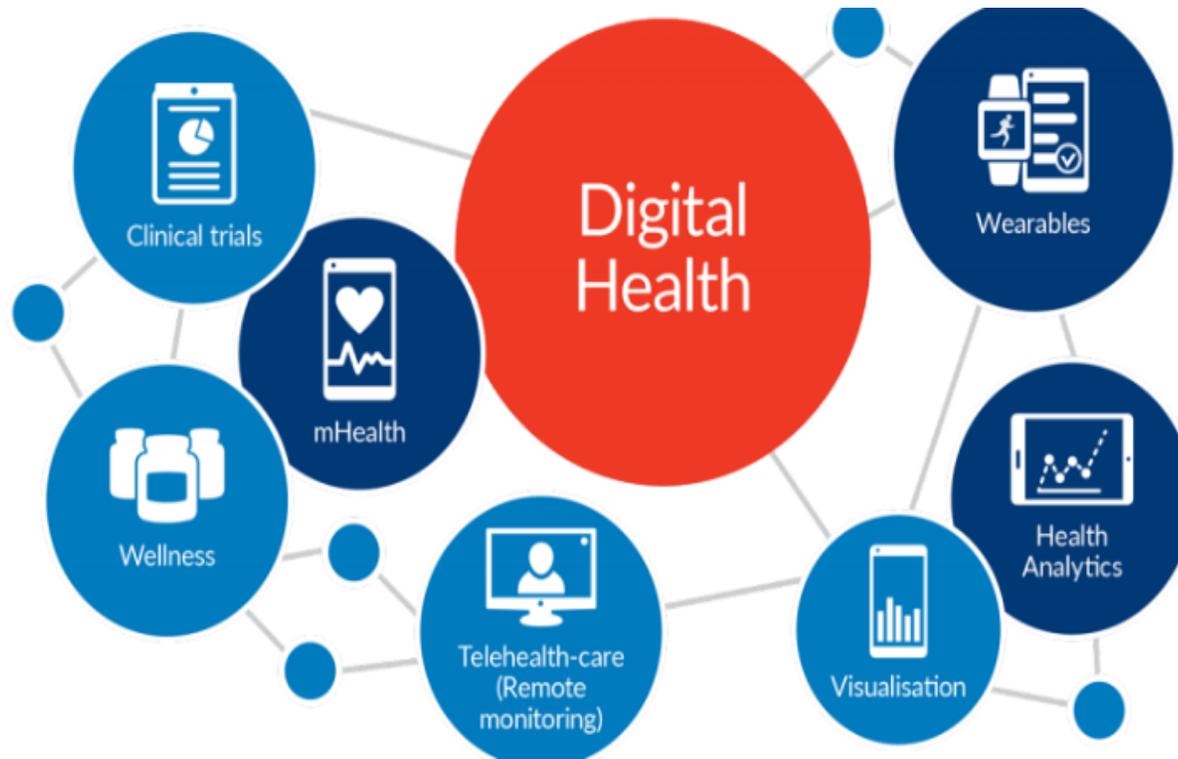


Eighteen Ventures' Information Brief  
Digital Health Technologies Development Opportunities



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## Digital Health Technologies Development Opportunities

The U.S. healthcare system is steadily transitioning from volume-based to value-based care with the help of digital health technologies. The digital applications, in fact, are designed to enhance the transition by improving decision making, maximizing operational efficiency and clinical workflows, reducing healthcare service costs, delivering value care and producing superior patient outcomes. In short, the technologies are intended to aid the system replace unnecessary treatments, insufficient medical care, expensive services, and inefficiencies with affordable, effective, quality, patient-centric healthcare.

Recognizing business opportunities associated with the system's transition, private sector investors have poured in \$23 billion dollars, since 2011, to help produce innovative, problem solving digital health technologies. Entrepreneurs, specifically, received funding to develop novel infrastructure (analytics/ interoperability/administration), treatment (virtual/self care), engagement (wearables/apps), and diagnostic (remote monitoring) applications. Many of the technologies have been introduced to the healthcare market, while others are still under development.

### **Investor Funded Digital Health Applications**

Again, over the past seven years private investors have invested deeply in countless digital health applications. Below is a short sample list of actual applications that received investor backing:

- LifeDojo, a San Francisco-based health behavior change platform for employees raised \$5.1 million.
- Doctor.com, a New York-based company that makes tools to help doctors manage their online presence and book appointments raised \$5 million.
- San Francisco-based ConsejoSano, which makes a health services navigation platform for Spanish speakers in America, raised \$4.9 million
- Bivarus, a Durham, North Carolina-based company offering an algorithm-driven approach to patient feedback, raised \$4 million.
- Pasadena, California-based Geneva Health Solutions, which makes a remote monitoring platform for cardiology practitioners, raised \$1.9 million
- Los Angeles-based online mental health company iExhale which makes an iOS app that allows people to instant message with licensed therapists or simply share anonymously how they are feeling or offer support to others on the firm's social network, raised \$1.86 million.
- VitalTrax, a Philadelphia-based startup focused on patient engagement in clinical trials, received \$150,000.

