

Capturing Value From Connected Health

A confluence of factors has opened new avenues for pharma and medtech companies to introduce connected health technologies and promote their adoption. To fully unlock their value, companies need to combine innovative solutions with the right strategies, partnerships, and organizational capabilities.

BY RENA ROSENBERG, JORDAN VANLARE, BRYAN REINHOLT, SATYA RAO, AND JOE DERTOUZOS

- Today's connected health technology landscape includes a wide array of apps and a dispersed set of data sources, but to fully exploit the benefits, the provision of solutions and the collection and application of data need to shift from fragmented "silos" to an integrated "ecosystem" of players.
- This shift has been impeded by the absence of business models that reward providers who use holistic connected health solutions. Instead of integrating connected health into their base-case strategic plan, many organizations still regard it as a special innovation project.
- Pharma and medical device players will need to overcome the challenges posed by the fragmented landscape to fully embrace a "customer first" mind-set when developing their products and services.
- To achieve broad-based and sustained adoption, companies need to focus on three types of success factors: desirability, viability, and feasibility.

Imagine how technology could transform the journey of a patient with diabetes: without even touching a button, the patient, Sara, sends a range of biometrics – blood glucose, A1C, blood pressure, medications, weight, physical activity, and caloric intake – into a secure, HIPAA-compliant cloud, where predictive analytics anticipate health needs and risks and communicate them to her primary care physician. Her visits to her health care providers are more efficient and patient-centered, given the ease with which her doctor can adjust her treatment regimen based on this comprehensive view of her condition. These data are integrated with Sara's accessible electronic medical record (EMR) – enabling appointment scheduling with her providers, cost comparisons under her insurance plan, and automated prescription refills and delivery – all of which improve her adherence and save time and costs. Sharing her data also allows Sara to contribute to research programs by documenting her disease.

Over the course of her disease, a patient-centered companion app adapts to provide features most desirable to Sara, offering her coaching messages, education, and links to communities of patients for support. The app also predicts acute events, thereby providing invaluable assistance to her doctor in preempting them. Data collected and aggregated from providers of diabetes care are analyzed and allow payors to compare Sara's metrics with regional and national benchmarks relating to patients like her and determine value-based reimbursement for Sara's providers. This comparison is very important for Sara's providers – like a large share of US health care reimbursement, their payments depend on their total cost, as well as patient care outcomes.

Although some aspects of this scenario are a vision of health care's future, innovations in "connected health" have already put in place many of these advanced capabilities. Connected health includes the products and services created when technology and health care converge to accelerate the transformation of the health care system. These solutions enable patients, providers, and payors to apply more and better information, including real-time insights, and make it

easier for all stakeholders to communicate and collaborate. If industry stakeholders can overcome the challenges to achieving broad-based and sustained adoption, connected health solutions will shift the approach to care from reactive to proactive and the location of care from the physician's office to the patient's home. Throughout the health care industry, the provision of solutions and the collection and application of data will shift from fragmented "silos" to an integrated "ecosystem" of players.

For US stakeholders, including pharmaceutical companies and medical device manufacturers as well as payors and providers, the potential value of connected health is \$300 billion to \$450 billion, which is about half of the value at stake globally, according to McKinsey. Much of this potential value for pharma and medical device players is grounded in generating new insights for clinical and marketing purposes as well as capturing a portion of the upside from innovation and prevention. Benefits would arise from better patient engagement, promoting greater adherence, using precision medicine and predictive modeling to tailor treatments, and proactively identifying and treating patients who would otherwise be undiagnosed. Rather than launching broad-based marketing campaigns for the newest therapies, companies could focus their marketing spend by identifying the right patients to target and then help those patients manage their disease. Companies could also apply measurement tools to gauge the impact of their treatments. Many of these advantages in managing chronic diseases align with the interests of patients, providers, and payors across the health care industry.

Although promising examples of connected health have emerged in recent years, it remains to be seen whether such solutions will truly revolutionize health care and generate sustained revenue for the companies that offer them. Beyond the traditional hurdles of regulatory approval, compliance, and patient privacy, pharma and medical device players face new challenges as they seek to design customer-centric products and services that generate widespread and lasting interest among patients, providers, and payors.

