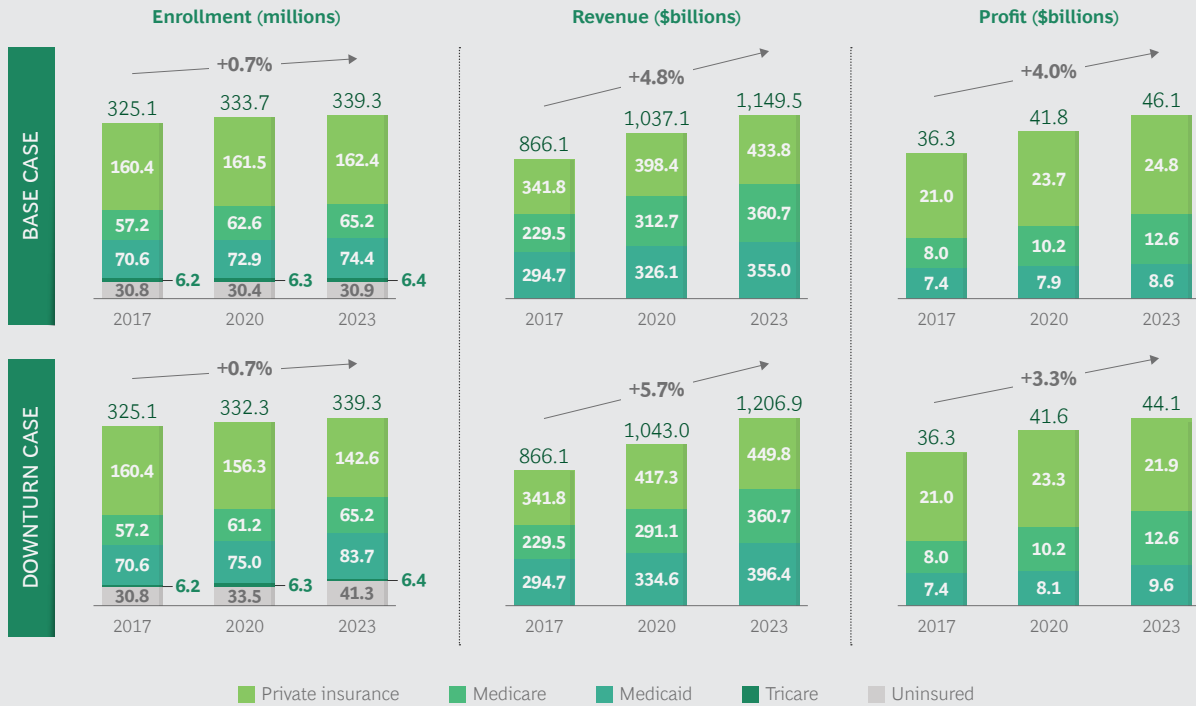
Achieving scale will become more important as cost pressures increase. And while some in the business of financing care and delivery have attained scale, their margins are razor thin. Diversification will therefore require moving into new markets, even those beyond care delivery.

Achieving scale in health care will become more important as cost pressures increase.

Part of this shift involves forming partnerships and making acquisitions. Providers will need to integrate hospital and physician groups and diversify into outpatient settings such as ambulatory surgery centers and infusion services (walk-in outpatient centers treating acute and chronic disorders). Payers and providers will need to move outside their comfort zone and start to deliver what are becoming the essential building blocks of health care, from analytics and genomics to real-world evidence.

Transforming the cost base will take more than incremental changes. It will require a fundamental shift in the way both care and the business itself are organized. This means rationalizing administrative and delivery infrastructures to enable scale and aligning service lines and care settings to minimize redundancy. Moves to lower-cost settings should also be considered, particularly for patient-facing clinics, where these are essential to maximize throughput and quality.

EXHIBIT 2 | As Enrollment Shifts to Government Insurance, the Downturn Will Affect Primarily Private Insurers' Profit



Sources: BCG Healthcare Profit Pool Projection Model; BCG analysis.

Note: The downturn case assumes an economic downturn in 2020, leading to a population shift from private insurance to Medicaid and uninsured populations.

In making this transformation, no stone should be left unturned, from developing best-in-class procurement to embracing the digital age, integrating EHRs with clinical decision-making processes, and creating an agile workforce. Anything that lies outside the enterprise's core competency can be outsourced.

This means rethinking capital allocations. It involves moving away from making heavy investments in underperforming capabilities, legacy systems, and physical IT infrastructure—and away from investing in areas where the enterprise has no expertise, such as hospital systems building software. It's also wise to avoid investing in retail and physical locations without a clear strategy on how to compete in a world where consumers increasingly prefer to access services online and on demand, whether at home, at work, or on the road.

These core transformations will be not only expensive but also organizationally difficult for incumbents to execute. Labor is one of

the largest cost components of the system, and health care companies are also often among the biggest employers in their market. As such, while having a strong local-market position has historically benefited incumbents, the double-edged sword of local strength is that it frequently makes implementing much-needed changes slow, arduous, and politically charged. Over the past decade, incumbents have also invested hundreds of millions—even billions—of dollars in areas like EHR systems, proprietary IT platforms, and new buildings. Choices about scaling back on some of these investments will be hard to make, and rethinking assumptions will be challenging.

It's All About the Consumer

Tackling tomorrow's adversity will demand new business models. For example, payer and provider organizations can consider cross-sector partnerships to pool their risk. And because a significant part of the shift is to value-based payments, companies can

experiment with models such as population-based pricing—in which a provider receives a set amount of money and accepts responsibility for a specific group of patients over a fixed time frame—charging for new treatments only when they are successful.

Payers, providers, and health systems must also steep themselves in data and focus on consumer relationships. This means making sufficiently high levels of investment in digital and analytics capabilities and potentially transforming the cost base to allow them to remain profitable enough at government reimbursement rates.

Investments need to reflect the fact that the consumer landscape is shifting. Digital providers from online retailers to ride-hailing apps have led customers to expect instant, on-demand, customized services. And since this is an area open to attack from companies outside the sector, the development of consumer relationships should be given a razor-sharp focus. In a world where cross-year treatments are becoming more common, having “stickier” customers also makes the economics more favorable.

Payers, providers, and health services that fail to foster and manage relationships with their customers will lose them to the high-tech newcomers. But those that can preserve and deepen these relationships will be able to fend off competition from the disruptors and build a future-proofed business that can withstand adversity, no matter where it comes from.

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THE NEW LOGIC OF COMPETITION

by Ryoji Kimura, Martin Reeves, and Kevin Whitaker

MANY OF TODAY'S BUSINESS leaders came of age studying and experiencing a classical model of competition. Most large companies participated in well-defined industries selling similar sets of products; they gained advantage by pursuing economies of scale and capabilities such as efficiency and quality; and they followed a process of deliberate analysis, planning, and focused execution.

The traditional playbook for strategy is no longer sufficient. In all businesses, competition is becoming more complex and dynamic. Industry boundaries are blurring. Product and company lifespans are shrinking. Technological progress and disruption are rapidly transforming business. High economic, political, and competitive uncertainty is conspicuous and likely to persist for the foreseeable future.

Accordingly, in addition to the classical advantages of scale, companies are now contending with new dimensions of competition—*shaping* malleable situations, *adapting* to uncertain ones, and *surviving* harsh ones—which in turn require new approaches. And the stakes are higher than ever: the gap in performance between the top- and bottom-quartile companies has increased in each of the past six decades.¹

Today's business leaders are dealing with complex competitive concerns in the short run. But as the 2020s approach, they must

also look beyond today's situation and understand at a more fundamental level what will separate the winners from the losers in the next decade. We see five new imperatives of competition that will come to the forefront for many businesses. (See Exhibit 1.) They are:

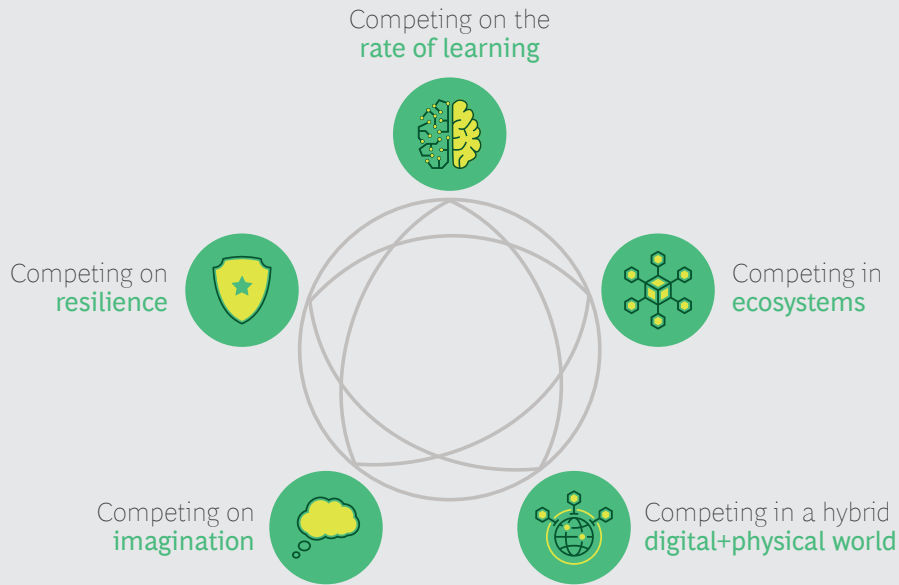
- Increasing the rate of organizational learning
- Leveraging multicompany ecosystems
- Spanning both the physical and the digital world
- Imagining and harnessing new ideas
- Achieving resilience in the face of uncertainty

In short, the logic of competition has changed—from a predictable game with stable offerings and competitors to a complex, dynamic game that is played across many dimensions. Leaders who understand this, and re-equip their organizations accordingly, will be best positioned to win in the next decade.

Competing on the Rate of Learning

Learning has long been considered important in business. As Bruce Henderson, BCG's founder, observed more than 50 years ago,

EXHIBIT 1 | Five New Imperatives of Competition



Source: BCG Henderson Institute.

companies can generally reduce their marginal production costs at a predictable rate as their cumulative experience grows.

But in traditional models of learning, the knowledge that matters—learning how to make one product or execute one process more efficiently—is static and enduring. Going forward, it will instead be necessary to build organizational capabilities for dynamic learning—learning how to do new things, and “learning how to learn” by leveraging new technology.

Today, artificial intelligence, sensors, and digital platforms have already increased the opportunity for learning more effectively—but competing on the rate of learning will become a necessity by the 2020s. The dynamic, uncertain business environment will require companies to focus more on discovery and adaptation rather than only on forecasting and planning.

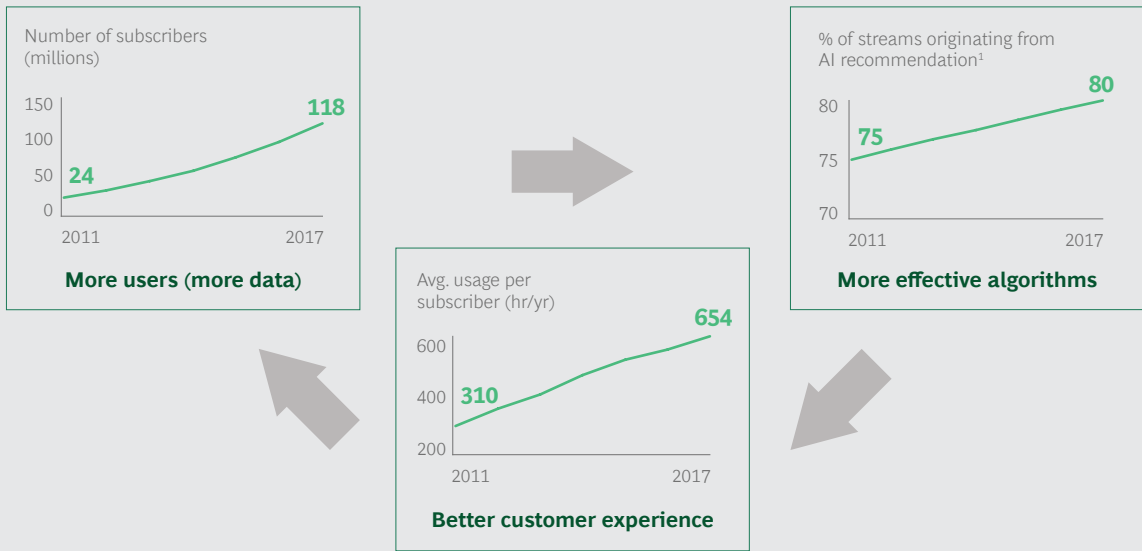
Companies will therefore increasingly adopt and expand their use of AI, raising the competitive bar for learning. And the benefits will generate a “data flywheel” effect—companies that learn faster will have better offerings, attracting more customers and more data, further increasing their ability to learn.

For example, Netflix’s algorithms take in behavioral data from the company’s video streaming platform and automatically provide dynamic, personalized recommendations for each user; this improves the product, keeping more users on the platform for longer and generating more data to further fuel the learning cycle. (See Exhibit 2.)

However, there is an enormous gap between the traditional challenge of learning to improve a static process and the new imperative to continuously learn new things throughout the organization. Therefore, successfully competing on learning will require more than simply plugging AI into today’s processes and structures. Instead, companies will need to:

- Pursue a digital agenda that embraces all modes of technology relevant to learning—including sensors, platforms, algorithms, data, and automated decision making.
- Connect them in *integrated learning architectures* that can learn at the speed of data rather than being gated by slower hierarchical decision making.
- Develop business models that are able to create and act on dynamic, personalized customer insights.

EXHIBIT 2 | Netflix Leverages a Learning and Data Flywheel



Sources: Company reports; Wired; Business Insider; BCG Henderson Institute analysis.

¹Based on company releases and news reports.

Competing in Ecosystems

Classical models of competition assume that discrete companies make similar products and compete within clearly delineated industries. But technology has dramatically reduced communication and transaction costs, weakening the Coasean logic for combining many activities inside a few vertically integrated firms.² At the same time, uncertainty and disruption require individual firms to be more adaptable, and they make business environments increasingly shapable. Companies now have opportunities to influence the development of the market in their favor, but they can do this only by coordinating with other stakeholders.

As a result of these forces, new industrial architectures are emerging based on the coordination of *ecosystems*—complex, semifluid networks of companies that challenge several traditional business assumptions. Ecosystems blur the boundaries of the company: for example, platform businesses such as Uber and Lyft rely heavily on “gig economy” workers who are not direct employees but rather temporary freelancers. Ecosystems also blur industry boundaries: for example, automotive ecosystems include not just traditional suppliers but also connectivity, software, and cloud storage providers. And they blur the distinc-

tion between collaborators and competitors: for example, Amazon and third-party merchants have a symbiotic relationship, while the company competes with those merchants by selling private-label brands.

A few digital giants have demonstrated that successfully orchestrating ecosystems can yield outsized returns. Indeed, many of the largest and most profitable companies in the world are ecosystem-based businesses.³ One example is Alibaba, which leads China’s massive e-commerce market not by fulfilling most functions directly but by building platforms that connect manufacturers, logistics providers, marketers, and other relevant service providers with one another and with end users. By decentralizing business activities across large groups of firms or individuals, the Alibaba ecosystem is rapidly adaptive to consumers’ needs and also highly scalable—resulting in 44% annualized revenue growth for the company in the past five years.

The playbook for how to emulate these ecosystem pioneers has not yet been fully codified, but a few imperatives are becoming increasingly clear:

- Adopt a fundamentally different perspective toward strategy, based on embracing

principles like external orientation, common platforms, co-evolution, emergence, and indirect monetization.

- Determine what role your company can play in your ecosystem or ecosystems—not all companies can be the orchestrator.
- Ensure that your company creates value for the ecosystem broadly, not just for itself.

Competing in the Physical and the Digital World

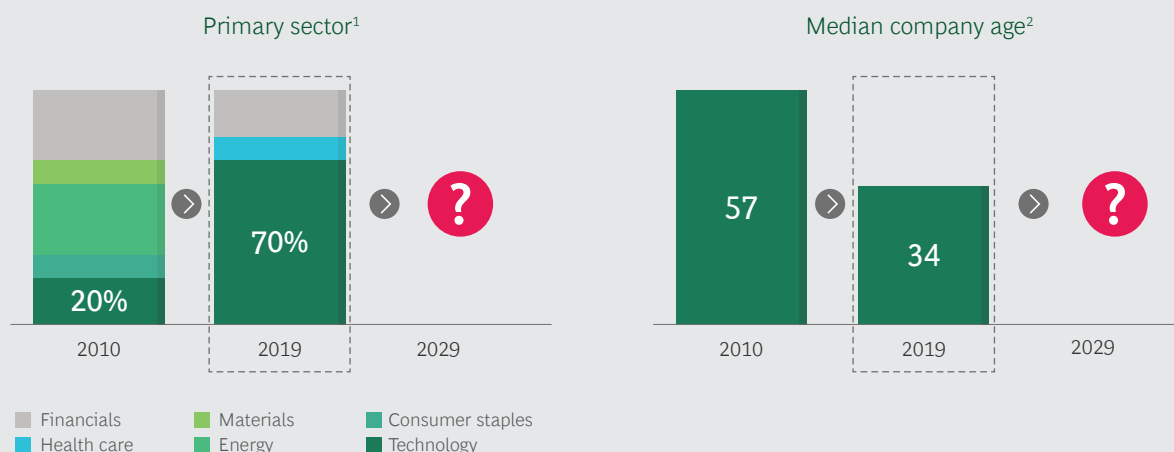
Today’s most valuable and fastest-growing businesses are disproportionately young technology companies, which operate ecosystems that are predominantly digital. (See Exhibit 3.) But the low-hanging digital fruits in consumer services, including retail, information, and entertainment, seem to have been plucked. New opportunities are likely to come increasingly from digitizing the physical world, enabled by the rapid development and penetration of AI and the Internet of Things. This will increasingly bring tech companies into areas—such as B2B and businesses involving long-lived and specialized assets—that are still dominated by older incumbent firms.

Early signs of “hybrid” competition at the physical-digital intersection are already emerging. Digital giants are moving into physical sectors: for example, Amazon has opened new retail stores in addition to its acquisition of Whole Foods, while Google has entered automotive and transportation through its Waymo subsidiary. Meanwhile, incumbent companies are furiously pursuing digitization. For example, John Deere has invested heavily in IoT technology by adding connected sensors to its tractors and other equipment. The company collects and analyzes data from each machine, using the insights to provide updates to its equipment or suggestions to users. “Our roadmap is calling for machine learning and AI to find their way into every piece of John Deere equipment over time,” said John Stone, the senior vice president for Deere’s Intelligent Solutions Group.⁴

These trends point to a new battle between younger digital natives and traditional physical incumbents. But unlike in the past decade, in which upstarts unseated many legacy leaders with purely digital models, the next round is likely to be a more balanced contest. Technology companies no longer have a limitless social license; in the next decade, they will have to navigate thorny issues like user trust, data privacy, and regulation, which will

EXHIBIT 3 | Young Tech Companies Were the Biggest Winners of the 2010s

DEMOGRAPHICS OF TOP TEN GLOBAL COMPANIES BY MARKET CAPITALIZATION



Sources: S&P Capital IQ; BCG Henderson Institute analysis.

Note: Based on market capitalization at beginning of year.

¹Based on GICS classifications; Technology includes information technology, communications services, and internet services & retail.

²Years since company founding.

likely be even more critical in the context of hybrid competition. And incumbents will still have to fight against institutional inertia and the long odds of disruption, but they will be able to better leverage existing relationships and expertise in the physical world. Therefore, the next wave of “natural selection” in business is likely to test *both* digital natives and incumbents—and winners could emerge from either group.

What will make the difference? To succeed in hybrid competition, companies will need to:

- Build strong relationships with actors on both sides of the ecosystem—customers *and* suppliers.
- Rethink existing business models in order to win the battle for new hybrid markets.
- Adopt good practices for governance of data and algorithms to preserve users’ trust.

Competing on Imagination

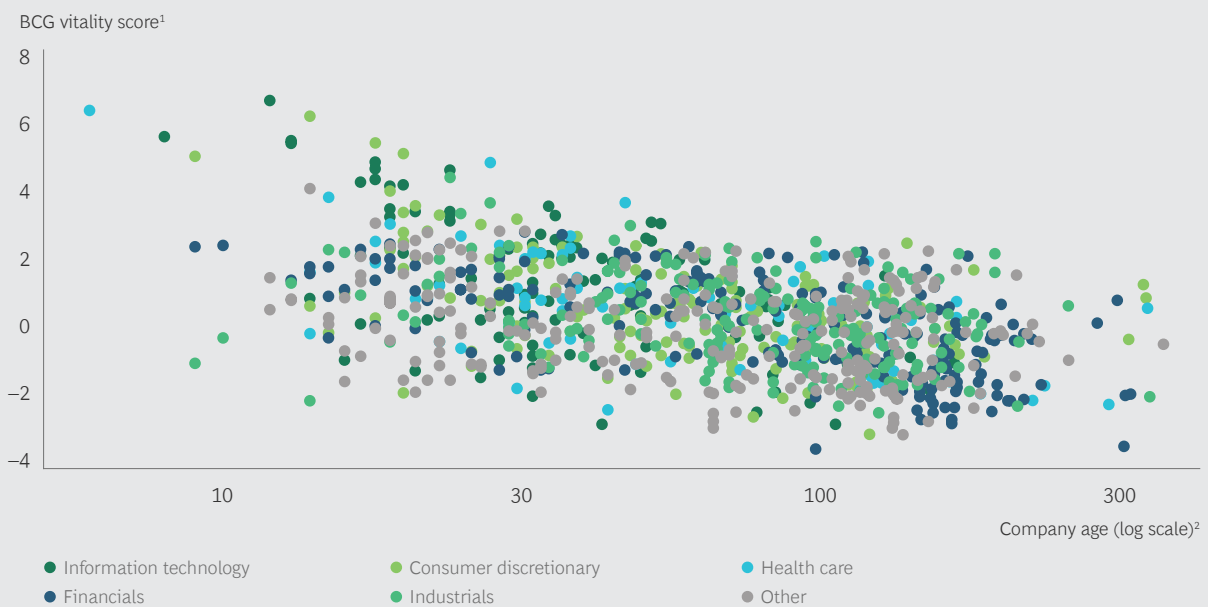
Companies can no longer expect to succeed by leaning predominantly on their existing

business models. Long-run economic growth rates have declined in many economies, and demographics point to a continuation of that pattern. Competitive success has become less permanent over time. And markets are increasingly shapable, increasing the potential reward for innovation. As a result, the ability to generate new ideas is more important than ever.

