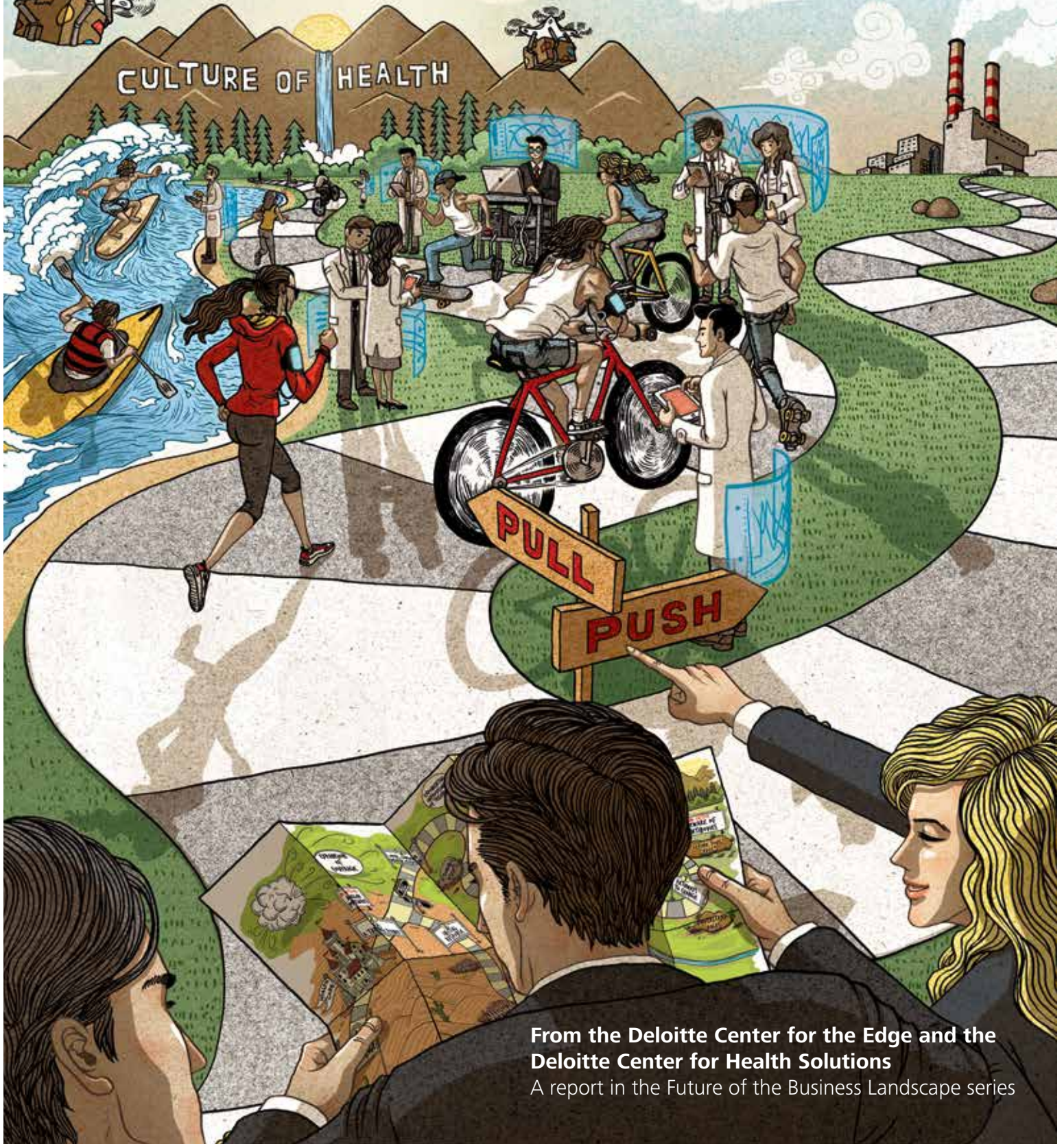




A consumer-driven culture of health:

The path to sustainability and growth



From the Deloitte Center for the Edge and the
Deloitte Center for Health Solutions
A report in the Future of the Business Landscape series

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Executive summary

THE dramatic transformation occurring in the US health care system is creating both significant challenges and opportunities for current industry participants and new entrants. Standing still in this environment is not an option.

Many health care players understand this and are aggressively pursuing a path that can yield some short-term improvement. However, long-term, this path may lead to diminishing returns. The real winners in the health care arena will be those who understand the profound changes that are reshaping the business landscape and pursue a different path that offers the potential for increasing returns over time.

A key message for incumbents is that effective strategies will require understanding the emerging business landscape, targeting the most promising positions in this new landscape (positions that are quite different from the positions occupied by many current players today), and then aggressively pursuing pragmatic pathways to occupy these positions quickly.

While it is increasingly important to define the role that the company will choose to play, the focus for value creation is shifting to the complex interplay among diverse participants within a broader health care ecosystem. For this reason, all players would be well-served by developing an explicit ecosystem strategy—identifying those with complementary

capabilities from the growing number of participants in the ecosystem and working to build scalable relationships that can be mobilized to provide more and more value to target customers.

While the changes described in this paper will take time to play out, the positions that offer the potential for significant growth and profitability can be quickly preempted and will become increasingly difficult, if not impossible, to target and occupy once early movers stake out their claims. Given significant uncertainty, there will be a temptation to wait on the sidelines until the dust settles. Resist that temptation.

If you are a new entrant, there are a growing number of attractive positions to target and occupy that can create economic value. The good news is that technology infrastructures are significantly reducing barriers to entry, commercialization, and scaling. But if the ambition of the new entrant is to grow to become a large enterprise, the new entrant must move quickly as well, driven by a clear view of the emerging roles that will be driven by significant economies of scale or scope.

In sum, the emerging health care ecosystem represents a sharp departure from the traditional dynamics found today and a fundamental restructuring of the industry from health care delivery to a “culture of health.” The transformation will take time, but the shift has already begun.

Introduction

IMAGINE the following:

Ed, a 58-year-old sales manager, pours himself a cup of coffee as a colleague walks into the office kitchen.

“Welcome back, Ed! How are you feeling?” his colleague asks.

“Better now,” Ed answers, “but it’s been a long couple of years; I was pretty close to giving up hope on battling this thing.”

Ed has chronic obstructive pulmonary disease and congestive heart failure. Two years ago, Ed couldn’t seem to stay out of the hospital: Each check-in with his local primary care physician (PCP) resulted in more visits to various specialists for repetitive, often contradictory, care. He had been to see at least four different care providers and was on so many different pills that he couldn’t keep everything straight. Unable to work, Ed had to go on short-term disability, and he worried about losing his job altogether. He felt like a burden to his family.

“I was about to give up,” Ed tells his colleague, “but then I got plugged into this community of patients, providers, and suppliers—they’re from all over the globe, and everything is digitally integrated. I work with a coordinated care team that specializes in my specific profile, and my care is always personalized to my specific needs. It was such a relief to have a seamless health care experience. Everyone talks to each other. Every specialist I went to see was prepared with my information, so the visits were efficient. I never felt like I had to backtrack or worry that they might unknowingly recommend anything that conflicted with something I was already doing or taking.”

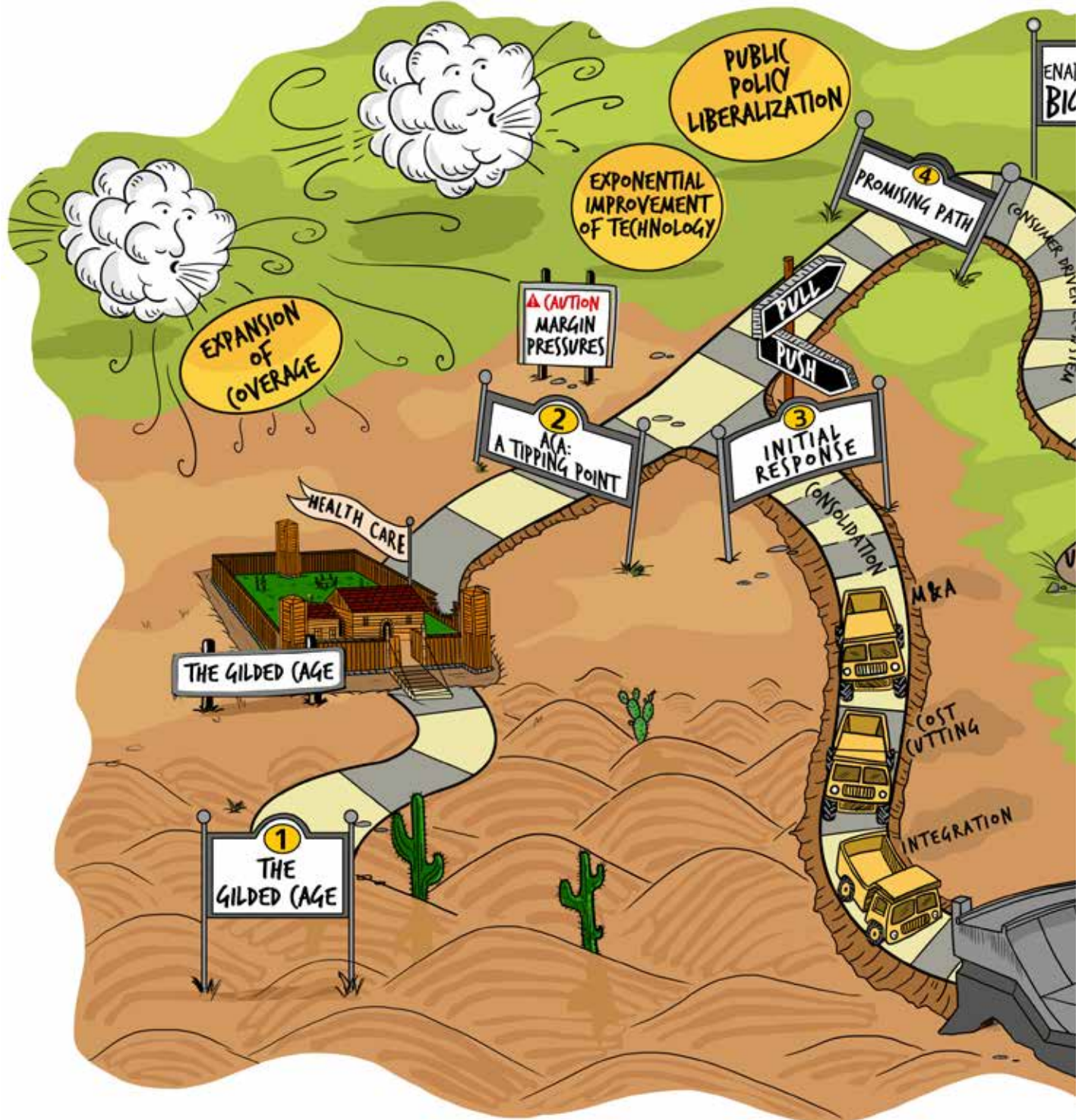
Today, Ed’s vitals are stable and he is back to being productive at work. Thanks to a new biometric monitoring device, Ed’s care team sees a daily record of his weight, heart rate, oximetry, and sleeping patterns. Ed’s digital diary helps him and his care team track patterns in his well-being. Recently, Ed began participating in a study group, and he is hopeful for future breakthroughs.

This scenario describes a hypothetical patient’s experience with an open health care ecosystem that delivers dramatic improvements in quality and efficiency by rewarding collaboration and innovation. Every participant can benefit, not only from the health outcomes, but also from the opportunities for growth and innovation generated from continuing efforts to enhance those outcomes. Ed and his family enjoy a better quality of life; those engaged in his care are empowered to provide better, more efficient care, and they are rewarded for continuously improving their collective capabilities.

