AT Kearney

Road Map to a Connected Digital Healthcare Future

Medical technology is triggering profound changes in patient health, creating elements that are transforming the industry. What's missing is an ecosystem to integrate the individual parts into one cohesive whole.

A Journey to Wholeness

Imagine a team of healthcare providers taking full advantage of a patient's genetic makeup, body imagery, electronic health records, wearable devices, and real-time medical research and population health data. This vision has existed before—think about the media attention around the human genome project in the early 2000s—but by 2030, predictive analytics and artificial intelligence will genuinely support this vision, bringing more accurate and more timely identification and management of a range of health concerns.

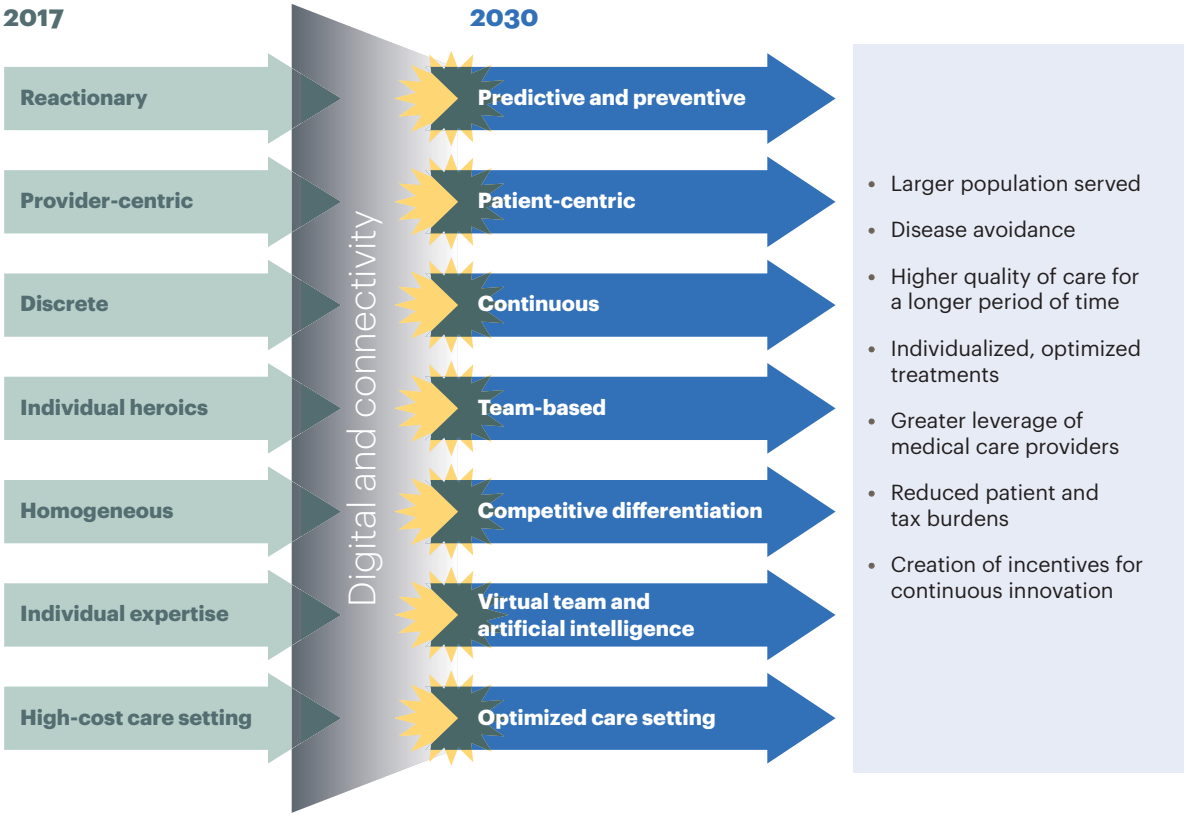
Despite the wealth of available information, the various sources of information have so far not been integrated. Harnessing the power of these elements will bring immeasurable benefits to improve people's health:

- Predicting the likelihood of ailments based on a network of electronic health records as opposed to relying on basic questionnaires
- Diagnosing diseases based on predisposition, the latest clinical research, and real-time population health trends
- Guiding or warning people in real time about the risks associated with environmental or behavioral attributes
- Correlating conditions and risks based on event triggers, such as stressful situations
- Pinpointing sicknesses to certain activities, such as travel to a specific location known to have the presence of a contagious disease

By 2030, **predictive analytics and artificial intelligence will genuinely support more accurate and more timely identification** and management of a range of health concerns.

