



Revolutionizing Healthcare Services with Wearables

Wearable technology is still at its infancy due to user apprehensions, security concerns and several other factors. We are presenting some of the top examples to detail the significance of wearables in the coming days. What are the benefits of capitalizing on wearables in healthcare? [Read further.](#)

INDEX

1

WEARABLE TECHNOLOGY AND HEALTHCARE

2

BENEFITS OF WEARABLES IN HEALTHCARE

*Monitoring Vital Body Sings | Improved Self-Monitoring | Improved Diagnostics
Improved Treatment | Better Prevention | Improved Healthcare Solutions*

6

TOP WEARABLES

7

LIMITATIONS AND CHALLENGES

Device Desertion | Security Concerns | Lack of Support | Cost Considerations

9

ABOUT SUYATI



WEARABLE TECHNOLOGY AND HEALTHCARE

Wearables have come a long way since Fitbit launched its motion sensing pedometer in 2008. Wearable technology has grown at an exponential pace, resulting in sleeker, yet sophisticated devices that track a wide gamut of parameters and offer multiple benefits. **About 56% of Americans now believe** using wearables to monitor vital body signs that increase life expectancy up to 10 years.

The **Medical Daily** estimates wearable technology as the top fitness trend of 2016. **1 out of every 5 Americans now has a wearable technology device** such as fitness band or smart watch.

BENEFITS OF WEARABLES IN HEALTHCARE

Monitoring Vital Body Signs

Wearable devices offer the ability to track the person's diet, activities, movements, and over-all fitness and health patterns, all in real-time.

In 2013, Fitbit launched new brands of wrist bands, such as "Flex," "Force," and "Charge," which had the capability to translate biometric data into a social experience, and enable third party healthcare providers located elsewhere to measure an individual's health stats in real-time. The latest Apple Watch and Samsung wrist devices go further, enabling two-way communication between the data-gathering sensor embedded inside the wearable, and the healthcare provider.

- The Embrace monitor, placed on a sleeping child's wrist, alerts the parent or the doctor, through smartphone, if something unusual such as a seizure occurs.
- Tests in motion aim to enable ingestible computers, to collect and transmit data directly to the doctor, using Wi-Fi.
- Wrist bands and other devices offer accurate feedback on the level of exertion, in real-time, making the wearer more aware of their level of activity, to motivate them to achieve their workout goals, or manage their temper at the appropriate time. Tests are underway to recharge power batteries using stomach acid.

Improved Self-Monitoring

Wearables have also propelled self-monitoring to the mainstream. What required professional expertise of a medical technician can now be monitored and deciphered just as easily by the individual, leaving a positive impact on the individual's overall health and productivity.

- Health Care Original's "Automated Device for Asthma Monitoring and Management" makes explicit real-time data on the individual's asthma, and alerts them when the condition reaches critical levels.
- Chrono Therapeutics' "Smart Stop" comes embedded with sensors that perceive changes in the body, and makes use of algorithms to decipher whether a person is yearning for a cigarette and nicotine. The accompanying app delivers medication to curtail the craving.

The 2014 HRI/CRS Wearables Survey reveals that:

- 46% of those who use wearables believe that the technology facilitates monitoring of nutrition and exercise and helps in reducing obesity.
- 42% believe that the wearer's athletic ability will increase for the same reason.

Improved Diagnostics

Doctors now base treatment on the information patients reveal. Such information can be faulty at times. Scans and x-rays, which provide further insights are intrusive, expensive, and in any case, offer information at just one point of time. Wearable devices allow doctors to get verified and present accurate data on a continuous and real-time basis, making precision diagnosis possible. It not just improves the quality of healthcare, but also reduces costs considerably.

- Vital Connect's "HealthPatch MD," a reusable biosensor embedded in a patch, comprises ECG electrodes and a 3 axis accelerometer that help doctors monitor heart rate, breathing, temperature, movements, and even detect body position if a person falls. The sensor passes on real-time information to the patient's mobile device through Bluetooth.