While we are beginning to see elements of this story play out—and much of the technology to support it exists today—it is still a futuristic scenario. In this report, we will explore some reasons why the US health care system has not yet reached this level of collaboration and integration as well as examine ways that it could move closer to such a state.

Warning: this is a complex paper that attempts to capture and make sense of all the moving parts in a rapidly evolving ecosystem, showing how they are connecting and reinforcing each other. So, to help the reader navigate through this material, here is a high-level view of the journey we will take you on:

Figure 1. The journey through the report





This report is structured in six parts, depicted in figure 1.

The “gilded cage.” For decades, the US health care system has operated under heavy regulation and an economic model based on fee-for-service (FFS) payments and wholesale, “sponsored” insurance. This relatively closed system offered an attractive combination of profitability and growth with relatively low risk, but it also inhibited transparency, competition, and, often, innovation.

ACA: A tipping point. The Affordable Care Act (ACA) has helped bring the market to a tipping point, but not necessarily in the way many perceive. The need to fund its primary objective—coverage for the uninsured—has created economic pressure that has accelerated and compounded existing trends in the market. Margin pressure, new tariffs, and increasing the consumer’s share of costs are trends that have challenged the profitability and sustainability of the current FFS economic model.

Initial response. The initial response by many incumbents has been to consolidate to create value through vertical integration and scale, possibly in an effort to sustain pricing leverage. Unfortunately, while this approach may appear to be the most effective path to delivering more efficient and effective care in the near term, scale-driven operating efficiencies and pricing leverage can ultimately suffer from diminishing returns, while market consolidation tends to decrease competition and the incentive to innovate. Simply put: consolidation may provide a near-term fix but it is not a long-term solution.

Promising path. An alternative path that offers sustainability and growth is possible: an open market that responds to consumers’ and purchasers’ increasing demand for healthy outcomes. This new, open ecosystem will require capabilities that are conspicuously

absent in the current market: improvements in transparency, actionable insights, collaboration, and engagement. While this shift will be challenging to achieve, the diminishing profitability of the current FFS system will, fortunately, create incentives to make sustained investment in building these new capabilities and foster a willingness to take on added risk in the process.

New rules, new roles. In contrast to the pre-defined and narrow networks that prevail in the health care arena today, this open, consumer-driven ecosystem will likely require certain fundamental roles that are interdependent, but each very different. Entities with deep, specialized knowledge or skills in areas such as care delivery or analytics—niche operators—will interact and compete through common data and resource aggregation platforms. Routine, high-volume services will be provided by infrastructure providers. As the marketplace grows, consumers and participants will need agents to help navigate the ecosystem. In addition, mobilizers such as Centers for Medicare and Medicaid Services or even the Quantified Self movement will help to establish common standards and protocols to manage complexity and enhance the potential for collaboration across the ecosystem. Each of these roles (niche operators, platforms, infrastructure providers, agents, and mobilizers) creates a unique form of economic value, but increasingly the most meaningful value comes from the interplay of the different roles in the evolving health care ecosystem.

Pathways to change. Today’s industry players will need to take a hard look at the role they are best positioned to play and then craft a scaling edges program that will help them to transform their existing business without exciting the immune system and antibodies that can quickly derail any change efforts.

The gilded cage—Forces shaping the status quo

FOR decades, the US health care industry has been trapped in an economic model focused primarily on providing “sick care” rather than achieving better health in an efficient and effective manner. This closed system has inhibited transparency, competition, and innovation; it has limited accountability for the individual consumer; and it has fragmented care delivery. How did such a system come to be, and how could it not only persist but grow for decades?

While countless factors affected the evolution of this complex system, three key factors combined to help create and reinforce it over time:

- **“Wholesale” insurance.** Historically, most health care has been funded by insurance products that aggregate risk pools, through government and employer sponsors, which passed only a small percentage of financial responsibility through to the individual.
- **Fee-for-service (FFS) procurement.** Insurers have predominantly provided access to medical services through contracted provider networks that pay a negotiated fee for each individual service. Medicare (including insurers offering care in Medicare) also sets fees for individual services, creating robust returns to hospitals that fill beds and physicians that are productive in terms of volume. It also

fuelled significant returns for many life sciences companies.

- **Privacy.** The confidentiality of personal health information has been regulated to such an extent that, in the United States, it is very challenging to directly link longitudinal personal health information to an individual. This makes it difficult to track and assess patient care systematically over time, especially if that care is provided by multiple independent institutions.

This combination of factors led to a cascade of market dynamics:

- **A focus on sick care over wellness and prevention** due to the significantly higher complexity, investment, and risk required to achieve positive returns on health outcomes
- **Uninterrupted growth in demand for, and supply of, services** as a result of the individual consumer having limited financial responsibility and the ability to raise premiums year after year based on past utilization trends
- **Lack of investment in infrastructure for transparency and collaboration,** given the lack of economic demand from “wholesale” consumers and FFS procurement

- **Rate, volume, and market share becoming key economic levers** for every sector under FFS procurement
- **Consolidation and complex, long-term contracting** to enhance access and the possibility of pricing leverage through volume and market share
- **A complex regulatory environment** to mitigate the lack of transparency in the current closed system to support access, quality, and privacy

The net result was to create a system that became a “gilded cage” with barriers to entry

and exit. Participants provided access to and delivery of medical care, and were rewarded with relatively consistent profitability and growth with limited risk, while complexity, regulation, and consolidation made it difficult for new entrants.

Unfortunately, the system was equally difficult to escape. The lack of infrastructure to provide transparency and collaboration inhibited incumbents from evolving new business models focused on health outcomes. In addition, the reliable growth and profitability that this gilded cage provided discouraged the sustained investment and acceptance of risk for any individual player to create that infrastructure.

ACA: A significant catalyst for change

The Affordable Care Act (ACA) has had a dramatic impact on the US health care market, but not in the way many perceive. Many headlines about this complex and still unsettled legislation have focused on new programs such as accountable care organizations and public health insurance marketplaces. While the creation of these types of structures are indeed significant initial steps toward promoting transparency and competition, the most significant impact of the legislation will likely come from its acceleration of trends that were already building in the industry. The economic pressure created in order to fund the ACA's primary objective—providing coverage for the uninsured—has compounded pressures on the profitability and sustainability of the current FFS economic model. Where the health care system of years past offered relatively stable profits and steady growth with low risk and limited ties between finances and outcomes, the ACA has catalyzed the shift to an ecosystem focused on creating value in terms of efficient, high-quality care.

Shift in the consumer mindset

Health care is no longer a resource for consumers largely paid for by someone else. This is a trend that was already under way before the passage of the ACA. Over the last decade, to reduce spending on health care benefits,

employers began to shift more financial liability to employees by increasing the employee's share of premium payments as well as by offering high-deductible plans, sometimes paired with contributions to health savings accounts.¹ Eighteen percent of US employers have already implemented high-deductible plans, and 44 percent are currently considering it. In 2014, over a quarter (26 percent) of the employer-based plans that consumers were enrolled in were high-deductible (up from 21 percent in 2013).²

The ACA accelerated this trend by calling for benefit designs in public health insurance marketplaces to include significant individual financial responsibility for health care costs. People who were uninsured and those who previously bought coverage in the individual market now must have coverage to avoid penalties and may purchase that coverage through the marketplaces. At the end of the first enrollment period, 8 million Americans purchased coverage through marketplaces, and another 11 million purchased individual coverage outside the marketplaces; 19 million Americans now purchase health insurance entirely on their own.³ Bottom line: More and more consumers are paying more of the total health care bill, whether they are getting health care insurance individually through the public marketplaces or through their employers.

The initial response: An understandable, but limiting, focus on consolidation and integration

THE disruption of the volume-based FFS economic model, combined with the increasing share of health care costs borne by the consumer, can prove challenging to current business models. Current industry players are responding with unprecedented urgency to find new models to drive sustainable returns. For many, the initial response has been to fortify current sources of competitive advantage. This often involves consolidation, both as a possible attempt to sustain pricing leverage and to create value through vertical integration and scale.

Health insurers, faced with pricing pressures, increasing regulatory compliance, and narrowing margins, are employing a number of tactics, including consolidating for scale, forward-integrating, and narrowing their networks to deliver competitive pricing in the near term. In 2013, 70 percent of hospital networks on exchanges were either narrow or ultra-narrow.⁴ Insurers have also increased their use of captive data as a lever in the market. While these data are currently one of the best sources of population and longitudinal information, they are limited and difficult to integrate with other relevant data. Most health plans, regardless of tactics, will be unlikely to realize the financial success they enjoyed in the past due to multiple factors, including a greater percentage of low-margin business and changing dynamics among plans, employers, and providers. Industry analysts predict that

insurance profit margins will decline, from 7 percent in 2014 to 6.3 percent in 2019.⁵

Hospitals, health systems, and physicians have similarly focused on increasing operational efficiency and consolidation. Consolidation has taken two forms: vertical (health systems acquiring medical groups or insurance capabilities) or horizontal (hospitals acquiring other hospitals). Through vertical integration, health systems attempt to clinically integrate to manage the entire care continuum and, potentially, the whole revenue stream. In Deloitte's 2013 Physician Survey, 66 percent of respondent physicians believed that physicians and hospitals will be more integrated in the next one to three years. The number increases to 73 percent for surgical specialist respondents and 71 percent for primary care providers (PCPs).⁶

Horizontal consolidation is also an ongoing trend. Between 2009 and 2013, the number of hospital merger and acquisition (M&A) deals increased at a 14 percent compound annual growth rate, with a commensurate increase in deal size.⁷ Industry analysts expect this M&A trend to continue.⁸ Deloitte's Center for Health Solutions estimates that if industry pressures such as declining reimbursements, increasing cost pressures, and investments needed in new technology continue to drive this rate of consolidation, by 2024 only 50 percent of current health systems will likely remain.⁹

Consolidation can bring greater integration and control as well as the opportunity for capturing scale efficiencies. However, the significant investment in vertical infrastructure and organizational dynamics, combined with market concentration, often bring challenges in capturing those opportunities and delivering them to the market.

Health care suppliers, including pharmaceuticals and medical device manufacturers, have similarly responded by focusing on consolidation and significant enterprise cost reduction. While new approaches to R&D, supply chain, and sales have helped compensate for declining unit margins, the pressure on prices shows no sign of abating. As payers and providers face increasing pressure, the price of pharmaceuticals and medical devices will continue to be scrutinized. Compounded by challenges that include generic substitution and the declining pace of R&D, the life sciences industry continues to face unprecedented performance pressure.¹⁰ The return on assets (ROA)—an indicator of how well companies are able to generate value from their asset base—for US life sciences companies dropped from 6.68 percent to -32.13 percent between 1980 and 2013 for the industry overall.¹¹ As in the case of providers, some of these companies are beginning to discover that the impact and value of the product or service can be significantly enhanced by integrating it into a broader continuum of care, and many companies have started to focus on optimizing “value in use” as part of broadening their role in the continuum.

These types of responses are understandable. Faced with a period of increased change, uncertainty, and performance pressure,

incumbents tend to adopt tactics that seem to offer greater control. Unfortunately, what they are gaining is likely just an illusion of control. The efficiency measures described above may indeed temporarily bolster health plans, providers, and even suppliers, but they eventually lead to diminishing returns. Costs can only be cut by so much while maintaining quality. Competitors quickly replicate productivity gains and other efficiency strategies, with the result that any savings generated often simply get passed along to the customer in the form of lower prices.

