

Unlocking digital health: Opportunities for the mobile value chain

Telecommunications, Media, and Technology April 2015



Authored by:

Venkat Atluri
Satya Rao
Tamara Rajah
Jeremy Schneider
Marc Thibaut
Shekhar Varanasi
Sri Velamoor

Unlocking digital health

Mobile value chain revenues in the US grew 10 percent per annum from 2009 to 2014, and profits rose by as much as 15 percent.¹ The year 2015 is expected to see 3 percent growth in revenues and 6 percent growth in profits. While the industry has performed well, it is also the

case that pricing pressure and the need for capital expenditure are growing among carriers—and competition among original equipment manufacturers (OEMs) also appears poised to intensify. This paper will argue that opportunities for mobile carriers lie in new business models—monetizing consumer data and facilitating offline

Can the mobile value chain complement its traditional core with adjacent growth? Yes—by adopting innovative business models and exploring new markets like digital healthcare

transactions—and new markets—specifically harvesting value from the “Internet of Things.” Special attention will be given to opportunities created in the digital health space.

Opportunities for mobile to expand into adjacent industries

The mobile industry has long sought growth in adjacent sectors, where core products and services are quite different but opportunities exist to facilitate their delivery. To date, these efforts have had limited success, but several of these adjacencies are crossing an inflection point as mobility solutions advance and consumer adoption increases.

Making money from consumer data. Wireless value chain players have touted mobile advertising for some time. Recently, however, the industry has reached a tipping point—so much so, that doubling last year’s estimates for 2017 mobile ad spending would represent a more accurate forecast, as the industry begins to find solutions for some of the issues that have held growth at bay.² The proliferation of platform user identifications, for example, provides a solution to the lack of user-level targeting, while innovations such as Google Wallet and Facebook Audience Network may help companies attribute consumer behaviors on a cross-platform basis. The industry has yet to find solutions to the scale and format requirements for native ads, but this should not impede what appears to be a trajectory of solid growth.

Enabling real-world transactions. By facilitating offline transactions in a variety of consumer-facing industries, mobile value chain players can generate significant value. The following four adjacent industries exhibit either strong investor support for mobile plays or already have strong links to the mobile value chain:

- *Retail:* 40 percent of consumers now use smartphones for in-store research.³
- *Banking:* mobile banking is on track to surpass online banking by the end of 2015.⁴

1 The mobile value chain is defined as the ecosystem formed by components manufacturers, network infrastructure providers, device manufacturers, carriers, and apps and services players. Figures include only mobile-related activities from these players.

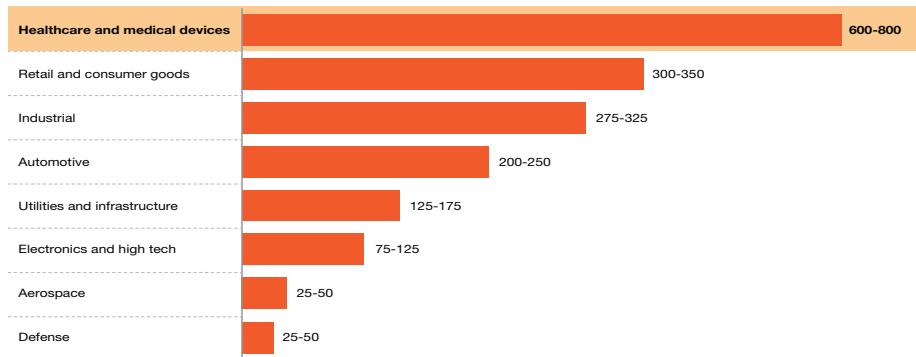
2 See McKinsey Global Media Report 2013-2014.

3 McKinsey 2014 US iConsumer research panel.

4 Projections based on McKinsey Consumer Financial Life Survey 2013.

The Internet of Things unlocks the most value in healthcare

Global IOT-driven economic value, 2018, \$ billions



Source: McKinsey analysis

Exhibit 1

- *Travel:* mobile bookings will comprise 35 percent of the industry total in 2016.
- *Healthcare:* digital healthcare attracted \$4.2 billion in venture capital funding in 2014 alone (up 125 percent over 2013).⁵

Exploiting the Internet of Things. Tablet and smartphone markets are on track to expand 1.1 and 1.3 times respectively by 2018, and the number of connected devices associated with the Internet of Things (IOT) will likely quadruple. The value created by this expansion will reach into the hundreds of billions of dollars by 2018. The growth will impact many sectors but none as much as health and medical devices. Even from the relatively narrow perspective of select B2B and B2C applications, this market is expected to increase sevenfold and contribute between \$600 billion and \$800 billion in global value (Exhibit 1).