In addition, digital healthcare will improve the healthcare system's transparency and productivity, reducing costs. In this new ecosystem, patients can ensure they receive the best care for the lowest cost, and providers can deliver the best outcomes (see figure 1 on page 2). Imagine how the economics will change. Early disease predictions will lead to behavioral changes that prevent and eliminate system costs. Patients will be able to compare provider quality and prices and then make informed choices based on value, which will improve productivity. More accurate and timelier identification of diseases will enhance treatment and reduce waste associated with a trial-and-error approach. With telemedicine and remote monitoring, new and lower-cost care settings such as home care will improve patients' health and support using the right level of care. Additional and more accurate information on the clinical and economic performance of products and services will improve innovation.

Figure 1
Digital innovation creating a brighter future for healthcare



Source: A.T. Kearney analysis

Along almost every dimension, the 2030 healthcare vision is vastly different and improved from today's reality. Although the individual components already exist, the medical technology industry will need to establish an ecosystem that seamlessly integrates the array of elements that are driving a transformation in healthcare.

A Digital Evolution

Healthcare is accelerating toward a patient-centric, value-based model. In fact, many companies are creating innovative new business models to improve their profit and loss and establish a competitive advantage. However, the way the industry is moving toward this model is chaotic—a bit like the Wild West and like nothing the industry has seen before.

A few headlines illustrate this complex new environment:

- "Apple's Plan to Turn the iPhone into a Medical Wonder Starts Now" (*Time*)
- "Bedless Hospitals Grow as Industry Moves towards Outpatient Care" (FierceHealthcare)
- "U.S. Officials Warn Medical Devices are Vulnerable to Hacking" (*CBS News*)

This digital environment comes with an array of implications for how medical technology can be used to better engage with patients, payers, and providers. However, it will be a bit of a balancing act. For example, products will need to be "patient differentiated" while delivering both value and best-in-class quality, and solutions will need to cover a broader part of the patient pathway while also aligning with the full continuum of care. Digital applications and devices must be secure and yet provide seamless interoperability, and the value proposition must be transparent while driving improvements across the value chain. Products, services, and business models will all need to be tailored to this new environment.

Four factors are driving this digital evolution:

Consumer expectations

Until recently, patients were relatively agnostic about their healthcare choices, primarily because of several trends. For example, a large portion of the population has insurance, which reduces a patient's price sensitivity. In addition, many people have the perception that physicians and hospitals offer similar capabilities for the same price, and when it comes to medical technology, there is a lack of transparency around quality and pricing.

Companies are creating new business models to improve their profit and loss and **establish a competitive advantage.**

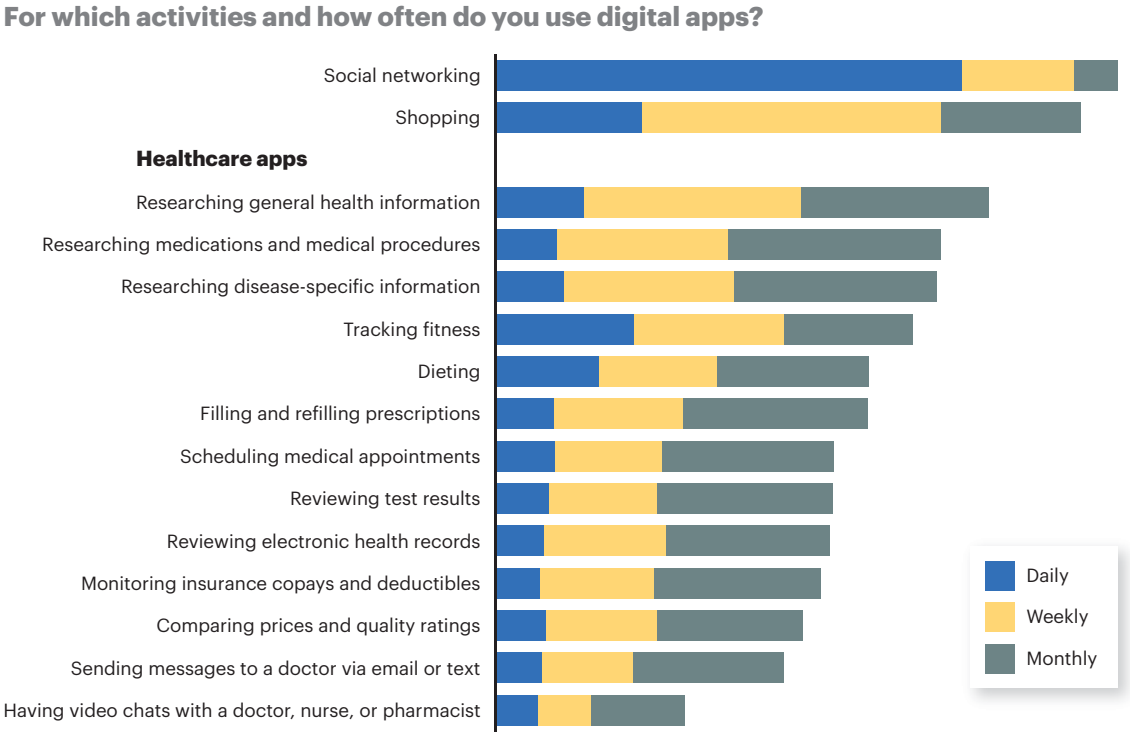
However, as payments skyrocket and patients become more aware that they can—and should—make informed choices about their healthcare, their behaviors are changing. Because of the technological evolutions in other industries, people have grown accustomed to getting more comprehensive information, and they are beginning to expect similar experiences in healthcare. In retail, for example, consumers can quickly find products and browse customer reviews on Amazon and compare restaurants and make reservations on Yelp. The US healthcare system is beginning to support similar services. However, A.T. Kearney's Connected Health Consumer study shows there is still a long way to go (see figure 2 on page 4).