Worse, as markets consolidate, the incentive to innovate decreases. In the long term, health care delivery systems may find themselves resembling regional public utilities, finding it more difficult to innovate under vertically integrated organizations with significant infrastructure investments.

Given the precipitous changes in the health care market, health plans, providers, and suppliers will need to develop new strategies and undertake a more fundamental transformation. The consolidation experienced by the banking industry in the 1990s provides a useful illustration of the degree of structural change that market and regulatory changes can catalyze, and underscores the need for incumbents to embrace transformation rather than continue to play by old rules.¹² The good news is that the disruptive combination of reduced margins and the shift in consumer mindset may finally open the door to greater technology use and the evolution of new business models, allowing the US health care industry to benefit from the broader technology- and policy-driven forces of competition and innovation in the economy.

The forces shaping a more promising path for health care players

THE growing demand for a broader spectrum of care that is focused on attaining and maintaining overall health represents a tremendous opportunity for greater innovation and advances in care, as well as for greater returns for those who can meet consumers' emerging needs in this regard. This new path may be riskier than the old FFS model, but it offers higher potential for growth and returns by shaping and scaling an ecosystem based on a culture of health. There have been countless attempts in the past to shift the direction of the health care industry but they have never been sustained because the FFS model continued to provide a seductive source of profits. For the reasons we discussed earlier, that lifeboat is becoming less and less reliable given mounting competitive pressures and the diminishing returns that come from continued focus on efficiency, scale, and cost reduction. Many providers now believe that FFS margins are shrinking to the point that they cannot make it up on volume. This is creating a new opening to explore more aggressively alternative paths that can provide an escape from the increasingly tarnished gilded cage.

This new path is being shaped by three key forces:

- A profound shift in consumer mindsets/expectations
- The need for significant new capabilities to respond effectively to evolving consumer needs

- The emergence of enabling capabilities as a result of the Big Shift in the overall economy

The shift in consumer mindset

Today, it may seem that consumers in the health care arena have eroding power—more and more of them are required to deal with narrower provider networks and incurring higher out-of-pocket costs. However, given the evolving dynamic between consumers and product/service providers that is occurring on a larger scale, we expect today's digitally connected health care consumers to actively seek more power.

Outside the health care system, digital technology has enabled low-cost, rapid, often instantaneous access to products and services—and this has encouraged US consumers to expect to have more power and influence in nearly every aspect of their lives. Today, consumers have access to a great deal of information and a plethora of products and services. (For example, online vendors such as Amazon let consumers compare prices and quality ratings on products and services from all over the world and then easily purchase a product suited to their specific needs with a single click.) Consumers today can select delivery schedules to fit their needs, provide real-time feedback, share information about goods or services with their online networks, and receive personalized recommendations based on their purchase history. They expect to

have the ability to configure products and services to specifically meet their personal needs around factors that include price, location, and timing.

Consumers accustomed to high levels of service and control in their relationships with other product and service providers are likely to demand a similar level of service and control from their relationships with health care providers and the organizations supporting them.

As consumers have greater accountability for the total cost of their health care, there will likely be a shift in consumer mindset to expand the definition of health care away from just sick care. Consumers likely will expand their focus from treatment of disease to a broader wellness agenda and demand resources and tools of a kind not historically available to help them manage their newfound accountability and navigate the complexity of the health care system.

The need for significant new capabilities to respond to evolving customer needs

Meeting consumers' expectations around service and control, however, will likely require new capabilities that are conspicuously absent in the current market:

- **Increased transparency.** Timely access to longitudinal data across the care continuum has been a significant limitation to improving health care. With clinical information trapped in fragmented medical records, claims data have offered one of the only longitudinal views on care beyond controlled studies. Unfortunately, even these data are limited and difficult to connect. Initiatives to create interoperability between clinical systems have been slow to progress. However, alternative approaches such as consortia for clinical research and cognitive clouds are providing workarounds and access to new data sources that not only support actionable insights but expand the definition of health care. Data become
- more valuable when combined with other data to accelerate learning, innovation, and performance improvement. So, in a value-driven marketplace, there is more and more incentive to find ways to aggregate data across existing institutional silos.
- **Actionable insights.** A subset of technologically savvy consumers is already beginning to demand more data-driven decisions and recommendations from their physicians and other service providers. In a recent survey, 62 percent of health care consumers reported using video, computers, or mobile device apps to learn more about or choose between different treatment options. While only 10 percent overall reported using a mobile app to track their health, the figure stood at 18 percent for Millennials, and it will likely continue to grow.¹³ Delivering actionable insights will require sophisticated analytical tools that can provide insights in accessible formats specific to each user, who might be an individual consumer or a health care provider. It is unlikely that any individual participant can provide the full array of analytical tools and skills required to extract the potential value from the expanding data sources, so there will be more and more incentives to mobilize a growing number of third-party analytical tools to extract more value from aggregated data.
- **Care coordination.** In an increasingly complex health care ecosystem, coordination can help consumers and their caregivers better navigate and tie together various services and products so that they can better manage their own health. The extent of this coordination will need to go beyond just connecting one care facility or physician to the next; consumers will need help in orchestrating a broader array of wellness and well-being solutions integrated into their daily lives—from preventive care to acute care and everything in between.

- **Collaboration.** While coordination is a fundamental capability for delivering consistent evidenced-based medicine and wellness services, collaboration is essential for quality and innovation. Today's system presents both structural and cultural barriers to collaboration. However, from condition-based, multispecialty providers and patient communities to medical school curricula, we are seeing new models that provide the capital, governance, technology, and operating models to align and support traditionally fragmented participants.

While these concepts are not new in principle, they are new as demand drivers within the health care market. For the first time, the potential value to health care providers of meeting these demands outweighs the costs and risks. These new demand drivers are significant, not just because they will force industry incumbents to retool and build new capabilities, but also because they will likely spark new innovations in care delivery as the market begins to meet these demands.

Emerging capabilities arising from the Big Shift

The good news is there are underlying macroeconomic forces—driven by technological advances and broad public policy liberalization—that organizations can use to shape and scale a consumer-driven ecosystem. We call these forces “the Big Shift” (see sidebar “The Big Shift”).

While the Big Shift drives mounting performance pressure on organizations in most industries, this set of forces also brings new tools and capabilities that enable participants to deliver greater and greater value to the consumer. And now that the health care industry faces the imperative to pursue a new model with different economics, health care players have the opportunity to use these tools and capabilities to innovate and improve performance.

Tools such as cloud computing, big data analytics, social media, and machine learning offer new approaches for creating value and addressing market inefficiencies and challenges. As the costs of storage, computing, and bandwidth have become negligible, entrepreneurs and researchers have combined them in innovative ways that amplify their impact, leading to new technologies and often blurring the boundaries between and definitions of industries (for instance, it is increasingly difficult to define where molecular biology ends and materials science begins). The impact of these technologies is further amplified when they coalesce through open platforms and ecosystems that others can build upon, reducing the investment and lead time required for the next wave of innovation. It is through this “exponential innovation” that industries begin to see rapid change at a rate that might currently seem unimaginable.¹⁴

A new approach to mobilizing resources will be needed to create an effective consumer-driven ecosystem that takes advantage of the new opportunities offered by the Big Shift. The traditional US health care ecosystem is a closed, or what we call a “push,” system (see figure 3), that is, it focuses on forecasting demand and then “pushing” resources into place in advance to meet that demand. Push systems were the predominant model across all industries in the 20th century—and they were successful in more stable environments. In a push-based health care environment, individuals are passive participants. Proprietary access to “knowledge stocks” of data offers competitive advantage, and the stocks are protected in static repositories. Centralized players use top-down models to forecast consumption based on past history and demographic data, and they sell consumers a set of defined services at a set of prices that meet margin and volume plans.

In a “pull”-based ecosystem, all participants (including consumers) draw out from scalable pull platforms the resources they need, when

THE BIG SHIFT








The Big Shift is a set of fundamental macroeconomic trends that are reshaping the global business landscape (figure 2) and unleashing flows of information, people, and capital. These trends give consumers and talent more power through access to information and lower switching costs. At the same time, competition—from both traditional and nontraditional sources—increases. Companies configured to succeed in the scale efficiency-driven models of the 20th century are struggling to create value in the rapidly changing world of the Big Shift.

The Big Shift is measured and described through the 25-metric Shift Index, but it can be understood in terms of two fundamental drivers:

- 1. Technological advances.** Exponential improvements in the cost-performance ratio of core digital technologies have led to exponential advances and innovations in other technologies that employ the digital infrastructure and have blurred many traditional lines between industries and technologies.
- 2. Public policy liberalization.** Over the past six decades, public policies have broadly trended toward freeing movement of people, capital, and other resources across geographic and political boundaries, making it generally easier for individuals to start and scale businesses.

The structures and regulations of specific industries have in some cases accelerated, and in others postponed, the impact of the Big Shift; however, the effects will spread across the economy, in part as new businesses encroach from other industries.

Figure 2. The Big Shift's trends

Foundational trends		The cost of computing power has decreased from \$222 per million transistors in 1992 to \$0.06 per million transistors in 2012.
		The cost of data storage has decreased from \$569 per gigabyte of storage in 1992 to \$0.03 per gigabyte in 2012.
		The cost of Internet bandwidth has decreased from \$1,245 per 1,000 Mbps in 1999 to \$23 per 1,000 Mbps in 2012.
		The overall trend of index of economic freedom, a compilation of 10 indicators measured by the Heritage Foundation, has been increasing since 1995.
Impact trends		Nearly 70 percent of customers agree that they have increased information and choice about brands.
		The compensation gap between the creative class and the rest of the workforce has steadily widened over the past 10 years.
		The economy-wide return on assets (ROA) has declined over the last 47 years, to a quarter of its 1965 level in 2012.

Source: John Hagel, John Seely Brown, Tamara Samoylova, and Matt Frost, *2013 Shift Index metrics: The burdens of the past*, Deloitte University Press, November 11, 2013, pp. 9-27, <http://dupress.com/articles/the-burdens-of-the-past/>.

Graphic: Deloitte University Press | DUPress.com

Figure 3. Push vs. pull

PUSH for a <i>predictable</i> world	PULL for a <i>changing</i> world
Command and control	Leverage
Predefined needs	Responsiveness
Standardization	Modularity
Limited, transactional, tightly defined relationships	Many long-term, trust-based relationships
Knowledge stocks	Knowledge flows
Actuarial	Actual

Pull-based systems allow organizations and individuals to collaborate more broadly on the challenges facing an entire industry or sector while also improving their own performance. Pull allows them to unlock their own potential, take advantage of new developments at the edges, and build and maintain competitive advantage regardless of how quickly change happens.

they need them, and where they need them. While all participants in the health care ecosystem would reorient their operations around these pull-based platforms, consumers would become the center of a pull-based market that responds quickly and effectively to their evolving demands. In an open marketplace, consumer demand determines the value of information, products, and services. This is a significant shift from push-based environments where health care players make many business decisions based on the assets they already have in place—there is a concerted effort to squeeze consumer demand into the available assets, even if the fit is not optimal. In the pull-based environment, consumer demand becomes the primary driver of value, and assets that are not effectively responding to the needs of the consumer are much more likely to be shed.