- The QardioCore wearable ECG monitor straps around the chest, to monitor heart's health. It transmits information to a cloud based system, allowing doctors to access the information in real-time.
- The Helius consumable pill reveals to the doctor whether the patient is taking their prescribed medicines at the correct time, and how the patient is responding to therapies.
- **Physicians at Dignity Health use Augmedix's Google Glass program** to enter patient information into electronic medical records.

Doctors and medical practitioners, for their part, require new skills of proficiency in identifying trends from statistical data, distinct from spotting potential problems by sight and sound.

Improved Treatment

Wearables not only improve monitoring and prevention, but also facilitate more effective cures. Wearable devices help people treat themselves more effectively, on a continued and sustained basis, at considerably lesser cost than involving a doctor.

- Google Glass, with preloaded CT and X-ray images allow doctors to access valuable patient data directly on the field, during the course of an operation, without having to leave the operating room or to log on to a system.
- Google's smart contact lenses developed in collaboration with Novartis, measures glucose level of tears, and restores the eye's natural autofocus.
- Valedo's "Back Therapy," for people suffering from lower back ailments, involves attaching a sensor-laden device to the person's back. The accompanying app pulls in individual's health data from the sensor and offers various exercises to users.
- IBM Australia is running clinical trials on software that could be implanted into the brain, to prevent seizures.

Better Prevention

An increasing number of doctors now use wearable to monitor patients with a serious condition.

- Tracking heartbeats on a continuous basis makes it possible to predict when people are under stress, and when they are susceptible to heart attack. If signs indicate the patient being in danger, the doctor can bring the patient in and begin treatment proactively, before the condition becomes serious. Situations such as rushing the patient into the emergency room for a critical condition would be passé, except for situations such as accidents.
- Cyncadia Health's iTBra keeps track of breast health. The sensors embedded in the smart bra keeps track of the rhythms and conditions of the breast tissues, to alert of the possibility of cancer.

Improved Healthcare Solutions

Many enterprise providers have already linked up the data transmitted by individual wearable devices to improve healthcare solutions.

- Employers use data generated by personal wearable devices to manage health and wellness better, and reduce healthcare costs. **BP, as part of its healthcare plan for employees**, distributed 16,000 FitBit devices to employees, to find its corporate healthcare costs dropping well below the national growth rate.
- Insurance companies and employers look to wearable data to offer outcome-based reimbursement. **Researchers at the Northwestern University School of Professional Studies found that there is a 44% decrease in the sick leaves** taken by employees who used wearable technology on a daily basis.
- Pharmaceutical companies collate data from several wearable devices, to run more effective clinical trial.

TOP WEARABLES

Fitness bands remain the most popular wearable device, popular with 61% of all wearable users. Smart watches rank next in popularity, used by 45% of all wearable users. However, the world of wearable devices now extends much more than these two common devices. Posture monitors, heart straps, movement sensors, wearable cameras, wearable patches, and pain management tools are all becoming commonplace. The new devices launched recently, or in the works, have the potential to revolutionize healthcare in a way not imaginable even a few years back.

- Samsung Smart Suit Body Compass includes a tank top and athletic pants, that not only helps the wearer make a powerful style statement, but the embedded sensors inside the fabric offer real-time analysis of the workout, count reps, and other parameters. The sensors are knitted directly into the fabric and powered by a small processor and battery.
- Google is also on the verge of weaving technology into fabric. **Project Jacquard, the clothing and technology venture of Google has partnered with Levis** to roll out smart clothes and other garments.
- The Misfit Swarovski Shine hides sensors behind sparkling Swarovski jewels, and offers a variety of bands, bracelets, and necklaces tracking vital health signs, including sleeping patterns. While many wearable devices are not very user-friendly when it comes to reporting, Misfit offers reports easily drilled down on a daily, weekly, or monthly basis, with intuitive graphics.
- **Under Armour's UA Speedform Gemini 2 shoes** track distance travelled and calories burned, and also maps out the user's path.
- Samsung Welt (a healthcare belt), records size, eating habits, walking distance, time spent sitting down, and other health habits. The data is processed to tailor personalized health care and weight management plans.