However, creating new ideas is challenging for many companies. Inertia increases with age and scale, making it harder to create and harness new ideas: our analysis of companies around the world shows that older and larger companies have less vitality, the capacity for sustainable growth and reinvention. (See Exhibit 4.) And business and managerial theory has emphasized a “mechanical” view—one dominated by easily measurable variables like efficiency and financial outcomes—rather than focusing on how to create new ideas.

To overcome these challenges, companies need to compete on imagination. Imagination lies upstream of innovation: to realize new possibilities, we first need inspiration (a reason to see things differently) and then imagi-

EXHIBIT 4 | Older Companies Are Generally Less Vital



Source: BCG Henderson Institute analysis.

Note: Shows 1,083 companies worldwide (companies with \$10 billion+ revenue or \$20 billion+ market cap through year-end 2017); excludes energy, metals & mining, and commodity chemicals.

¹Based on 18 metrics weighted by ability to predict future long-term growth; see “The Global Landscape of Corporate Vitality,” BCG, 2018.

²Years since company founding.

nation (the ability to identify possibilities that are not currently the case but could be). Imagination is a uniquely human capability —artificial intelligence today can make sense only of correlative patterns in existing data. As machines automate an increasing share of routine tasks, individual managers will need to focus on imagination to stay relevant and make an impact.

How can companies compete on imagination?

- Focus on anomalies, accidents, and analogies, rather than averages, in order to spark inspiration.
- Enable the open spread and competition of ideas—for example, by limiting hierarchy and empowering employees to experiment and make imaginative proposals.
- Become a “playful corporation” that is able to effortlessly explore new possibilities.

Competing on Resilience

Looking ahead to the 2020s, uncertainty is high on many fronts. Technological change is disrupting businesses and bringing new social, political, and ecological questions to the forefront. Economic institutions are under

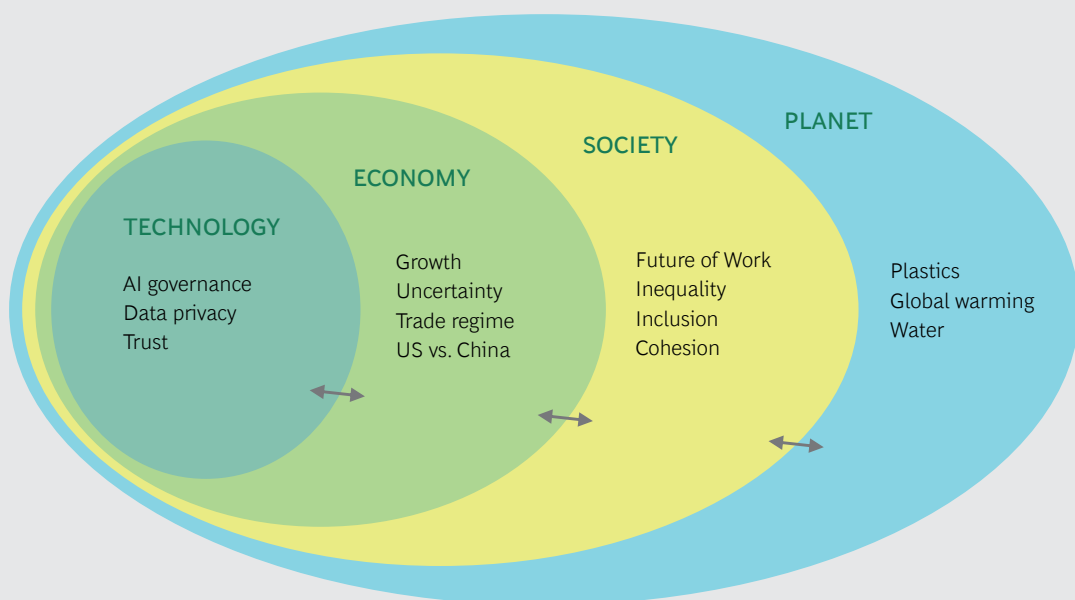
threat from social divisions and political gridlock. Society is increasingly questioning the inclusivity of growth and the future of work. And planetary risks, such as climate change, are more salient than ever.

Furthermore, deep-seated structural forces indicate this period of elevated uncertainty is likely to persist: technological progress will not abate; the rise of China as an economic power will continue to challenge international institutions; demographic trends point toward an era of lower global growth, which will further strain societies; and social polarization will continue to challenge governments’ ability to effectively respond to national or global risks. (See Exhibit 5.)

Under such conditions, it will become more difficult to rely on forecasts and plans. Business leaders will need to consider the larger picture, including economic, social, political, and ecological dimensions, making sure their companies can endure in the face of unanticipated shocks. In other words, businesses will effectively need to compete on resilience.

Survival is already challenging for many businesses today. Building resilience is often at odds with traditional management goals like efficiency and short-run financial maxi-

EXHIBIT 5 | Global Risks Are Elevated Across Many Dimensions



Source: BCG Henderson Institute.

mization. But to thrive sustainably in uncertain environments, companies must make resilience an explicit priority:

- Prepare for a range of scenarios to ensure that strategy is robust and risks are survivable.
- Build an adaptive organization that can rapidly adjust to new circumstances—for example, by constantly experimenting to identify new options.
- Proactively contribute to collective action on the biggest issues facing global economies and societies, in order to maintain a social license to operate.

The New Significance of Scale

These new forms of competition are highly intertwined. For example, companies that orchestrate ecosystems will have an advantage in competing on learning, because ecosystems are a rich source of real-time data and digital platforms facilitate experimentation. Many companies will integrate physical and digital assets by leveraging partnerships in hybrid ecosystems. Machine learning and autonomous action will increase humans' need for and ability to focus on imagination. And those shifts will collectively create further unpredictability for business, necessitating strategies for resilience.

These five emerging aspects of competition point to a new logic for “scale.” No longer will scale represent only the traditional value of achieving cost leadership and optimizing the provision of a stable offering. Instead, new kinds of scale will create value across multiple dimensions: scale in the amount of relevant data companies can generate and access, scale in the quantity of learnings that can be extracted from this data, scale in experimentation to diversify the risks of failure, scale in the size and value of collaborative ecosystems, scale in the quantity of new ideas companies can generate, and scale in resilience to buffer the risks of unanticipated shocks.

NOTES

1. Based on the average difference in EBIT margin between companies ranking in the top quartile and those in the bottom quartile in each of 71 industries (among US public companies with at least \$50 million in revenue).
2. Ronald Coase, “The Nature of the Firm,” *Economica*, November 1937.
3. At the start of 2019, seven of the world’s top ten companies by market capitalization leveraged multi-company ecosystems: Apple, Amazon, Microsoft, Alphabet, Facebook, Alibaba, and Tencent.
4. Scott Ferguson, “John Deere Bets the Farm on AI, IoT,” *Light Reading*, March 2018.

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THE COMPANY OF THE FUTURE

by Allison Bailey, Martin Reeves, Kevin Whitaker, and Rich Hutchinson

IN THE COMING DECADE, companies will increasingly need to compete on the rate of learning. Technology promises to play a critical role: artificial intelligence (AI) can detect patterns in complex data sets at extreme speed and scale, enabling dynamic learning. This will allow organizations to constantly adapt to changing realities and surface new opportunities, which will be increasingly important in an uncertain and fast-changing environment.

But for companies to compete on learning, it is not enough to merely adopt AI, which alone can accelerate learning only in individual activities. As with previous transformative technologies, unlocking the full potential of AI—and of humans—will require fundamental organizational innovation.¹ In other words, to win the '20s, leaders will need to reinvent the enterprise as a *next-generation learning organization*.

Reimagine the Organization

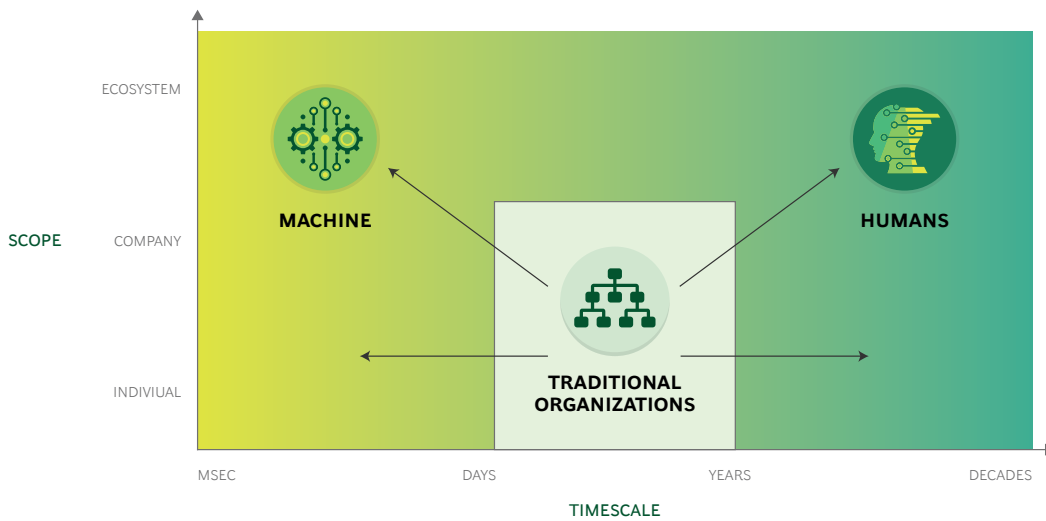
The next-generation learning organization will need to be redesigned to fulfill several key functions. (See Exhibit 1.) The functions are as follows:

- **Learning on All Timescales.** The growing opportunity and need to learn on *faster* timescales, driven by technological innovation, is well known—algorithmic trading,

dynamic pricing, and real-time customized product recommendations are already a reality in many businesses. But it is perhaps underappreciated that *slow-moving* forces are also becoming more important. For example, trade institutions, political structures, wealth stratification, and social attitudes are slowly changing in ways that could have a profound impact on business. Gone are the days when business leaders could focus only on business and treat these broader variables as constants or stable trends. But such shifts unfold over many years or even decades. In order to thrive sustainably, businesses must learn on all timescales simultaneously.

- **Combining Humans and Machines Optimally.** Machines have been crucial components of businesses for centuries—but in the AI age, they will likely expand rapidly into what has traditionally been considered white-collar work. Instead of merely executing human-directed and designed processes, machines will be able to learn and adapt, and will therefore have a greatly expanded role in future organizations. Humans will still be indispensable, but their duties will be quite different when complemented or substituted by intelligent machines.
- **Integrating Economic Activity Beyond Corporate Boundaries.** Increasingly,

EXHIBIT 1 | The Next-Generation Learning Organization



Source: BCG Henderson Institute.

businesses act in multicompany ecosystems that incorporate a wide variety of players. Indeed, seven of the world’s largest companies, and many of the most profitable ones, are now platform businesses. Ecosystems greatly expand learning potential: they provide access to exponentially more data, they enable rapid experimentation, and they connect with larger networks of suppliers of customers. Harnessing this potential requires redrawing the boundaries of the enterprise and effectively influencing economic activity beyond the orchestrating company.

- Evolving the Organization Continuously.** The need for dynamic learning does not apply just to customer-facing functions—it also extends to the inner workings of the enterprise. To take advantage of new information and to compete in dynamic, uncertain environments, the organizational context itself needs to be evolvable in the face of changing external conditions.

Today’s organizations, which were designed for more stable business environments, are not well suited to perform these essential functions. Reinventing the organization for

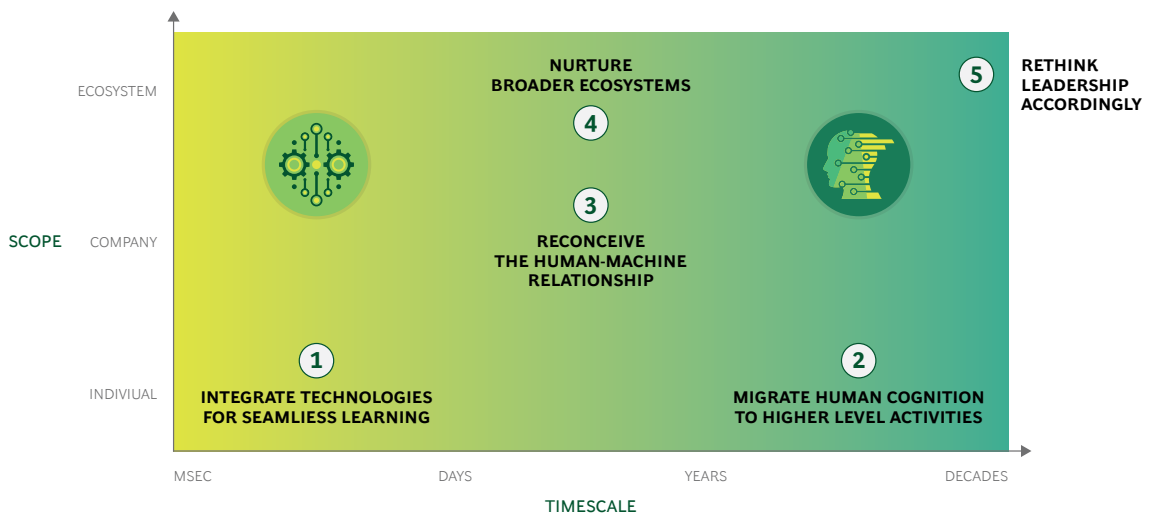
the next decade will require embracing five imperatives. (See Exhibit 2.) The imperatives are as follows:

1. Integrate technologies for seamless learning.
2. Migrate human cognition to new, higher-level activities.
3. Redesign the relationship between machines and humans.
4. Nurture broader ecosystems.
5. Rethink management and leadership accordingly.

Integrate Technologies for Seamless Learning

As powerful as today’s emerging technologies are, they will yield only incremental gains if organizations use them simply to enhance individual steps of existing processes. The effective rate of an organization’s learning is gated by its ability to act on new insights. And classical organizations act slowly, owing to their reliance on human decision making and hierarchy.

EXHIBIT 2 | Five Imperatives for the Company of the Future



Source: BCG Henderson Institute.

In order to truly accelerate the speed of learning to algorithmic timescales, organizations will need not only to automate but also to “autonomize” significant parts of their businesses. In traditional automation, machines execute a predesigned process repeatedly and consistently. In autonomization, machines use continuous feedback to act, learn, and adapt on their own—without the bottleneck of human intervention.

Autonomous systems are designed by combining multiple technologies into *integrated learning loops*. Data from digital platforms automatically flows into AI algorithms, which mine the information in real time to facilitate new insights and decisions. These are wired directly into action systems, which continuously optimize outcomes under changing conditions. These actions produce yet more data that can be fed back through the cycle, closing the loop and allowing the organization to learn at the speed of algorithms.

Some organizations are already implementing autonomous learning systems. For example, Amazon’s pricing and product recommendation engines, among dozens of other functions, are operated by AI systems that learn and adapt as new information emerges.

And these systems are interconnected, so new data or insights from one part of the business cascade through all other functions, which react accordingly.²

In contrast, traditional organizational approaches—for example, unchanging rules or hierarchical decision processes—can impede companies’ ability to harness the rapid learning potential unlocked by technology. As BCG’s research on Smart Simplicity has shown, today’s organizations already face the need to reduce bureaucracy and complicatedness in order to promote fluid collaboration. With the introduction of AI and other new technologies, leaders need to redouble their efforts to simplify their organizations to enable autonomous learning as well as more effective human-to-human collaboration.

Actions that companies can take to harness autonomous learning include:

- Gather real-time data on all aspects of the business by leveraging platforms, the Internet of Things, and other new technologies.
- Deploy AI at scale, integrated with data and decision-making systems.

- Take human hierarchy “out of the loop” of routine, data-based decision making.

Migrate Human Cognition to New, Higher-Level Activities

The widespread adoption of autonomous learning machines naturally raises the question of what role human workers will play in the organization of the future. Today, there is already widespread concern about the speed at which technology will disrupt the future of work. To shape this future—as well as to maximize organizational learning capabilities—businesses need to focus human cognition on its unique strengths.

For all its power and potential, AI is still inherently limited in its cognitive scope. It can analyze correlations in data (“what is the case”) at extreme speed, on extreme scales, with extreme complexity. But it cannot reason at higher levels, such as causal inference (“*why* is it the case”) or counterfactual thinking (“what is not the case *but could be*”).³

Humans should increasingly focus their efforts on these higher-level activities. For example, while correlative analysis is generally sufficient for learning about repeated actions on fast timescales, it is less useful for learning about slow-moving forces, such as political, social, and economic trends.

These shifts are unique and depend on the historical context and trajectory, which means there is no repeated data set in which to find patterns. Human abilities, such as understanding causal relationships and generalizing from limited data, are necessary to decode these forces and adapt the organization accordingly.

Counterfactual thinking is also critical, as businesses need increasingly to compete on *imagination*. Existing business models are being exhausted faster, and long-term growth is declining, which means companies must continually generate new ideas to grow sustainably. But businesses today, which are often implicitly designed for efficiency and the maximization of short run financial outcomes, are not conducive to imagination. Organizations will need to better facilitate individual and collective imagination.

Apple provides a prescient example. When Steve Jobs returned to Apple as CEO in 1997, he made design the core of the company’s culture, instead of previously dominant functions like engineering and finance. By focusing on design—which leverages human creativity and imagination to generate new ideas—Apple was able to produce the novel products, including the iPhone, that eventually helped it become the world’s most valuable company.

Despite all its power and potential, AI is still inherently limited in its cognitive scope.

In addition to imagination and making sense of nonrepeated events, there will be many other activities where humans are advantaged, including organizational design, algorithmic governance, ethics, and purpose, to name a few. In these domains of human activity, organizations will need to become more effective at dynamic collaboration to get the most out of their teams. This requires emphasizing self-organization and experimentation by creating an organizational context in which responsive decision making and learning can thrive, rather than by relying on direct instructions.

Finally, organizations must recognize that the new activities are cognitively demanding—which is particularly challenging in an age of exploding inboxes, endless meetings, and ubiquitous information. Organizations will have to allow humans to cultivate the art of reflection and avoid cognitive overload.

How can organizations help humans maximize their value?

- Expose employees to unfamiliar or anomalous information, in order to inspire imagination.
- Schedule and protect time for unstructured reflection.
- Promote new ways of working that enable dynamic learning and adaptation.

Reconceive the Relationship Between Humans and Machines

The first two imperatives call for a hybrid learning organization, one that combines the comparative advantages of machines and humans: machines' ability to rapidly identify complex patterns in big data and humans' ability to decode complex causal relationships and imagine new possibilities. Together, these will enable the organization to learn on an expanded range of timescales—faster *and* slower.

But in hybrid organizations, humans and machines will increasingly have to *collaborate* in new and more effective ways. This includes tasks that require thinking on multiple levels or timescales simultaneously, as well as tasks that demand social interaction, another dimension in which humans are currently far more effective. Organizations will thus need to reimagine the relationship between humans and machines to bring the best out of both and maximize synergies.

Different types of jobs and tasks will require different types of human-AI relationships:⁴

- In jobs that are based predominantly on optimization or pattern recognition, especially at high velocity and scale, humans will likely be *substituted* by machines. For example, many tasks done today by retail loan underwriters can be performed by AI; in these cases, humans will need to shift their focus to new higher-level tasks to add value.
- In jobs that also require social interaction, machines may take over optimization-related aspects, but a “human layer” will still be critical to deliver messages with empathy and compassion. For example, MIT developed a robot to match nurses with patients and allocate scarce resources in maternity wards, based on patient histories, scheduling constraints, and previous experience.⁵ As a result, nurses and doctors can spend more time interacting with patients directly to provide empathy and personalized care.
- In jobs that require more creativity than optimization, humans will likely be *complemented* by intelligent machines that

augment the capacity for creativity and imagination. For example, Maurice Conti, an expert in innovation and technology, describes “generative design tools” that automatically create new possibilities based on a set of predefined parameters, which can spark new ideas for human designers.

- Finally, in jobs that require both creativity and social interaction, humans will have many of the same core responsibilities that they do today, but targeted AI applications will help them maximize their skills. For example, Google and a startup led by former Google employees have developed the Nudge Engine, which uses AI to provide personalized suggestions to employees or managers that enhance their effectiveness.⁶

For these new types of human-machine relationships to succeed, organizations need to develop effective *human-machine interfaces* that allow for seamless collaboration. Today's AI models tend to be “black boxes” that are not designed for interpretability and may therefore impede trust. Organizations will need to overcome these hurdles by developing and implementing interfaces that provide transparency into how AI makes recommendations, allowing humans to understand and validate machines' actions. Similarly, humans and algorithms are rarely matched for bandwidth and complexity.

Humans and machines in hybrid organizations will have to collaborate in new ways.

Choosing the right level of abstraction and compression for communication between humans and computers is critical: too much compression will suppress subtlety and prevent the tinkering through which human innovation proceeds, while too little will overwhelm human overseers.

For example, Google's DeepMind designed an AI system that can detect eye diseases by

means of a two-stage process—first identifying what features of the image are associated with eye diseases, and then diagnosing diseases on the basis of those features. This structure allows doctors to see what in the image led to each diagnosis, increasing their trust in the system.⁷

Companies must leverage collaborative human-machine relationships more intensively.

The frontier of human-machine relationships is still uncertain, but a few imperatives are emerging:

- Segment tasks and jobs according to the challenges they entail and deploy the right configuration of humans and machines against each.
- Leverage collaborative human-machine relationships more intensively.
- Develop explainable algorithms that humans can trust and understand.

Nurture Broader Ecosystems

In traditional models of production, companies operated in a linear value chain to deliver a narrow range of products. However, economic activity is increasingly organized within *ecosystems*—complex, semifluid networks of companies that cross conventional industry boundaries.