Trust is critical for an open market, yet many believe it is lacking in today’s ecosystem. Trust is directly related to the consumer’s confidence in how open and transparent the market is. In an open market, the greater the trust, the greater the power of the pull.¹⁵

Transparency into costs and outcomes allows the market to determine the value of services and offerings. This is a significant departure from today’s FFS health care ecosystem where products and services are viewed first as potential revenue sources. The incremental costs and net effect on outcomes are often not known and absent from the value equation. In order to move forward, the ecosystem needs a new metric: marginal utility. The ability to understand marginal utility through the entire supply chain allows the pull of the consumer to sort the winners from the losers.

A number of new entrants, enabled by the Big Shift and changing incentives, are beginning to exploit the current system’s inefficiencies and meet emerging needs. Some, such as Oscar Health, provide a traditional product but emphasize user experience, technological interfaces, telemedicine, and transparency to appeal to a tech-savvy consumer. Others, such as Castlight Health, more explicitly take advantage of technological enablers to provide new products and services.

Entrepreneurs are creating an entirely new industry, “digital health,” at the convergence of health care, the Internet, and mobile technology. Digital health entrepreneurs are approaching health and wellness from a data and information perspective, and they are working toward solutions to engage consumers and improve health based on new ways to gather, view, manipulate, and understand customer data. By mid-2014, digital health

funding approached \$2.3 billion, representing a 170 percent increase from 2013. A total of 146 digital health companies received over \$2 million in funding each.¹⁶ This trend is expected to continue: The market for digital health is expected to surpass \$200 billion by 2020.¹⁷ These new companies are putting pressure on incumbents to define the distinctive value they create.

THE FALLING BARRIERS TO COMPETITION IN HEALTH CARE

Barriers to entry, commercialization, and learning in digital health care have diminished, in particular:

- **Access to means of production:** Exponential improvement in the cost-performance of core digital technologies has reduced the capital investment necessary to start a business based on digital technology.
- **Access to financing:** Crowdfunding platforms and digital health incubators make it easier for start-ups to access the capital needed to launch. In June 2014, the largest crowdfunding platform, Kickstarter, lifted its ban on campaigns for health-related products. Previously, competitor Indiegogo was the “de facto crowdfunding platform for digital health,” with \$7.8 million in funded health care projects in 2013 and \$2.1 million as of June 2014.¹⁸
- **Access to learning:** New organizational models allow entrepreneurs, many of whom don’t have medical backgrounds, to gain tacit knowledge about the industry and navigate its complex regulatory requirements. For example, Rock Health not only provides funding and support to digital health start-ups, it also connects digital health to the broader health care ecosystem through clinical and corporate partnerships and offers formal and informal learning resources to educate entrepreneurs and help them navigate FDA and HIPAA regulations.¹⁹

New rules and roles in an open, consumer-driven ecosystem

CERTAIN fundamental roles will be needed to shape and scale a broad, open, consumer-driven health care ecosystem (see figure 4). It is important to understand how they differ from those in today's marketplace and from each other. Each role, while interdependent, operates with a distinctly different economic model, skill set, and basis of competition. Participants who focus tightly on a specific role may be more successful than those who try to play multiple roles.

Five key roles will be critical to the evolution of a consumer-driven health care ecosystem:

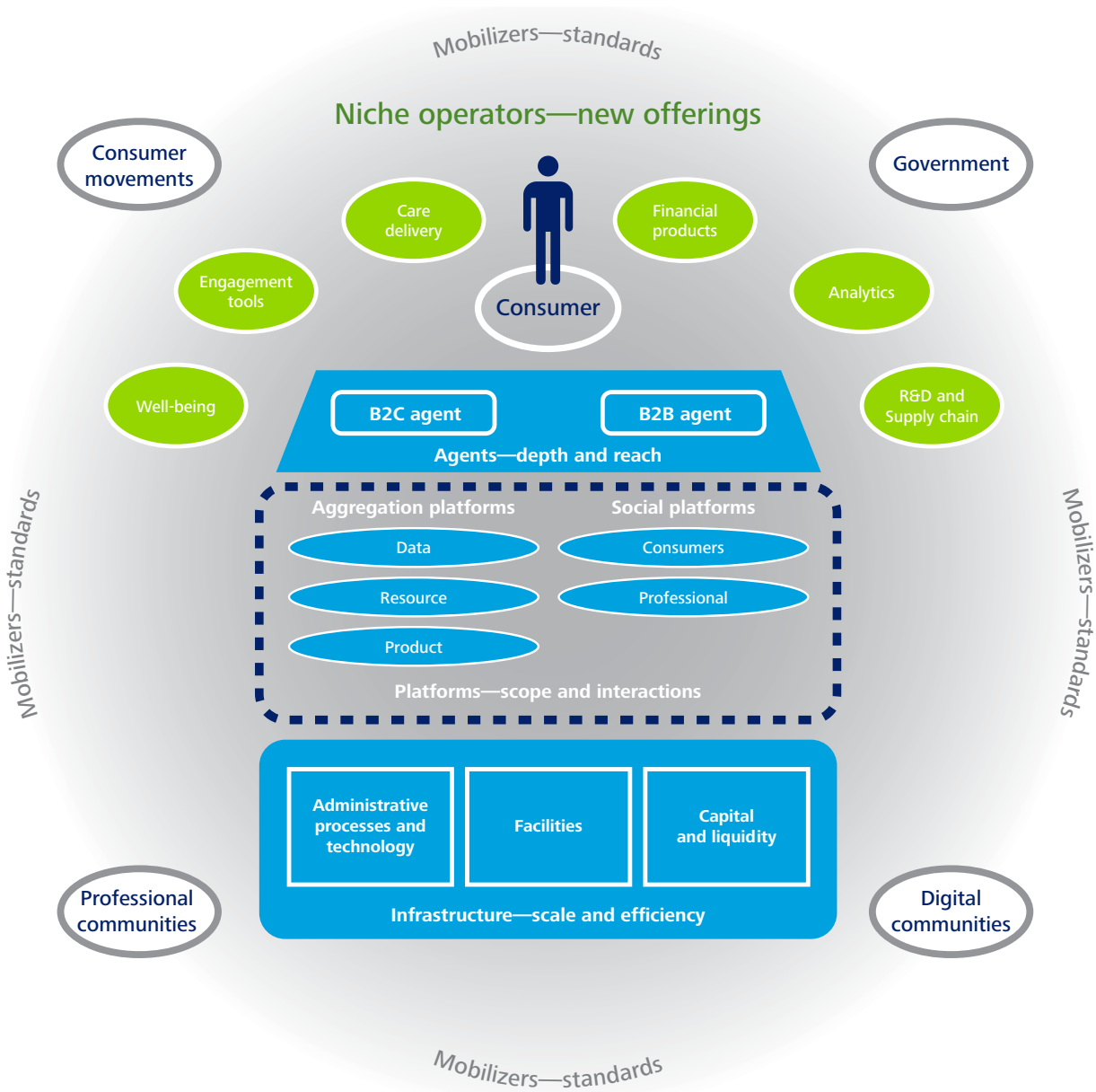
- The central role in this new ecosystem is the **platform** delivering the scalable pull capabilities described earlier.
- Routine, high-volume services are provided by **infrastructure providers** who offer access to scale-intensive facilities and operations.
- As the ecosystem grows, **agents** help consumers and participants navigate the ecosystem.
- These other roles will foster the proliferation of focused **niche operators**—who have deep, specialized knowledge or skills that they rapidly evolve.

- **Mobilizers** orient participants toward common goals and standards needed for the market to operate efficiently at scale.

Participants filling these focused roles will have strong incentives to collaborate in ways that improve performance, learning, and innovation. This positive cycle can accelerate as the ecosystem evolves. As innovations are rewarded, adopted, and leveraged (see sidebar “Risk-based care delivery models may have reached a tipping point”), the market expands with new demands and new participants. Again, the key ingredient is the consumer's and participant's trust in the transparency and integrity of the system.

The above roles, most notably the aggregation platform, are largely absent or exist in very limited form within the current closed ecosystem. While there are early examples of aggregation platforms, agents, and mobilizers, today's industry incumbents tend to perform some combination of infrastructure and/or niche roles, providing routine, high-volume processes and/or an array of specialized products and services. Most organizations operate today across multiple roles. For instance, a physician group may be acting partly as infrastructure provider and partly as agent in addition to its primary focus in specialized care delivery as a niche operator. This can be problematic because these roles each demand

Figure 4. Open health care ecosystem



Legend: Niche operators in green
Scale-and-scope operators in blue

Graphic: Deloitte University Press | DUPress.com

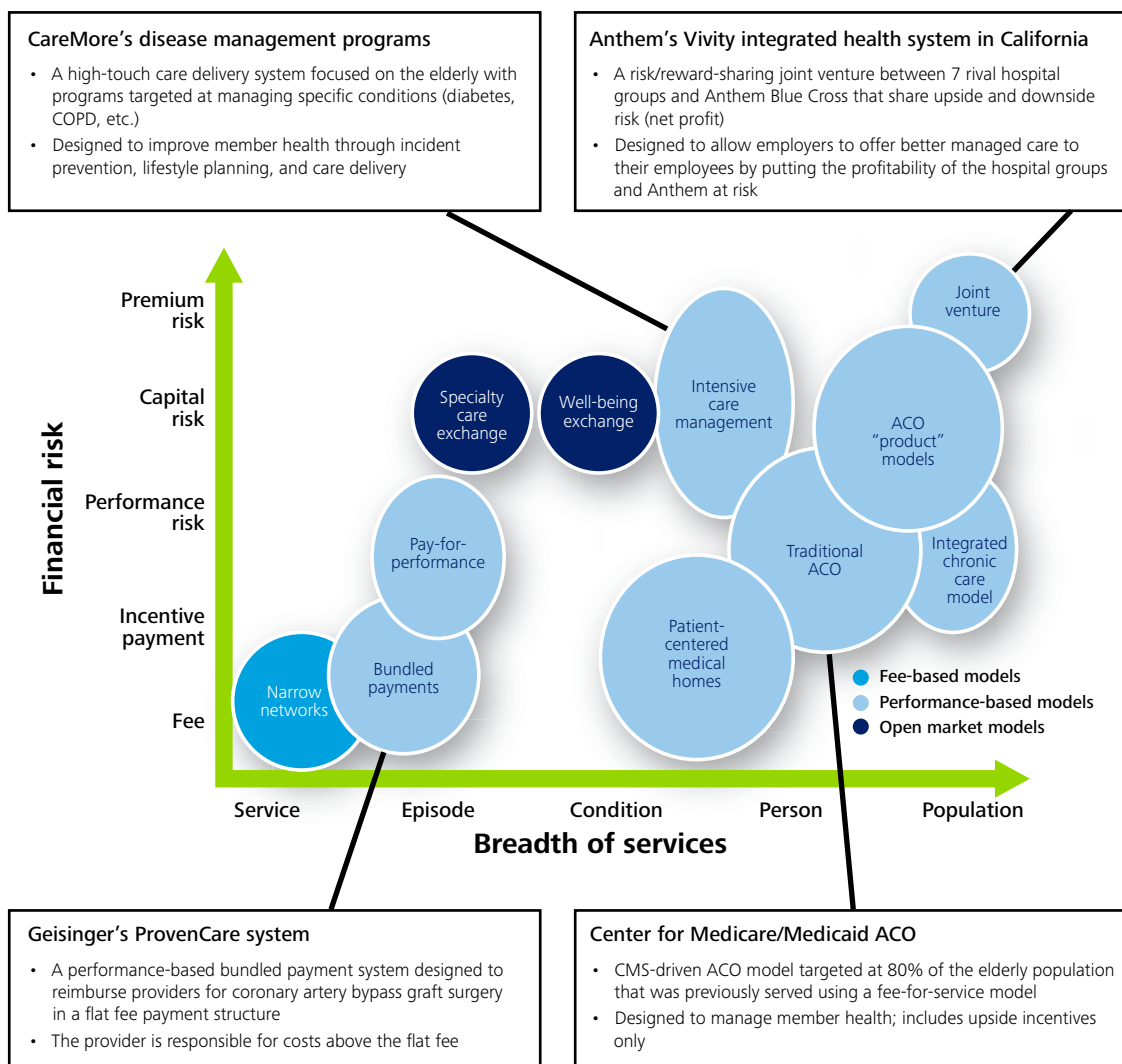
HAVE RISK-BASED CARE DELIVERY MODELS REACHED A TIPPING POINT?

