

# HEALTHCARE 2017 & Beyond



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Healthcare industry has reached an interesting juncture where the opportunities are exciting and also test the vulnerability of global healthcare providers. Digital transformation has disrupted every process right from diagnosis to prescribing medication and critical care. More providers are adopting emerging technologies to improve their services and provide personalized treatment options.

The rapidly evolving technology landscape poses challenges – financial management, accurate diagnosis, motivated caregivers, and satisfied customers. Secondly, what are the top trends in provisioning healthcare services, patient care, and education of healthcare providers?

In 2017, healthcare industry looks promising to be disrupted, leaps and bounds, by information technology. Hence, hospitals and healthcare service providers must be ready to invest in digital transformation strategies to deliver value-based patient care.

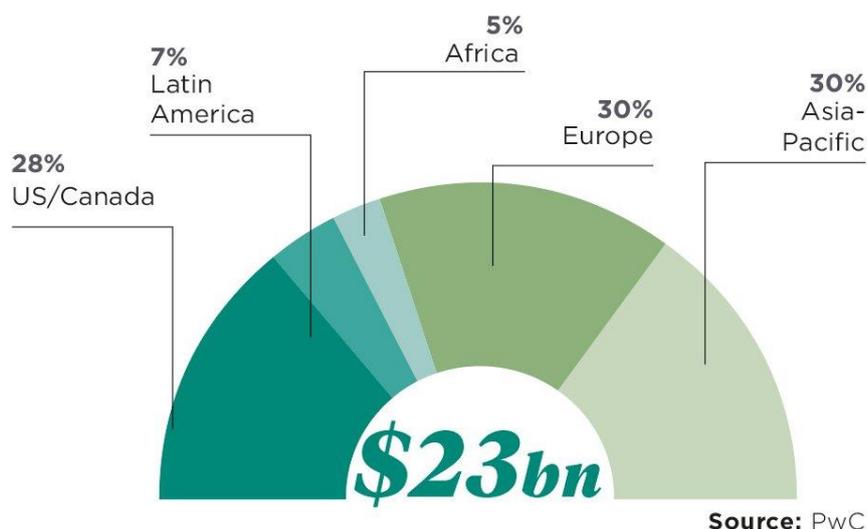
Industry experts predict top technologies such as mHealth apps, big data analytics, telemedicine, and wearables as the biggest influencers.

### **Benefits & Risks of mHealth Apps**

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#### **GLOBAL MOBILE HEALTH MARKET FORECAST**

Percentage share of overall market, 2017 estimate



Mobile devices enable individuals to track fitness activities, purchase movie tickets, and develop strong professional networks. Nonetheless, it has become essential to carry a mobile device with you 24/7. You cannot

imagine spending an entire day without your smart phone.

Pew Research Center reported in 2015,

- 92% adults in the US own a mobile device, while 67% own a smartphone;
- 90% carry it frequently;
- Only 3% carry it rarely.
- Majority keeps the phone switched on all day long, while only 7% turn it off.

Adversely, the increased use of smartphones and mobile devices has a negative impact on your health conditions. However, health practitioners have grabbed the opportunity to leverage technology and use it to monitor an individual's health condition.

Smart devices can track user habits such as daily exercise routine, food consumption, blood pressure, sugar levels, etc. Additionally, healthcare providers can monitor a patient's activity and progress from a remote location as well. It has improved critical patient care such as diabetes, mental disorders, etc.

Despite its multiple benefits, cybersecurity is a great challenge that healthcare providers are facing while adopting mobile healthcare applications. Securing confidential information about patients is the primary concern of care providers.

### Adoption of Healthcare Apps

With the rise of mobile devices, patients enjoy control over healthcare and can save costs by accessing mHealth applications.

Now, you do not have to visit a doctor and pay consultation fees for a minor illness. The doctor has your EHR, which helps track the patient's medical history. Based on your past treatments, the doctor can advise appropriate medication at no cost.