To unlock the value of connected health

and capture the benefits, companies need to combine innovative solutions with the right business strategies, partnerships, and organizational capabilities. The winners – whether traditional health care players or new entrants – are designing connected health solutions that are desirable, viable, and feasible. (See Exhibit 1.) Successful solutions are customer-centered and easy to use. They provide "smart" capabilities, such as prediction and real-time interventions, generate evidence and impact, and help to integrate solutions with common goals across stakeholders. They are also supported by an ecosystem that provides a wide array of complementary content and services. To bring their innovations to market, companies need to deploy new capabilities and talent within the organization to support, for example, product development based on a "test and learn" approach and business-to-consumer marketing. Companies also need a new external orientation that emphasizes collaboration and the sourcing of innovations. These success factors and capabilities are notably different than those that pharma and medical device players have traditionally relied on to launch new products.

CHALLENGES TO ADOPTION AT SCALE PERSIST

A confluence of factors has opened new avenues for pharma and medical device players to introduce connected health technologies and promote their adoption at scale. State-of-the-art technology is evolving rapidly, while health care reform, risk reallocation, and consumerism are driving change and creating new opportunities to bring innovations to market.

Some leading companies are developing digital innovations that address the key issues of improving customer-centered design and promoting adherence, although adoption at scale will likely take many years. As a case in point, consider the connected health solution for treatment of multiple sclerosis brought to market by **EMD Serono Inc.** (known as **Merck Serono SA** outside the US and Canada), a biopharmaceutical company with annual revenues of approximately \$6.5 billion.

In 2009, EMD Serono began offering *RebiSmart*, the first electronic injection device with features to improve compliance and

ease of use, in Europe and Canada. Patients can use the injector to self-administer *Rebif* (interferon beta-1a), the company's disease-modifying drug for multiple sclerosis. In 2014, the firm released a new, customizable version of RebiSmart, along with a web-based data storage and management platform, called *MSdialog*. When placed in its transmitter, the RebiSmart injector wirelessly sends treatment data – injection times and doses – to the secure *MSdialog* server. The data are stored in the system and can potentially be used to track and measure adherence and support physician-patient communication and decision-making. The system is designed to provide physicians with access to certain data in real time, to enable more effective discussions and decisions. Small studies showed high rates of adherence.

This solution illustrates the great potential of connected health, as EMD Serono was among the first companies in the biopharma industry to redesign a drug-device combination to improve the customer experience, facilitate data collection and sharing, and provide interventions to improve outcomes. However, the company has not yet secured FDA approval, which has slowed the adoption of this innovative solution.

As this example illustrates, technology alone will not be enough to bring the promise of connected health to full fruition. Even some well-publicized innovations, such as wearables and sensors, have yet to prove their value as reliable clinical tools. Many players are still focused on capturing data and have not yet evolved to glean insights that would help them delight and engage with patients and enable sustainable adoption at scale. At the same time, regulatory and compliance concerns (including patient privacy) have limited the appetite for risk taking at many organizations.

To move beyond the "early days" and offer connected health solutions that fulfill their promise to revolutionize care, companies need to overcome a diverse set of challenges:

Fragmented landscape. Today's connected health technology landscape includes a wide array of apps and a dispersed set of data sources. This fragmented landscape has made it difficult to develop and market customer-centric solutions

Exhibit 1

Designing Connected Health Solutions

8 common elements make connected health solutions desirable, viable, and feasible

Desirable



Customer-centered.

An experience that puts the patient at the center and solves a valuable, recurring problem.



Easy to use.

The experience should be intuitive. If you need instructions it's too complicated.

Feasible

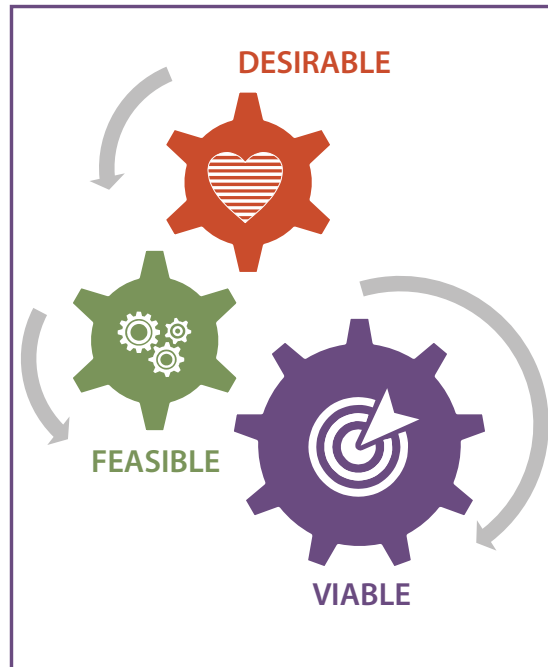


Technically possible to bring to market from a regulatory, compliance, and privacy perspective.