For decades, there have been efforts to move US health care toward a value-based model. As illustrated in figure 5, these efforts have struggled to gain traction, especially as they expanded in scope, because it was difficult to match financial risk with a provider’s ability to manage or affect outcomes.

We have begun to see the introduction of new and innovative models as the shift to a more consumer-driven ecosystem has reduced the barriers that have prevented value-based models from maturing. These models’ maturity and influence, or “pull,” on the market can be observed relative to the degree of “downside” risk involved and how material those contracts are to the participant’s net income.

Ultimately, these performance-based models could extend to influence the marketplace. For instance, pre-contracted networks might evolve to become open *specialty care exchanges*, expanding access for consumers, providers, and suppliers.

Figure 5. Range of risk-based care delivery models



Graphic: Deloitte University Press | DUPress.com

different metrics, processes, organizational structures, and cultures—in essence, many of today’s incumbents have multiple businesses but are likely to be sub-optimizing performance in each role as they struggle to accommodate competing priorities, economic needs, and cultural values within a single operating model. By more explicitly assessing and choosing among these roles, existing players can enhance their potential for success in a pull-based future.

Platforms provide scope by aggregating data, resources, or products, and enabling interactions across the platform

In a marketplace ecosystem, *platforms* enable interaction by connecting ecosystem participants, providing access to a variety of resources and some oversight of quality. Whether business to consumer (B2C), consumer to consumer (C2C), or business to business to consumer (B2B2C), platforms operate based on economies of scope: The more participants use and contribute resources to the system, the richer and more useful the platform becomes. By having visibility across a growing range of interactions, platforms are in a unique position to disseminate feedback across the ecosystem, facilitating learning, innovation, and continuous improvement.

While open platforms are somewhat of a new concept in health care, other industries have successfully adopted them and are realizing benefits. As demonstrated by other industries, an open ecosystem requires at least two types of platforms:

- Aggregation platforms
- Social platforms

Aggregation platforms help users connect with a variety of resources. For example, marketplaces such as eBay and Etsy and crowd-sourcing environments such as InnoCentive

and Kaggle act as aggregation platforms where transactions are brokered by platform owners and organized in a hub-and-spoke structure. Aggregation platforms are a key mechanism for sustainable growth and innovation in the open health care market. First, by connecting consumers to products and services in an open marketplace, participants are paid for what consumers ultimately value, creating pull for innovation throughout the supply chain. Second, the aggregation platform acts as a mechanism for right-sizing the market and encouraging the removal of low-value assets.

These aggregation platforms in health care provide a trusted source for access to data, health and well-being resources, or products. Trust is a critical factor and is directly related to how open and transparent the platform is. For example, to the extent that consumers trust Amazon, it is because of their direct access to a large and independent voice of the customer as well as confidence in the company’s processes to take action in removing products and services, or even participants, when market feedback on product or service quality is negative. The more open the platform, the broader the access to critical data and resources. The more transparent the platform, the greater the confidence in the quality of those resources. There are three areas where aggregation platforms are likely to emerge: data, resources, and products.

- **Data:** Data are no longer confined to the relatively limited set of data captured by health insurance companies (claims data) or providers (electronic medical record, or EMR, data) that result from an individual’s typically infrequent and episodic encounters with the health system. Platforms can aggregate data from a variety of sources that provide new ways of understanding and managing health. Data from these sources, which are often nonclinical and unstructured—such as food-purchasing patterns, exercise activity, social interactions, and environmental concerns—can be analyzed to provide a more holistic picture of an

EARLY SIGNALS: DATA PLATFORMS

Given the industry's historical protection of data as a competitive advantage and a compliance matter, no mature, ecosystem-wide data platforms yet exist. However, despite concerns about privacy and incentives for sharing, data platforms are likely to proliferate with broader trends toward the democratization and consumer demand for access and tools to capture and analyze the data they want.

Consumer data: Launched in 2005, the MyFitnessPal app helps consumers track their calories consumed, collects food intake data, and is opening its APIs for third-party developers. It grew to over 40 million users around the globe by late 2013, adding approximately 1.5 million new users per month. MyFitnessPal integrates data from other fitness devices such as Fitbit and Jawbone and is aspiring to be a central health- and fitness-related data hub. "MyFitnessPal will help you glean and discover insights from that data," said the co-founder Mike Lee. "By combining population data with personal data, we'll be able to provide personal analysis to help individuals achieve their goals." MyFitnessPal already gathers millions of data points including what users eat, where they eat, the exercise activity, and the progress toward user weight goals. With the continued proliferation of wearable sensors, the data will only become richer, enabling advanced analytics and new insights into consumer health and fitness.²⁰ In addition, by gaining consumer trust on wellness data, these types of offerings may be positioned to ask consumers to opt into providing their health data. For example, an app like MyFitnessPal could ask customers provide their medications or vitals and correlate that with the food intake and exercise regimen to derive new insights around overall health patterns and risk factors.*

Price data: A number of emerging platforms are aggregating price data and allowing consumers to conduct side-by-side comparisons. One of these, scheduled to launch in early 2015, is the Health Care Cost Institute (HCCI). The HCCI will host an information portal with data on health care prices, featuring a number of price transparency tools created in collaboration with large insurers such as Aetna, Humana, Kaiser Permanente, and UnitedHealth care.²¹ Companies like Castlight Health are already selling transparency tools to employers to accompany high deductible offerings.²²

Clinical data: The California Integrated Data Exchange (Cal INDEX), launched in August 2014, is a joint effort among some of the state's top payers and providers to share data on approximately 9 million patients. While this platform is accessible only to those in the partnership, it represents a first step toward aggregating patient data. Another sign of this trend can be seen in Epic, the electronic health record (EHR) giant, which in recent months has begun to open up its APIs and work with Apple for integration into Apple's HealthKit offering. There is room for cautious optimism that progress will be made toward building platforms to aggregate and exchange patient data among multiple providers and geographies.²³



* MyFitnessPal was acquired by Under Armour on February 4, 2015.

For more information, see <http://www.wsj.com/articles/under-armour-to-acquire-myfitnesspal-for-475-million-1423086478>.

individual, potentially making these data better predictors of future health issues.

In addition, platforms aggregating cost, price, or outcome data will support the transparency and continuous feedback and innovation needed in the open ecosystem. The creation of large-scale data platforms is critical to what Charles P. Friedman has called the "learning health system" (LHS): a "smart grid" of health information

supporting a wide range of users and uses.

According to Friedman, "a sophisticated LHS will enable health-related data from across the country to be rapidly mobilized, aggregated, continuously analyzed, [and] converted into actionable knowledge, which is then applied to shape decisions."²⁴

- **Resource:** Resource platforms serve as a marketplace for consumers and health

and well-being professionals, connecting patients and the experts who deliver and manage care. Resource platforms give consumers and all participants greater visibility and access, including reviews and evaluations, to acquire or provide the most appropriate resources and talent needed as the market expands.

- **Product:** Consumers and providers will also have access to a wider range of products in an open market. The product platform aggregates all of the options available for a specific type of product and provides the trusted space where the market determines value and provides feedback in the form of reviews and evaluations. Individuals currently buy insurance products on product platforms (public health insurance marketplaces and insurance companies' sales offices), but consumers and providers will have demand for, and possibly create new exchanges for, other types of medical and well-being products once they are not constrained by the premium dollar.

Social platforms give individuals (consumers and talent) the ability to interact to share experiences and advice, form communities of interest around specific topics (such as music, sports, or meditation), and develop longer-lived, trust-based (as opposed to transactional) relationships. Social networks such as Facebook and LinkedIn, for example, allow people to connect with each other in rich and diverse ways over time in relationships not moderated by the platform owner or organizer. Over time, many of these social platforms evolve a significant learning dimension where participants connect with each other in communities of practice to achieve even greater impact in whatever activities they are pursuing.

Social platforms in health care connect consumers to each other or facilitate interactions in the physician and care delivery communities. Patients on social platforms can share advice and support and, in the process, generate significant amounts of data that may be

leveraged in aggregate to develop innovations in care delivery. For example, PatientsLikeMe provides a platform for people with “life-changing” conditions such as amyotrophic lateral sclerosis, multiple sclerosis, Parkinson’s disease, and HIV to form online communities.²⁵ Other platforms, such as Crohnology (targeted at people with Crohn’s disease), Smart Patients (targeted at cancer patients), and Life (targeted at diabetes patients), concentrate on a specific niche. Consumers may also unite around a specific interest, such as the Quantified Self (QS) movement or an active lifestyle, rather than a specific condition. Health care providers, meanwhile, may use social platforms such as Doximity, a “LinkedIn for physicians,” complete with digital resumes and suggestions of useful connections, to exchange professional advice, solicit second opinions, and build communities of practice.

Aggregation platforms and social platforms interact in order to facilitate knowledge flows and learning, and to offer ecosystem participants broad and timely access to feedback loops in a dynamic ecosystem where participants learn faster by working together.

Infrastructure providers offer access to scale facilities and operational efficiencies by focusing on high-volume, routine processes

Infrastructure providers will support a variety of ecosystem participants by providing routine, high-volume processes and delivering consistent quality service. Infrastructure providers leverage economies of scale to provide access to physical infrastructure.

There are three arenas where infrastructure providers are likely to emerge:

- Facilities
- Administrative processes and technology
- Capital and liquidity

EARLY SIGNALS: FACILITIES PROVIDERS

- **Mobile Stroke Units** operated by Cleveland Clinic provide flexible infrastructure to speed the delivery of expert care to stroke victims, on the principle that faster care leads to better outcomes. Each Mobile Stroke Unit deploys a paramedic, a critical care nurse, a CT technologist, an EMS driver, and a telemedicine unit that lets the care team communicate with a physician at the hospital throughout the patient encounter. Such models are expected to reduce the time elapsed to administer treatment while also reducing operating costs for the system.²⁶
- **Low-cost retail clinics** provide physical assets and staff to conduct routine health services with great precision and at a low cost—and high convenience—to the consumer. The clinics offer a limited menu of services (such as vaccines and cold and flu visits). Prices for services are easily available to patients and are on average lower than at a typical physician practice. At the same time, patient satisfaction is often higher.



Facilities include physical assets (such as labs, capital-intensive equipment, transportation, inpatient facilities, and retail clinics) and the personnel who monitor them (such as tertiary care staff and technicians) that can be made available on demand. While many transactions have moved online, care-related procedures still typically require physical spaces. Today, much of the physical infrastructure is geared toward inpatient care. However, care in the consumer-driven ecosystem is likely to increasingly take place across a spectrum of innovative settings. The evolving infrastructure will be valued based on its ability to efficiently deliver access to quality settings.