In this evolving healthcare environment, consumers are already seeing an array of benefits. Patients can go online to a variety of reputable sources to do their own symptom and disease research—which may not always help physicians, but it is empowering patients and giving them greater ownership of their care. Those with similar diagnoses can engage with their peers for advice and support. Services such as CareOperative's Healthcare Bluebook help consumers compare prices to find out what they can expect to pay for services in their area, and insurance company apps are helping people find the most effective networks and treatments based on price and quality.

New care models

Pharmacies, hospitals, and other industry stakeholders are establishing new care models to reduce costs, address new coordinated-care reimbursement regulations, and more optimally treat and monitor patient compliance. This comes at a time when new product innovation has

Figure 2
Healthcare apps are lagging in popularity



Note: Total population is 1,072 participants.
Source: A.T. Kearney US Connected Health Consumer study

dried up, costs are climbing, regulations are tightening, and the time to market is long. By contrast, digital technologies allow for efficiency, create patient centricity, demand shorter timelines and less investment, and often evade government regulations. In this landscape, the rise of new care models is driving a need for new digital technologies and practices. For example, Vidyo's telehealth solution enables in-home, ambulatory, and acute care services, requiring seamless interoperability of connected, digital devices.[1] In New York, Montefiore Medical Center opened a $152 million, 280,000 square-foot bedless hospital. Since 2000, CVS Minute Clinics have treated more than 25 million patients, helping pharmacies boost traffic and create a captive market for prescription and over-the-counter product sales.

Digital technologies

Based on technological advances and the evolution of other industries, digital technologies have been developing and maturing for many years. Smartphones, for example, have turned the cellphone into a gateway to almost all aspects of our lives. As recently as 10 years ago, few people could have imagined using a phone to pay for coffee, buy a television, get checking account alerts, and listen to a favorite radio station anywhere in the world.

[1] For more information, see *Medical Devices: Equipped for the Future?* at www.atkearney.com.

Medical Technology Leaders Gather to Discuss a Vision for Healthcare

More than 20 executives from leading medical technology companies including Medtronic, General Electric, Stryker, Baxter, Hospira, and Medline attended a roundtable in Chicago late last year to discuss what healthcare might look like in 10 years. Topics included industry trends, regulatory policies, and how manufacturers can monetize data.

Participants also discussed what will drive the seamless, secure integration of data across the industry and how this will occur. Even though all device manufacturers are collecting data, they have had no incentive to share this data—sometimes not even internally—and fear risking their intellectual property or facing HIPAA repercussions.[2] One executive said something similar to a FICO assessment will be required: "Everyone puts something in and also gets something out." Many leaders agreed that advances in digital interoperability will require a regulatory mandate or will be initiated by a large integrated delivery network.

Executives agreed that the traditional ways of developing and launching products will no longer be enough. Only a dynamic new operating model that partners traditional and nontraditional entities can unlock the full value of digital. Nontraditional companies operate under different philosophies, experimenting in ways that reward speed and unafraid of failing fast—a stark contrast to the approach of most traditional companies. A.T. Kearney has partnered with an array of top medical technical companies to help them achieve ongoing success in this new connected, digital healthcare environment.