Tractica predicts the total health care wearable market to be **worth \$17.8 billion, by 2021.**

A faint, light gray line-art illustration of a smartwatch is positioned in the upper right background. The watch face is divided into four quadrants by two intersecting lines. Each quadrant contains a different icon: a lightbulb, a heart with a pulse line, a cloud with a lightning bolt, and a gear with a plus sign. The watch has a circular bezel with small tick marks and a strap with visible stitching.

LIMITATIONS AND CHALLENGES

For all the benefits and possibilities, wearable technology is still in a nascent stage, and many users end up disappointed owing to the limitations of their wearable devices. Health-care service providers need to step up their game to leverage existing possibilities to the hilt, and also invest in R&D to unlock new potential, to ride the tide of increasing customer acceptance of wearable technology.

Device Desertion

A big issue currently plaguing wearable technology today is abandonment. About **one in every three** users use the wearable less than what they initially did, or discard it, after a year's time. Providers need to simplify user experience with a more human-centered design, to ensure wearable devices become as integral as a smartphone. Success depends on the device being seamlessly interoperable, and self-sufficient, free from additional steps such as syncing and powering.

Security Concerns

Another common issue with wearable technology is privacy concerns and security breaches. About **82% of consumers** worry about an invasion of privacy and over 86% of them fear security breaches owing to the wearable device. While security is an issue troubling the entire digital industry, wearable manufacturers need to bring security concerns to the center-stage, and resolve the issue head on. Doing so would reap rich rewards, the same way the cloud, once seen as highly vulnerable, is now regarded as more secure than on-premises solutions.