Organizationally

supported with the right strategy, budget, talent, and capabilities.



Viable



Supporting ecosystem.

Supported by a constellation of complementary content, product, and services both 1st and 3rd party.

Smart.



Relevant in real time, remembering what you do, predicting what you will do, and suggesting what you SHOULD do. Generating clinical and economic data that proves lower costs and improved outcomes.

Integrated.



Communicates with and fosters collaboration across stakeholders with aligned interests and is enabled by aligned incentives and value-based payment.



Value creating.

For patients, improves quality of care, experience and engagement, or reduces total cost of care, in a measurable way.

SOURCE: McKinsey

that are widely adopted by consumers. For example, McKinsey's "Consumer Insights 2020" survey found that the adoption rate of any one connected health solution is less than 4% among all age groups. Moreover, many consumers recognize that a unified ecosystem is needed to help them capture the benefits of connected health, with 63% of survey respondents interested in a one-stop solution app "that holds all of my data, including medical records."

As these findings suggest, pharma and medical device players will need to overcome the challenges posed by the fragmented landscape to fully embrace a "customer first" mind-set when developing their products and services. The health care

industry has been slower than others to adopt the mind-set that innovations must solve customer problems above all else. And, although pharma and medical device players have worked directly with payors and providers, they have not traditionally had direct contact with patients.

Placing customers – whether providers or patients – at the center of connected health requires coordinating innovations produced by multiple players. A single leader is often needed to orchestrate this ecosystem to overcome the obstacles created by the fragmented landscape and deliver value directly to customers. For example, **Walgreen Co.** is bringing together prescription adherence, prescription refills, fitness tracking, and phar-

macy and doctor consultations into a single smartphone app. Strategic partnerships have been essential for integrating these experiences and enhancing the patient value proposition. The retailer developed its own app for prescription adherence, while also opening the application programming interface (API) to allow for integration with third-party applications. Similarly, it has both created its own "live chat" interface to allow customers to discuss medications with a pharmacist and partnered with **MDLive Inc.** to integrate broader telemedicine services into the app. Walgreens has also partnered with **WebMD LLC** to provide patients with information on conditions and designed an app-based tool to schedule physician

appointments. To promote usage of these solutions and monetize them, Walgreens has integrated them into its “Balance Rewards” loyalty program.

Lack of evidence or a clear value proposition. Adoption of connected health solutions by payors and providers has been impeded by the lack of evidence or a clear value proposition to support the benefits of investing in these solutions. Although providers recognize the potential value of new technologies, our research demonstrates the challenges companies face in convincing them to adopt innovations on a broad scale. Our survey of more than 25 hospital systems found that 73% consider understanding the evolution of health care-related technologies to be highly important to sustaining their competitive position. Respondents said they are actively investing in, and deploying, many new technologies. The most commonly deployed technologies were telehealth and online scheduling and registration, followed by remote monitoring, EMR, and mobile apps. However, many respondents appear to find it challenging to justify investments when they do not see an immediate upside. When asked to identify the biggest barriers to their organization’s ability to be an early adopter of new technology, respondents most frequently cited misalignment of incentives and high cost.

These survey results point to opportunities for pharma and medical device players to educate and partner with providers and other organizations to generate the evidence needed to make connected health innovations relevant to them and their patients. Such efforts could include demonstrating improvements to clinical outcomes and quality of life and reductions in risk factors and medical utilization, as well as economic benefits. For example, several large pharma companies have recently formed alliances with patient-powered research networks to gain access to patient-reported data. The pharma companies hope to use the data to improve their understanding of patients’ experiences and what they value, with the goal of developing more patient-centered treatments in a wide range of therapeutic areas. Indeed, the ability to use connected health to understand and track patient behaviors provides the crucial link between these technological innovations and the anticipated benefits with regard to

improved outcomes and management of risk and utilization.