Ecosystems combine information and capabilities from a wide variety of players, increasing their collective ability to explore new paths and learn about the market. They also enable the rapid development of new offerings in response to emerging opportunities that could not have been foreseen. These benefits will be essential in future business environments, which will likely be more complex and less predictable than those of the past.

However, realizing those benefits requires a new organizational logic. Ecosystems cannot

be successfully managed with deliberate planning and control. Instead, organizations need to be adaptive in order to respond to signals that emerge from the ecosystem—for example, by implementing internal processes that are flexible and responsive. And they need to develop shaping capabilities to indirectly influence the ecosystem in more beneficial directions—for example, by designing platforms that incentivize other stakeholders to act in certain ways.

Ecosystems are not only a new method of developing and delivering products; they also provide new opportunities for the “back office” of organizations. The “gig economy” is becoming more prominent, allowing companies to leverage external, freelance talent at scale—thereby enhancing flexibility and giving them access to a wider variety of skills. But harnessing labor-sharing platforms similarly requires indirect forms of management instead of traditional command and control techniques.

For example, the Dutch technology company Philips orchestrates ecosystems in many areas of its business. On the product side, its health care division participates in ecosystems at several stages of value creation—including an innovation ecosystem that involves academic labs, robotics companies, and startups; and a sales and servicing ecosystem based on its tele-health app that connects many digital health care partners. The company also created a labor-sharing platform, Philips Talent Pool, which maintains a pool of freelancers familiar with the company and monitors the quality of their work.

By reconceiving the external *and* internal workings of the organization as a flexible, evolving ecosystem, businesses can handle much greater dynamism and complexity. This requires subjecting all aspects of the organization to market forces, enabling it to learn and adapt in response to new opportunities. And it requires internal systems that adjust automatically to new information, allowing learning and resource reallocation to occur at algorithmic speed. When combined, these capabilities can create a “self-tuning enterprise” that constantly learns and evolves according to its environment. (See Exhibit 3.)

To harness the power of ecosystems throughout and beyond the organization, leaders must:

- Engage external partners to create a shared vision of the future.
- Develop capabilities for collaboration and information sharing at scale—for example, platforms and APIs.
- Redesign internal processes to be more adaptive and data-driven, allowing the organization to become “self-tuning.”

Rethink Management and Leadership

Collectively, the above imperatives point to a very different way of designing and operating organizations—which in turn will significantly change the role of leadership. In particular, managers and leaders will need to focus on several new challenges.

Developing Governance Principles for AI and Autonomous Machines. As machines play a greater part in learning and action, the role of leadership in setting guardrails and priorities will take on greater importance. In the last decade, tech companies could sidestep these topics, as the promise and potential of new technologies gave them a license to move

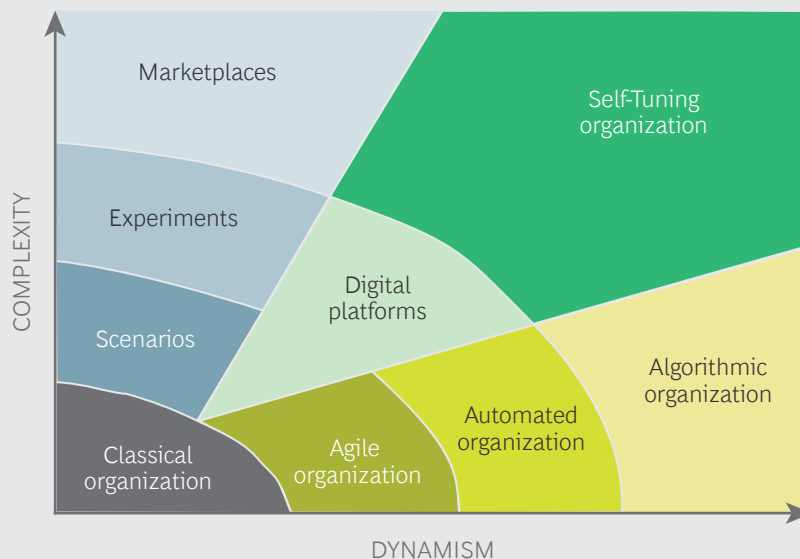
fast. But as social scrutiny of technology increases, questions about governance, trust, and ethics are coming to the forefront. And as AI is adopted more widely, all businesses will have to deal with these difficult questions.

Some organizations are already beginning to address them. For example, Microsoft created a new leadership position to help companies learn how to deploy ethical principles, including fairness, accountability, and transparency, when implementing AI systems.⁸

Unlocking Continuous Human Learning Capabilities. As humans increasingly focus on higher-level thinking, they will need to learn and practice new skills. This shift will not be “one-shot” learning—the required abilities will continue to evolve unpredictably. Learning will therefore need to be embedded in the workflow, and responsive to changing needs, rather than being batched at the beginning of careers. Organizations will also need to invest in “learning contracts” with employees, mutually committing to continuously develop new skills for new roles.

Leading in Ecosystems. As the organization’s scope expands to encompass broader ecosystems, leaders need to adopt a new approach. Traditional “mechanistic” approaches rely on the assumption that organizational actions

EXHIBIT 3 | The Self-Tuning Organization Embraces Dynamism and Complexity



Source: BCG Henderson Institute.

can be perfectly planned and controlled, which is no longer valid. Instead, leaders need to adopt a “biological” mindset, which recognizes that businesses are embedded in complex systems that evolve unpredictably. This involves managing with an experimental approach that seeks to learn about and adapt to the environment, rather than assuming that current knowledge is sufficient. And it involves prioritizing resilience in order to prepare for outcomes that cannot be anticipated.

Orchestrating an Adaptive Organization.

Similarly, running a self-tuning enterprise requires a different perspective on the role of organizational leadership. Instead of exerting control over teams and intervening directly in operations, leaders should reframe their mandate as orchestrating a complex, dynamic system of individuals and machines, and guiding it to productive outcomes. This can be considered an extension of the shift in leadership mindset from “classical music composer/conductor” to “improvisatory jazz group leader,” as was presciently laid out by former BCG CEO John Clarkeson in 1990.

As a result, the day-to-day activities of managers will change. Traditional management, in the form of direct decision-making, will be reduced—because fewer aspects of the organization can actually be “managed.” Instead, managers need to think of themselves as coaches rather than decision makers, and shift their activities to higher levels, such as shaping the conditions and context of the enterprise.

THE organizations that will win the 2020s will look much different from today’s: they will use different capabilities; they will operate at different speeds and scales of influence; they will contain different structures and responsibilities; and they will embody different leadership models to enable all of the above.

Actually making the transition from here to there will not be easy, however. In the next installment of our series on winning the ’20s, we will expand on how leaders can *master the science of complex change* in order to execute the necessary transformation of their organizations.

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THE BIONIC COMPANY

by Rich Hutchinson, Lionel Aré, Justin Rose, and Allison Bailey

Bionic: having normal biological capability or performance enhanced by or as if by electronic or electromechanical devices (Merriam-Webster)

TECHNOLOGY HAS USHERED IN the age of the bionic company. Organizations that combine the capabilities of humans and machines will develop superior customer experiences and relationships, more productive operations, and dramatically increased rates of innovation.

Customers are demanding the relationships and innovation, while competitors are driving the push for productivity through automation. Companies across industries are embracing artificial intelligence (AI) and machine learning. The combination of these capabilities—along with low-cost data sensors, computing power, storage, mobile connectivity, and robotics—means that customer relationships and business processes will become radically augmented, if not fully automated, in the next few years.

The primary barrier to progress today is no longer technology itself. Rather, it is finding the right design for a company so that it can unleash the power of technology. Business leaders need to ask two questions: What does the bionic company look like? And what is the practical path for traditional companies to take when converting their organizations to the new model?

Not all of the answers are known, but the organizations, business models, and processes of so-called digital natives—such as Alibaba, Amazon, Google, Netflix, Salesforce, Tencent, and Tesla—offer a clear sense of direction. So, too, do older companies in the midst of bold transformations, including Inspire Brands, L'Oréal, Recruit, and Renault.

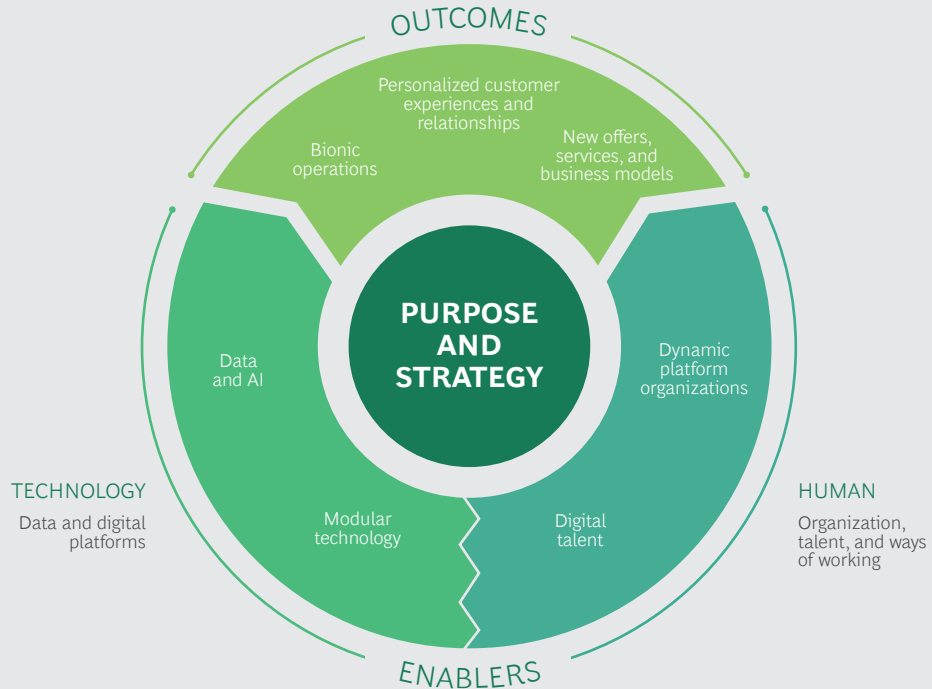
The chief barrier to progress today is not technology itself but finding the right design.

What the company of the future will look like is becoming clear. At the center is its purpose and strategy: the reasons it is in business and how it brings those reasons to life. Four enablers allow companies to operate as bionic organizations: two have to do with technology and data, while the other two address talent and organization. Three outcomes about how these companies do business are the result. (See the exhibit.) We explore all of this below.

Purpose and Humanity

For all that machines will change us, humans will remain the essence of companies. In fact, the real power of a bionic company lies in

The Company of the Future Is Bionic



Source: BCG analysis.

further unleashing the power of human creativity. Machines are only enablers.

As companies move toward more bionic operations, purpose and strategy become more important than ever. They are the essential elements that inspire and align rapidly moving autonomous teams. Bionic companies will be very effective at establishing “an unbroken chain of why” that links business outcomes with the work that individual teams are charged with delivering.

As people shift from operating processes to designing them, companies need to pay huge attention to how they reskill their managers and employees and motivate them during a time of such major disruption. Attracting talent will be, in part, a function of whether companies are able to deliver on purpose and strategy in such a way as to create high levels of employee engagement. We can also expect society—that is, customers and shareholders—to demand more than ever from business. The company of the future will want to meet their expectations because companies that play a positive role in society deliver superior shareholder returns.

Outcomes

Three types of outcome will shape bionic companies.

PERSONALIZED CUSTOMER EXPERIENCES AND RELATIONSHIPS

Digital technologies are already profoundly changing how both B2B and B2C companies relate to their customers—and we’re just getting started.

To date, the most obvious changes have been in customer channels and experiences. Thanks to technologies such as the internet, e-commerce, and mobile devices—powered by increasingly personalized analytics—customers today expect companies to understand them and know their preferences. They look for seamless, 24-7, personalized service across physical and digital channels.

At the same time, search engines, recommendation features, and social media have transformed marketing from outreach to dialogue. A heretofore unknown level of transparency for customers requires that companies be authentic, deliver great products and services, and engage with customers on their preferred

social media sites. The ones that do it best build loyalists who amplify the organizations' brand reputations.

Still, customer experience is in its adolescence, and the state of the art will continue to evolve. Increased connectivity and bandwidth, voice recognition, and augmented, virtual, and mixed reality will lead to further changes in preferred communication modes. We are also seeing customer experience blur across digital and human lines. Digitally supported in-store staff are providing customers with superior service and assisting them in the virtual world. Companies in China, for example, ask retail staff to engage local customers continually through social media—and have increased revenues by 10% to 30% as a result. Over time, the human and digital distinctions of channels will recede, becoming bionic.

The most important shift, though, goes deeper. Business models in many industries are undergoing a metamorphosis as companies move from a focus on product or service sales to a business model built on cultivating customer relationships—the ultimate manifestation of customer centricity. It was not possible a few years ago for a consumer goods company to know very much, beyond broad-based geographic and demographic facts, about the people who purchased its products. Nor was it feasible for a B2B company to know all of its small- and midsize-business customers. Today, a tire distributor can accurately predict the demand for tires in major cities block by block, which allows the company to optimize its entire supply chain and never miss a sale.

With digital engagement and 24-7 connectivity, personalized “segment of one” relationships at scale are not only practical but imperative. Businesses that simply used to sell products are now building databases that house information about every customer who could possibly want their products. Companies engage customers in context—at the right time and in the best location. For example, the financial-services arm of an equipment manufacturer knows every piece of equipment coming off lease among its own customers and those of its competitors, and it is learning to predict which customers to tar-

get to convert to its brand. Companies are thinking about customers throughout each customer's lifetime—from attraction and engagement to providing maximum value to building long-term loyalty and advocacy. What's more, pursuing a relationship business model doesn't change only customer engagement. It also shifts such fundamentals as pricing, metrics (for instance, lifetime value and cost of acquisition), product strategy, and the profit model for the business.

Industries are at very different points on this journey. Some companies, such as those that provide software as a service, have substantially completed this shift. But many more, such as consumer and industrial-goods companies, and even businesses in finance and telecommunications, have a long way to go.

BIONIC OPERATIONS

The vast majority of business processes today are operated by human beings. In the not-very-distant future, almost all business processes and operations will be heavily augmented, or even operated, by machines, many of which will be running AI algorithms.

A relationship business model shifts such fundamentals as pricing, metrics, and strategy.

Machines can do much of what humans do, although they are best suited to singular tasks rather than multifunction jobs, and they can often perform faster and more efficiently. Machines can sense (with cheap data sensors), remember (with cloud servers and data lakes), make decisions (with AI and advanced analytics, as well as mobile connectivity), and take action (using robots and autonomous vehicles). More and more of these functions can be accomplished at reasonable cost; and when machine- and AI-automated or augmented processes are well developed, they have lower marginal costs and are robust.

Most important, machines learn steadily. Once machine-assisted performance passes human capability, these processes climb

learning and experience curves, giving the organizations that adopt machine-augmented operations first-mover and powerful, long-term competitive advantages. (There is a tradeoff: because machines do not adjust well to unforeseen or changing circumstances, companies need to decide where and how they can best be applied.)

We are already seeing this evolution play out in simple processes (back-office robotic process automation, for example) as well as in higher-value, more complex processes. The latter include both internal operations—such as sales force optimization, production forecasting, maintenance optimization, and manufacturing automation—and customer engagement, such as e-commerce offer selection and dynamic pricing and promotions.

As machines and AI take over more of any given company's operations, the role of humans inevitably will change. Many new jobs will be created for people to design augmented and automated processes and improve them over time. Indeed, over the medium to longer term, we expect to see a fundamental shift in the nature of work—from processes operated by humans to processes designed and audited by humans. Capturing value from this shift will require a massive redesigning of legacy business processes to enable humans and machines to work together. This is where many traditional businesses struggle, while digital natives can design for this sort of collaboration from the get-go.

It is critical to understand that building and managing bionic processes require a fundamentally new way of working. These processes are most rapidly created and built by multidisciplinary teams that are tasked with a goal or an outcome and are empowered to find the best way to achieve it. These teams have a product owner and a clear mission, and they work with an agile methodology. As we will see later, the economics and ways of working used by these teams and processes will cascade through the full organizational structure.

NEW OFFERS, SERVICES, AND BUSINESS MODELS

Continuous innovation will be a hallmark of the company of the future. The combination

of data, technology (including AI), and talent will enable bionic companies to develop and bring to market an ongoing stream of new products and services, many of which will also involve new models for business and customer interaction. Consider recent history. Over a few decades, Amazon evolved from an online book retailer to an online marketplace to a cloud computing leader to a home entertainment force to a feared disruptor in health care and a major investor in industries as disparate as automotive and food delivery.

But perhaps no company illustrates the potential for growth and expansion through innovative new offerings better than Alibaba, which in 20 years has launched the Taobao online marketplace, Tmall, Alibaba Cloud, AliExpress (online retail aimed at international buyers), the Cainiao logistics network, Ant Financial Services Group, and Credit Sesame (a credit scoring agency).

Successful companies will not shy away from going outside their traditional core markets.

Over the next decade or two, we expect many more companies to transform their new offerings capabilities, from:

- Centrally driven R&D functions to hundreds of innovative, empowered product-building teams
- Top-down direction of ideas to a directed portfolio of rapid experimentation, where senior executives can see and rapidly scale winning propositions
- Deliberate, paced sequencing of new offerings to a more rapid pace of change

The most successful companies will not shy away from going outside their traditional core markets or product offerings. They will leverage their corporate assets—including customer access, distribution channels, brand, and capital—to arm their new ventures with formidable advantages.

Technology Enablers

Technology used by the company of the future will look very different from today's in two critical ways.

DATA AND AI

The blood of bionic companies is data: it brings machines and AI to life. As companies move from a system in which decisions are made by humans to a system in which decisions are made jointly by humans and AI, they will have to build up their ability to collect, manage, and use data from multiple sources as an input and feedstock for their advanced analytics. This means being able to:

- Create data on almost every aspect of customer experiences and operations
- Construct data lakes, which hold data from all sources in a ready-to-use condition
- Embed data science skills and technology throughout the organization
- Track outcomes in order to train algorithms
- Build ongoing learning and innovation into machine-AI operations

Critically, companies will need to identify the use cases for which data can create the most value. There's no shortage of potential examples: they include predictive maintenance or machine control in manufacturing; advanced production flows or inventory management or transportation in supply chains; and next-best-offer, pricing, promotions, and marketing messages in commercial functions. Success starts with picking the top use cases, accessing the data, leveraging AI and advanced analytics, adapting the organization and process, turning insight into business actions, tracking outcomes, and creating learning loops.

For the bionic company, two huge competitive benefits can result. First, those creating or accessing unique data will gain an advantage, at least in the near term. Digital natives are working tirelessly to create such advantages today—while many traditional companies haven't really started. But the companies

that master the art of embedding advanced analytics into their most important processes and decisions will gain a second, even greater, advantage.

MODULAR TECHNOLOGY

Bionic companies must make two related shifts with regard to their technology. The first is from a mix of legacy technology systems across business units to a company-wide, common, next-generation technology stack. The second is from technology systems as a way to execute basic processes to fully modular, horizontally layered technology platforms (such as those used by digital natives) that enable rapid innovation and the customization of key processes and experiences.¹ Many will go through an interim step as well: transforming their core systems by gradually moving to digital-native, modular technology—including, for example, microservices, containers, cloud-based infrastructure, data and platform services, and APIs—to make data accessible and able to support key use cases. In this phase, companies will also deploy agile and DevOps at scale, if they haven't already.

Companies must identify the use cases for which data can create the most value.

Fully digital companies—such as Amazon, Salesforce, and Uber—have common, fully decoupled, next-generation technology platforms that allow access to standardized operating processes across their businesses. They also tend to include capabilities such as deep data, sophisticated analytics reporting, workflow management, and easy linkage to internal and external consumers of such processes and resources. These modular technology platforms are easily leveraged to create deliverables and outputs for both internal and external processes and experiences. As a result, innovation is fast. For example, HR teams at Salesforce were able to put out an onboarding app for new employees (which tracks when they are coming, who will greet them, where they will meet, the order for their computer, and so forth) in just a couple of weeks.

The challenge and cost of transforming the technology stack and function shouldn't be underestimated. Organizations will find that they can make greater, faster progress by moving away from a systematic, wholesale rejuvenation and toward a more flexible data- and transaction-driven approach, leveraging the advantages of full next-generation technology stacks from day one. This approach can create value quickly and early on, eventually developing an architecture that can support the desired rapid adaptation.

Human Enablers

As bionic companies organize around autonomous teams and learn to work in new agile ways, talent and organization will be more important than ever.

The most important lever for companies to employ will be retraining current staff.

DIGITAL TALENT

Much of the discussion to date around bionic companies has centered on prospective job losses as machines take on more processes and operations. The transition will be disruptive, no doubt about that. But for managers, the first question—before tackling any transition—is, what kind of talent will their companies need in the future?

Our view is that human talent will be more important than ever. As human capacity is deployed more for designing, auditing, and innovating processes (as opposed to operating them), the need for people with design and technical skills, already acute, will soar. Employees who are flexible, adaptable, and able to learn will also be at a premium.

Good product managers and designers of user experiences and interfaces (think customer journey mappers) will become table stakes requirements as the configuration of digital processes and products gains in importance. All companies will need people who focus first on the frictions and pain points of

customers and then work with technology engineers to find technical solutions to resolve the problems. Data scientists and engineers will be equally critical to deliver new data features and outcomes. Companies will see substantial talent shifts in key functions where new technologies are already having a big impact on necessary skill sets. Marketing, for example, is rapidly becoming a dramatically more analytical function, and traditional creative and brand-building skills, while still important, are now only part of the mix.

Since many employers today do not have the required skills for a bionic future, the challenges of transition will be dramatic. Companies will need to employ multiple levers. The most important will be retraining current staff: a number of companies in traditional industries have already shown how retraining can be more effective than replacement. The main alternative will be letting current employees or contractors go and then rehiring or accessing capabilities from other sources for new needs.

DYNAMIC PLATFORM ORGANIZATIONS

Some of the most profound changes for bionic companies will involve organizational structure, new ways of working, and leadership.