Administrative processes and technology will provide opportunities for infrastructure providers as greater standardization and technical innovations increase the opportunity to outsource high-volume transactions. Technological infrastructure is also needed to enable remote interactions between physicians and facilities. Players from outside the health care space are beginning to provide technological infrastructure services to fill this growing need. AT&T, for example, has developed technology that enables providers to review patient diagnostic images remotely, allowing radiologists to see more patients in less time. Similarly, Cisco's HealthPresence

software enables providers within a hospital to deliver care to distant patients by integrating video, audio, third-party medical devices, and collaboration tools. Such technology infrastructure may become increasingly important as infrastructure providers seek to increase operational efficiency in a way that still allows for effective collaboration, communication, and learning across the system.

Capital and liquidity needs are directly impacted by the payment model. Under the current FFS model, each service is adjudicated and paid individually. The submission, authorization, and payment processes, while complex, are currently processed at scale. As outcome-based payments expand, they will require dramatically different settlement processing. Payments will likely be segmented into several parts: the up-front payment (or co-pay) for the procedure or service, a partial payment (claim-based) to cover working capital requirements, and a settlement portion calculated and paid based on collective performance or outcome.

Up-front payments will likely become increasingly simple and routine, and may even shift to financial services companies, which are set up to process high volumes of these payments. The performance-based component of payment will be more complex. Administering performance-based payments will still require

the scope and the high-volume processing capabilities of an infrastructure provider, but it will also require a broad data set, deep industry knowledge, and an understanding of how performance can be measured and attributed to specific participants along the value chain. To effectively distribute financial rewards, it will be necessary to develop sophisticated systems for tracking the parties involved in each episode of care, as well as their interactions, over the long term.

Those activities that can truly operate as high-volume, routine processes should be managed as infrastructure, with a tight focus on scale-driven efficiencies, volume, and cost. However, if an activity requires personalization and a unique approach to each transaction, managing it as infrastructure is not only ineffective but could also be dangerous. Infrastructure providers cannot operate in isolation but will have to collaborate with others in the ecosystem. They will need to interact closely with the platforms, leveraging and contributing data and participating in resource platforms. They will also interact with product platforms by providing health insurance product support. Finally, infrastructure players will want to work closely with social platforms in order to understand consumer and physician needs.

Agents offer depth of customer knowledge and advice to help customers gain more value tailored to their individual needs

With a wide variety of organizations interacting with each other and with the consumer, the open health care ecosystem may seem complex and confusing. To help individuals navigate this ecosystem, a new role—that of the **agent**—will likely emerge. The agent must deeply know the ecosystem and the customer to suggest options best suited to the individual's needs. Agents use data to understand their customers and access a wide range of resources to deliver a more personalized, consumer-focused experience that helps the individual

coordinate actions and information across many resources and points of care.

The key role of the agent is to serve as a trusted advisor. They know the customer better than anyone else and can be relied upon to proactively suggest resources and products that can help the customer to gain more value from the health care ecosystem. Agent businesses are driven by powerful economies of scope—the more an agent knows about an individual customer and the more customers an agent serves the more helpful the agent can be to an individual customer.

An open, consumer-driven health care ecosystem will need at least two types of agents:

- B2C (consumer) agent
- B2B (talent) agent

B2C (consumer) agents serve as trusted advisors to the consumer and provide actionable insights and recommendations. An effective B2C agent will anticipate the consumer's needs and recommend options independent of considerations around networks or back-channel relationships. Consumers must trust the agent enough to surrender their data in return for information of value. The value an agent provides depends upon the agent having access to data and analytical tools to generate actionable insights for a particular individual. Most likely, this need will drive agents to collaborate with data platforms (to obtain an individual's data) and with other ecosystem players (to obtain access to analytical capabilities).

For a patient seeking a cancer treatment facility, for instance, an agent might cross-reference quality and cost ratings for various treatment centers, the patient's threshold for out-of-pocket costs, and the location of the patient's extended family. Similarly, for a patient who has been recently diagnosed with type 2 diabetes, an agent may suggest a digital health tool such as Welkin Health to pair the consumer with a clinical diabetes educator. By carefully monitoring performance feedback loops, the agent can proactively recommend ways to evolve the services and behaviors of

the consumer in response to changing circumstances. Based on their knowledge of a consumer's health care activities and needs, B2C agents may play a key role in addressing many patient-care coordination issues.

While agents such as concierge doctors already provide personalized care and advice, the high price (the fee for a concierge doctor can range from \$50 a month to \$25,000 a year) limits this option.²⁷ However, the exponential improvement of price/performance in digital technology and the emergence of platforms aggregating data, resources, and products can significantly alter the economics of the agent business. These developments can significantly reduce the cost of compiling and managing the data about the individual customer, and enhance the value that can be delivered at scale from the data through sophisticated analytics. The rapidly changing economics of the agent business will make it increasingly feasible to offer these services to the mass market, rather than just the elite few. Outside health care, Amazon's work in the retail sector to provide personalized recommendations to customers is one early example of an organization acting as a B2C agent.

B2B (talent) agents will help health care professionals (such as physicians and paraprofessionals) navigate experiences and opportunities that can help them learn and develop. Suppliers and providers are fragmented today. An effective talent agent will get to know the health care professional's areas of practice so well that it can recommend resources and connections to help that professional learn and further develop his or her skills. Part of the talent agent's job will be to shorten the elapsed time between a professional's acquisition of clinical knowledge and his or her use of that knowledge in routine practice—which, in today's system, may take 17 years on average.²⁸ The B2B agent may recommend specific academic research and literature for a physician to read, or recommend new analytical tools to augment the physician's practice. Additionally, health care professionals will be able to rely on talent agents to help direct

them to new practices, findings, and innovations within the ecosystem. These agents may also proactively suggest ways for the professional to connect with relevant communities of practice to accelerate their learning and performance improvement.

We already see early forms of the B2B agent emerging. For example, although Doximity currently functions as a resource platform for physicians, it also recommends academic literature and connections based on user-entered data. If this platform were to develop greater capabilities for understanding its users and assembling a wider array of recommendations, it could use these capabilities to form a B2B agent business.

While agents are a new concept in many industries, they may be particularly relevant to health care, given the personalized nature of many services and the growing array of rapidly evolving service options. Agents should work with the entire ecosystem to build relationships and tap into relevant and current flows of knowledge.

Niche operators: The source of specialized product and service innovation

Niche operators are nimble, independent ecosystem participants that develop a deep understanding of an area and provide offerings that address unique consumer needs. Niche operators have *diseconomies of scale*—that is, the larger they get, the less nimble and effective they become due to increased distance from the consumer and greater overhead. Niche operators are best positioned to form specialized service businesses that innovate and rapidly evolve to meet individuals' needs. The businesses of the niche operators could range from single person operations to relatively large enterprises, but they are likely to remain small relative to the scale and scope potential of the other roles in the health care ecosystem. Nevertheless, because of the potential for unique differentiation, these niche operators have the potential to be highly profitable.

Three attributes define niche operators:

- **How non-routine is the activity?** Niche operators focus on activities that are highly personalized and often customized to individual consumers.
- **How deep does the expertise need to be?** Niche operators have deep expertise in their focus areas.
- **How much context is needed?** Niche operators tailor their product/service based on a deep understanding of the situation's context.

While many niche operators exist today, particularly in care delivery, a key difference is that today they are less connected to each other (to share data, insights, and so on) or to other resources, and they are not effectively supported by efficient, scale-based infrastructure providers. Niche operators will benefit from establishing deep, trust-based relationships with aggregation and social platforms, agents, and infrastructure players so that these scale and scope operators can help the niche operators learn from each other and deploy their expert capabilities at lower cost in the marketplace.

Niche operators are likely to emerge and proliferate in a variety of areas:

- Care delivery operators
- Select drug and device manufacturers
- Engagement and well-being tools
- Analytics solutions
- Financial products

Care delivery operators will interact more freely with other players within the ecosystem and will increasingly operate as part of specialized, high-performing teams. Most importantly, they will be able to draw on their

close interactions with patients and the rapid feedback loops embedded in the ecosystem to innovate in highly specialized areas of care delivery.

The emergence of many smaller niche care delivery operators may seem like a departure from the current trend of physicians choosing to join hospitals or large practices. However, in the future, platforms and other scale players may reduce the incentives to join large institutions. The top reasons cited by physicians who have transitioned to hospital or large-group employment are financial security and/or less risk (38 percent) and fewer administrative responsibilities (29 percent).²⁹ Expensive malpractice insurance, the amount of technological investment needed to implement EHRs, and a general desire to practice medicine rather than run a business are also factors that currently drive physicians into large-group employment. But in a future health care ecosystem where niche operators can be supported by large-scale infrastructure providers, physicians may find that they are able to develop deep relationships with patients and learn much faster working in small, nimble teams unencumbered by bureaucratic processes and overhead—without as many financial and administrative drawbacks as exist today. By distinguishing the infrastructure role from the niche operator role, entities can achieve efficiencies but remain free to innovate and compete in a market that is better able to recognize and reward value.

Select drug and device manufacturers will work closely with care delivery entities to provide high-quality care to consumers. In keeping with the trend toward personalized medicine, as prevention, diagnostics, and treatment plans become more tailored to individuals' genetic composition, drug and device R&D organizations and supply chain organizations will move more into the realm of niche operators. "It is reasonable to expect," reports VentureBeat, "that personalized medicine will be a dominant conversation on a national

EARLY SIGNALS: SPECIALTY HOSPITALS AS NICHE OPERATORS

Specialized care delivery teams may form around subsets of conditions or episodes. Some specialty hospitals focus on just one procedure or illness (or a small group of related procedures) and building their facilities, protocols, and care teams to support high-quality execution of those procedures.

- Shouldice Hospital of North Toronto, for example, focuses exclusively on hernia repair. Surgeries at Shouldice cost 30 percent less than the same surgery in the United States; complications arise in only 0.5 percent of Shouldice's surgeries, as opposed to in 5–10 percent of comparable surgeries in the United States.³¹
- National Jewish Medical and Research Center in Denver, Colorado, focuses on pulmonary disease and asthma. National Jewish assembles a team of specialists around an individual patient to diagnose his or her illness or suggest a treatment plan as a group. By focusing on a particular set of conditions and diseases, National Jewish has been able to innovate around both diagnostics and care delivery, providing tailored treatments that could not be provided in a care setting without that focus.³²



Specialty hospitals are not an entirely new concept; however, what is different in this open ecosystem is that these niche operators are able to collaborate with other ecosystem participants by engaging with data aggregation and resource platforms, agents, and even infrastructure players. These collaborations and interactions can lead to more rapid learning and performance improvement due to multiple feedback loops.

In considering these examples, it is important to identify which sets of activities are truly customized services and which are repeatable processes that can be managed by infrastructure businesses. For example, the diagnostic part of National Jewish's services is highly specific and nonroutine. It requires deep expertise and an understanding of the patient's context (such as comorbidities and lifestyle). Therefore, diagnostic activities belong in the realm of the niche operator. However, certain aspects of performing a surgery or administering a treatment procedure may be viewed as high-volume, routine processes that could benefit from standardization to increase outcome quality and improve efficiency.

stage, as outcomes dramatically improve and personalized medicine becomes the locus of medical innovation for a decade or more.”³⁰ Executing the R&D needed for personalized medicine, as well as delivering tailored products and services to consumers, will likely require a new ecosystem of niche players supported by scale and scope operators. For example, the pharmaceutical supply chain for personalized medicine will need to be unique and targeted to the tailored drug being developed and to the consumer who uses that drug. (Of course, R&D and supply chain activities

that target mass market distribution may still align to the infrastructure role rather than the niche operator role.)