Recognizing the importance of patient-generated data, leading providers are testing ways to deploy new technology and learning how to capture value and position themselves for the future. For example, **Duke University** School of Medicine is piloting partnerships with **Apple Inc.** and other manufacturers of remote monitoring devices and apps (including **Fitbit Inc.** and **Withings Inc.**) to improve the integration of patient-generated data (such as blood pressure and weight) and clinical data in its EMR system. Duke integrates Epic’s EMR backend with Apple’s Healthkit to store specific patient-generated data in the EMR. Although the program is currently being piloted with a small number of patients, physicians in several Duke Medicine clinics have reportedly expressed interest in offering the platform to their patients, including obstetricians and gynecologists, endocrinologists, and oncologists.

Absence of business models and incentives. Adoption has also been impeded by the absence of business models that reward providers who use holistic connected health solutions. Although payors have been testing initiatives to improve compliance and adherence, pharma and medical device players stand to gain the greatest economic benefit from such improvements and are natural owners of the related initiatives.

The US health care system has traditionally tied payments to volume, rather than to the quality and efficiency of care delivery. A significant shift is underway, however, as a larger share of reimbursements will be tied to value and care coordination during the next few years. The US Department of Health and Human Services (HHS) has set a goal of having 50% of Medicare payments in value-based alternative payment models, such as accountable care organizations (ACOs), by the end of 2018. More broadly, the private sector is following a similar path – a group of major payors and providers recently announced the formation of the Health Care Transformation Task Force, and a commitment to having 75% of their businesses operating under value-based payment models by 2020. Additional examples of this shift to value-based reimbursement can be found in more than 20 states participating in the

federal government’s State Innovation Models (SIM) initiative. These states have created transparency around provider performance in delivering value-based care and have linked that performance to financial incentives, such as through episode-based payments or patient-centered medical homes. Their initiatives have demonstrated the potential for transforming health care costs and delivery in the US. Holding providers publicly and financially accountable for cost and quality is leading to more evidence-based care. For example, in Arkansas, which was among the first SIM participants, management of an ADHD episode has dramatically shifted from behavioral therapy to stimulant use in line with clinical guidelines. Similarly, antibiotic use in upper respiratory infections – long a Healthcare Effectiveness Data and Information Set (HEDIS) quality measure – fell significantly. Some initiatives involve multiple payors, including both commercial and government books of business. Other initiatives are limited to Medicaid patients. However, history suggests that these government initiatives will likely affect the reimbursement system for non-Medicaid patients as well, with commercial plans following the government’s lead by increasing providers’ accountability for both quality and total cost of care.

Incentives are also needed to promote patients’ adoption of new solutions. For example, in a three-year trial of a new diabetes care delivery model, conducted by the Australian government and supported by McKinsey, two intervention groups composed of primary care organizations were given access to a new integrated data platform that combined clinical and patient-generated data for diabetes care management. Only patients in the group that received financial incentives to use the system actually showed improvement. The researchers concluded that improved data transparency, continuous quality improvement processes, and intervention through analytics were not, on their own, sufficient to improve health outcomes. However, combining these changes with new funding models that offered the right incentives did make a significant difference compared with solely providing traditional drug therapies for diabetes treatment.

Providing functionality and services that

address important customer needs is essential for driving adoption. For example, nearly 50% of **Kaiser Permanente's** nine million members have used its "My Health Manager" app, which allows members to view their medical record, email their providers, check lab results, and order prescription refills, among other conveniences.

Traditional organizational mind-sets. In pursuing connected health initiatives, many pharma and medical device players are being constrained by their reliance on traditional ways of marketing and developing products and services. Instead of integrating connected health into their base-case strategic plan, many organizations still regard it as a special innovation project. As a result, these initiatives typically do not have dedicated budgets or P&L ownership on the business side. Moreover, because digital innovation efforts often cut across organizational "silos," departments face the challenge of collaborating to create an offering that delivers value to the business and its customers. Commercial leaders focused on near-term results often lack incentives to take risks. They also often do not recognize the potential threat from disruptions introduced by existing or potential competitors. Even when innovations are developed, companies try to create the "perfect" solution, instead of quickly releasing a minimum viable product and refining it based on user feedback. They typically test their solutions in high-touch, high-cost pilots, which require such significant overhead that they would not be viable at scale even if successful. Moreover, companies often do not clearly define what qualifies as "success" for a pilot.