Organizational Structure. Companies today are often designed around well-defined business units and practices: individual market profit and loss statements or manufacturing and operating facilities, for example. And despite the presence of central functions and centers of excellence, most processes are managed by business unit heads, national or regional executives, and plant managers.

As a result, processes are customized by the organizational unit and its top management, and differences often outnumber commonalities. This structure has worked well for decades as companies put smart people close to the business mission and let them run those business units effectively.

In a bionic company, digital-human processes will, by necessity, have many more standardized elements. There are a few core economic drivers. First, AI needs mass data to train al-

gorithms, and software needs standardized data to be broadly effective. Second, talent scarcity means that companies can't build dedicated technical capabilities in every market and business unit. And third, while costs have dropped, technology needs to be sufficiently standardized and modular for investments to be efficient. Put another way, you typically can't train a pricing algorithm using the sales data from a single sales unit alone. Nor does it make sense to invest in different systems that do the same thing in each unit of a company.

Because bionic processes require greater standardization and new ways of working, a platform organization structure will emerge. Our experience shows that companies can typically identify 30 to 50 major units of work or bionic processes. These can be customer-facing processes, frontline support, operations, or back-office processes.

Bionic processes will no longer be owned, either fully or partially, by business units. Rather, they will be built and managed by agile teams that have business missions and service commitments. Taken together, they form platforms that support the frontline and operations teams as well as customers. Done right, the go-to-market and operations teams are freed from much of their internal focus; they can be even more intensely committed to their core missions of sales, marketing, service, or operations.

In a more modular economy, bionic organization structures even extend beyond traditional employment walls. Companies will fill capability gaps by tapping into ecosystems (think Salesforce's customer relationship management or Amazon Web Services). More people will work atop a platform without joining the sponsoring company (as Uber and Lyft drivers do today).

New Ways of Working. Bionic companies also need to work in new ways. We call this model *agile at scale*. The teams that design and manage bionic processes will leverage agile methodologies. To staff agile teams, the hiring and development of people will be separated from the teams in charge of actually doing the work. This is a dramatic change from the

traditional model, in which leaders hire people for specific roles and then manage their teams' operations directly. And, not surprisingly, a new operating system of processes to deploy teams, plan expenditures, manage strategy, determine incentives, and oversee modes of collaboration will be required to harmonize these new structures and ways of working.

Leadership. There are big implications for leadership. Gone are the days of traditional hierarchies where leaders directed managers who then distributed the direction. In bionic companies, middle management shrinks, and three modes of leadership emerge. First, and most obvious, are those who lead by doing—taking on product owner roles in the agile teams. These leaders act as player coaches. Second, the chapters (of capabilities) have leaders who are accountable for bringing in and developing the best talent—creating communities.

You can't use the sales data from a single sales unit alone to train a pricing algorithm.

Finally, senior executives must adapt to a Silicon Valley leadership style—setting company goals, translating those goals into work to be done, deploying teams with the right capabilities, aligning the organization, and removing roadblocks. These leaders are much less involved in daily decisions. Rather, they step back to allow greater speed. They steer the organization by setting goals, adding resources for teams that are succeeding, and redeploying resources when teams finish work or when initiatives fail.

TECHNOLOGY is no longer an impediment to huge leaps in customer engagement, growth, efficiency, and value creation. Rather, most companies face barriers in their legacy operating models, including human processes, old-school organizational models, fragmented systems, insufficient data and inability to access it, and lack of design and digital talent.

The transformation to a bionic operating model will be a massive challenge for most. CEOs need to start with a vision of the future as they design a new way of operating. We hope that this article provides a blueprint and key design principles for that vision.

The second critical issue CEOs face is how to undertake such a transformation. In our experience, the traditional companies that move the fastest do several things. They start by selecting a few big use cases at the heart of their businesses. Then, they pursue all of the capabilities and enablers described above to make a step change. They insist on three outcomes: real business value, increased customer benefit, and a truly changed organization. (L'Oréal took this approach in marketing; Tata Steel adopted it to digitize its supply chain.) When a company can fully see what a bionic organization looks like and what its benefits will be, the road to broader scale becomes clear and necessary.

NOTE

1. In some conglomerates or diversified companies, different systems will be needed for fundamentally different types of businesses.

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MEDICARE ADVANTAGE IS BOOMING. WHY ARE SO FEW PAYERS WINNING?

by Sanjay Saxena, Ashish Kaura, Daniel Gorlin, and Jon Kaplan

IT'S A VAST MARKET—PROJECTED to reach more than \$360 billion a year by 2023—with attractive growth baked in. Below the surface, though, lie difficult dynamics and increasingly tough competition. Medicare Advantage—the insurance programs that private companies offer through Medicare—has established itself as a hot market segment that shows no signs of cooling, and lots of health care payers are eyeing it. But they should look carefully before they leap. Large incumbents such as United Health, Humana, CVS Aetna, and Anthem, along with powerful regional players such as WellCare, have built strong defenses. New entrants must develop a compelling value case if they are to gain a foothold, much less seize significant share. Here's what companies need to know to get into the market or increase their current share.

Size and Growth—and Fierce Competition

According to our analysis, Medicare Advantage enrollment will increase at an annual rate of 4% to 6% from 2017 to 2023, and revenue will grow at a rate of 7% to 9% annually. By 2023, available annual profit pools will range from \$11 billion to \$13 billion, making Medicare Advantage the single biggest driver of profit growth for health care payers.

Significant tailwinds are propelling this growth, including an aging population, rising

penetration in comparison with fee-for-service plans (Medicare Advantage is expected to reach 40% penetration by 2025), and a continued favorable regulatory climate. Current government policies—including support for strong rates, considerable latitude for private payers to add benefits (such as food assistance, transportation assistance, and social support) beyond core health services, changes in Medicare Part D plans, and initiatives from Centers for Medicare & Medicaid Services (CMS) for increased transparency—will add fuel to the engine.

Behind the growth, however, lies a fiercely competitive market. The number of plans available per eligible member has increased over the past four years at a rate of 8% per year, from 19 in 2016 to 24 in 2019. According to Deft Research, switching rates have dropped from more than 20% for 2015 (and for each of the three years before) to 11% for 2018 and 14% for the 2019 plan year. And in many instances, consumers are simply moving from one plan to another while keeping the same carrier, making the effective switching rate even lower than the reported level. This combination of factors has made it difficult for individual companies to accurately report consistent year-on-year growth.

Big national players (including Anthem, CVS Aetna, Humana, and United Health) hold the largest share of the market. (See Exhibit 1.)

Despite the industry’s attractive macro conditions, new entrants—be they venture-backed plans, provider-sponsored plans, or tech-based provider transformations—have found Medicare Advantage a tough market to crack, even with strong backing and deep pockets. We analyzed some 3,000 cases of new market entrants, which we defined as new company offerings in new Medicare service areas, over the past five years—and we found only about 100 instances (3.3%) in which the payer achieved growth of 10,000 members or more. Even more daunting, in only 12 cases (0.4%) did new entrants in a Medicare service area grow from a starting point of zero members to 10,000 or more. (See Exhibit 2.)

Cracking the Medicare Advantage market has proved equally challenging for existing health plans, such as regional Blue Cross Blue Shield plans, which have often found it difficult to translate their historical strength in employer-sponsored commercial insurance into success in Medicare Advantage. Similarly, Medicaid plans—which have largely focused on the “duals” population (typically, seniors who are also eligible for Medicaid)—have found it difficult to capture traditional Medicare-eligible seniors.

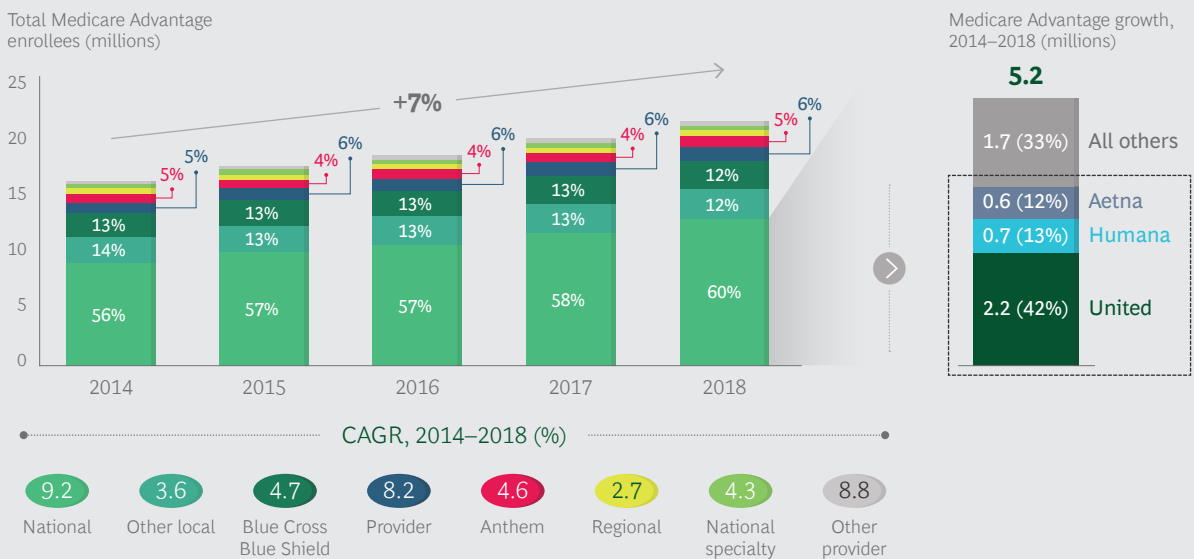
Even the national players face challenges in their efforts to deliver consistent growth over

time, and they are leveraging their scale for price advantage, investing in plan value (making their benefits richer for members), and offering more \$0 premiums and Part B give-backs (through which insurers actually put money back into members’ social security accounts). For example, the newly merged CVS Aetna has devised a strategy to leverage its retail footprint to reach more than 75% of all Medicare Advantage-eligible members in the near term, and it has already instituted a product strategy that uses a \$0-premium local preferred provider organization to achieve share gains. National players are also exploring avenues that may enable them to differentiate themselves on attributes other than price, by innovating their plan designs, investing in brand campaigns, expanding their networks of care providers, and integrating clinical assets to maintain and grow share. For example, United Health, which already has one of the largest provider networks, is building local market depth by acquiring clinical assets, and it is using advanced analytics to better understand its members and costs.

Operational Excellence Is the Price of Entry

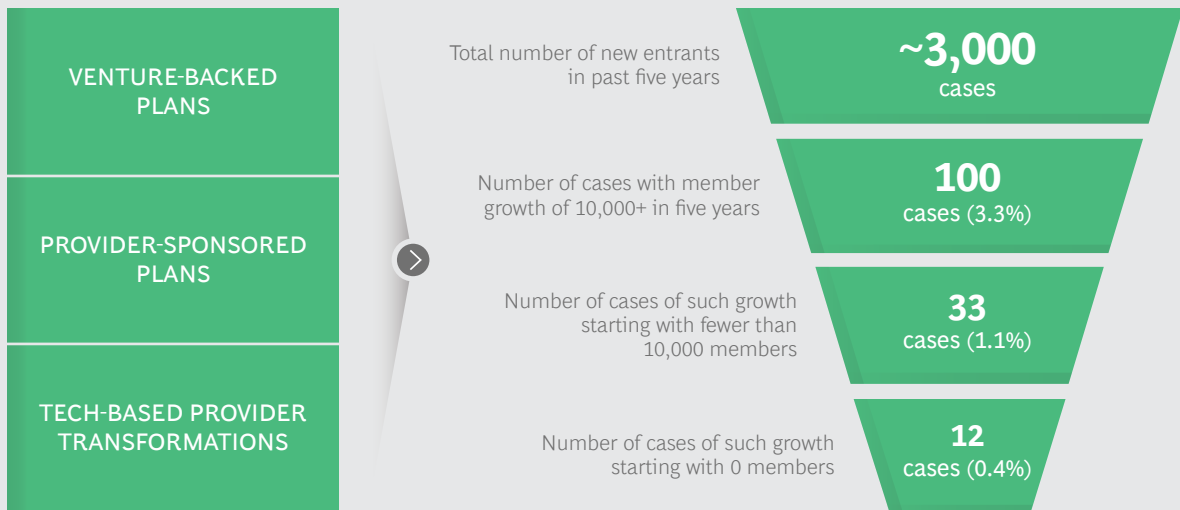
To compete in Medicare Advantage, health plans must have operating capabilities that can deliver superior processes and service,

EXHIBIT 1 | Large National Players Have Captured Most of the Growth to Date



Sources: Centers for Medicaid and Medicare Services enrollment data; BCG analysis.

EXHIBIT 2 | New Entrants Have Found Growth Challenging



Sources: Company press releases; CMS enrollment data for July 2014–2018 and January 2019.
 Note: “Cases” are calculated as Number of players × Number of Medicare service areas.

maintain margins and price competitiveness, and fund differentiating characteristics. For all players, this level of operational excellence depends on four critical elements:

- Robust Utilization and Care Management.** The traditional care management approach focuses on intervention at a point in time. Payers need to step back and take a long-term view of patients’ health needs, including social determinants of health, and apply predictive analytics to anticipate care demands and, if possible, avoid adverse outcomes. For example, Humana has developed robust predictive models and invested heavily in home care assets (its investment in Kindred, which provides care for people recovering from illness or injury, is one case in point) to be on the front lines of care.
- Efficient and Effective Network Design.** To achieve high-quality outcomes, payers must identify high-value providers and use incentives and other means to direct care appropriately. Leading payers are not only pursuing value-based contracts (including full-risk contracting with primary-care providers) but also taking a more strategic approach to shaping the primary-care network for members. Strategies range from owning or partnering with primary-care facilities and physicians to investing in insight engines designed to identify the highest-performing providers and develop helpful data for primary-care physician to use in adapting their practice or referral patterns.
- Accurate Risk Stratification.** Payers need to conduct risk assessments in concert with providers, incorporating data from external sources to achieve as full and accurate a view as possible (consistent with privacy laws and regulations) of the member’s risk and needs. Newer models incorporate self-learning technologies enabled by machine learning algorithms that increase predictive accuracy over time, and they connect the patient’s risk stratification with provider treatment plans. Having best-in-class risk stratification capabilities enables payers to address potential gaps in care for members and also to capture important patient risk factors, thereby ensuring accurate scoring of the risk adjustment factor and, where appropriate, additional payment revenue from CMS.
- Improving Performance in the Context of Medicare’s Stars Rating System.** Most payers have already invested heavily in robust analytics and a dedicated organiza-

tion to manage and predict Stars scores. Health plans should align their network design and their Stars strategies to create the foundation for a high-quality provider partner base. For example, co-designing incentives with provider partners can help create alignment along the care continuum.

Medicare Advantage requires a very different operating model and set of capabilities.

Payers need to recognize that Medicare Advantage requires a fundamentally different operating model and set of capabilities than those they have developed for their commercial group and individual lines of business.

While many of the competencies may seem similar and scalable, they have proved not to be. Health plans that have tried to transfer existing care management, network, and risk stratification capabilities as is, or with limited tailoring, have struggled to effectively manage and profitably serve Medicare Advantage members. As a result, many predominantly commercial plans—including a number of Blues—have become trapped in a pattern of rapid growth, followed by pruning to address mounting losses. Only a few such plans have been able to escape this cycle.

Winning Requires Differentiation

Besides depending on operational excellence, achieving long-term growth through consumer differentiation requires investing in improvements in three high-impact areas: tailored products and services, innovative care delivery, and listening to members.

Tailored Products and Services. Conventional consumer segmentation has not yielded strong positive results in Medicare Advantage. Products have lost their distinctiveness, with too many me-too attributes; they often overlap in benefits and vary only in price and network. Payers need a better segmentation model—one rooted in an understanding of seniors' emotional and functional needs.

Consumers, including seniors, have learned from the likes of Amazon, Netflix, and Apple to expect a high degree of personalization and customization in the products and services they buy. To win in Medicare Advantage, payers must develop a consumer-centric plan design with offerings tailored to meet the needs of subsegments within the patient community. BCG's 2019 Medicare Advantage Innovation consumer survey reveals a series of emotional and functional needs that companies can use as the basis for product design that goes beyond conventional segmentation. For example, the top three areas of emotional reassurance that consumers seek when selecting a Medicare health plan are as follows:

1. Getting the care they need
2. Being prepared for the unexpected
3. Feeling free to live retirement well

With respect to a plan's functional components, 49% of Medicare Advantage-eligible consumers prioritize having access to all of the care they may require with the best possible providers. Another 29% want to understand all of their options, maintain control of their health care, and keep their independence. These varying priorities offer health plans avenues for differentiation that extend beyond benefits and network coverage alone.

Innovative Care Delivery. Baby Boomers have the same high expectations for their senior years as for most of the rest of their lives. In particular, they expect to continue to live on their own terms. Payers can drive growth and improve overall care, consumer convenience, and experience by integrating innovations that appeal to this generation of Medicare consumers. These include incorporating high-touch, convenient, easy-to-schedule primary-care models and providing in-home care management support for consumers who prefer to age in place and maintain their daily routines. Some payers are investing in in-home care and wellness programs designed to help people return home more quickly after hospitalization or live more easily at home when managing long-term illnesses or chronic conditions.

Listening to Members. Payers in general receive low trust scores from consumers. To improve their members' experience, they need to increase their transparency and pay closer attention to the qualities and attributes that Medicare buyers are looking for. BCG's 2019 survey identifies the following functional product attributes (contributing to a seamless end-to-end member experience) that respondents who are 60 to 70 years old frequently cite:

- Online collateral information as part of the process for choosing a Medicare Advantage plan (84%)
- Full-coverage lump-sum premium payments (64%)
- In-home (versus nursing home) care at affordable cost (62%)
- A cash-back plan if annual health care costs fall below a certain threshold (58%)
- Ability to sign up online directly with insurance company (22%, second only to "in person with an insurance broker," at 26%)

Payers can also explore deepening customer relationships through concierge-like models, whole-person approaches, lifestyle and wellness programs and incentives, consumer-friendly tools that offer members transparency about their care choices, and a customer service team supported by a technological back end that the team can leverage to help members navigate the maze of the health care system. Differentiation in service can help smart payers position themselves as part of the answer, not part of the problem.

How You Play Depends on Where You Start

How each company—or type of company—should approach the Medicare Advantage market depends in large part on its starting point. Large national incumbents can use their scale, share, and expertise to protect share and make new inroads. They can push the operational excellence and differentiation levers described above to offer further-advantaged

pricing that builds on their strengths, but they should not lose sight of their other structural advantages. They can invest in care delivery and other network assets on a national scale and apply advanced analytics to reduce costs, curate networks, predict risks, and offer timely interventions. They can also partner nationally with digital companies to develop innovative user experiences.

Large national incumbents can use their scale, share, and expertise to make inroads.

Blue Cross Blue Shield plans can draw on their considerable strengths, including longstanding relationships with members, robust commercial books of business, established provider partnerships, and presence in other government-sponsored business segments (such Medicare supplemental plans and Medicaid). We recommend that they consider leveraging these attributes into avenues of entry into and growth in the Medicare Advantage market. The following opportunities seem especially promising:

- Capturing a disproportionate share of age-ins by capitalizing on the strength of their brand, commercial market position, and local provider relationships
- Creating new, transitional Medicare Advantage products for employee and retiree subsegments
- Expanding insight into network performance to create networks tailored to seniors' needs and priorities
- Building more-affordable joint plans with provider partners
- Launching new drug distribution channels
- Expanding service to include Medicare Advantage-based rewards and navigation
- Converting Medicare supplemental members to Medicare Advantage plans

- Moving into Medicare special needs plans by leveraging Medicaid expertise

Regional plans, which typically have less mature government businesses than national carriers, should assess whether entering Medicare Advantage makes sense as part of their overall business strategy. If it does, they should probably focus their plans on operational excellence and partnerships to build Medicare Advantage capabilities, as opposed to trying to go it alone. Some regional players can leverage their local market positions and existing provider relationships, especially with a Medicare preferred-provider organization offering.

Other, smaller plans—such as new analytics-driven entrants, provider-sponsored plans, and pure-play Medicare Advantage plans—can bring unique differentiating capabilities to the market, but they will need to focus on delivering outsize value through an improved customer experience and network curation because they probably cannot compete effectively on price and scale. These entrants may also be able to take a page from disruptors in other industries and leverage digital distribution to promote new marketplace buying behaviors. In the auto retailing market, for example, one digital disruptor created a million-user marketplace for purchasing and financing vehicles online by introducing a mobile app that reduced buying time from more than five hours to just ten minutes.

THERE'S plenty to attract payers to Medicare Advantage. But playing the game at a winning level requires a defined strategy that is consistent with the organization's core competencies, a substantial degree of commitment—and perhaps some patience as well. In this competitive arena, management teams must assess their opportunities with eyes wide open.

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CHASING VALUE AS AI TRANSFORMS HEALTH CARE

by Alexander Aboshiha, Ryan Gallagher, and Lauren Gargan

BUSINESS LEADERS NO LONGER think about artificial intelligence in terms of future impact—they're seeing the impact today. AI is appearing in all corners of business, transforming the way companies operate. Health care is no exception.

Health care players are using AI to address significant inefficiencies and open up powerful new opportunities. These include everything from the delivery of remote health care services to the early diagnosis of disease and the hunt for new life-saving medicines. Today, the technology is incorporated into heart monitors, smart glucose pumps, and other recently FDA-approved diagnostic devices. Biopharma companies are already using AI to improve the efficiency of R&D; one notable example is through identification of better drug targets.

The ongoing rapid development of AI will trigger a major shift in the value pools across health care. This has serious implications not only for the industry's four major traditional sectors—biopharma, providers, payers, and medtech—but also for consumers and technology companies. Boston Consulting Group has conducted an in-depth analysis of the potential impact of AI on health care, identifying two prospective scenarios for how value will shift among stakeholders. Under one scenario, much of the value unlocked by AI is retained by players in the four health care

sectors and technology companies—while the second scenario sees much of the value flowing directly to consumers.