### How Consumers Adopt healthcare technology



1 / 10

People might already be dead or seriously injured if there was no access to web based health information



41%  
USE

Two in five Americans have access to such websites with health information and are comfortable using it.

25%  
Choose

A quarter of Americans trust these web symptoms sites as much as they trust the doctors and often use the said resources instead of going to a doctor



35%

A third of Americans believe technology that allows one to monitor their health is the way to live a long life

55%

Around half of America is comfortable using symptom checkers and monitors that share information directly with their doctors

You don't even have to wait in long queues for your token number to arrive. You can schedule your doctor's appointment through the app and reach the clinic just 15 minutes prior to your appointment.

Currently, over 97,000 applications have been developed in the field of healthcare and fitness. In June 2016, App Store recorded over 2 million downloads of health and fitness apps. Hence, the future growth of this app category will be on the rise, thanks to the rising patient demands.

Every day, top 10 mHealth apps record 4 million free downloads while, the number for paid downloads is approx. 300,000 downloads. The market for health and fitness apps is huge and going strong. It is predicted that 50% of smartphone users, by next year, will download health apps. The mHealth app market is estimated to grow up to \$26 billion in the next year.



Research Now Group predicts that five years from now, the healthcare landscape will undergo a tremendous revolution – [50% of the global doctors will implement medical apps in their regular practice.](#)

An increase in its usage in 2017 calls for continuous improvement of mobile health applications. However, application providers need to ensure that patient data remains safe. For instance, Apple has issued new review guidelines especially for health, medical and fitness apps. Apple ensures

that apps will not release any information to other parties without prior permission of the users. Moreover, app providers cannot publish inaccurate data, and must avail consent to use research data related to human subjects.

### **Make sound business decisions with Big Data Analytics**

Organizations are collecting data from multiple sources to improve their efficiency and effectiveness. Industry expert IBM states about 2.5 quintillion bytes of data is produced every day, including images, numbers, videos, RFID signals etc.

Even healthcare industry is adopting this trend. Storage of huge volumes of multi-variate data is a challenge for healthcare providers. EHR data is stored at a unified platform for each patient; hence, the doctors get a clear idea about patient's medical history. Healthcare is no exception to this trend. Data collection and analysis is a continuous process, which is bound to increase in the future due to the emergence of wearable devices. These devices help track blood pressure, heart rate, and other vital statistics of the patient in real time.

The demand is rising for skilled professionals and data scientists for organizing and leveraging patient information. For instance, the US Bureau of Labor Statistics reports that the demand of skilled technicians to handle EHR data will increase up to 15 percent in the period 2014-2024, creating 29,000 employment opportunities.

### **Remote access through Telemedicine**

Modern healthcare systems are integrating with reliable video conferencing technologies to provide remote services. Now patients can consult a physician or a specialist from their home. Patients suffering from chronic diseases and those living in remote areas can now access healthcare services easily.

Telemedicine provides user convenience, which is the major driving force for its high rate of adoption. It records 35% reduction in out-patient appointment, as patients can consult a doctor over Skype. Additionally, it also reduces the overall cost of provisioning medical facilities.

### **Keeping pace with cybersecurity**

Protecting sensitive information of the patients is a major concern for adoption of online healthcare applications. Vulnerability of patient data needs immediate attention. In a day and age when technology has become a critical part of the healthcare industry with implementation of big data

analytics, cloud computing, and Internet of Things, healthcare service providers need to ensure the security and privacy of patient data.

## **Technology-driven Innovation in Healthcare**

### **[Read How IBM Watson Is Revolutionizing Healthcare](#)**

#### **1. Artificial Intelligence (AI)**

IBM Watson has transformed healthcare by leapfrogging innovation in the breadth of artificial intelligence. The supercomputer implements cognitive abilities to diagnose cancer mutations, comparing several medical resources, literature, journals, as well as clinical studies.