THE SUCCESS FACTORS FOR CONNECTED HEALTH

To overcome the challenges and develop connected health solutions that achieve broad-based and sustained adoption, pharma and medical device players need to focus on three types of success factors: desirability, viability, and feasibility.

Desirability. Connected health solutions must be customer centric, placing the patient at the center of the experience and solving a significant, recurring problem. They also must offer an easy-to-use, intuitive experience and be seamlessly integrated into patients' lives and existing behaviors. The

best solutions will capture data automatically, ideally without even requiring patients to manually enter data.

Viability. Solutions should offer an experience that extends beyond the product itself to include a supporting ecosystem. This ecosystem should provide a constellation of complementary content and services from the solution provider as well as third parties. Consider that Apple initially introduced the *iPod* in 2001 without a supporting ecosystem. The one-millionth *iPod* was not sold until 2003 – after the company introduced the *iTunes* music store and a version of the device compatible with *Windows*. Sales accelerated as the company introduced a complete digital ecosystem that included, for example, movies, TV shows, and the Nike+*iPod* sport kit.

Viability also means that solutions must be "smart," offering real-time support, remembering what users do, predicting what they will do, and suggesting what they should do. Successful solutions will provide superior functionality for data capture, predictive analysis, interventions optimization, and quantification of the clinical and economic benefits. Integration is essential – solutions should communicate to, and leverage the capabilities of, key stakeholders with aligned interests.

Feasibility. The winners in connected health will combine technology with the organizational capabilities required to turn a breakthrough innovation into a successful product or service. In our experience, many companies are struggling to combine technology and the right organizational capabilities as they seek to design successful connected health solutions. Pharma and medical device companies will need to address 10 elements of feasibility to ensure that their connected health solutions succeed in the market:

1. *Rethink your strategy* in light of digital and industry disruption, new entrants, new business models, and the opportunities and risks being created. At leading companies, C-level executives have integrated connected health into the base-case strategic plan, allocated a dedicated budget, and assigned P&L ownership on the business side. This requires understanding your starting point and the market evolution, building a map of opportunities across the value chain, and

prioritizing a portfolio of initiatives. Many initiatives with a higher potential for impact will require a longer time frame to deliver returns, but it is important to get them out into the market as soon as possible.

2. *Develop a robust data and analytics vision and roadmap* that link insights and actions to impact. Any approach should balance a number of important considerations. For example, you need to prove the value of the insights to gain momentum and buy-in, while investing in capabilities to maintain and refresh insights to ensure sustainability and scalability. You also need to form partnerships to close current gaps in your capabilities, while building capabilities crucial for the longer-term vision. Be careful to avoid the most common pitfall we have observed: successfully demonstrating the value of insights in pilot programs, only to find that these pilots cannot be repeated or are too costly to scale.

3. *Delight patients and support them with a clear value proposition.* Use a comprehensive view of patients obtained from your robust data analytics to proactively and iteratively define a value proposition for them. Also use these insights to devise a product-development and lifecycle plan, including process and governance.

4. *Define your value proposition for providers and payors.* Start from basic principles that set out what busy providers find attractive. Our research suggests that a solution must address cost management, time management, quality outcomes, or better patient care to overcome the challenges of gaining provider adoption. Government payors are increasingly shifting to reimbursement based on value, not volume, and seek to improve cost and patient care. Commercial payors are also using next-generation managed care tools, such as value-oriented clinical pathways in high-cost specialty areas like oncology, to manage costs and quality.

5. *Go to market quickly* with pilots so you can learn and incrementally improve until you demonstrate impact. The lines are blurring – even in pharma and medical devices – between what has been historically considered "user research" and in-market tests or pilots. Our experience outside pharma shows the major benefits of conducting alpha and beta tests with customers prior to finalizing the feature set requirements.

To apply this approach, first help the legal, regulatory, and privacy and compliance departments get comfortable with running in-market tests. With their buy-in, the team developing health care solutions should be able to capture the benefits of a “test and learn” approach to the rollout of new products, rather than seeking to achieve the perfect launch.