Health Care Enters the AI Age

AI is an amalgam of novel methods for gathering data (including machine vision, speech recognition, and natural language processing), new processing techniques (such as machine learning), and innovative interfaces with the real world (including speech generation and 3D navigation). While the term AI is often used to encompass a broad array of technologies, it should not be confused with traditional business intelligence or business analytics, both of which typically rely on structured data—applying classical statistics such as variances, correlations, and regressions to produce insights for business. AI does more. It harnesses diverse and unstructured data sets and employs novel methods such as neural networks to adapt and learn.

AI is taking off in health care today for three reasons. First, in developed markets there is mounting pressure to contain or reduce health care costs and improve outcomes. Second, there has been an explosion in the availability of health care data, including genomics data, electronic medical records, and information from monitoring devices, such as pacemakers and wearables. Third, advances

in software and hardware make it possible to harness that data in new, powerful ways.

As AI-driven innovations take off, providers will be able to diagnose disease earlier with greater accuracy—and ultimately manage it more effectively. Such advances will be critical drivers that help deliver the best patient outcomes at the lowest possible cost—what is known as value-based health care (VBHC).

What AI Can Do for Health Care

There are major opportunities to increase efficiency in seven areas across the health care value chain. Players in the four traditional health care sectors, as well as technology companies, are already deploying AI tools and approaches in order to seize those opportunities.

By 2022, annual spending on AI-related tools across seven areas will top \$8 billion.

By 2022, spending on AI-related tools will top \$8 billion annually across the following seven areas:

- **Remote Prevention and Care.** AI can be used to serve patients outside their doctor's office or the local hospital. Virtual agents, for example, can be used to conduct an initial consultation with a patient, screen out those who do not need to see a doctor, and provide important information to physicians about those who do need treatment. In addition, wearables or other devices can trigger alerts and interventions based on data such as anomalies in patient vital signs. Goldman Sachs estimates that the use of such tools could save roughly \$200 billion annually in the US alone. Given that potential, BCG expects that by 2022 the health care industry will spend roughly \$2.1 billion annually on AI tools in remote prevention and care.
- **Diagnostics Support.** AI applications in medical imaging and other clinical tests

can help doctors identify conditions such as breast cancer, brain injury, or heart disease earlier and more accurately. One recently FDA-approved medical device, for example, uses AI to analyze retinal images, allowing early diagnosis of retinopathy. Such tools can not only improve patient outcomes, but also save money. Earlier diagnosis and treatment of many cancers, for example, can cut treatment costs by more than 50%. And given that some 20% of diagnosis costs are related to salaries, there is a tremendous payoff if AI can improve the utilization and efficiency of highly paid radiologists and other professionals. By 2022, health care players will spend about \$1.2 billion annually on AI-related diagnostics support.

- **Treatment Pathways and Support.** Health care professionals can use AI tools to create individualized treatment plans that support VBHC by reducing risk, improving outcomes, and cutting costs. Case in point: the direct costs of medical errors, including those associated with readmissions, account for about 2% of health care spending in the US. Those errors ultimately take a toll on the broader economy with indirect costs—including lost productivity—estimated to total nearly \$1 trillion. By 2022, about \$2.8 billion will be spent annually on AI tools to improve treatment and support.
- **Drug Discovery and Development.** Biopharma companies invest roughly 60% more in R&D than companies in almost any other sector, spending half of that investment in clinical development. But the payoff is declining. Over the past 60 years, the number of new molecular entities from the biopharma industry per dollar of R&D spent has declined about 9% annually, according to Bernstein Research. AI can begin to reverse that trend, leveraging past screening results and clinical data to help companies identify and develop promising drugs, while also accelerating trial design and recruitment. Though AI will certainly not be a silver bullet, with the right data infrastructure and industry partnerships, biopharma companies can harness it to

make headway against declining R&D productivity. Total spending on AI-related drug discovery and development tools in 2022 is expected to hit \$1.3 billion.

- Operations.** AI—including natural language processing (NLP)—can help automate the writing and reviewing of many health care–related records. This has major implications for providers and payers. Physicians, for example, spend one-third of their time on paperwork—and payers have a significant administrative burden in handling claims. In biopharma and medtech, AI can help streamline operations, including areas such as the global supply chain, beyond the gains created by traditional analytics. By 2022, spending on AI tools in this area is projected to hit \$500 million.
- Marketing and Sales.** AI can allow both biopharma and medtech companies to identify providers who are likely to be receptive to the company’s products and create highly effective, personalized marketing messages to reach them. That could improve the efficiency of sales forces in both sectors, a critical objective in industries where marketing and sales expenses frequently top R&D spending.
- Support Functions.** Computer vision, voice recognition, and NLP are making the

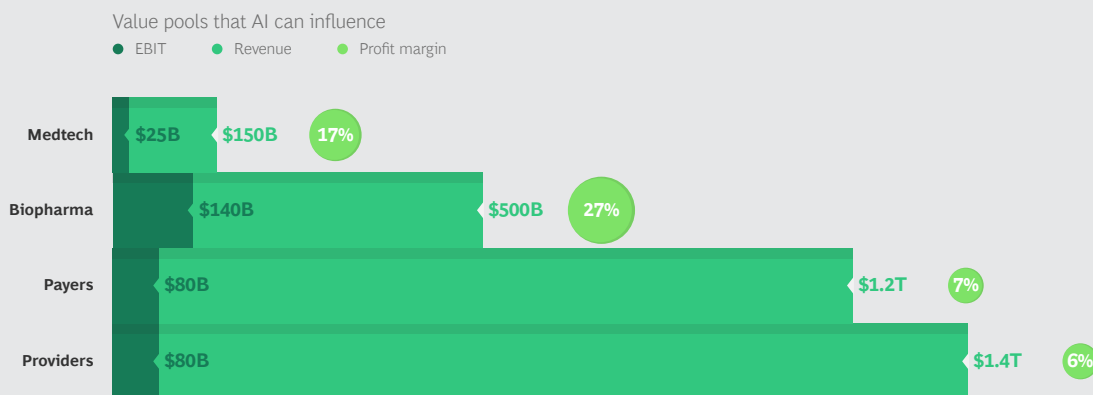
automation of standard tasks and processes a reality. Chatbots, for example, can answer consumers’ questions related to bills or password resets. Those AI tools, in combination with advances in robotics, can enhance support function performance across all four health care sectors.

Value Pools Shift

AI will cause shifts in health care value pools—reflected in revenues and profits—by exposing inefficiencies, improving medical decision making, and increasing the quality of care. (See Exhibit 1.) Value will shift not only among the health care sectors but also to players traditionally outside the industry, and to consumers.

Impact on Health Care Players. There are three primary categories of value pool shifts. The first category includes changes created by applications that will reduce costs within a sector and therefore unlock additional value within that sector. These are net positives for the sector. The second are AI shifts yielded by applications within one health care sector that will threaten revenue or profits within other sectors. In such cases, value will flow from one health care sector to the other. The third includes shifts driven by AI applications within one of the four health care sectors that cause value to flow from that sector to either technology companies or consumers.

EXHIBIT 1 | Value Pools Within Four Health Care Sectors Will Be Impacted by AI



Sources: Expert interviews; Economist Intelligence Unit; BMI Research; Insurance Information Institute; IMS Institute; S&P Capital IQ; BCG analysis.

Note: All figures are approximate for 2017. Profit margin calculated using average EBIT of public companies with revenues greater than \$10 million.

- **Biopharma.** In the first category of value pool shifts, biopharma will benefit significantly thanks to AI-driven efficiency improvements in areas such as R&D, sales, marketing, and manufacturing. Some companies are already using AI to predict bottlenecks in manufacturing, allowing for adjustments that prevent stock-outs on critical products. In the second category of shifts, value will move from biopharma to payers and providers as AI tools identify optimal treatment pathways and change prescribing patterns, or implement preventive measures. In addition, with many providers operating under contracts that reward them for better outcomes achieved at lower cost, the savings from more efficient use of biopharma products will cause some of the value previously captured by biopharma to shift to providers. And technology companies will capture some value from biopharma as their algorithms for things like target identification, lead optimization, and patient recruitment become more deeply ingrained in the R&D process.
- **Providers.** Diagnostic and treatment selection algorithms improve outcomes and reduce waste. Providers will retain some of that improved efficiency, through fewer hospital readmissions (which often come with financial penalties) and lower hospital overhead costs, for example. As noted above, changing drug utilization will shift some value from biopharma to providers. Also, AI-driven resource scheduling, coding, and billing will improve operational efficiency. But there are negative shifts for providers as well. Improved monitoring, management, and a movement to prevention of chronic conditions will reduce demand for provider services, with the value of those savings captured by payers. In addition, some value within the provider sector will flow to technology companies and medtech players that create AI solutions and intelligent monitoring systems, respectively.
- **Payers.** As in the other sectors, AI will yield major efficiencies in claims handling and other operations, including improved fraud, waste, and abuse detection. That value will be retained by payers. AI-driven enhancements to population health management are likely to keep patients healthier and reduce claims. In addition, improved efficiency and clinical decision making, reflected in reduced hospital readmissions, for example, will create savings. As noted above, providers will retain some of those AI-driven savings—but payers will capture much of it. Payers will also capture some of the value previously garnered by biopharma, as AI drives more efficient utilization of medicines and enables more aggressive formulary negotiations. Payers will, however, see the third (negative) category of shifts. Market competition and regulatory pressure, including minimum medical loss ratios, are likely to compel payers to pass some value on to consumers in the form of lower premiums or enhanced coverage.
- **Medtech.** AI will improve overall medtech efficiency, including within the supply chain and marketing and sales operations—unlocking value that the industry retains. As noted earlier, the introduction of intelligent monitoring and diagnostic devices will generate treatment savings—with some of the value previously captured by providers flowing to medtech. On the downside, technology companies will increasingly offer products and solutions that encroach on the domain of medtech.
- **Consumers.** The primary impact on consumers will be a positive one. As noted above, AI-driven efficiency improvements in the health care system will unlock value for payers—and some of that value will be passed on to consumers in the form of cheaper, or better, insurance coverage and improved health.
- **Tech Companies.** AI will provide a new opportunity for technology companies to stake out major positions in the traditional health care landscape. Already, players such as Alphabet, IBM, Apple, Amazon, and Alibaba are making significant investments in the health care space.

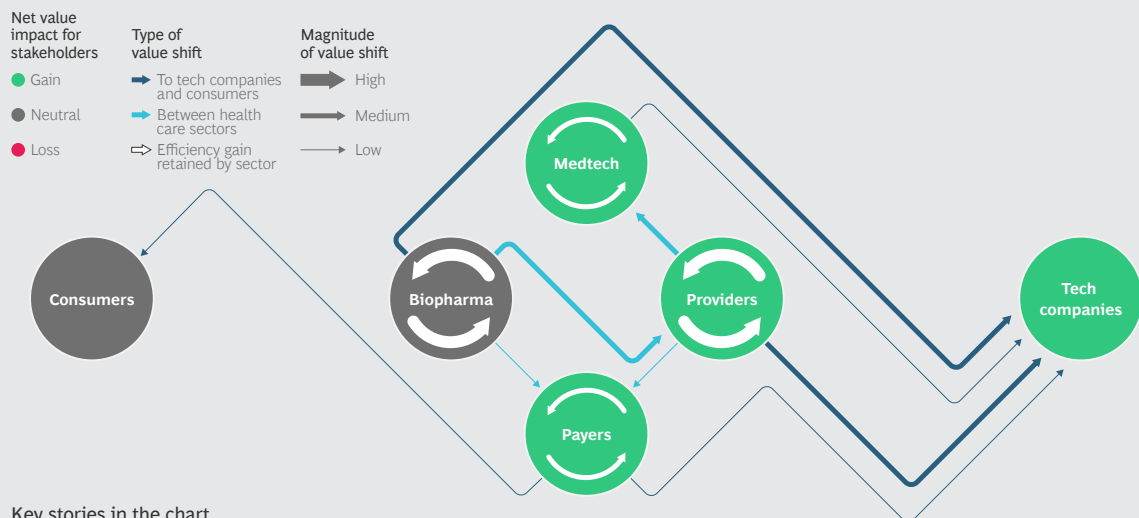
These companies are developing AI-driven products and solutions across all four health care sectors, including clinical decision support for providers, diagnosis tools that medtech companies can embed in their products, population health management for payers, and target identification for biopharma—to name a few. At the same time, smaller technology players are emerging, creating innovative AI-focused health care solutions. Among them: Atomwise, which is developing AI-enabled drug discovery approaches; Babylon Health, which is developing an AI-driven system for matching patients with caregivers; and Zebra, which is building software for automated analysis of diagnostic imaging.

industry. Multiple scenarios are possible. Let's consider two:

- Scenario 1.** Under this outcome, most of the value unlocked by AI stays within the health care industry and the technology industry. (See Exhibit 2.) Players in all four sectors keep the value that is unlocked by improvements in their own efficiency (the first category of value described above). In this world, tech, medtech, providers, and payers reap the largest gains, while the impact on biopharma is likely neutral. Consumers, meanwhile, see improved outcomes but limited savings.
- Scenario 2.** In this world, a significant amount of the value is passed on to consumers. (See Exhibit 3.) AI helps drive VBHC—improved outcomes at lower cost—and the value unlocked passes to consumers in the form of lower premiums or out-of-pocket costs. Technology companies and medtech also benefit significantly, while biopharma loses value because of

Two Possible Outcomes. The directional flow of the various shifts in value is clear—but the magnitude is not. It is difficult to predict the extent to which the four traditional health care sectors will retain value instead of passing it on to consumers or the technology

EXHIBIT 2 | In Scenario 1, Much of the Value Unlocked by AI Is Shared Among Health Care Sectors and Tech



Key stories in the chart

Consumers: Neutral impact, as much of the value unlocked by AI is shared among health care sectors and tech companies

Providers: Positive impact, due to improved operations and clinical decision making

Payers: Positive impact, due to improvements in claims processing; fraud, waste, and abuse detection; and population health management

Medtech: Positive impact, due to more efficient operations and increased demand for AI-related devices

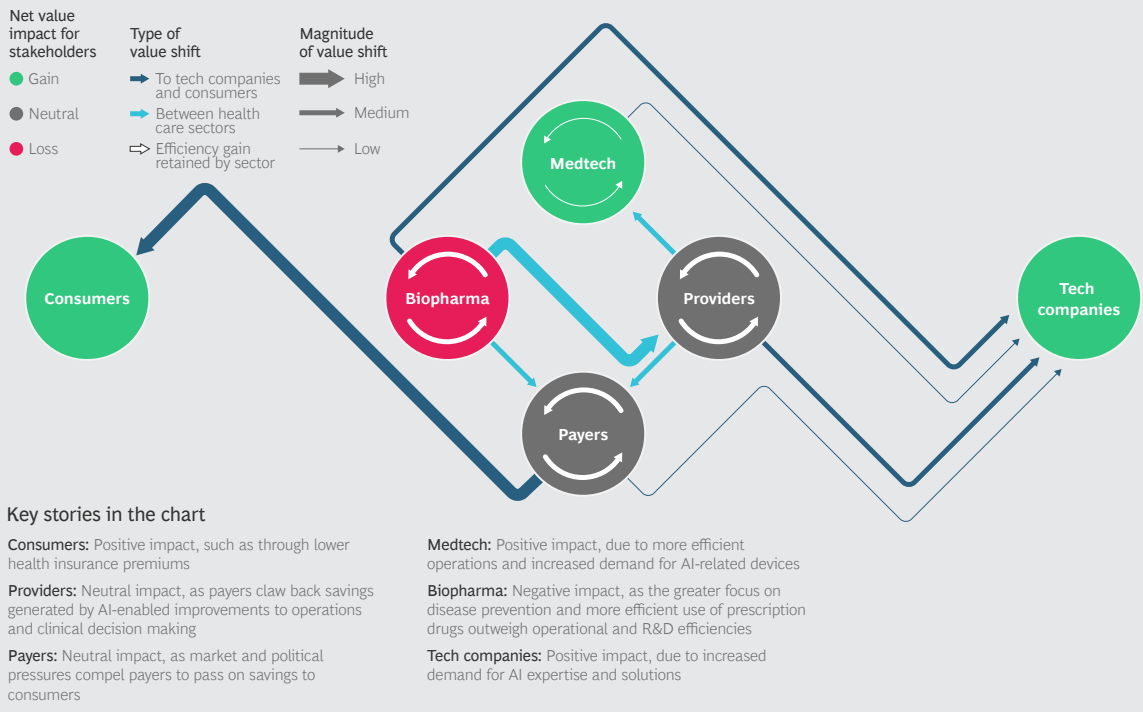
Biopharma: Neutral impact, as the greater focus on disease prevention and more efficient use of prescription drugs counteract operational and R&D efficiencies

Tech companies: Positive impact, due to increased demand for AI expertise and solutions

Source: BCG analysis.

Note: Arrow width proportional to estimated impact on value in five to ten years.

EXHIBIT 3 | In Scenario 2, Much of the Value Unlocked by AI Is Passed on to Consumers



Source: BCG analysis.

Note: Arrow width proportional to estimated impact on value in five to ten years.

shifts such as enhanced detection, prevention, and earlier treatment.

The Path Forward

The journey to integrate AI into strategies and operations must be a sustained one. But even companies that have yet to invest in AI decisively can make some smart, low-risk moves to either enhance the positive value shifts or minimize the negative impacts.

- Biopharma.** To maximize AI’s upside efficiency boost, biopharma companies should move quickly to adopt AI in both R&D and sales force management. In order to limit the loss of value triggered by lower prescription drug utilization, biopharma players must accelerate their efforts to “go beyond the pill.” This can include developing diagnostics and monitoring products and services, including those that can identify patients most likely to respond to a drug. It could also encompass collecting real-world data that demonstrates the value of their treatments to payers, providers, and regulators.
- Providers.** Hospitals and other provider groups should move quickly to embrace AI tools that provide clinical decision support, diagnostic imaging analysis, patient monitoring, and automation of processes such as resource scheduling, coding, and billing. These steps will help providers maximize the value they unlock and retain through improved efficiency. To minimize negative value shifts, providers should also embrace the evolution toward prevention and remote care by expanding their outpatient, home care, and virtual consultation offerings.
- Payers.** Payers should rapidly adopt AI tools that create value for them by boosting overall health care treatment efficiency. They could, for example, use AI to improve their approach to population health management—the collecting and analyzing of patient data in order to better manage important diseases and health issues within the group—as well as back-end automation that can reduce the costs of fraud, waste, abuse, claims processing, and customer service.

- **Medtech.** Medtech companies should move aggressively to develop the AI-enabled devices in imaging, diagnosis, patient monitoring, and surgery that will drive overall efficiency gains in health care. At the same time, they should adopt AI tools that will improve their internal efficiency in R&D and sales and marketing.

To make the most of the value shifts in these areas, health care players must ensure they have the right talent and the right data.

The talent challenge has a number of different but interconnected layers. Health care players will need to lure data scientists and engineers away from the likes of Alphabet, Apple, and Tesla. At the same time, they will need leaders who understand the AI opportunity, are conversant with the technical issues involved, and can communicate to the wider organization. Companies will also need to figure out where to house and how to organize AI talent so that they build a group that is both cohesive and dynamic—but is also accessible to, and integrated within, the overall organization.

The data issues associated with AI are similarly daunting. AI requires large amounts of data—but information in health care is often irregular or poorly structured, and dispersed among players that have different standards and regulatory restrictions. As a result, while individual players have valuable data sets, they often have difficulty pulling information together from across the entire industry. Payers, for example, have claims databases that can yield powerful insights—but they don't always have access to other information, such as electronic health records, that would give them a system-level view. The bottom line: companies must either invest in generating the data they need internally or strike partnerships with external players to gain access to it.

Having the right talent and data will be table stakes in a transformed industry. The organizations with an edge in both areas will have enormous advantages. Health care players must act now to develop and implement strategies to prepare themselves for this future.

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CREATING THE CRITICAL-CARE SERVICE OF THE FUTURE

by Jonathan Scott and Sahil Sanghvi

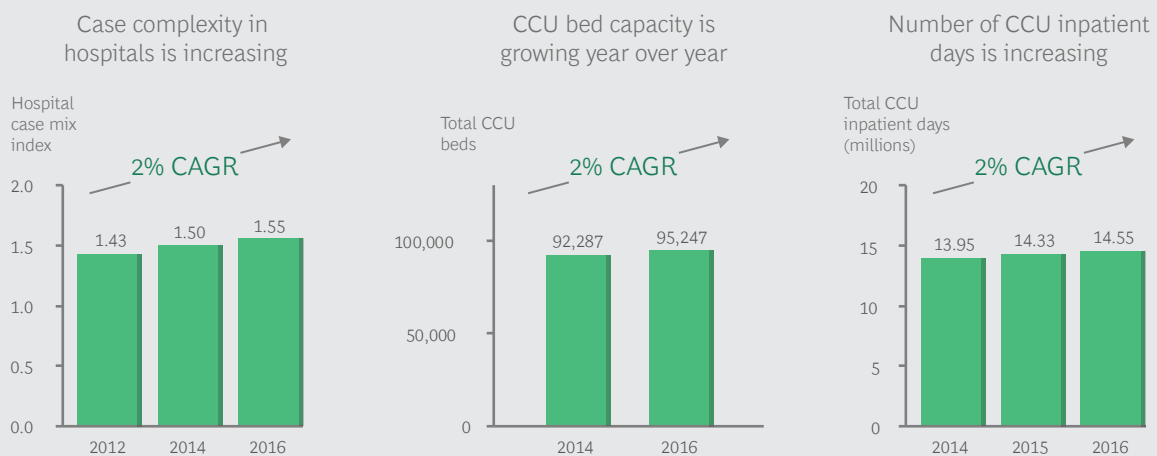
DEMAND FOR CRITICAL CARE (also known as intensive care) in the US has grown by around 2% per year recently. This expansion is driven by a growing population that is living longer with more chronic conditions, and by the increasing concentration of complex care in hospitals as more care migrates to nonhospital settings. Those trends are all expected to continue unabated.

To meet the demand, health systems have historically invested in more critical-care beds and recruited more intensivists (doctors who care for critically ill patients). (See Exhibit 1.)