Unlike the traditional mobile value chain—where most of the value follows devices and connectivity while apps and services make small contributions—the value chain for IOT turns that model on its head. The traditional value chain relies on connectivity and devices for an estimated 80 to 90 percent of total profits. Apps and services make up the difference. In the IOT value chain, apps and services will likely drive 70 percent of profits, with only 30 percent being attributed to connectivity and devices. To prosper in this new environment, US mobile value chain players will need new capabilities, new partnerships, and new ways of working.

Opportunity for digital health

Digital health, which represents the convergence of connected health, quantified self, genomics, and core healthcare IT trends, is among the key phenomena driving the next cycle of transformation in the healthcare industry. Beyond its impact in shaping delivery and payment model innovation in healthcare, it has been the primary catalyst for accelerated innovation cycles in both consumer- and enterprise-focused health management tools and

⁵ Rock Health 2015.

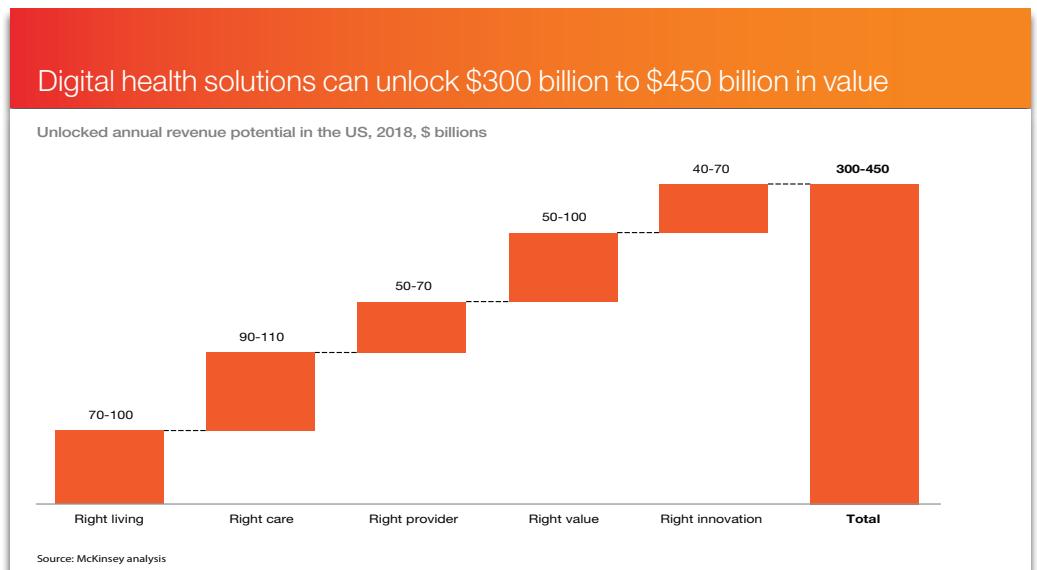


Exhibit 2

technologies. When digital health solutions are incorporated at scale, they could generate \$600 billion to \$800 billion of global opportunity. Some \$300 billion to \$450 billion of this total digital health value can come from health improvement products and services in the US

The calculus concerning value has changed for healthcare players and consumers alike

alone (Exhibit 2). There are other value-generating digital health activities, such as health plan selection, but health improvement services will make up the lion's share of the overall value. Many of these innovations probably lack the

scale and viral adoption levels needed for success in the mobile market space. Digital health is still in its early stages, but if mobile ecosystem players do not move now, they will be relegated to the margins of what is poised to be IOT's biggest value-creating play.

Three key forces are ripening the digital health opportunity, supporting why digital health is now at an inflection point in terms of consumer and potentially provider and payor adoption.

Changing role of the consumer. Consumers are increasingly leveraging mobile-oriented solutions across a range of use cases; in retail, 20 percent of the total spend is now driven by mobile-oriented applications, and in banking more than 50 percent of users are now primarily mobile users (i.e., use mobile as a primary means of transacting).⁶

Even in healthcare, consumers are increasingly seeking mobile and digital channels. Consumer Health Insights is an annual course of research with over 3,000 respondents that McKinsey has funded since 2006. The 2014 edition reveals that 67 percent of consumers surveyed said they frequently use apps and websites to learn about healthy habits or get health-related ideas, 26 percent stated they use these solutions to "check their health"—i.e., activity, calories, and other info—and 23 percent said they use social channels to get information about different health options. For more than 90 percent of respondents,

⁶ McKinsey 2014 US iConsumer research panel.