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### Healthcare Users' Digital Health Technology Needs

The opportunities to produce additional modern digital health technologies exist. Health systems and hospitals, for example, are still seeking solutions dealing with cybersecurity, data analytics, workflow, patient engagement, and core technology information infrastructure applications. Among other things, physicians are demanding solutions that don't reduce their time caring for patients. Patients are very interested in portable, communications and monitoring devices to help self manage their health conditions. Thus, as the transition progresses, the healthcare system users are demanding more, if not even better, digital health technologies.

Entrepreneurs and small emerging firms who are interested in responding to desires of the healthcare systems' users can satisfy these pressing needs. The users' digital health technology desires are expressed, separately, below.

#### *Hospitals*

Hospitals, throughout the transition, are focused on achieving the following: Reducing costs, expanding access, implementing efficient operational and workflow, protecting information and communications network infrastructure, improving quality, while moving to a patient and wellness centric value based healthcare system that pays for patient outcomes.

A College of Healthcare Information Management Executives and KPMG LLP survey of hospital chief information officers revealed that their priority investments include electronic health records, population health applications and digital healthcare tools within the next three years. The same survey indicated that the organizations plan to spend money on virtual/telehealth technology enhancements, revenue cycle systems and replacement and enterprise resource planning systems.



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In a similar survey conducted by Center for Connected Medicine and The Health Management Academy, prominent leaders from the country's largest health systems provided information on the type of digital health technologies their organizations plan to purchase in 2018. Cybersecurity, consumer-facing technology (mobile apps), virtual care (telemedicine/remote monitoring), artificial intelligence, and predictive analytics, in particular, are the digital health technology areas their organizations will spend money.

Overall, as the transformation moves forward, hospitals see their digital health spending representing support for the following categories:

- Care delivery
- Operational efficiency
- Consumer experience
- Data analytics
- Cybersecurity preparedness

Each category offers entrepreneurs and small emerging firms an opportunity to develop novel, marketable digital health technology solutions that satisfy the needs of hospitals.



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### *Physicians*

For the modern physician, integrating digital health technologies in the care delivery process is not always a pleasant experience. Based on an Advisory Board 2017 study, frustrating or logistically challenging health IT tools contributes significantly to physician burnout. Physicians, moreover, find that many digital technologies reduce their face-to-face time with patients. In addition, the technologies often do not improve practice efficiency, increase patient safety, or enhance diagnostic ability.

Physicians' other concerns with digital health technologies deal with effectiveness, reimbursement, data overload, and liability. The physicians worry that the applications, such as mobile apps, have not been vetted properly through exhaustive clinical studies. Even if the technologies are clinically useful, physicians are not sure if they will be compensated. Physicians express an annoyance with trying to understand and handle the vast amount of patient data generated by the technologies. Regarding the liability issue, it is not always clear which party, the physician or the manufacturer, will be held responsible for patient deaths after use of the digital health technologies.

Despite the list of apprehensions, physicians still see a real need for digital health technologies. In fact, according to an American Medical Association (AMA) survey, physicians want application designers/health technology entrepreneurs to produce tools that fulfill specific utilization needs. For example, physicians want digital applications to meet six significant requirements: (1) improve work efficiency, (2) increase patient safety, (3) enhance diagnostic ability, (4) deliver better patient outcomes, (5) ensure data security and (6) specify liability and reimbursement coverage. The physicians also expressed a desire for the technologies to be easy to use and as effective as current methods of patient care.

Like hospital users, physicians are seeking entrepreneurs and small emerging firms to produce innovative digital applications that meet their practice needs.

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### *Patients*

With direct control of \$330 billion a year in out-of-pocket healthcare expenses, consumers are actively embracing patient engagement activities to better monitor, manage and safeguard their personal health. They, in fact, are at the center of the decision-making process regarding adopting behaviors leading to high-quality health and lower healthcare costs. Along with information, education, advice, and health services, individuals are utilizing digital health tools as a key part of their patient engagement.

The digital health technology options, such as wearables, smartphone apps, virtual reality, patient portals, digital therapeutics or social media, are at the heart of successful patient engagements. Various technologies, for instance, enable individuals to monitor physical activities, learn about specific health conditions, locate physicians and medical services, review lab results, adhere to treatment plans, undertake preventive measures, communicate with health service providers and receive support from friends or family members. All these activities, with the aid of the technologies, help consumers choose a course of healthy actions that reduce personal healthcare spending and produce positive outcomes.

Patients are in the driver's seat of their own health. As such, they demand digital health technologies that enable them to keep medical costs down, monitor and manage their health conditions, access effective treatments and stay connected with health providers. Digital technologies that include solutions like mobile health apps, digital therapeutics, wearables, virtual reality, and remote monitoring help patients stay in control of their health and wellness. More importantly, they are active users of health technologies that respond to their needs and allow them stay in the driver's seat.