The AI device thinks like a human and this emerging technology comes with a huge potential for the advancement of healthcare in future. It is predicted to become powerful data analytics' tool in the coming years. Clinical decision support (CDS) systems leveraging AI will enable doctors to diagnose and treat diseases effectively.

The story does not end here. AI will also integrate with wearables and service bots to enhance the quality of patient care. The stage has not yet come when AI can diagnose or provide treatment to patients all by itself.

#### **2. Augmented Reality (AR) & Virtual Reality (VR)**

Scope of AR in the field of healthcare cannot be ignored. Google Glass, an AR device holds great potential to transform telemedicine. Gamification can help doctors in health management, wellness plans and medication adherence. Pharma companies are implementing AR applications to understand the impact of drugs on the human body. It also explains the impact of long-term and chronic illness medication on the body. AR can also be implemented as a precision tool, helping nursing staff in finding veins easily while taking blood samples.

Implementation of Virtual Reality has manifold benefits. It promotes behavioral health care i.e. the patient is given a feel-at-home ambiance to undergo treatment in a hospital. The first operation, implementing VR capabilities, was conducted at London in April 2016. Live streaming helped the healthcare providers experience the real-time processes. VR helps patients feel at ease before the actual operation begins.

#### **3. Robotics**

- Surgical robots perform clinical operational procedures.

- Exoskeleton is a wearable mobile device powered by combination of electric motors, levers, pneumatics, hydraulics, enabling limb movements with improved strength and endurance.
- Pharmacy robots help streamline automation of healthcare services. These autonomous robots help in inventory control and reduction of labor costs.
- Delivery robots provide medical equipment throughout the entire hospital
- Disinfection robots interact with patients suffering from healthcare-associated infections.
- Robotic telepresence solutions help in treating health disorders caused due to ageing.

#### **4. Internet of Things (IoT)**

Connected devices through a single network promises great transformation of the healthcare industry. It is predicted that by 2020, IoT in healthcare will amount up to \$117 billion. Patient monitoring and coordination of healthcare services will be possible from remote areas. It will also bring about enhancements across the entire supply chain. Integration of remote monitoring systems with wearable devices will promote telemedicine and support interoperability, thereby result in a high growth of IoT-based healthcare practices.

#### **5. 3D Printing**

By 2020, industry experts predict an increase of 3D-printing healthcare services by 18%. Another emerging technology that is registering huge benefits in the field of dental applications, drug manufacturing, and medical implants.

Although few solutions are under experimentation, the scope is huge. Princeton University has introduced a bionic ear. This device is able to hear frequencies at levels beyond the human limits. 3D-printing offers endless possibilities of innovation that will be cost-effective for healthcare providers.

Consumers are searching for health-related solutions online. The year 2017 and beyond will urge enterprises to ensure that they meet consumer demands and provide a seamless experience through their online healthcare services.

## Conclusion

Digital transformation of healthcare has manifold advantages – accurate diagnosis, reduced costs, EHR, improved critical care are few of them. Continuous delivery requires healthcare service providers to transform the way they work. This systemic shift in user preferences and innovative industry practices can be dealt with digital transformation of organizational systems for providing value-based healthcare.

With digital technologies healthcare providers are able to capture, store, and analyze data accurately to access relevant insights in order to provide future-ready solutions to the patients. An increased adoption of Electronic Health Records (EHR) provides the opportunity to leverage big data analytics and acquire actionable insights.

New age digital technologies such as Internet of Things, Artificial Intelligence, Robotics, 3D printing etc. create a new and evolving global healthcare landscape, revolutionizing delivery of healthcare solutions and efficient management of population health.

**The white paper ‘Healthcare 2017 & Beyond’** highlights various challenges that the healthcare industry faces currently, and how healthcare service providers can invest in these new age technologies to address the challenges.

It also includes few tips and tricks on how to successfully implement an effective digital strategy. Readers will learn about various opportunities that help deliver digital healthcare solutions driving high quality and productivity.

*Written By: Devika Das,*

*Content Strategist, Content Writer, and Author*



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