For sensors, the pace of innovation has accelerated in recent years, rapidly expanding the range of use cases

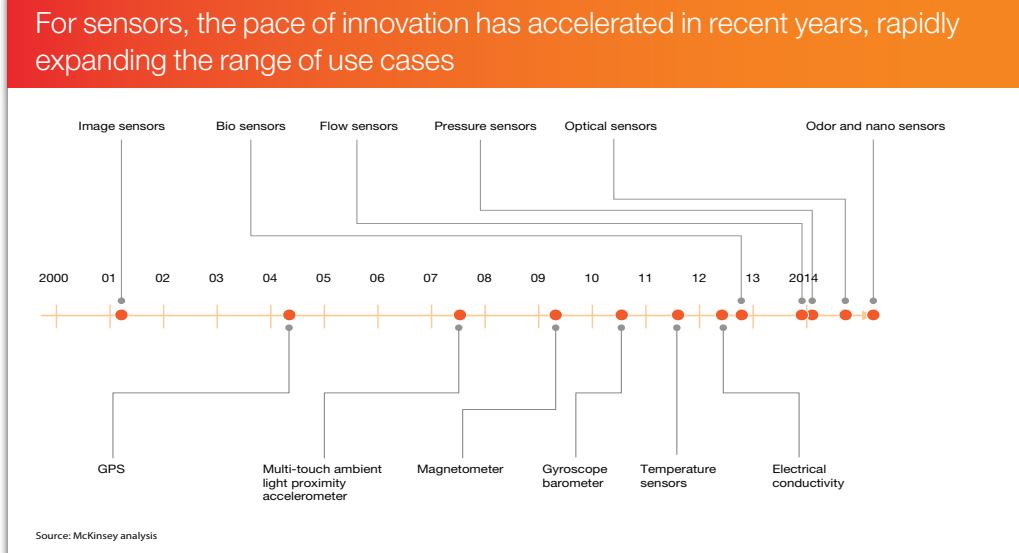


Exhibit 3

apps and websites are more effective ways to perform quick consultation activities than in person or even via phone conversations.

Additionally, employers are accelerating the shift from defined benefit plans to defined contribution plans—thus giving consumers more flexibility and control over how they spend their healthcare dollars—and providing tax-advantaged health savings accounts to speed up this transition.

Accelerating pace of technology innovation. The pace of innovation has accelerated tremendously across the technology stack—both in hardware and software. McKinsey research indicates that innovations in sensors used to be on three- to four-year cycles. That time is now compressed into six to eight months (Exhibit 3.) While sensor-driven devices today are primarily in the area of wellness and activity, ingestible and contactless sensors that can sense odor, electromagnetic activity, and flow are three to five years from becoming mainstream. These innovations can enable the detection of complex medical conditions such as cancer and strokes.

While cracking the code on the fragmentation of a diverse set of patient-generated data sources is still some ways away, emerging solutions such as Apple's HealthKit and Qualcomm's 2net are steps in this direction. As the pace of innovation in this space progresses, we could soon see a day where providers could have access to a holistic patient view—combining patient, payor, and clinical data—to enable proactive and real-time insights into medical conditions and interventions.

Changing healthcare landscape. The evolution of cost control programs and new risk-sharing models further enhance the need to deploy technology solutions that can mitigate the risk of readmissions and enhance patient outcomes. With increasing consolidation across the provider landscape, players are now beginning to achieve scale to fund and deploy technology solutions.

Using mobile to accelerate progress

The latest edition of McKinsey's Consumer Health Insights survey reveals that people want and actually make use of digital solutions. Some 63 percent of respondents said they would prefer a single app that could hold all of their data (including medical records), 68 percent reported behavioral changes as a result of using devices to manage chronic conditions, and 37 percent stated an interest in implantable chips to capture health data. At this point, however, consumer adoption rates and awareness trail some of the hype surrounding these solutions, so penetration and usage rates may take longer than expected to grow. Mobile value chain players that can identify where within the ecosystem to act, which solutions consumers really value, and how to make those solutions appealing and accessible will be the ones that reap the rewards of digital health.