However, that approach is both extremely costly and unsustainable because it results in a self-perpetuating build-and-hire cycle.

We have been working with clients to think more expansively about what the critical-care model of the future could look like. With the rise of artificial intelligence, tele-health, and more agile staffing models, health care systems are beginning to implement much more targeted ways to meet the growing demand for critical care while improving patient outcomes and managing costs. Through our work with clinicians, hospital administrators, and

EXHIBIT 1 | Critical-Care Capacity in the US Is Growing in Line with Demand



Sources: Centers for Medicare & Medicaid Services Healthcare Cost Report Information System database; BCG hospital database; BCG analysis.
Note: Hospital case mix index = a relative value assigned to a diagnosis-related group of patients in a medical care environment used to determine allocation of resources required for care and treatment.

medical-technology clients, we have pinpointed several promising strategies that health system leaders can adopt. These approaches will help them move away from solutions that ultimately exacerbate the problem and allow them to redesign care in a way that both serves patients better and sets a more sustainable course for health care systems.

Breaking Out of the Build-and-Hire Cycle

Although many hospitals have coped with the growing demand for critical care by investing in greater capacity and recruiting more staff, this approach ultimately contributes to the inflation of health care costs in three ways.

First, the US already has more critical-care beds per 100,000 people than most other countries do: 19, compared with 13 in Canada, 9 in the Netherlands, and 4 in the UK. (See Exhibit 2.) US health systems are increasingly reluctant to invest in additional inpatient capacity because growth (and sometimes margin) is concentrated in the ambulatory setting. Instead, what's needed is more effective and efficient use of existing inpatient capacity rather than expenditure on new capacity.

Second, intensivists are in high demand but short supply, which means they're becoming more expensive. (See Exhibit 3.) A recent survey showed that compensation for intensivists is at the high end of medical subspecialties and rising faster than for any other specialty, at more than 8% per year since 2014.

Third, intensive care unit costs in the United States are already very high. The average cost of one day in a US critical-care unit (CCU) is approximately 35% higher than in Canada and 169% more than in Germany. If US health systems stick with the build-and-hire approach, this gap will only continue to widen.

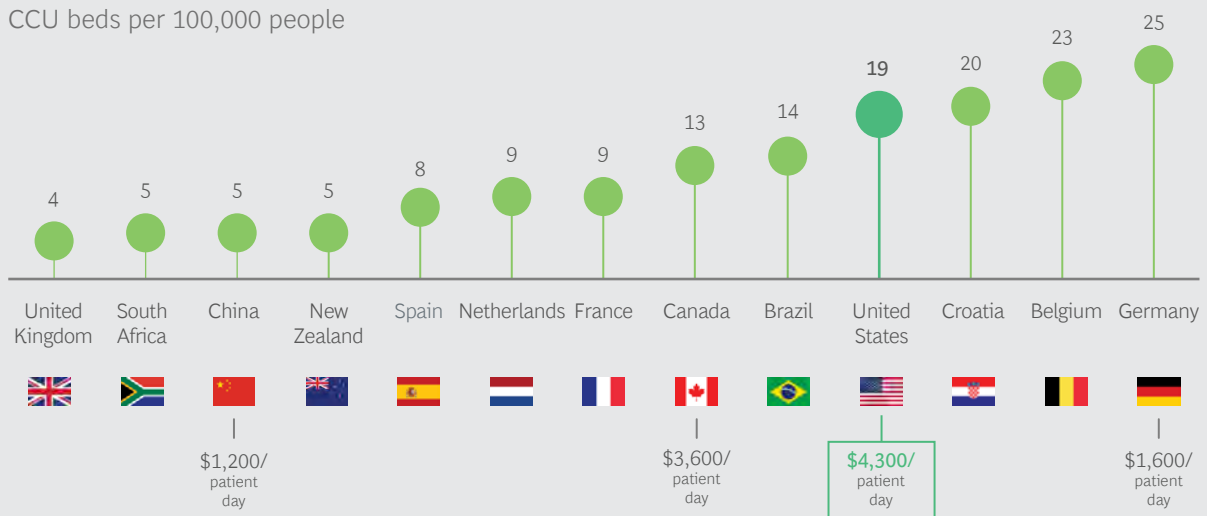
Challenges in Today's CCUs

To create a critical-care model that is both affordable and sustainable, health system executives first need to address four key challenges: overuse, staff shortages and attrition, fragmented systems, and inefficient management.

Overuse of CCUs. Overuse of critical-care beds puts undue pressure on capacity, increases the probability of medical complications such as infections and pressure ulcers,

EXHIBIT 2 | CCU Capacity and Cost in the US Are Higher Than They Are in Most Other Countries

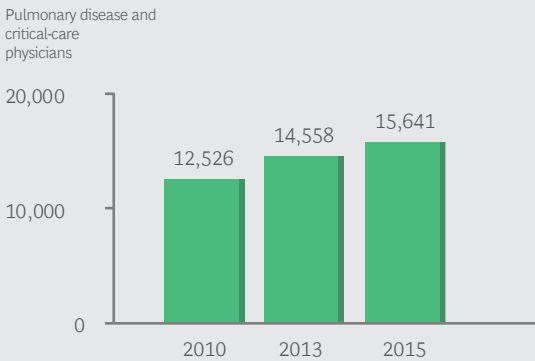
CCU beds per 100,000 people



Sources: Direct Cost Analysis of Intensive Care Unit Stay in Four European Countries: Applying a Standardized Costing Methodology, Value in Health Journal, 2012; A Contemporary Assessment of Acute Mechanical Ventilation in Beijing: Description, Costs, and Outcomes, Critical Care Medicine, July 2017; Care in Canadian ICUs, Canadian Institute for Health Information, August 2016; Clinical Review: International Comparisons in Critical Care—Lessons Learned, Critical Care, April 2012; BCG analysis.

EXHIBIT 3 | Market Dynamics Suggest an Ongoing Shortage of Intensivists in the US

Supply of intensivists is increasing by around 5% per year



Intensivist compensation is already high and is rising faster than in other specialties

Top recruited specialties	2017 income	2014-2017 CAGR
Intensivist	\$418,000	8.1%
Internal medicine	\$261,000	8.0%
Family medicine	\$241,000	6.8%
Otolaryngology	\$405,000	6.6%

Sources: CMS Healthcare Cost Report Information System database; BCG hospital database; Association of American Medical Colleges physician data; Merritt Hawkins Review of Physician and Advanced Practitioner Recruiting Incentives 2018; National Center for Biotechnology Information; BCG analysis.

and ultimately raises the cost of a patient’s hospital stay. Overutilization can occur at any or all of the three steps in a patient’s journey:

- Admission to the CCU.** In some cases, patients admitted to the CCU aren’t sick enough to require such a complex level of care, but physician preferences and a lack of available non-CCU hospital beds, among other factors, lead to admissions that could have been avoided. In other cases, CCU admission could have been averted or minimized if deterioration in a patient’s clinical condition had been predicted, identified, and addressed earlier.
- Care Progression.** The intensity and pace of care delivered to CCU patients can be inconsistent across providers. For example, different clinicians can make different decisions about intubating and ventilating a patient, using invasive versus noninvasive monitoring, the types and degree of sedation administered, and the types and frequency of diagnostic testing (such as labs and imaging) that are ordered. These variations, driven by disparities in education, training, and personal preferences, can contribute to avoidable expense and extended stays in CCUs. Operational inefficiencies such as sending orders for testing or consultations in batches rather than as they occur can lead to undesirable peaks and troughs in workflow.

- Step-Down from CCU.** The decision of when to move a patient out of the CCU rests not only on evidence-based criteria but also on a clinician’s judgment and his or her confidence in the quality of care that will be delivered elsewhere in the hospital. Even when a decision is made to transfer a patient to a general unit or to another service (such as palliative care or long-term acute care), other factors—such as unavailable beds, inefficient bed allocation processes, and a lack of necessary services—can delay transfer out of CCU.

Staff Shortages. Most CCUs in the United States report challenges with recruiting and retaining staff. Many of the new graduates trained at large teaching hospitals (where the number of CCU beds is increasing faster than at other hospitals), for example, leave after a few years in search of less demanding work. Other institutions report that their rigid staffing approach does not meet the expectations of a modern workforce, where employees want greater flexibility and opportunities for lateral as well as vertical career advancement. Similarly, the typical unit-specific approach to staffing can lead to misallocation of resources in the form of mismatches between the number of staff and the amount of work that needs to get done in each unit. This can lead to dissatisfaction, burnout, and attrition.

Fragmented Systems. CCUs depend on multiple and different systems, many of which operate independently, and nurses and physicians report significant frustration with the level of fragmentation that these systems create in workflow. For example, a patient’s monitoring system, ventilator, infusion pumps, imaging, and electronic medical records may be completely independent and disconnected from one another. Therefore, physicians and nurses must pull information from multiple systems, mentally collate and interpret that information, and then document their work or make changes in each separate system. This requires replicating efforts and increases the probability of error.

Inefficient Management. At some hospitals, the major administrative components of each CCU—budgeting, staffing, capacity management, and admissions, for example—are still managed independently. In this model, each new admission requires negotiation among multiple parties, a process that is often coordinated by a clinician. This is not a good use of the clinician’s time, adding to his or her administrative burden and taking time away from patients.

The model can also limit understanding of enterprise-wide CCU economics because there can be multiple conflicting sources of information. What’s more, it can create perverse incentives, whereby clinical departments or specialties try to offload costs onto the CCU but keep associated revenue to enhance their departments’ apparent margins.

A Strategy to Unlock Value in Critical Care

To create the critical-care service of the future, health systems executives should consider the following five strategies.

Redefine critical care as a set of specialized services. Hospital systems should conceptualize critical care as a set of services delivered by specialists rather than a set of discrete locations. Some of the services delivered within the CCU should also be made available to patients outside of that setting through the development of a mobile critical-care team, vascular access team, and

ventilatory support team. The mobile critical-care team could focus on early and proactive intervention with patients at highest risk of admission to the CCU to prevent avoidable admissions. They could also monitor and manage step-down to lower levels of care to prevent readmission to the CCU. The vascular access team would advise on the best option to secure arterial or venous access to prevent overuse or misuse, and could also insert and manage vascular access lines across the hospital to reduce complications such as infections.

One option is to establish a single point of leadership over all critical-care services.

Finally, larger hospital systems may benefit from a team dedicated to managing patients who need only ventilatory support, to keep them out of the CCU setting if their clinical condition allows.

Optimize management and governance. Hospital systems should consider establishing one point of leadership over all critical-care services, including the services mentioned previously as well as subspecialized critical-care units such as cardiac surgery, neurosurgery, and burns. This leadership should be supported by integrated operational and financial reporting to monitor and manage the performance of those services and also to understand the drivers of demand for them. This can help optimize the balance of critical-care priorities for the institution as a whole against those for each individual unit and service.

Standardize and digitize key clinical and operational decisions. Hospital systems can reduce variability and increase efficiency by using advanced analytics, machine learning, and digital technologies in the following ways:

- Assign scores to non-CCU patients based on risk of deterioration (over a 12-hour period, for example) to guide early proactive intervention by the mobile

critical-care team, thereby preventing avoidable CCU admissions.

- Identify key intervention points along the patient journey that will drive the most clinical, operational, and financial value. These can include decision-making and operational processes related to CCU admission, ventilatory support, vascular access, invasive monitoring, and sedation.
- Develop and drive adoption of best clinical and operational practices at key intervention points by embedding them into existing clinical and operational workflows.
- Evaluate the effectiveness of any clinical or operational changes implemented at key intervention points and refine them over time.

Also, when purchasing or upgrading clinical systems and equipment, hospital systems should establish minimum requirements for interoperability, data capture, user experience, and workflow compatibility.

Agile staff scheduling can help manage peaks in demand or short-staffing situations.

Improve the management of existing hospital capacity. Hospital systems should consider managing bed capacity centrally across all CCUs (including those specific to certain surgical subspecialties) to streamline the admissions process and optimize for the enterprise rather than for individual units. To increase the efficiency of individual CCUs, patients can be segmented by complexity to better match staffing ratios and capabilities with patient needs. They can also be segmented by likely duration of stay to improve continuity of care.

Hospital systems should also consider adding CCU-level care capabilities to some non-CCU beds to handle unexpected surges in demand such as during flu season or in the case of a major incident.

Build flexibility and agility into the operating model. There are several ways that hospital systems can deploy staff more efficiently and effectively.

- Staff can be cross-trained to increase the interchangeability of nurses and technicians across locations.
- Employees can be deployed from a central pool to achieve optimal supply-demand matching if multiple CCUs are located within a hospital or a metropolitan area.
- Tele-health solutions can provide after-hours support, especially for smaller, community, or satellite locations that cannot justify 24-hour on-site coverage or specialized services.

In addition, staff scheduling can be managed in a more agile way to manage peaks in demand or unexpected short-staffing situations more effectively. For example, hospitals can experiment with short-term, gig-economy-style staffing systems.

The demand for critical care is only going to rise in the coming years, and short-term fixes will become increasingly unsustainable and counterproductive. By taking action in the areas outlined here, health system leaders have an opportunity to improve outcomes for patients while controlling costs.

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LEVERAGING VR TO TRANSFORM THE ASSESSMENT AND TREATMENT OF DISEASE

by Martin Shapiro, Nate Beyor, and Chris Bergstrom

THE PRACTICE OF MEDICINE has developed over centuries in one core way: By relying on the physician's interaction with the patient. Physicians ask patients questions, physically examine them, order tests, and set the corresponding care plans based on these interactions.

While new labs, imaging, and medications have evolved, the physical exam of the patient and nonpharmacological treatment have yet to evolve. Both of these areas of assessment and treatment are ripe opportunities for change, and virtual reality (VR) is poised to answer the call.

VR is a powerful platform of immersive experiences that has begun to reach a scale of both technical capabilities and low cost. In 2016, estimates showed that less than 1% of computers could run the best virtual reality, but, in the past year, introduction of stand-alone headsets such as the Oculus Go allow for virtual reality experiences without relying on computer processing.

While much of the mass VR adoption excitement has been shared in the gaming community, the platform's ability to provide engaging experiences that incorporate metrics of how the user interacts with the system are also applicable to health. More specifically, VR is positioned to disrupt both the assessment of disease and the future of treatment.

Digital Biomarkers: Future of Disease Assessment

The proliferation of wearables such as the Fitbit, Garmin, and the Apple Watch has led to a new kind of medical information known as digital biomarkers. Like general biomarkers, digital biomarkers serve as measurable indicators of the presence and/or severity of disease—but through digital means. In other words, they allow us to move beyond traditional vitals such as heart rate and blood pressure, opening up the possibility to discover novel metrics that may provide enhanced understanding of disease.

Digital biomarkers allow us to move beyond traditional vitals such as blood pressure.

As a platform, VR captures many quantifiable data sources showing initial clinical research progress, including:

- **Audio.** Headsets with built-in microphones can be used to capture audio with the potential to quantify data points from a patient's breathing, coughing, and voice. Voice, in particular, can serve as a powerful mechanism for assessing patients' cognition in their ability to answer questions

logically, history of symptoms, and disease state through analysis of speech patterns. For example, a recent study leveraged an algorithm analyzing speech to detect Parkinson's Disease based on kinetic changes. Another recent study explored how we may soon be able to assess depression through voice by observing a patient's reduced vowel spacing.

- **Eye Tracking.** Eyes serve as a window to the brain and their movements can reflect progression of neurological diseases. Novel techniques are allowing physicians to track a patient's eye movements during a VR experience. For example, The Michael J. Fox Foundation announced a proposed study to analyze abnormal eye movement to diagnose Parkinson's Disease.
- **Body Position and Movement.** The ability to measure head, hand, and limb movement in virtual reality—tracking their position in space as well as acceleration—serves as a proxy for a range of clinical measurements, from gait analysis to tremor. Quantifying tremor has the potential to differentiate and evaluate diagnoses such as essential tremor (ET) or Parkinson's disease.
- **Visual Display.** Gaps in a patient's ability to discern color, visual acuity, or field of vision could be detected through custom examinations delivered through VR. For example, in a 2017 study out of San Diego, a virtual reality headset augmented with EEG sensors was able to demonstrate early potential for glaucoma disease.
- **Product Engagement in a 3D World.** As with any digital product, user engagement with features can help inform product optimization. In a clinical setting, better engagement can lead to better outcomes. Unlike an app or a webpage, VR offers a full 3D environment for user engagement, opening up a complex and rich set of data to inform designers and engineers and they build better and better solutions for patient care.

While each of these data streams represent different digital biomarkers on their own, it is

the combination of these various streams that will lead to profound advancements in the assessment of diseases such as Parkinson's and associated comorbidities such as depression.

VR will play a powerful role in defining digital biomarkers and in the delivery of care.

In this way, VR will play a powerful role not just in defining digital biomarkers, but also in the delivery of care.

Digital-Enabled Care: The Future of Treatment

VR is already proving to be a valuable modality in health care settings, with uses for practitioners and patients. A few archetypes of how VR is changing care are listed below:

- **Scaling Existing Care.** Telemedicine delivered through VR extends the clinician's engagement outside the office and allows an immersive visit at someone's home or other preferred location. This flexibility enables access to those in rural communities or lacking access or ability to transit to appointments. Rehabilitation is an additional area where VR experiences can facilitate the workouts, track adherence, and provide feedback at scale.
- **New Modality for Proven Therapies.** In the treatment of phobias such as a fear of heights, psychologists may use exposure therapy to teach patients how to overcome their frightened state. Current gold standard involves a therapist guiding the patient through a series of 'immersive' exercises from looking at a photo to thinking about the experience confronting the fear. VR exposure therapy (VRET) enables opportunities to gamify more engaging experiences and studies have shown the effectiveness of VRET relative to therapist only care.
- **Novel Digital Therapeutics.** Here we are able to unlock opportunities to provide

treatments only possible through the unique capabilities of VR. In lazy eye (amblyopia), children are typically given an eye-patch to allow for their eyes to adjust until they have normal vision. Vivid Vision, on the other hand, gamifies treatment and assessment for lazy eye delivered through VR modulation of different displays for each eye demonstrating preliminary research.

- **HCP Training.** VR simulation can be used as a training tool for surgeons to practice technique and therapists to role-model patient interactions. As users gain comfort with the medium, innovators are experimenting with different types of content delivery to determine how the VR environment can enhance performance in the real world.

As VR continues to mature, we will see a confluence of digital biomarkers and enabled care to provide truly unique, engaging experiences and outcomes that are increasingly more accessible to patients. The question is: Who will develop this next wave of solutions? Capabilities in clinical subject matter expertise, VR design and engineering, data science, business, and commercial distribution will be needed—but no one player alone will have the leading expertise across all of these areas.

Inspired by this multidisciplinary opportunity, BCG Digital Ventures recently hosted the Gamifying Pediatrics Hackathon with the Children’s Hospital of Los Angeles Innovation Studio. Engaging members throughout the healthcare community from patients, designers, engineers, physicians, and entrepreneurs, the goal was to develop new digital health tools and immersive experiences for pediatric patients. Over the course of a weekend, multi-

disciplinary teams formed and then built prototypes using VR/AR to address real clinical problems in pediatric care.

At BCGDV, we believe in the power of technology to change the nature of patient care. We see VR as one of these potentially transformative technologies—when applied to the right use cases. Questions remain about the scalability of each of these unique use cases and the pace of adoption. However, as digital appetite from HCPs continues to grow, as better products are tested in-market, and once more clinical data is collected, we anticipate that clinical VR will be an integrated element of the provider toolkit of the future.

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REWRITING THE RULES OF THE GAME IN HEALTH CARE

by Jad Bitar, Emile Salhab, Krystelle Hanna, and Stefan Larsson

NATIONAL HEALTH SYSTEMS AROUND the world face three interrelated challenges. In the face of persistent cost pressures, they need to become more efficient. But they must do so while improving the health outcomes they deliver to their populations and reducing variation in outcomes across the population as a whole. And finally, they must do all this in an industry that is subject to enormous change and disruption.

In the face of cost pressures, national health systems need to become more efficient.

Innovations and improvements in care delivery are setting new standards for clinical best practice; new social trends are encouraging patients to demand a greater say in their care and more access to information about their health; and new technologies such as wearables, advanced analytics, and AI are driving a revolution in e-health.

Addressing these challenges effectively won't happen through incremental initiatives. Rather, it requires comprehensive health system transformation. Most national health systems have evolved over many decades into a patchwork of organizations and institutions—

the equivalent of legacy systems in the IT world. But today, industry and government leaders need to go back to square one and holistically rethink the design of national health systems in order to fundamentally transform them.

The key to this transformation is a new approach to health sector governance. To continue the IT analogy, governance is the equivalent of a computer's operating system. By redesigning a country's governance model for the health sector, health care leaders can, in effect, replace the old operating system with a new one that is better suited to addressing the challenges that face health systems today.

BCG has been working with national health systems around the world to redesign and refocus their approach to health sector governance. We have found that, although the specific governance challenges that a country faces differ depending on contextual factors, nearly all health systems confront a common set of problems. First, the health care environment is changing so rapidly that even the best-governed health systems suffer from critical gaps in governance. Second, in many instances, the incremental evolution of governance systems over decades has created overlapping responsibilities that lead to unclear accountability, and sometimes conflicting directives, from competing regulatory entities. Third, even in situations where

accountability is clear, the relevant regulatory agencies often lack the expertise and capabilities necessary to cope effectively with today's challenges.

Despite these problems, however, a new logic for health sector governance is beginning to emerge. More and more countries are re-orienting their national health systems on the principle of delivering improved health care value to their citizens. They are aligning stakeholders in support of this shared objective, encouraging innovative ways of organizing and paying for care delivery, and embracing advances in health informatics that take advantage of up-to-date digital technology.

Governance is a key lever for health care policymakers in pursuing a holistic approach to all of these changes and creating coherent, value-based strategies for the entire national health system. In this article, we define what good governance ought to mean in health care, explain how leaders should approach the design of a 21st-century governance system, and identify four critical design choices that will shape any redesign effort.