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### Patient Engagement Digital Health Technologies Development Opportunities

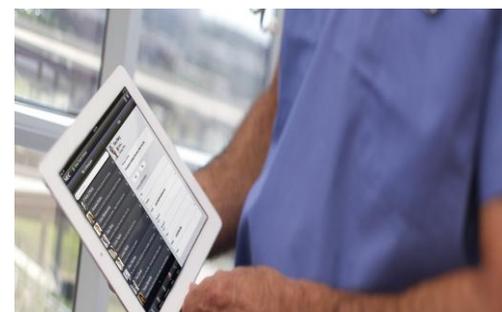
Within the digital health technology industry, patient engagement applications are one of the most active sectors. In fact, the segment comprises a variety of technologies ranging from mHealth apps to virtual reality. The sector, moreover, is driven primarily by millennials and baby boomers, who are heavily involved in using devices to monitor and manage their health conditions.



**Digital Health Tool:** mHealth Apps  
**Market Size:** 111 billion by 2025  
**Influential Users:** Millennials



**Digital Health Tool:** Virtual Reality  
**Market Size:** \$5.1 billion by 2025  
**Influential Users:** Millennials



**Digital Health Tool:** Digital Therapeutics  
**Market Size:** \$6 billion by 2021  
**Influential Users:** Millennials & Baby Boomers



**Digital Health Tool:** Gamification  
**Market Size:** 40 billion by 2024  
**Influential Users:** Millennials



**Digital Health Tool:** Wearables  
**Market Size:** 14.41 Billion USD by 2022  
**Influential Users:** Millennials & Baby Boomers

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## Digital Health Technologies Development Opportunities

### Digital Health Technology Development Seed Funding

Entrepreneurs interested in producing original digital health technologies for hospitals, physicians or patients can access seed funding from the Small Business Innovation Research (SBIR) program. In particular, the National Institutes of Health (NIH) SBIR and the National Science Foundation (NSF) SBIR programs provide money enabling entrepreneurs, as well as small emerging firms, to produce innovative, marketable digital health applications that enhance the U.S. healthcare system transition process.

Through a competitive proposal submission process, both NIH SBIR and NSF SBIR programs award funding in two phases. Phase I money, **\$225,000** awarded by NIH SBIR and NSF SBIR programs, is used to demonstrate proof of concept or project feasibility. Phase II money, **\$750,000** from the NSF SBIR program and **\$1million** from the NIH SBIR program, is used for building a prototype.

National Institutes of Health (NIH) <u>SBIR Program</u>	National Science Foundation (NSF) <u>SBIR Program</u>	<u>Use of Funds</u>
Phase I: \$225,000	Phase I: \$225,000	Money is used, for six months, to conduct research to determine whether the technology concept is actually feasible.
Phase II: \$1Million	Phase II: \$\$750,000	Money is used, for two years, to produce a technology prototype.

Winning the money involves responding to broad request for proposals (RFPs) issued by the agencies. In particular, the RFPs provide general descriptions about the technology area and its relationship to healthcare or medical issues. The small business applicants, based on their own creative ideas, knowledge, expertise and experience, propose producing a specific solution that is potentially commercially viable and solves an identified healthcare issue, health condition or medical problem.

**NOTE:** Applicants cannot seek SBIR funding from two different agencies to work on the same or similar projects. Applicants, however, can seek funding from two different agencies if the company is developing a specialized technology area portfolio, i.e., wearables.

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### About Eighteen Ventures

Based in the Miami-Fort Lauderdale, FL metro area, Eighteen Ventures (EV) is a small business development consulting firm offering services nationwide.

In particular, we help health technology entrepreneurs, (e.g., engineers, physicians, nurses, researchers, inventors, technologists, scientists and non-medical, experienced healthcare industry professionals), start and build successful small businesses. We also help health technology entrepreneurs and startups organize and prepare Small Business Innovative Research (SBIR) grant proposals for the production of innovative, marketable, problem solving healthcare or medical solutions.

Eighteen Ventures published *Acquiring Small Business Innovation Research (SBIR) New Health Technology Development Funding*, which presents information on winning SBIR health technology development grants from six participating federal agencies.

Eighteen Ventures is now ready to help health technology entrepreneurs prepare and submit a NSF SBIR Phase I before the **mid- June 2018** submission deadline or NIH SBIR Phase I proposal before the **April 5<sup>th</sup>, 2018** submission deadline. Contact us today, at [Darrell@Eighteenventures.com](mailto:Darrell@Eighteenventures.com), so that you can beat the deadline and win the funding.

Mr. Darrell Williams, Eighteen Ventures' founder President and CEO, is an experienced small business development consultant, who has been involved in the Small Business Innovation Research (SBIR) program since 1999. Mr. Williams can be reached at [Darrell@eighteenventures.com](mailto:Darrell@eighteenventures.com) or (207) 347-1214.



*We help health technology entrepreneurs acquire and use SBIR grants to develop innovative healthcare technologies*