Engagement and well-being tools will help consumers manage their health by connecting platforms and infrastructure to enable them to compile and share data. However, these specialized tools will benefit by being connected to feedback loops with providers, coaches, and other ecosystem participants rather than existing as point solutions, enabling them to more rapidly evolve their ability to make an impact on consumers' health.

Traditional health care players are already experimenting with engagement tools. For example, Aetna's CarePass allows consumers to set personal health and wellness goals, import data from other apps, and track food intake, while UnitedHealthcare's OptumizeMe also incorporates gamification principles to change behavior. So far, however, these tools have not been widely adopted: As of early 2014, approximately 65 percent of consumers had not yet tried a payer-provided tool.³³ Engagement tools are also coming from nontraditional sources such as Mango Health (an application that helps consumers manage their medications) and Welkin Health (an application that helps people with type 2 diabetes connect with certified diabetes educators).

Analytics solutions help customer and care delivery teams draw insights from the data. The opportunity for niche health care analytics is large, estimated at \$300–450 billion per year, driven, in part, by the proliferation of EHRs, which have allowed more data to be collected but do not give care providers effective tools to extract the most critical information and insights.³⁴ Effective analytics often require deep domain expertise and unique approaches to mining the data, favoring deep specialization and rapid learning within the specialization, which in turn suggests that many of these analytic solution businesses will prosper as niche providers. As the type, quality, and volume of data collected change, analytics tool providers will rapidly learn and adapt to serve emerging needs.

For example, technology tools and new care models will allow primary care delivery entities to interact with a broader care team well beyond today's narrow networks. As an example of how access to specialized information for diagnosis is changing, a tool called SimulConsult integrates findings from tens of thousands of published studies related to neurological conditions and syndromes, and generates hypotheses about the underlying cause of a patient's symptoms. While the tool cannot yet provide a definitive diagnosis, it can help a primary care delivery entity narrow the diagnosis and identify the type of specialist best equipped to address the patient's needs, improving referrals for additional tools and services. As tools like SimulConsult and IBM Watson, a computer system capable of answering medical questions posed in natural language, become more effective, they will serve as valuable enablers for care teams in the niche operator portion of the ecosystem.

Digital technology tools can also help care delivery teams connect seamlessly with data platforms to alleviate inefficiencies and improve the way care delivery is supported. For example, Augmedix, a Google Glass application, lets a physician record patient visits and automatically enter information from those visits into an EMR. The company estimates that Augmedix can reduce the time a physician spends on entering data from 33 percent of the day to 9 percent, effectively turning three doctors into four (based on capacity) in addition to letting the physician focus more fully on the patient. These kinds of technology tools will

become even more useful and valuable when they connect with a growing array of analytics tools to provide even more insight and recommendations to the physicians.³⁵

One of the areas of demand for analytics solutions is around understanding the efficacy of a procedure or intervention relative to its cost. These types of tools do not exist in today's system due to the lack of a financial incentive to understand the true costs of care relative to outcomes. However, in a consumer-driven ecosystem, understanding efficacy relative to costs will be critical for care providers trying to keep a population well at the lowest possible cost.

Financial products support the ecosystem by designing and operationalizing financial products. To begin with, insurance products will likely be aggregated on product platforms to reach the consumer. Niche operators will use data platforms to design financial products that can help individuals finance their health care needs. Products that are tailored to the

needs of a specific population group require a deep understanding of the consumer and the community context. While more commoditized insurance products could be viewed as a scale or scope activity, more tailored products require deeper expertise about certain segments of consumers.

Mobilizers create standards and help orient the entire health care ecosystem toward learning and improvement

Mobilizers help to focus a broad array of participants on shared goals that encourage sustained collaboration. They further help to drive learning across the ecosystem by providing standards and governance. By framing explicit goals, providing governance aimed at enhancing interaction, and creating an environment for collaboration, mobilizers enable

THE EMERGENCE OF QUANTIFIED SELF ANALYTIC TOOLS

Newer wellness tools that use technology to help the user gain personal health insights are likely to become more important in a learning-oriented, consumer-centric health system. Quantified self (QS) hardware and software—including activity trackers (such as Jawbone UP, Fitbit, and Misfit Shine), other biosensing wearable technology (such as the Spire respiration monitor), and associated apps—are still the province of early adopters, but constant improvements in technology will equip more and more consumers with access to previously unavailable information about their own health. Trackers that measure steps and sleep patterns are just the first generation of relatively inexpensive, intuitive, consumer-oriented tools. Next-generation wearables such as Melon use EEG signals to measure brain activity and provide insight into a person's level of focus; the Ladybug Kit is an easy-to-use device for measuring cholesterol at home. Tools like these, in concert with accompanying user-centric apps that track progress and observe trends, can provide rapid feedback to the consumer. Consumers can increasingly see the impact of their actions in real time, as can their care providers if the data are shared with them.

The proliferation of devices has spurred attempts to develop platforms to aggregate all of a consumer's health data from the many apps and tracking devices that a consumer might use to maintain health. Validic, for example, accesses data from mobile health devices, in-home devices, and patient health care apps. Validic has led efforts to create an open ecosystem for the exchange of these data, developing an API to pull data from disparate sources and communicate them to a wide array of health care providers.³⁶ These types of platforms promise to enable rapid feedback loops and open windows into ways that consumers and their caregivers can collaborate for desirable health outcomes. However, privacy and security concerns will be a challenge.

a web of sustained, complex interactions that evolve over time to drive specific initiatives and accelerate learning.

There are many mobilizers in today's evolving health care ecosystem, including:

- **Government.** The Centers for Medicare and Medicaid Services (CMS) have historically been the primary mobilizer within the US health care system, responsible for framing goals and providing governance over traditional players and their operational and financial interactions with respect to Medicare. CMS likely will continue to play a critical role in the future, especially in light of the growth in the Medicare market as the US population ages, but other types of mobilizers will also emerge.
- **Digital health communities.** Incubators, accelerators, and digital health communities are mobilizing innovation in the health care market. Rock Health, Blueprint Health, Healthbox, and Startup Health, for example, have facilitated the types of valuable interactions and collaborations needed for entrepreneurs to enter into the complex, heavily regulated health care space. "Rock Health Angels," one of Rock Health's strategies for collaboration, brings digital health entrepreneurs and physicians together, transforming doctors into clinical champions for new technologies.³⁷
- **Consumer movements.** Patient movements will become increasingly important as mobilizers. The QS movement, for example, highlights the growing influence and engagement of the consumer in health care. The worldwide QS community has been described as an "international collaboration of users and makers of self-tracking tools."³⁸ The movement has contributed to

the development of activity trackers and other biosensing wearables, in part through the meetings, conferences and expositions, community forums, Web content and services, and guides to self-tracking tools created by the organization Quantified Self Labs.³⁹ By providing forums for interaction and collaboration, patient movements unlock individual knowledge flows that can help drive learning and improve health in the new landscape.

- **Professional communities.** Professional communities and organizations will likely help health care practitioners maintain and raise the quality of care by establishing and maintaining standards of performance. For example, a professional community of orthopedic surgeons can mobilize physicians to assess knee replacement implants in order to identify those with the best outcomes. Standards and practices defined by this community can be communicated through niche players focused on performing orthopedic surgeries.

Undoubtedly, new mobilizers will emerge as the health care ecosystem evolves. They will be critical as businesses form to fill new roles. One type of mobilizer that seems critical but does not yet exist is an organization to guide the creation of standards required to support the data aggregation platforms of the future. The Essential Standards to Enable Learning (ESTEL) initiative is trying to fill this need by orchestrating a set of standards that could enable the creation of a "learning health system" that can interact with and share data across multiple data aggregation platforms.⁴⁰ The success of ESTEL or other groups with similar goals will be critical to supporting the development of aggregation platform businesses in the ecosystem.

Pragmatic pathways for change: Scaling edges

THE fact that many roles don't exist or are just emerging makes it harder to accept that a fundamentally different landscape will emerge. There is a temptation with this type of flux to wait and see how the industry shakes out. However, there are diminishing options for those who wait.

As consumer demand increases, many incumbents and new entrants are competing to fill the current void for aggregation platforms and infrastructure. However, as the market matures, economics will likely dictate that these roles, which leverage economies of scale and scope, ultimately concentrate into a few players. Once a critical mass is achieved in these businesses, it becomes more and more difficult for new entrants to compete successfully—fast followers are at risk of being overwhelmed by the scale and scope economics of early entrants.

The opposite is true of specialized niche operators, which have been consolidating but can begin to fragment as individuals take advantage of the economic opportunity to differentiate value and innovate for the consumer while accessing scale resources from other participants in the ecosystem. Incumbents that delay making difficult decisions about which roles to play run the risk of being squeezed on the one side by more focused players who rapidly leverage economies of scale and scope and on the other side by equally focused players carving out attractive niche positions.

Incumbents will be well served to decide now where they have a competitive advantage,

which roles to play, and how to get there.

There are benefits to acting fast, especially in the scale and scope roles that benefit from network effects and may be targeted by new and unexpected entrants. For this reason, the incumbents—health care providers, plans, and suppliers—should move quickly to:

1. Understand the roles and how they will interact in the future health care ecosystem
2. Define the “edge” and assess capabilities
3. Take small, smart steps to transform the organization

Understand the roles in the future health care ecosystem

Are all possible roles described above attractive? Yes—but not equally to everyone.

Rapid technological advances are allowing cheaper development of products and services, greater access to markets, and more accessible learning. For many niche roles, these lowered barriers make it easier to play in the market but also limit growth potential because of the resulting competitive intensity. Niche roles also have diseconomies of scale—as they grow larger, they become less nimble and thus less responsive to consumers. In addition, if they try to scale to cover more niches, their understanding of each niche will be less deep, and they will be less effective overall. Given that

their basis of value is derived from their deep understanding of a niche and responsiveness to a specific segment of the consumer market, niche roles are not compatible with scale.

In contrast, **scale-and-scope** roles (infrastructure, platforms, and agents) rely on scale to operate and thus provide attractive growth potential for entities with growth aspirations. However, they often require significant resources to build. They also have strong network effects—the more participants and feedback loops, the higher the value to each participant, making it increasingly difficult for later entrants to catch up with competitive, profitable offerings.

Mobilizer roles may be large and all encompassing (for example, CMS) or small and local (for example, Digital Health Meetups). Their value is derived from their relationships, influence, and ability to drive effective learning or advance a goal within an ecosystem. Whether or not this role represents an attractive and viable option for an incumbent depends on their having aspirations, capabilities, and assets that support those areas.

In this emerging landscape, neither growth nor human and physical resources are evenly distributed. Most of the human capital will occupy the niche roles, which rely on creativity, empathy, and interpersonal relationships—areas in which humans excel. Most technology and property (plant and equipment), however, will be concentrated in the infrastructure, platforms, and agent roles. Infrastructure and platforms will create value by developing and automating high-volume and routine processes—capabilities that reside in technology. The agent role will create value by using data and technology to develop unique insights and recommendations for consumers, health care professionals, and even some niche operators.

Those organizations that aspire to grow should concentrate on the part of the economy that requires scope and scale; for example, platforms, infrastructure, and agent businesses. They should avoid competing directly with

the businesses operating in the niche parts of the economy.

This will require large incumbents to carefully analyze their existing businesses in terms of the various roles they are playing today and then to make some difficult choices. They will need to identify the one role that is most attractive and feasible given their current position and develop a more focused effort to deepen, grow, and evolve their capabilities in that role. At the same time, they will over time likely need to shed the parts of their business that involve other roles. Each role requires a very different set of skills, economics, and even culture. Companies that persist in trying to straddle across multiple roles are likely to find that they will sub-optimize performance in each role as they struggle to reconcile these competing needs, leaving them vulnerable to more focused competitors who have committed to achieve world-class performance in one role.