As a result of these advances, healthcare will not need to reinvent the digital wheel. However, the industry will need to take these existing platforms and integrate them into the new models for patient care. A network of connected wireless devices, cloud-based solutions, analytical applications, and electronic medical records will be needed to create an efficient and effective digital ecosystem. The market for these services and applications is rapidly growing and is expected to be worth more than $600 billion by 2023. Driving this growth is a global connected health and wellness device market, valued at $120 billion in 2015 and expected to grow at 22 percent CAGR through 2023, primarily because of the rise of the Internet of Things and wearable medical devices.

With the growing popularity of these innovative wireless devices and services, the healthcare industry is exploring new business models. At a Chicago-area event last year, more than 20 executives from leading medical technology companies discussed digital strategy, stressing that they are seeking ways to monetize and integrate data, make the system more productive, and provide more value-added services and products (see sidebar: Medical Technology Leaders Gather to Discuss a Vision for Healthcare). Across the industry, companies are taking a variety of approaches in choosing areas of focus, ensuring a return on investment, pinpointing the ideal degree of risk, and finding methods to coordinate with ecosystem partners. Many are challenging the status quo. Boehringer Ingelheim, a traditional pharmaceutical company, is working with Qualcomm Life to develop a low-power, wireless, disposable inhaler for patients with chronic obstructive pulmonary disease. Medtronic and IBM Watson Health are developing new ways to tackle diabetes, and Philips Lumify, a handheld ultrasound device, connects to a smartphone or other handheld device, offering a monthly subscription for two transducers, an app, and access to an online portal for data and images.

[2] HIPAA is the Health Insurance Portability and Accountability Act, which protects the privacy and security of health information.

Reimbursement and regulatory reform

Medical technology manufacturers are experiencing an evolving reimbursement and regulatory reform landscape. The provisions that insurance companies, Medicare, and other payers are introducing will improve manufacturers' ability to create and receive reimbursement for digital innovations. Many executives believe reimbursement is the biggest hurdle to unleashing innovation, with interoperability standards being a close second. The Centers for Medicare & Medicaid Services has introduced recent changes to address these concerns. For example, the Medicare Access and CHIP Reauthorization Act has expanded the use of data, creating a new framework to reward providers for quality of care rather than volume.[3] The 2017 Medicare Physician Fee Schedule adds several telehealth codes to the eligibility list, and Centers for Disease Control and Prevention program entities are now required to submit claims electronically.

Other agencies have also been advancing legislative reform. In 2015, the Food and Drug Administration provided clarification on which apps it will not regulate as medical devices, including apps that provide wellness information and tracking, general health research information, and support for a provider's back-office productivity. Recognizing the burgeoning number of health-related apps, the Federal Trade Commission has released a tool to help developers navigate applicable federal laws.

A Path Forward

The future is bright for medical technology companies that aim to operate in this new connected, digital environment. However, many of the largest companies are pursuing digital innovation that evolves around their existing product offerings—and they are struggling to transform their businesses (see figure 3).