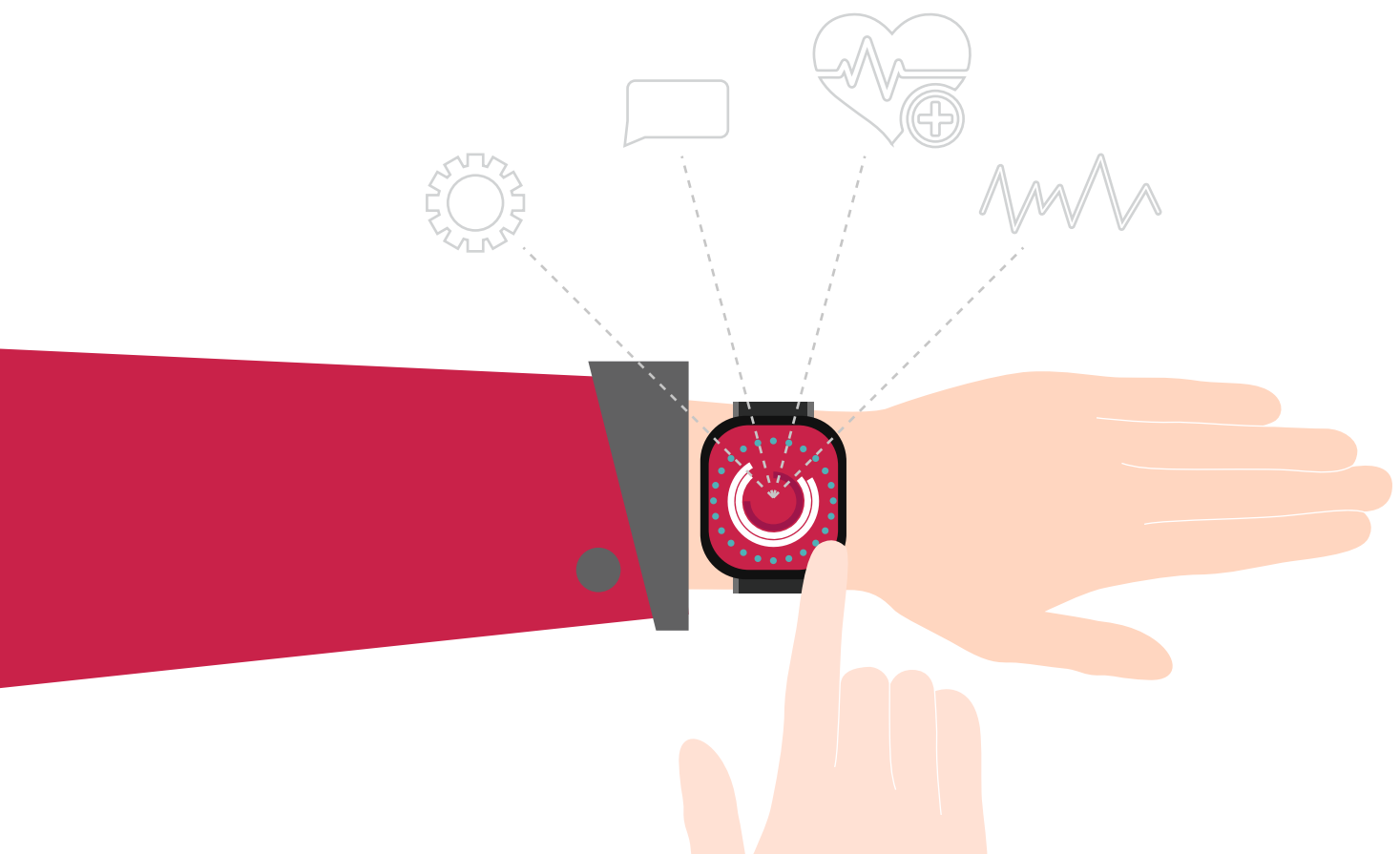
Lack of Support

The spread of wearables requires a supporting ecosystem. At present, doctors and medical practitioners depend on diagnostic centers and lab tests to decipher a patient's condition. The demand for such services would go down, and simultaneously, the demand for health-care data analysts would rise. The industry needs to make the transformation before the full benefits of wearable can be realized. As in other sectors, talent is in short supply, and considerable investment in training is required to fill the void.

Cost Considerations

One limitation, which has already been addressed largely, is the cost. A smart watch costed a big fortune in the initial days. But today, with technology improvements, wider market acceptance, and many brands fostering a competitive market, the prices of smart watches have dropped, and are on par with smartphones. Today's smart watch is not just a bulky fitness band, but a sleek and attractive multipurpose device, incorporating a MP3 player, GPS device, and many other things, making it a value-for-money preposition. Prices are set to fall further as more people embrace it, making the device even more accessible.

Even as wearable devices offer a host of benefits already disrupting the healthcare industry, only a small portion of the technology has been explored. The potential is huge, even with existing technology, and in the coming years, as technology is fully leveraged, and the limitations sorted out, wearables are likely to change the entire nature of healthcare and allied industries.



ABOUT SUYATI

Suyati is a fast-growing, digital transformation solutions company that helps you rebuild your customer experience for the digital consumer. We collaborate with businesses to strategize and implement impactful digital initiatives that position our clients ahead of the competition. We are digital-first and we focus on delivering digital transformation solutions that support your various engagement strategies. With our niche and rich expertise in a wide range of technologies and services- CMS, CRM, e-commerce, Cloud, IoT, Data Analytics, and Product Engineering- we help companies leverage their best on web/cloud/mobile platforms.

We enable you to create insights driven customer engagement across all touch points to build a unified marketing approach. Our custom technology solutions have been deployed successfully in companies across the globe, especially in the US, UK, Europe and Australia.

Learn more: www.suyati.com

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