Defining Good Governance in Health Care

In the context of a national health system, *governance* refers to the constellation of organizational entities, policies, and regulations that define appropriate behaviors for actors in the system and monitor performance in order to optimize the health value of the entire population. Health value encompasses the health outcomes delivered to defined patient groups or population segments (for example, all patients suffering from congestive heart failure, or members of specific risk groups such as newborns or the frail elderly). An effective health sector governance system will accomplish the following four things:

1. **Set the direction for the entire health system** by establishing an overall vision and strategy, developing short- and long-term plans for each sector of the system, and defining key performance indicators.

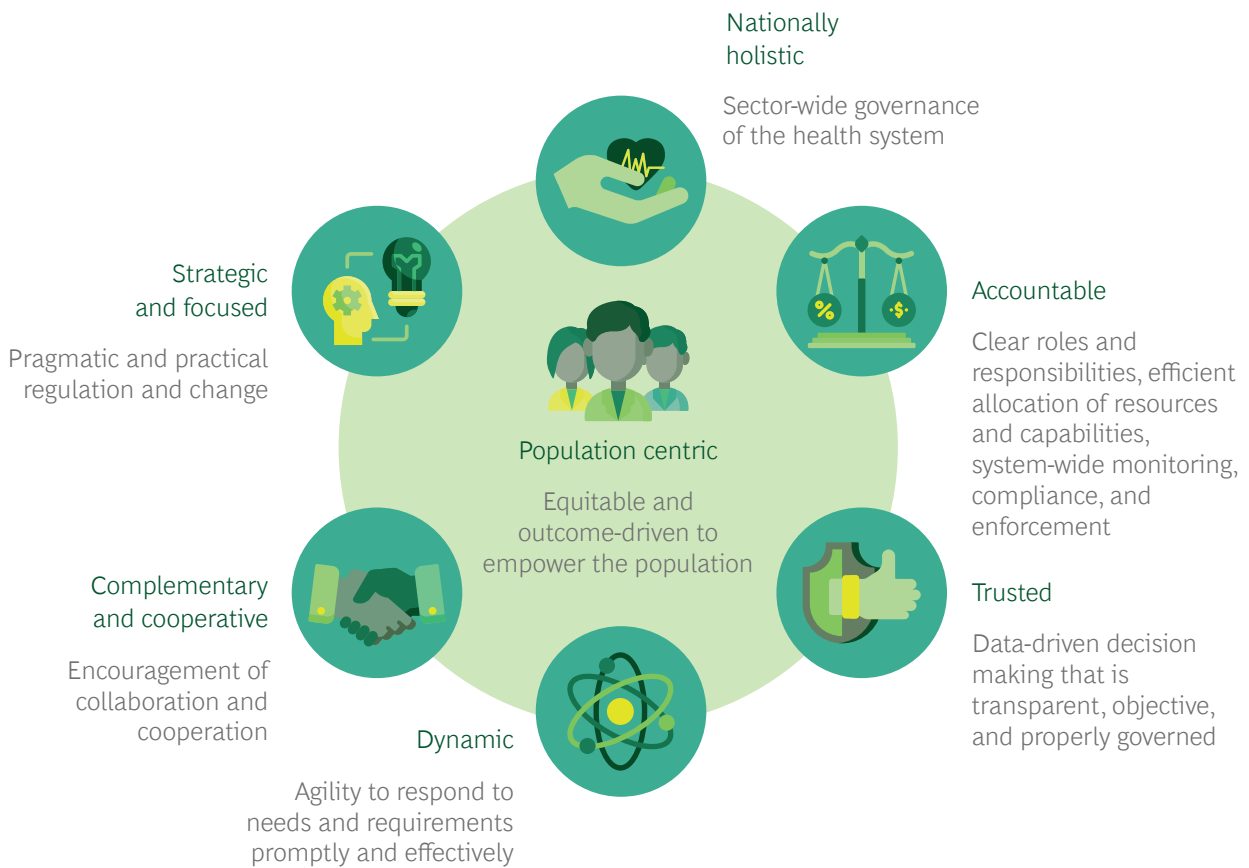
2. **Translate the vision into relevant policies, regulations, and standards**, and then review and update them over time.
3. **Monitor systems performance** through the collection, analysis, and reporting of data on the key performance indicators.
4. **Strengthen the performance of key actors in the system** by defining roles, designing incentives, and building capabilities.

A health sector governance system's ultimate goal is to improve overall health.

In our work with clients, BCG has extensively benchmarked health system governance models around the world. We have identified seven design principles that should inform any effort to redesign health sector governance. (See Exhibit 1.) Some of these principles may sound obvious, but the logic underlying the principles and the way the principles work together to create a coherent governance operating model is essential. What's more, these high-level principles will serve as a constant reference point in efforts to design the details of the governance system.

Population Centric. The ultimate goal of any health sector governance system is to improve the overall health of a nation's population over time. At a minimum, that goal entails universal access to care, but access is by no means sufficient in itself. Rather, the primary objective of any governance system should be to enable the delivery of continuously improving health outcomes to different population segments in an equitable manner, without major variations in outcomes across different regions (for example, urban versus rural) or different demographic, ethnic, and socioeconomic groups. Although the term *population health* has grown increasingly popular in recent years, its implications for health sector governance remain underdeveloped. It is the rare national health system

EXHIBIT 1 | Seven Principles of Effective Governance Design



Source: BCG analysis.

that is explicitly organized to deliver continuously improving health outcomes to all its citizens and measures its performance in those terms.

Nationally Holistic. The governance system also needs to be holistic. That is, it needs to cover all key dimensions of the national health system and set coordinated and integrated policies. Although most advanced health systems around the world have a single national regulator at the center of their governance model, few have a comprehensive and integrated governance strategy. One country that has successfully developed a holistic approach to governance is the Netherlands. Recently, the Dutch government announced a five-year Plan for Outcome-Based Healthcare—in effect, a national strategy for value-based transformation of the health system. The Dutch Ministry of Health, Welfare, and Sport is leading the €70 million initiative, with the active

participation of stakeholders across the Dutch health system.

Accountable. An effective governance system requires accountability, with clear roles and responsibilities; efficient allocation of resources and capabilities; and system-wide monitoring, compliance, and enforcement. The cornerstone of accountability in a population-centric, value-based health system is the systematic measurement and reporting of health outcomes by disease and by population segment, coupled with incentives that reward stakeholders for delivering improved outcomes for the same or lower cost. For example, Sweden’s extensive infrastructure of more than 100 quality registries tracks outcomes for leading diseases, procedures, and medical conditions. Increasingly, Swedish health authorities are leveraging this network to introduce value-based approaches for care delivery and health system management. From 2011 to 2015, Sweden’s national and

regional governments invested approximately 1.5 billion Swedish kronor (about €160 million) to extend the registry network and to develop new tools that use data on outcomes to inform clinical decision making, improve relevant information available to patients, and serve as the foundation for value-based payment.

Trusted. Clear accountability enhances a governance system's trustworthiness. One key source of trust is transparent decision making driven by objective data analysis—an approach that is becoming increasingly feasible, thanks to the revolution in health informatics, which makes more and more health data available to decision makers. For example, Estonia's national health system has made significant progress toward creating an advanced digital infrastructure for e-health. The country now requires by law that all personal health information be stored in a machine-readable common format within five days of service delivery. The health informatics system links data from different providers and from ancillary stakeholders such as ambulance services. Individuals have access to their data through a single point of access. Providers also have access to aggregated data for clinical and research purposes, although patients have the right to restrict such access in specific situations.

Dynamic. A country's health sector governance system should also be dynamic. Its processes should have the agility to respond quickly to changing circumstances or innovations in clinical practice and care delivery. For example, Singapore has created a dynamic health system that emphasizes quality and access, encourages preventive measures to minimize expensive care, and creates multiple incentives for patients to take responsibility for their own health. In 2015, Singapore invested 20% of its total government health spending in social and economic development and in preventive measures.

Complementary and Cooperative. A governance system needs to encourage cooperation among the national health system's many stakeholders. This principle is especially important in an era when improvements in health care value increasingly depend on

breaking down traditional silos between stakeholders and on creating more integrated models of care. In Slovakia, for example, the government has recently concluded a nationwide conversation about health care reform, focusing on how to change the way the national health system manages costs, with the goal of improving health care value. The catalyst for the process was a set of proposals from the trade association of the nation's three private payers. The Ministry of Health picked up the proposals and orchestrated a consultation process involving key government agencies (such as the Ministry of Finance), private and public providers, Slovakian municipalities (which own some public hospitals), patient organizations, and the country's main political parties. The reform proposals define minimum standards for treatment, suggest policies for concentrating patient volume to encourage the development of national centers of excellence, and outline continuous improvement processes for provider organizations. The reforms, which the Slovakian legislature recently adopted, will drive a major reorganization of the Slovakian health system over the next few years.

An effective national health governance system needs to be pragmatic and practical.

Strategic and Focused. Finally, an effective governance system needs to be pragmatic and practical. Planners should temper their desire for a holistic system-wide approach with a strategic focus on what matters at a given moment in time. For example, a US federal health agency recently introduced a new strategic planning process to identify a set of focused strategic initiatives to improve health care value for the patients it serves. Among the priorities identified by the process: a new strategy for rural health care, a major e-health initiative to help patients access and share their medical data and use it to inform their medical decision-making, and other projects focused on key aspects of value-based health care including price transparency and innovative payment mod-

els. The agency created a simple governance process to manage these strategic initiatives, which combined clearly defined owners, milestones, and success metrics, with regular engagement between senior leadership and the initiative owners.

Designing the Components of the Governance System

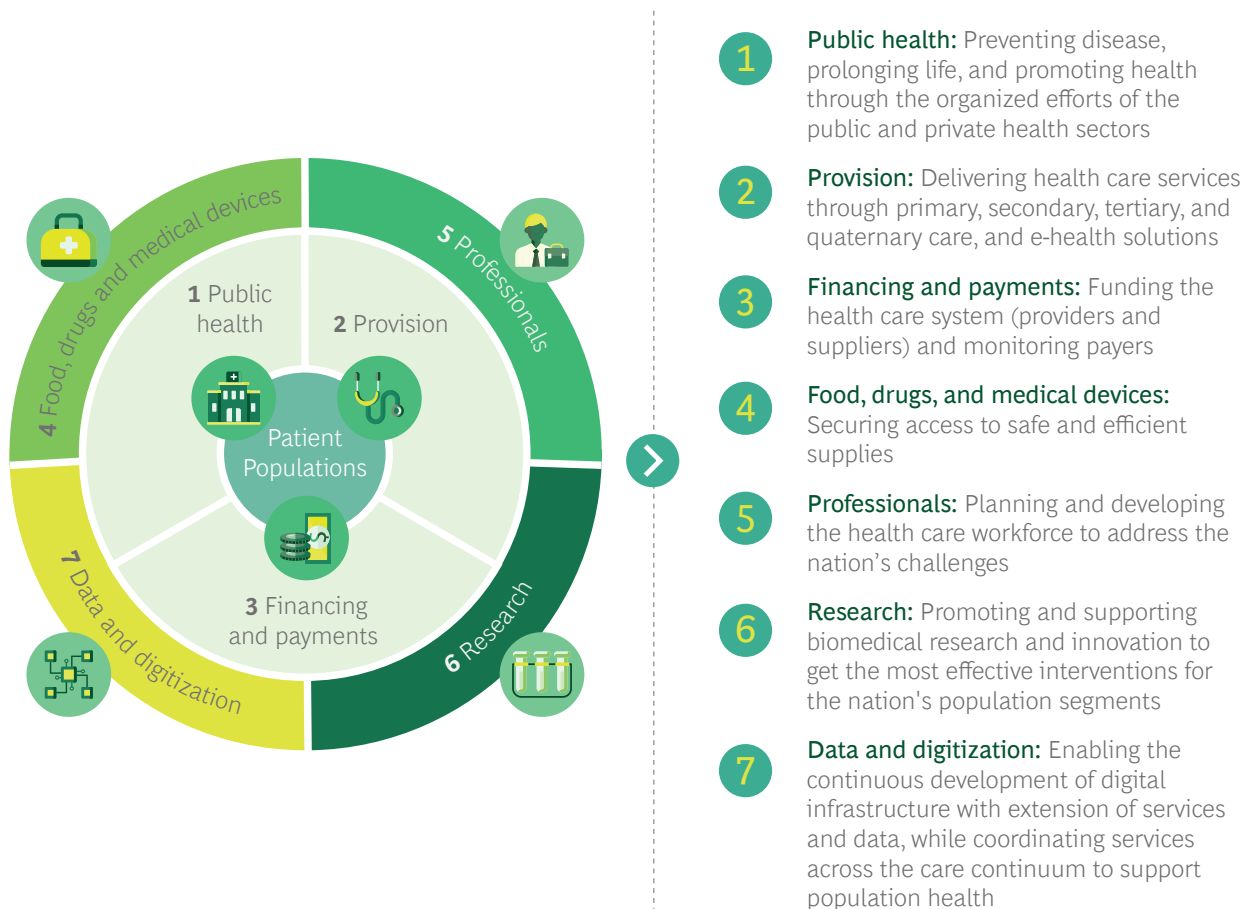
These design principles set the high-level vision for health sector governance. But the critical challenge is to translate that vision into the infrastructure of the governance system itself—the organizational entities, roles, and responsibilities that will set the national health system’s strategy, policies, and regulations.

It’s useful to think of a modern national health system as a series of three concentric circles. (See Exhibit 2.) The innermost circle

consists of a country’s population, and the system’s overarching goal is to continuously improve the health outcomes that it delivers to that population over time. A second circle, surrounding the one at the center, consists of three crucial subsystems: the public health subsystem, which aims to prevent disease and promote health; the provision subsystem, comprising the medical treatments and other services provided through delivery organizations that focus on primary, secondary, tertiary, and quaternary care; and the financing and payments subsystem, which organizes the funding of the national health system.

Surrounding this second circle is a third circle containing four additional support subsystems: the food, drugs, and medical devices subsystem, for assessing the safety, efficacy, and contribution to health care value of critical supplies such as medications and medical

EXHIBIT 2 | The Components of a Comprehensive National Health System



Source: BCG analysis.

devices; the professionals subsystem, for planning and developing the health care workforce necessary to meet the health system's goals; the research subsystem, for driving biomedical and clinical research and innovation and identifying the most effective interventions; and the data and digitization subsystem, for helping continuously develop the health system's digital infrastructure, including creating new data services across the health care continuum.

A national health system doesn't have good governance unless it has full coverage across this map, with adequate and appropriate resources, accountability, and interaction in place for direction setting, policy formation, and ongoing monitoring and enablement. BCG has identified 33 specific functions across the seven subsystems that a comprehensive health governance design should include. (See Exhibit 3.)

In designing a governance model to encompass all of these activities, the health system's leaders must address four critical design decisions: balancing centralization and decentralization, integrating prevention with treat-

ment, defining the role of the public sector, and combining enforcement and enablement.

BALANCING CENTRALIZATION AND DECENTRALIZATION

The contributions of centralization to system consistency and comprehensiveness are clear. That's why most advanced health systems around the world have a single national regulator—typically, the Ministry of Health—at the center of their governance model. This national regulator acts as the voice and custodian of the entire health care system and supports a holistic and integrated approach to health sector governance.

Within the general concept of a single national regulator, however, planners must decide which regulatory activities the Ministry itself should perform and which it should entrust to independent specialized entities. No single approach is best for all national health systems. Some countries—Belgium, for example—adopt a centralized approach in which the national regulator does almost everything. Others, such as Canada, pursue a more decentralized arrangement. As a rule of thumb, the larger and more geographically,

EXHIBIT 3 | The Landscape of Health Sector Governance

 Public health	 Provision	 Financing and payments	 Food, drugs and medical devices	 Professionals	 Research	 Data and digitization
Surveillance and epidemiology	Access to care	Budgeting	Safety and efficiency	Workforce planning	Research agenda setting	Digitization strategy
Public health interventions	Facility licensing	Insurance licensing and monitoring	Approval, licensing, and marketing	Health professionals licensing	Funding and grants	Integration and interoperability standards
Emergency preparedness and response	Quality improvement	Performance management	Supply availability and security	Professional education and training	Research regulations and safety	Research regulations and safety
International collaboration (such as WHO)	Facility accreditation	Coverage and eligibility	Guidance for professionals and public			Information protection
Interagency collaboration	Patient advocacy	Payment models	Adverse event reporting			Solution deployment and maintenance
Occupational safety	International referrals					

Source: BCG analysis.

socioeconomically, and ethnically diverse a country is, the more suitable a decentralized approach is likely to be.

Even the most centralized of governance systems, however, need some independent entities to deal with potential conflicts of interest. Among the activities that should always be at arm's length from the national regulator are quality assessment and improvement (which should be the responsibility of an impartial body that sets transparency standards for information and publishes data on health outcomes and other performance measures) and patient advocacy (to deal with malpractice issues and other patient complaints). Determining the appropriate degree of centralization and decentralization was a key issue in the design of a new governance system for an emerging-market country. (See “Building a New Health Governance System from Scratch.”)

INTEGRATING PREVENTION WITH TREATMENT

When most people think about health care, they tend to focus on the treatment of disease and on the complex network of providers, drug companies, and medical device makers responsible for delivering treatment to patients. In a world where major chronic diseases are becoming increasingly prevalent and now account for a major portion of health care costs, preventing disease is as important as treating it. And yet, many important interventions to prevent disease are not typically viewed as being integral to medical care. Examples include efforts to address socioeconomic determinants of health or patient lifestyle choices. Too often, budgets for preventive activities stretch across multiple payers and government agencies, creating obstacles to coordination, planning, and more rational resource use. The result is systematic underinvestment in prevention and public health.

BUILDING A NEW HEALTH GOVERNANCE SYSTEM FROM SCRATCH

A fast-developing emerging-market economy had expanded its health care sector significantly and seen substantial improvements in population health. Nevertheless, the nation's health system remained highly fragmented, with gaps in care provision, health care regulation, and use of state-of-the-art technology. As a result, the country's health outcomes lagged considerably behind global averages.

To address these shortcomings, the country's government embarked on a major reform effort, which included a reorganization of the country's Ministry of Health. Previously, the Ministry had been responsible not only for financing and regulating care but also for actually providing it through a network of government-run hospitals. The new model assigned these three functions to separate entities. The purpose of the change was to increase transparency and ensure efficiency and accountability. But it led to uncertainty about the Ministry's future role.

When we benchmarked the country's existing governance system against leading health systems, we found it to be relatively immature. In some areas, multiple agencies were doing more or less the same things, with unclear accountability. In others, appropriate governance simply did not exist. By incorporating best practices from around the world, however, the country could create a best-in-class governance system.

In the new model, the Ministry of Health will function as the single national health regulator, working in collaboration with independent specialized regulators that will exercise primary responsibility in areas such as regulating food, drugs, and medical devices; tracking health outcomes and system quality; and funding biomedical research and development. To implement the new model, the country has embarked on a multiyear transformation journey, as detailed in an implementation roadmap consisting of more than 70 separate initiatives.

Consequently, a second key design issue that health care leaders should consider is how to integrate prevention and treatment, so that the system can support explicit tradeoffs between the investments in each domain. Key levers for addressing this issue include the design of the budgeting process for the health care sector, the creation of value-based pay-

ment and reimbursement models, and licensing requirements that promote more integrated and multidisciplinary end-to-end provider networks. These dimensions of governance were a major focus of our work with the national health system of a European country. (See “Creating a More Holistic Approach to Health Sector Governance.”)

CREATING A MORE HOLISTIC APPROACH TO HEALTH SECTOR GOVERNANCE

A European country with an advanced health care system and a strong national regulator was struggling with rising health care costs in an aging society where chronic diseases account for a growing proportion of the overall disease burden. To control costs, the government launched a structural reform of the health system aimed at improving health care value by more closely integrating the provision of care with public health and the prevention of disease, by shifting the financing system from fee-for-service to value-based financing, and by increasing coordination across providers.

Making these changes required a far more holistic approach to health sector governance than had previously existed. The country’s traditional governance system was complex and fragmented. The national health insurance system financed the provision of care, but many different federal and regional government agencies managed different parts of the care delivery system. Meanwhile, an entirely separate public health system set norms for prevention.

This network of strong, independent governance entities was quite good at managing the separate components of the health system. But it was dysfunctional at developing comprehensive and integrated responses to the challenges associated with value-based health care—for example, balancing disease prevention and disease treatment, developing a global health informatics system to track health outcomes, and developing end-to-end approaches to care delivery. Since each administrative entity tended to optimize

efforts to achieve its immediate objectives, addressing issues that cut across multiple administrative areas was extremely difficult. As a result, the issues tended either to fall through the cracks of the governance system or—worse—to become sources of conflict among administrative units competing for influence and control.

To address this problem, the redesign effort focused on creating a new governance entity overlying the current system. The new agency will function as a strategic health care policymaker for the entire health system. It will be responsible for creating an integrated global budget that permits explicit tradeoffs between investments in prevention and investments in treatment. It will also introduce fundamental reforms in key strategic areas—for example, the creation of integrated, end-to-end care delivery networks and the design of new value-based payment mechanisms. And it will guide systemwide planning for future needs, manage the systematic monitoring of health outcomes (including the creation of an independent center for health data governance), and champion collaboration at the regional, national, and international levels.

So far, the parties in the national government’s ruling coalition and key administrative stakeholders have agreed to the new governance model. The country is currently in the midst of a national consultation process that aims to translate the principles of the new model into legislation and formal health policy.

DEFINING THE ROLE OF THE PRIVATE SECTOR

In most countries, health care has traditionally been part of the public sector. More recently, however, many countries have been exploring various forms of privatization in the hope that introducing market mechanisms into the health system will promote efficiency and more rational use of resources. In many developing countries, the health system suffers from critical infrastructure and capacity gaps that the government lacks the resources to address adequately. In such situations, the private sector can be an important source of investment to build capacity and fill gaps that the publicly owned health system cannot. Therefore, two key decisions that countries must make about the design of their health sector governance involve identifying the precise role of the private sector and designing incentives to attract private investment while also establishing safeguards to minimize negative market effects.

Countries must identify the precise role of the private sector in their health system.