Figure 3
Obstacles exist to pursuing digital innovation

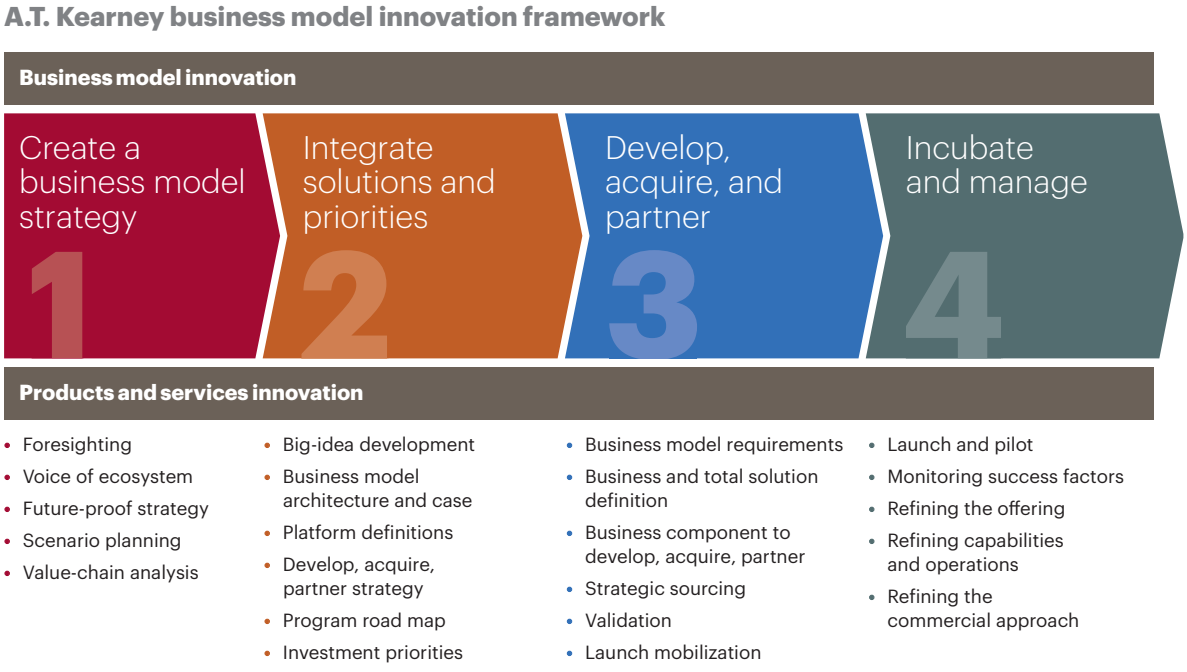
Obstacle	Characteristics
Innovator's dilemma	• Difficulty balancing core business with new types of product innovation • Evolving definition of innovation
Ecosystem blindness	• Knowing the traditional product space • Lack of knowledge and recognition of broader ecosystem shifts and overall value-chain needs
Lack of capabilities	• Capabilities aligned with traditional product platforms and development models • Strategy, innovation, and delivery unconducive to supporting broad solutions and services requiring partnerships
Homogeneous leadership	• Leadership's view of what it takes to be successful • Resistance to leaders from other industries
Paralysis	• Waiting for ecosystem stabilization, digital standards, payments, and success stories before acting • Establishing new business models, including partnerships, with a fragmented tech base and evolving policies

Source: A.T. Kearney analysis

[3] CHIP is the Children's Health Insurance Program.

Figure 4

Medtech companies require an innovation framework



Source: A.T. Kearney analysis

Successful companies build new capabilities to strategize, develop, and scale new business models (see figure 4). Although this begins with leadership and strategy, the operating model will determine the degree of the transformation and the subsequent market success. In addition to new product development processes and structures, companies must have an analogous and integrated approach to developing and launching new business models. Furthermore, the supporting organizational structure, talent, culture, tools, and techniques all need to be aligned to unlock innovation and transformation.

For medical technology companies embarking on this digital health journey, the ideal approach is to have an end-to-end business model innovation framework that encompasses all products and services. Recognizing the value of an effective digital strategy, industry leaders are integrating solutions with an understanding of when to develop, acquire, or partner. They acknowledge the wide array of methods that can be implemented and operate in an environment that nurtures innovation. However, what worked at one time for one company may no longer be relevant. Are you prepared for the future of connected digital healthcare?

Authors

Bill Tribe, partner, Chicago
bill.tribe@atkearney.com

Erik Blazic, principal, Southfield
erik.blazic@atkearney.com

ATKearney

A.T. Kearney is a leading global management consulting firm with offices in more than 40 countries. Since 1926, we have been trusted advisors to the world's foremost organizations. A.T. Kearney is a partner-owned firm, committed to helping clients achieve immediate impact and growing advantage on their most mission-critical issues. For more information, visit www.atkearney.com.

Americas	Atlanta	Dallas	San Francisco
	Bogotá	Detroit	São Paulo
	Boston	Houston	Toronto
	Calgary	Mexico City	Washington, D.C.
	Chicago	New York	
Asia Pacific	Bangkok	Kuala Lumpur	Seoul
	Beijing	Melbourne	Shanghai
	Brisbane	Mumbai	Singapore
	Hong Kong	New Delhi	Sydney
	Jakarta	Perth	Tokyo
Europe	Amsterdam	Lisbon	Paris
	Berlin	Ljubljana	Prague
	Brussels	London	Rome
	Bucharest	Madrid	Stockholm
	Copenhagen	Milan	Stuttgart
	Düsseldorf	Moscow	Vienna
	Frankfurt	Munich	Warsaw
	Istanbul	Oslo	Zurich
Middle East and Africa	Abu Dhabi	Dubai	Riyadh
	Doha	Johannesburg	

For more information, permission to reprint or translate this work, and all other correspondence, please email: insight@atkearney.com.

The signature of our namesake and founder, Andrew Thomas Kearney, on the cover of this document represents our pledge to live the values he instilled in our firm and uphold his commitment to ensuring "essential rightness" in all that we do.