Mobile has roles throughout healthcare's consumer decision journey. In the healthcare space, the consumer decision journey (CDJ) model includes the following steps: access and awareness, comparison and choice, financing and payments, consumption, wellness, and advocacy. At last count, McKinsey identified nearly 180 companies that offer health management technologies across the CDJ and across stakeholders from consumer self-health monitoring to technologies that create provider cost and quality transparency. The analysis shows that digital health companies offer these solutions across the decision journey to benefit both patients and healthcare enterprises. ZocDoc's self-scheduling system, for example, facilitates patient access to healthcare, while healthcare enterprises benefit from epidemiological and treatment predictions of data companies like Predilytics.

Solutions and data integrators may be the critical link between healthcare consumers and service providers. The fact that the digital health ecosystem currently lacks integrators that can help consumers make sense of the many available solutions, means that many consumers are probably overwhelmed by the choices companies are offering across the CDJ. For this reason, it is likely that the next wave of the digital health evolution will focus on the development of a more integrated consumer experience across providers and platforms. Another fragmentation issue involves finding ways to take all of the data generated during the CDJ and integrate it to make healthcare appealing and easy to consume for the average patient. As stated earlier, the investment community is clearly interested in the digital health play, contributing an estimated \$4.2 billion in venture capital funding during 2014 alone—nearly as much as the three previous years combined. All of this money is fueling the current rapid innovation cycles, and investors range from early-stage funders of “bleeding-edge” technologies with an eye toward fundamentally disrupting the healthcare business model to multinational corporations investing in mid-tier solutions and beyond.

Mobile value chain players can participate in five revenue-generating ways. McKinsey currently sees five points of entry through which mobile players can access the digital health sphere. First, they can offer connected devices, which could generate \$3 billion to \$5 billion in revenues. Second, they can capture part of the estimated \$2 billion to \$3 billion available from providing secure connectivity in compliance with the Health Insurance Portability and Accountability Act (HIPAA). The third option is creating the digitally enhanced “hospital of the future,” encompassing connected solutions and the underlying platform analytics to generate insights (\$10 billion to \$20 billion). The fourth: enabling health data aggregators (\$5 billion to \$10 billion), and the fifth: making direct-to-consumer services possible (\$2 billion to \$5 billion).

Next steps for digital health's stakeholders

Given the fast pace of innovation at the intersection of the digital ecosystem and healthcare, players with an objective of capturing a share of the mobile value chain will want to act quickly to establish themselves in this new market. The starting point depends on which side of the digital health equation the stakeholder is coming from.

Mobile value-chain players will benefit by pursuing innovations that matter to healthcare providers and payors. This will require a fundamental understanding of how the healthcare ecosystem works now and how the forces at work described above will change it.

Health value chain players will need to distinguish the really important innovations from the other digital trends that receive a lot of hype but may not necessarily deliver value. Once the distinction is made, health value chain players can then support the development and deployment of the critical innovations. They should also work to develop an agile, lean start-up mindset when testing these solutions so they can quickly understand their potential instead of blindly pursuing costly, large-scale investments that could quickly become obsolete. This will require them to cultivate “two-speed IT organizations” that may reside outside the parameters of the traditional IT function and that have a talent and leadership mandate to drive concept-to-launch programs iteratively for new innovative offerings.

For stakeholders in the mobile and health value chains, customer education will be key. While McKinsey research indicates an overwhelmingly positive outlook on digital health, customers may be confused by the changes in healthcare. Mobile and health value chain players need consumers to feel confident in the benefits of digital health. Right now, which player or players will assume the educator role is unclear; the opportunity remains open.



Strategic moves in adjacent sectors—such as those emerging in healthcare—offer mobile value chain players attractive new ways to achieve profitable growth. A handful of first movers across several industries are already experiencing 8 to 12 percent higher revenues and 20 to 30 percent greater profitability relative to peers who have yet to move solidly into digital health.

About the authors:

Venkat Atluri is a director in McKinsey's Chicago office, Jeremy Schneider is a principal in McKinsey's New York office, Sri Velamoor and Tamara Rajah are principals in the Southern California office, Shekhar Varanasi is a principal in the Chicago office, Satya Rao is an associate principal in the Chicago office, and Marc Thibaut is an expert in the New York office.

For additional information, please contact satya_rao@mckinsey.com.