Privatization and market-based competition won't automatically lead to improved health care value. As in any market, the impact of market mechanisms will depend on the design of the rules governing market competition. In both developed and developing countries, governance systems need to design the rules for competition so that all of the system's stakeholders—public and private—have incentives to compete on value and so that the health system rewards participants that deliver the highest-quality outcomes in the most cost-effective way. A key first step is to require all providers to systematically measure and report the health outcomes that they deliver to patients. In the absence of such information, patients cannot make informed choices among providers, and providers cannot understand the relative quality of the services they are delivering or how to improve those services.

COMBINING ENFORCEMENT AND ENABLEMENT

The traditional model of regulation in health sector governance focuses on enforcement. In this model, regulators play a relatively hands-off role in which their chief responsibility is to determine whether stakeholders in the industry are complying with the rules. Although the enforcement model still has its place, it needs to be supplemented with a new model of regulation as enablement, in which hands-on regulators actively engage with stakeholders to help them build capabilities and improve their own organizational effectiveness and that of the system as a whole.

This enablement model acknowledges the critical importance of regulatory agencies' interactions with stakeholders and of the quality of service they provide in key areas such as data analysis and benchmarking, research and development, and training and continuous education. The goal is to work together to create a more efficient, better-performing national health system. This emphasis on enablement and improved quality of service was a key focus of our work with the Ministry of Health in a Middle Eastern country. (See "Designing a More Agile and Efficient Governance System.")

Four Steps in Redesigning Health Sector Governance

Many factors may cause a health system's leaders to revisit the design of their governance system. The catalyst might be a reform in the legal framework governing the health system, as it was in the case of the emerging-market country. Or it might be a desire to embrace a new strategic focus such as value-based health care, as in the case of the Netherlands. Or it might be a growing conviction that after years of incremental development, the governance system is due for an extensive refresh. Whatever the precipitating cause, the redesign process involves four basic steps.

Assess your starting point. In order to thoroughly assess their starting point, health system leaders must ask and answer a number of critical questions:

DESIGNING A MORE AGILE AND EFFICIENT GOVERNANCE SYSTEM

A Middle Eastern country already had a fairly comprehensive governance system, but the responsiveness of the responsible government entities was slow and limited. Therefore, the redesign effort focused on getting the existing governance system to operate more efficiently and to provide more responsive and higher-quality services to the health system's stakeholders and the country's citizens.

BCG worked with the country's Ministry of Health to develop a three-part strategy. The first leg of the strategy involved transferring nonregulatory services to other entities that could deliver them more effectively and efficiently, so that Ministry officials could focus on their regulatory role. We identified approximately 20 services comprising about 100 processes that the Ministry currently provided, and we determined that about half of them should be transferred to other entities. Some services were moved to other government agencies that were more appropriate homes for them. For example, the issuance of birth and death certificates shifted to the Ministry of the Interior, which already managed the country's personal registry, and the development of regulations for occupational health went to a newly created Center for Public Health.

Other services were outsourced to the private sector. For example, hospital licensing—the process by which new hospitals are approved to operate in the country's health system—was traditionally a slow and cumbersome process involving an initial evaluation of a hospital's operations, as well as large amounts of paperwork requiring approvals and signoffs from various Ministry officials, before a final regulatory decision could be made. Because licensing was just one of many services that the Ministry provided, it rarely received the focused attention of Ministry officials.

The redesigned process saves significant time and resources by outsourcing the

initial evaluation and paperwork to a private company that focuses on the logistics of the licensing process. The move lets Ministry officials focus on defining the key criteria and regulatory requirements for licensing and on making the final regulatory decision on the basis of the paperwork that the company assembles. Once a hospital is approved, the company also oversees an ongoing post approval auditing process to ensure that the hospital continues to comply with regulatory requirements.

For services that the Ministry would continue to provide directly, planning focused on creating leaner, more efficient, and more sustainable processes through rationalization and automation. Three principles guided this effort: adopt the best technology available, give customers multichannel access (including remote, web-based access), and develop a fee structure in keeping with the Ministry's mandate as a public entity.

In parallel with these rationalization efforts, the Ministry is developing new value-adding services to improve the national health system's performance. For example, it is developing an integrated health information system to allow the country's public and private hospitals to compare health outcomes, develop a deeper understanding of key patient segments, and predict trends in supply and demand.

The Ministry is currently implementing these extensive changes. When the transformation is complete, we estimate that the Ministry will be able to improve its efficiency by almost 40%, increase revenues by 15%, improve client satisfaction, and streamline decision making. The result will be a more efficient, more responsive governance system that provides high-quality service to industry stakeholders and to the nation's citizens.

- How is our health system performing? Where do we stand in terms of global benchmarks for health outcomes?
- What parts of our current governance system are working well, and what parts not so well? Is our governance model sufficiently comprehensive?
- What can we learn from benchmarking other health systems' best practices for governance? How can we adapt these practices to our national context?
- Do we have the potential to leapfrog past other global health systems by comprehensively redesigning our governance system?

A successful transformation requires development of a broad authorization network.

Define your goals. The assessment exercise should establish a baseline for current system performance and the existing governance model. It should also identify some key challenges or gaps in need of attention. For example, in the emerging-market country, the goal was to design a new health governance system from scratch. In the European country, the objective was much narrower: to develop a holistic approach to tradeoffs between investments in prevention and investments in treatment. And in the Middle Eastern country, the aim was to improve the efficiency and effectiveness of service delivery. In each case, the goal shaped the focus of the redesign initiative.

Redesign the governance model. Although the particular emphasis of the redesign effort will depend on the specific gaps or issues that leaders need to address, some best practices hold true for any redesign effort. For example, a good governance system will empower a single institutional voice for regulating the health system; ensure proper allocation of roles by eliminating duplication, filling gaps, and managing potential conflicts of interest;

address all dimensions of the health system; and reflect the seven design principles described earlier in this report.

Plan for implementation. Finally, while good design is necessary, it is far from sufficient. Transforming a country's health care governance system is usually a multiyear journey, so the implementation requires careful planning. In particular, planners must pay close attention to generating buy-in and support from the system's multiple stakeholders, including providers, payers, suppliers, and patients. Political leaders and policy-makers can broadly set the rules of the game through the legal and policy framework governing the health system, but transformation by top-down mandate rarely succeeds in complex, multistakeholder environments such as health care.

Rather, a successful transformation requires the development of a broad network of authorization consisting of multiple champions from different organizations in the system who endorse the new governance model, advocate for it inside their own organizations and in the community at large, and invest the resources needed to make it happen. Transforming health systems through a new approach to health sector governance has the best chance of scaling up when health system leaders collaborate in the effort. (For more on this subject, see "Value in Healthcare: Accelerating the Pace of Health System Transformation," World Economic Forum, December 2018.)

THE global health care sector is in the midst of a massive transformation. Health sector governance must change—not only to keep up with the latest trends, but also to guide the transformation wisely and in a coordinated fashion. Now is the time for national health systems to take a fresh look at health sector governance and to systematically rethink their governance model.

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WOMEN DOMINATE HEALTH CARE—JUST NOT IN THE EXECUTIVE SUITE

by Michelle Stohlmeyer Russell, Matt Krentz, Katie Abouzahr, and Meghan Doyle

THE US HEALTH CARE industry is frequently cited as the gold standard for gender diversity. According to the US Bureau of Labor Statistics, 77% of the health care workforce is female, far higher than other industries. Yet in the executive suite, the share of women is only on par with other industries—that is, far lower than it should be—and it has not changed in the past decade.

Arguably, then, gender diversity is *worse* in health care—including payers, providers, pharmaceutical companies, and medtech firms—than in other industries. These companies have a wealth of talent to develop into senior positions, yet the industry still relies primarily on male leaders.

This isn't an issue of fairness; gender diversity offers substantial benefits to organizations. According to BCG research, diverse leadership teams perform better: they are more innovative and generate higher financial returns. In the current health care environment, companies must innovate faster than ever to contend with disruptive forces such as new payment models, digital and e-health, and the increasing involvement of patients in decisions about their care. Given these pressures, companies need to tap all available insights, ideas, and perspectives.

We recently analyzed the share of women at all levels in the US health care industry. We

also spoke with six exemplary female senior executives who have spent their careers in the industry. They served as thought partners, offering invaluable insights into both organizations and individuals. On the basis of that quantitative and qualitative work, we offer six initiatives that can help health care companies create truly balanced leadership teams.

A Bigger Funnel, but a Steep Drop-Off

Among payers and providers, women make up roughly 75% of entry-level employees, higher than in most other industries. At pharmaceutical and medtech firms, women make up roughly half of new hires at all levels, higher than for the S&P 500. Women also receive the majority of graduate and postgraduate degrees in health care subjects.

Yet at higher levels of seniority, the number of women in the industry drops off sharply. At the CEO level, the share of women essentially reverts to the average for the S&P 500. (See Exhibit 1.) Payers are an exception, where 18% of CEOs are women, but that's a bright spot only in relative terms: it's still just one-fourth of the entering population of women at these companies. And the picture is worse at the biggest health care organizations. Among the 50 largest payers, providers, and pharma companies (150 companies in all), only 18 have female CEOs.

The situation in medtech is particularly bleak; there is just one female CEO among the 50 largest companies in that subsector. One likely factor is the importance of a STEM background in medtech—and women represent only around 24% of the STEM workforce overall.

These numbers are abysmal. If anything, health care companies should be better positioned to create gender-balanced leadership teams. The industry has a much larger pool of women across the workforce than others, meaning that there is more talent to assess, develop, and promote into senior roles. It is especially challenging that men still outnumber women at the top of most US health care organizations, while women make up the bulk of the decision makers and end users of those organizations' products and services.

There are two contributing factors. First, business unit heads are still predominantly men, while women tend to cluster in administrative functions such as HR, marketing, risk, and legal, as well as in nursing. (See Exhibit 2.) That could push women out of consideration for the most senior leadership roles. In addition, women have historically tended to bear the brunt of child care responsibilities. We know from previous BCG research that ambition levels among women do not change if they have children. However, if companies do not offer flexible work options and other supportive arrangements to new parents, some women may opt out of the workforce for a period. (This is also an issue for households in which both parents work.)

The data tells a clear story: recruiting isn't the problem—it's retention and advancement. A recent BCG survey supports this finding. Retention was the most cited obstacle to gender diversity, mentioned by 57% of respondents. Advancement was also a critical factor, cited by 50% of respondents.

Putting Women on an Equal Footing

Despite this challenging reality, we are optimistic that organizations that commit to diversity can turn the situation around. Our research and analysis point to six actions that health care organizations can take to increase the retention and advancement of women.

Highlight senior women as role models. As Nancy Schlichting, who spent more than a decade as the CEO of the Henry Ford Health System, says, "Women want to work in an environment with many other women to emulate as role models." To help women at lower levels envision a path for themselves, senior women should be prominent, both internally and externally, and the organization should publicly celebrate them as examples of people who have risen to leadership positions.

For example, Laura Forese, MD, who is the COO and executive vice president of NewYork-Presbyterian and has spent most of her career at the organization, hosts town halls with the CEO at all of the hospital's campuses.

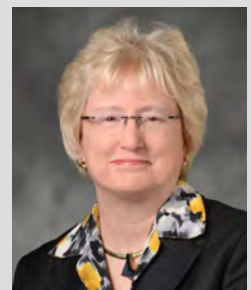
NANCY SCHLICHTING

"Do you have ideas that are inspiring and drive change? Then jump into the deep end of the pool."

Nancy Schlichting is the former CEO of the Henry Ford Health System.

CAREER HIGHLIGHTS

- Held senior executive positions at health care organizations for more than three decades
- Joined the Henry Ford Health System in 1998 as chief administrative officer
- Served as CEO for 13 years before retiring in 2016



LAURA FORESE

“If you’re the only woman in the room, be the bold voice in the room.”

Laura Forese, MD, is the executive vice president and chief operating officer of NewYork-Presbyterian.

CAREER HIGHLIGHTS

- Specialized in pediatric orthopedic surgery and became an associate professor at Columbia University
- Joined NewYork-Presbyterian in 2003 as vice president
- Held six roles, both corporate and operating, before ascending to the executive vice president and COO role for the entire enterprise



That kind of frequent presence makes senior leadership visible and accessible.

BCG research shows that if there are no senior female role models, women coming up through the ranks can’t see themselves reflected in the demographics at the top of the organization and, as a result, can’t relate to those in senior positions. Therefore, they may self-select out of promotion opportunities or, worse still, out of the company or industry completely.

Develop sponsorship programs for high-potential women. Many of the successful female senior leaders in health care we interviewed benefited from sponsors who helped guide them throughout their careers. These sponsors not only provided advice but

also—more critically—served as advocates to make sure the women received fair consideration for promotions, high-profile projects, and other opportunities. Notably, sponsors can be men as well as women.

For example, Karen S. Lynch, the executive vice president of CVS Health and the president of the Aetna business unit, has received professional support from her “personal board of directors”—colleagues who have played a crucial role in guiding her decisions throughout her career. The key, says Lynch, is to maintain these relationships over time, even when you’re not in a direct working relationship with these people.

All too often, this kind of support happens only informally, by chance and circumstance,

KAREN S. LYNCH

“Make sure you have diversity in the roles that matter.”

Karen S. Lynch is the executive vice president of CVS Health and the president of the Aetna business unit.

CAREER HIGHLIGHTS

- Began her career as a CPA at Ernst & Young
- Held various executive positions at Cigna and Magellan
- Joined Aetna in 2012 and ran various business units before becoming president in 2015



rather than through a carefully developed and maintained program. By creating formal sponsorship programs, companies can reach more high-potential women while they are still plotting their careers. (See “How High-Potential Women Can Help Themselves.”)

Standardize performance reviews and promotion criteria on the basis of hard metrics. The unconscious biases that affect performance

reviews and promotions are a major contributing factor to gender imbalance. Even managers and leaders who believe they are completely objective are not. Forese provides an example: “The team was talking about a talented female executive and an open senior role, and someone said, ‘But didn’t she just have a baby?’ We would not have had this conversation if we were talking about a man who might also have just had a baby. Let’s

HOW HIGH-POTENTIAL WOMEN CAN HELP THEMSELVES

While there is much work ahead for organizations seeking to create gender-balanced leadership teams, the senior women we talked to said that midlevel women in health care can take steps of their own to improve their leadership prospects.

Take risks and be open to new opportunities. There are benefits to taking risks in your career. Laura Forese, MD, the executive vice president and COO of NewYork-Presbyterian, points out that women often don’t go for stretch opportunities. “Sometimes women see a job description that has ten things on it and say, ‘I don’t know, I haven’t done that, I have done this, but I’m not the best at it,’ which then becomes, ‘I can’t go for this job.’”

To avoid that kind of self-sabotage, women in health care should push themselves outside their comfort zones and seek out positions that require work across boundaries. For Karen S. Lynch, the executive vice president of CVS Health and the president of Aetna, this has included a rotation in HR, which she pursued at the suggestion of her sponsor. The experience gave her a front-row seat to understanding the time and commitment that leaders need in order to cultivate talented teams—a lesson that has stuck with her as a senior executive.

Speak up and let others hear your perspective. Nancy Schlichting, the former CEO of the Henry Ford Health System, guides women in health care to speak up.

“Do you have ideas that are inspiring and drive change?” she asks. “Then jump into the deep end of the pool.”

Forese also points out the value of speaking out. “If you’re the only woman in a room,” she says, “be the bold voice in the room.” During her orthopedic surgery residency, she was often the only woman in the room among a group of 50 residents.

Because she stood out, she would get called on more frequently than her male colleagues. She turned this into a positive, using each question from the surgeons as an opportunity to demonstrate that she belonged in the room.

Focus on long-term success rather than short-term challenges. Several senior leaders highlighted the value of persevering through short-term challenges. “You will have setbacks,” says Lynch. “But whether you get up and how you get up are what really define your path.” Forese tells young women in health care that making mistakes in the short term is part of the job. “A 100% success rate all the time suggests to me that I’m not being bold enough.”

Mary Jo Williamson, formerly the vice chair for administration and a trustee of the Mayo Clinic, emphasizes the importance of pushing through these mistakes. “Doing the work matters,” she says. “Results matter. Being a high performer may not always win in the moment, but it will in the long run.”

instead ask, ‘Is this a role that she’d like to take on, because we think she’s qualified?’”

To address unconscious biases, companies must ensure that hiring and promoting managers make equal comparisons between men and women. They also need objective tools and metrics to make sure they’re getting it right (such as ensuring that equal percentages of men and women are being promoted and that shortlists for open positions include equal numbers of men and women).

Paula Steiner, formerly the president and CEO of Health Care Service Corporation (HCSC), which operates five Blue Cross Blue Shield health plans, worked closely with department heads and coaches to review the talent and performance profiles of the top 200 leaders at HCSC. The combination of direct involvement and rigorous measurement help HCSC identify and track top talent. As a result, more women have been advancing to the officer ranks.

At Aetna, leaders regularly review a customized nine-block assessment of each employee, along with feedback about the employee’s latest assignment, his or her time in role, and companywide metrics on rotations, promotions, and diversity. The key, says Lynch, is to make the talent strategy work hand in hand with the business strategy.

Hire and promote talent from unconventional sources. Increasing diversity requires bring-

ing in people from unexpected sources, who have taken a variety of career paths. Earlier in her career, Steiner of HCSC took a job turning around the sales team at Blue Cross Blue Shield of Illinois, despite a lack of sales experience. Winning the respect of her team required not only showcasing her analytical strengths and her experience leading turn-arounds but also learning from and relying on team members with experience in the field. “Tough challenges like that are great equalizers,” Steiner says. “The best people will be selected to solve the problem, regardless of gender, which promotes equality.”

A company culture that provides diverse experiences for employees can push people outside their comfort zones and prevent them from limiting their options. As Mary Jo Williamson, who has held several senior roles at the Mayo Clinic and most recently served as the vice chair for administration and a trustee, puts it, “Failure often results when someone gets fixated on one path.”

Julie Creamer, a senior vice president at Northwestern Memorial HealthCare and the president of Northwestern Memorial Hospital, uses a similar approach in building project teams. “We like to include what we call a ‘naïve resource,’ someone who has no knowledge on the topic at hand.” Creamer says that those people often have fresh ideas and push teams to think about things differently, leading to better solutions.

PAULA STEINER

“Tough challenges are great equalizers. The best people will be selected to solve the problem, regardless of gender, which promotes equality.”

Paula Steiner is the former president and CEO of Health Care Service Corporation (HCSC).

CAREER HIGHLIGHTS

- Began her career at the Blue Cross Blue Shield Association, rising to senior vice president of brand enhancement and extension
- Held several leadership roles with Blue Cross Blue Shield of Illinois and HCSC, including chief strategy officer at HCSC
- Became president of HCSC in 2015 and added the CEO role in 2016



MARY JO WILLIAMSON

“Doing the work matters. Results matter. Being a high performer may not always win in the moment, but it will in the long run.”

Mary Jo Williamson is the former vice chair for administration and a trustee of the Mayo Clinic.

CAREER HIGHLIGHTS

- Started her career as a financial analyst at Andersen Consulting
- Held roles in operations, contracting, and payer relations at the Mayo Clinic
- Named vice chair for administration at the Mayo Clinic in 2014



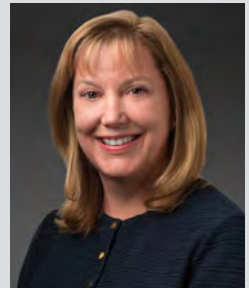
JULIE CREAMER

“Bring fresh ideas and push teams to think about things differently.”

Julie Creamer is a senior vice president at Northwestern Memorial HealthCare and the president of Northwestern Memorial Hospital.

CAREER HIGHLIGHTS

- Began with a nursing degree
- Worked in frontline staff, manager, and director positions for 16 years
- Joined the senior management team at Northwestern Memorial HealthCare in 1996



Companies also need to avoid relegating senior women to nonoperational roles. “Make sure you have diversity in the roles that matter,” Lynch says. “Have your critical talent, including women, run P&Ls. Put them in stretch assignments and support them if they struggle. That’s part of the commitment.”

Steiner also points out the complexity and interdependencies that exist with the health insurance market and the need to have a well-rounded background. A company culture that provides diverse experiences for employees is important. “You can’t just be an expert in one discipline” says Steiner. “The stakes are too high when you’re an officer to have your first experience outside your comfort zone. Leaders understand where they fit upstream and downstream, and they have comfort and familiarity across disciplines.”

Provide flexible work arrangements. BCG research has shown that companies make progress in gender diversity only if they have formal programs that help employees manage their work and nonwork lives, such as flex time, paid parental leave, and remote work through digital technology. These initiatives should be designed for both men and women, and tailored so that they are a regular, accepted part of a career, rather than disqualifying for the executive track. Steiner of HCSC notes that the company’s employees routinely rank flexible work as important, and it’s an area in which HCSC scores well. As NewYork-Presbyterian’s Forese says, “Careers are long, so having flexibility at various points in your life is critical.”

Measure what matters. Finally, to understand which strategies work most effectively in

retaining and advancing women, it's important to track results at a granular level and discuss them frequently. As Forese says, "The traditional performance-development model of 'you'll figure it out and once or twice a year we'll have a conversation about how you're doing' is not good enough." Instead, companies need to actively measure how they're doing in gender diversity, both at the level of individual employees (who's not advancing fast enough, who's leaving the organization and why) and at the overall company level (how many women are in specific roles and at specific levels and which business units or functions are not showing enough progress in terms of diversity).

Steiner agrees. "Our board made a concerted effort to focus on diversity, and that has been a part of our culture for decades," she says. "We've reinforced that through a focus not just on performance against goals, but also on *how* leaders achieve those goals. We share information on every leader's diversity of new hires and of candidates interviewed and include diversity of staff and employee engagement as part of our bonus compensation."

THE health care industry has a lot of work to do in creating gender-balanced leadership teams, but in one sense it has a huge advantage: a workforce in which far more front-line employees and managers are women. To

capitalize on that resource, it must take specific steps to improve the retention and advancement of high-potential women. Giving women an equal shot at the top is only fair. Moreover, greater gender diversity in the executive suite will make companies more innovative, giving them a clear advantage in a health care environment in which nonstop disruption is the norm.

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