All organizations, but especially large, growth-oriented ones, should also pay attention to the way they will interact with others in the ecosystem. This new health care ecosystem we've been describing is dependent on the interactions between participants. A role cannot be considered alone but only in the context of how it will interact with other roles. An organization or individual choosing a role should assess what levers they have to build relationships, create leverage, and work effectively within an ecosystem, and make it an explicit part of their strategy.

Companies choosing to focus on one of the scale or scope roles will find that they have an attractive growth option. Rather than choosing between make or buy, these companies will now have a third path to growth—leveraged growth. This involves connecting with a growing array of other players in the health care ecosystem, especially with the increasingly specialized niche operators, and mobilizing their capabilities to add more and more value to their customers.

Define the “edge” and assess capabilities

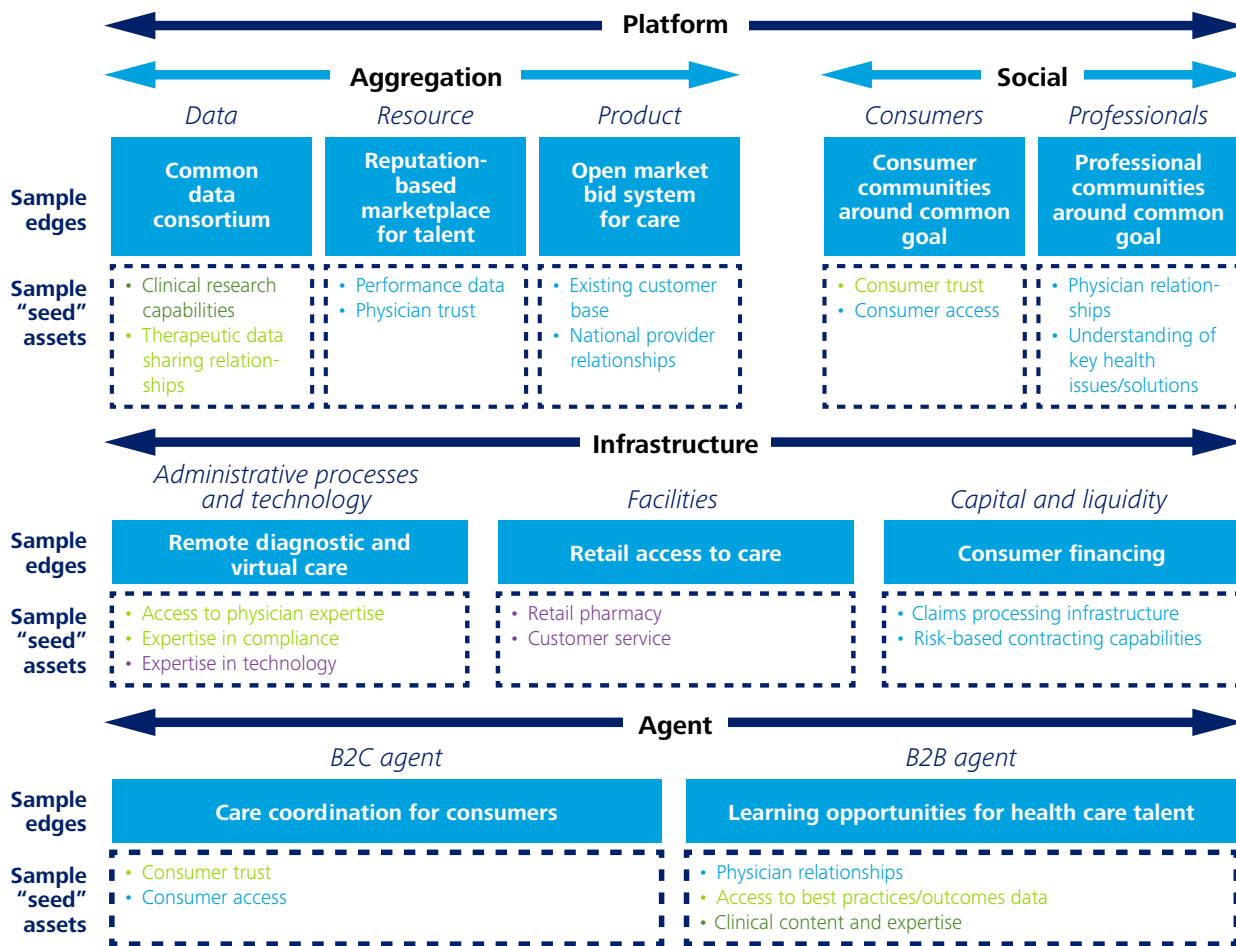
Edges are growth opportunities that align with the long-term trends in an industry and adjacent industries, and that demand fundamentally different approaches to the business. Edges can be iterated and scaled rapidly with minimal resources by tapping into the passion and the resources of a broader ecosystem of third parties. The most promising edge initiatives can grow short-term, incremental revenue without cannibalizing the revenue generated by the core. However, in the long term, edges must have the potential to generate

enough revenue and profit to replace the existing core of the business.

How do you identify an edge in health care? Start by asking, “What is the most promising role within the evolving health care ecosystem that we could play in 5–10 years?” Health care incumbents—large providers and health plans—will likely move toward infrastructure, platform, or agent: roles best suited for their growth aspirations and capabilities.

Figure 6 highlights some potential edges for large providers and health plans. Health plans may be better suited to target the data aggregation platform, while providers can assume the role of the resource aggregation platform.

Figure 6. Sample “edge” opportunities for health care incumbents



Legend: Plan, provider, life sciences, other

Provider organizations can also take on an infrastructure role to help manage and allocate facilities and other capital assets. However, both health plans and providers have the potential to become B2C (consumer) agents. Alternatively, some physicians will migrate into the niche operator part of the economy to develop deep understanding of a targeted segment of patients or build specialization in the treatment of a specific condition.

Life sciences and supplier organizations focused on growth may need to also figure out how they can become scale and scope operators (for example, platforms or infrastructures). One option could be to provide manufacturing and distribution capabilities to the niche operators focused on R&D.

If incumbents do not move fast enough, new entrants may begin filling these roles in ways that are not immediately apparent or threatening to traditional players. For example, a wellness platform that tracks and advises consumers could iterate and grow, largely undetected, on the edge of the traditional health care system. Once it reaches a certain scale, having cultivated trust with and knowledge of a critical mass of customers, it could easily begin providing advice when its customers become sick and helping them to connect with relevant health care players. This new entrant might overcome the constraints faced by traditional health care players—for instance, by getting consumers to “opt in” to share health data in exchange for better holistic advice on maintaining health.

The good news is that many incumbents already have some of the assets needed to succeed in those roles. They still need to develop additional capabilities to be successful in these new roles as well as consider shedding activities that are not integral to that role. Since there are significant first-mover advantages, the race is on!

Take small, smart steps to transform the organization

Once the edge is defined, short-term (6- to 12-month) initiatives help the organization test and refine the most promising approaches to scaling that edge. Rapid prototyping generates quick feedback that can help test assumptions while also demonstrating preliminary results.

Edge initiatives can be thought of as start-ups to which the philosophy of venture capital investor Fred Wilson can be applied: “The amounts of money start-ups raise in their seed and Series A rounds is inversely correlated with success. Yes, I mean that. Less money raised leads to more success.”⁴¹ A key aspect of the rapid experimentation with edge initiatives is to test whether the edge has the ability to scale rapidly, and to what degree it can leverage external networks and resources rather than relying on the core of the organization for resources and funding as it scales. Forcing edge initiatives to look elsewhere for resources isn’t such a stretch given the wide accessibility of technologies such as cloud computing, social media, big data, and analytic tools that can be leveraged to build out new businesses without requiring tremendous investment. But avoiding up-front investment isn’t the only rationale for leveraging the ecosystem; by looking outward into the ecosystem, companies can find collaborators and build relationships with other individuals, teams, and organizations that have deep interest in or even passion for the initiative. The interactions and rapid exchange of information and feedback between the team and external collaborators enables accelerated learning for both the initiative and the ecosystem while bypassing the constraints of organizational inertia, skepticism, and even resistance. By encouraging a focus on ecosystem relationships from the outset, this will help the edge leaders to be much more effective participants in the expanding health care ecosystem.

By starting small on promising edges, large institutions can avoid exciting the immune system and the antibodies that are produced when efforts are made to transform the institution. Rather than confronting the core, the transformation effort focuses on scaling a promising edge that can ultimately pull more and more people and resources from the core out to the edge, until the edge becomes the new core.

How can you scale an edge in health care? Focus on demonstrating quick results and getting feedback from others, rather than on lengthy planning and execution cycles. This might mean targeting an initiative at a limited market or on a condition type where a relationship with providers already exists. The prototype product or service should be iterated quickly and adjusted based on feedback to gain additional information without going through cumbersome layers of internal review or approval. In addition, the metrics used for the initiative should track the trajectory of impact (both for the organization and, potentially, the ecosystem) rather than absolute results. Is the impact increasing over time? Is the type of impact consistent with our expectations and assumptions about the opportunity? Are we making a positive and desired change in the entire health care system?

Who should be involved in scaling edge initiatives in the organization? Consistent with the notion of avoiding conflict with the core and embracing edge initiatives that are new to the organization, recruit individuals who are passionate about the edge opportunity—not necessarily those who have the right experience to be successful in the core. Those who built successful careers in the legacy model may not have the right mindset to drive innovation. In contrast, those who are passionate about the potential edge may be more likely to learn the skills they need by connecting and collaborating with resources inside and outside of the company.

By exploring edge opportunities through rapid prototyping and leveraging resources and capabilities to accelerate learning, health care organizations can build momentum that leads in the direction of a new role. Eventually, as an edge initiative becomes more successful, it will begin attracting resources from the core. Then the core of the organization may be more likely to adopt the promising new model or practice rather than trying to kill it or force-fit it to the legacy model. In this way, scaling edges provides a pragmatic pathway for incumbents to follow in order to transform into the roles best suited for the open, consumer-driven health care ecosystem.

Conclusion

TODAY, the US health care system is at a challenging but exciting inflection point. While traditional business models are under pressure, new opportunities to deliver value in an open ecosystem are emerging. The exact topography of the future landscape is uncertain. Organizations and individuals can approach this uncertainty in two ways: Wait for the future to happen to them and try to react, or take actions to shape a more positive future outcome. This report seeks to provide an outside-in perspective and provides a lens

through which individuals and organizations can have discussions about strategic and operational choices they can make to become part of an open, consumer-driven ecosystem that enables a culture of health. This lens is not applicable only to the US market. In fact, the ecosystem roles described in this report can be viewed as country- or geography-agnostic. Any nation that desires to generate an environment focused around the consumer's well-being, learning, and performance improvement should find this report relevant.



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Below the surface of current events, buried amid the latest headlines and competitive moves, executives are beginning to see the outlines of a new business landscape. Performance pressures are mounting. The old ways of doing things are generating diminishing returns. Companies are having harder time making money—and increasingly, their very survival is challenged. Executives must learn ways not only to do their jobs differently, but also to do them better. That, in part, requires understanding the broader changes to the operating environment:

- What is really driving intensifying competitive pressures?
- What long-term opportunities are available?
- What needs to be done today to change course?

Decoding the deep structure of this economic shift will allow executives to thrive in the face of intensifying competition and growing economic pressure. The good news is that the actions needed to address short-term economic conditions are also the best long-term measures to take advantage of the opportunities these challenges create.

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