6. *Develop a detailed go-to-market plan and communications platform.* Develop and roll out a launch strategy that addresses resource requirements, including the hiring, training, and promotion of talent; sales support; and patient support. The strategy should also specify market interventions and communications plans and tactics. Well-designed content and communications, as well as an approach for continuous refinement, are essential for success.

7. *Interact with the external innovation landscape and create a host of alliances and partnerships.* Partners are crucial for successful innovation – no one player can, or should, seek to run an innovation process from end to end, particularly in operating models based on time to market and quick iterations. To form partnerships, you may need to change the business model to share in value creation. Payor-and-provider partnerships are essential to creating the evidence base to demonstrate the value of the product – they provide the real-world laboratory for experimentation at scale. Technology and consumer players should help knit together the fragmented patient and physician experiences, to create a single comprehensive view of the patient. Capabilities that allow you to identify and manage relationships with a large and growing set of external vendors and partners will become critical.

8. *Define your IT infrastructure and a roadmap for putting it in place.* Look for ways to rely on cloud resources to reduce costs and increase effectiveness and flexibility.

9. *Identify the right leaders for compliance, legal, regulatory, privacy, and cybersecurity issues.* Ensure that all processes, apps, and models follow necessary compliance and legal requirements. Establish processes for managing approvals from compliance and legal departments. Be prepared to manage cybersecurity assessments and implement protocols for cybersecurity safeguards.

10. *Breakdown silos and build or hire the right talent.* Succeeding in connected health requires a multiyear journey and involves bringing together different parts of the organization in new ways. To put the patient at the center of your efforts, break down silos and incentivize collaboration across IT, marketing, analytics, R&D, and medical. Look to industries that have taken the lead in technology adoption for models of how to make innovation happen. For example, best-in-class innovators in retail may spend up to 30% of their budget on experimentation. Develop or acquire leaders who are fluent in both technical and business issues, so that they can facilitate discussions around how technology, data, and analytics can be applied to customer offerings and fulfill business requirements. These leaders must also have credibility within the organization to drive change at all levels.

ADAPT YOUR BUSINESS MODEL TO MAKE IT HAPPEN

To apply these success factors, you will need to adapt your business model, so that your organization can evolve to conquer the challenges of the new technology-driven landscape. The imperatives will differ for each type of player:

Pharmas and biotechs need to move beyond engaging only when a prescription is initiated and seek to become part of an ecosystem that provides integrated solutions to patients and providers. Success will require engaging with patients at the earliest stages of their disease (before they need treatment) and staying with them through and beyond pharmaceutical treatment. Pharmas and biotechs will need to collaborate more often, with a broader set of partners and in different ways, to create these integrated solutions. Companies will also need to cultivate a new mind-set and risk-return profile for innovation, recognizing the long-term dedication needed to make these types of solutions successful. Finally, pharmas and biotechs will need to gather momentum as an industry to shape the legal, regulatory, and compliance landscape.

Medical device makers can drive sustainable value through what they do with patient data, not just their hardware. To succeed in connected health, they will need to do three things. First, they must develop strategies and capabilities that allow them

to interpret data and deliver products and services based on these insights. Second, they need to foster a reputation as a trusted keeper of that data, backed by appropriate investments in infrastructure and security. Finally, they must develop a network of partnerships across pharma companies, providers, and other stakeholders to build critical mass as solutions are rolled out.

Technology is requiring industry stakeholders to rethink who their competitors are, as well as which markets they are, and should be, in. By proactively pursuing new technologies that enable you to connect with customers in new ways and combing these technologies with the right strategy, people, and project management, your organization can mitigate the risks and pursue the lion's share of the value at stake. The first movers will establish close bonds with patients, providers, and payors and create barriers to switching. Competitors who fall behind will find it increasingly difficult to catch up.

IV

A#2015800096

Rena Rosenberg (rena_rosenberg@mckinsey.com) is a principal in McKinsey's New Jersey office, where *Jordan VanLare* is an associate principal. *Bryan Reinholt* is an associate principal in the Philadelphia office, *Satya Rao* is an associate principal in the Chicago office, and *Joe Dertouzos* is an engagement manager in the Detroit office.

©2015 by Informa Business Information, Inc.,
an Informa company.

All rights reserved.

No part of this publication may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner.