



Healthcare Market Updates



Symbol	Change
TMX	+0.15
CHK	+2.35
AAPL	+2.35
PRTG	+0.14
AMZN	-0.73
TSLA	+1.08
AVGO	-0.87
SIRI	-0.65

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Table of Contents

Category/ News Heading	Page No.
Wearables	<u>3-6</u>
Dare to 'Dreem': J&J Invests in Sleep-Focused Medtech Startup	<u>4</u>
Apple Beefs Up Audio, to Launch Upgraded Devices in 2019	<u>6</u>
Mobile Phones/ mHealth	<u>7-9</u>
Rapid Zika detection test uses smartphone technology	<u>8</u>
Amazon shakes up drugstore business with deal to buy online pharmacy PillPack	<u>10</u>
Smart Home Devices & Appliances	<u>12-18</u>
Poll Shows Americans Shun Physical Robots But Welcome Smart Home Assistants	<u>13</u>
Smart home technology aims to keep older people safe in their homes	<u>15</u>
Introducing The Latest Innovation From HiMirror, HiMirror Mini	<u>17</u>
Qualcomm and Gizwits Work to Create the World's First Commercial IoT Development Platform Supporting Field Upgrade to LTE IoT	<u>18</u>



Wearables

Dare to 'Dreem': J&J Invests in Sleep-Focused Medtech Startup — June 26, 2018 (1/2)

Applicable Product Categories:

Wearable

 Technologies	Wearable (Device)	 Therapeutic Areas	Sleep Disorder
 Applications	Sleep quality and brain activity monitoring	 Geographic Focus	US
 Segment Focus	Consumer	 Topics (News type)	Tech Innovation; Partnership
 Companies	Dreem	 Others	J&J (Johnson & Johnson)

ANALYST TAKE:

- **Synopsis:** Dreem, a neurotechnology start-up developing sleep-related devices, raised \$35 million in a round led by Johnson & Johnson's investment arm.
- **Industry Need:** Insufficient sleep has major health and safety consequences for all age groups and often are the trigger for serious chronic conditions such as high blood pressure, stroke, diabetes and depression. Based on industry estimates, about 30% of the world's population is not currently sleeping effectively. Untreated sleep apnea in middle-aged adults may cost \$3.4 billion a year in extra medical cost for the United States. Proper monitoring by wearable devices can help with timely diagnoses and treat critical sleep disorders such as obstructive sleep apnea and prevent other chronic diseases.

Dare to 'Dreem': J&J Invests in Sleep-Focused Medtech Startup — June 26, 2018 (2/2)

- **Value Proposition:**

- The new funding round is expected to help the company further develop its flagship product, the Dreem headband. The company combines neurotech methods such as biofeedback and neuromodulation in the Dreem headband to improve individuals' sleep quality. The device comes with a series of biosensors and is capable of monitoring multiple health vitals such as EEG, brain waves, movement, heart rate, and respiration. It also uses “special bone conduction technology” to disseminate sound through the forehead and into the inner ear. The device collects this health data and stores it on the device, which can be later plugged-in to transfer the data to the cloud.
- The Dreem device also comes with an engaging app that provides the user with a comprehensive report and personalized advice by capturing critical vitals such as; sleep score, sleep duration, sleep onset, deep sleep improvement, position changes, and heart rate for making informed decision making around improve sleep quality. It also helps them to set an alarm and choose from a number of different sleep techniques, like breathing exercises and guided meditation.
- Frost & Sullivan views the investment as a critical step for Dreem, as this would provide them the opportunity to further undertake clinical validation studies across J&J's current and future clinical trials and pursue the medical grade wearables path. Frost & Sullivan also finds the Dreem device design and data management concept interesting. For example, as the device works without any Bluetooth or Wi-Fi connectivity, this reduces the possible health hazards due to long-term exposure to radio-frequency radiations.









- **Target End-User:** Healthcare Consumers, Homecare, Clinical Trials

WEBLINK: <https://bit.ly/2ItKsPa>

Apple Beefs Up Audio, to Launch Upgraded Devices in 2019 — June 26, 2018

Applicable Product Categories:

Wearable

 Technologies	Wearable (Device)	 Therapeutic Areas	Lifestyle and Chronic Health conditions
 Applications	Health Hearable	 Geographic Focus	US/ Global
 Segment Focus	Consumer	 Topics (News type)	Tech Innovation; Competitive Intelligence
 Companies	Apple	 Others	NA

ANALYST TAKE:

- **Synopsis:** As per a Bloomberg report, Apple is likely to bring a premium version of AirPods, new HomePods, the wireless charging case AirPower and over-ear headphones by as early as 2019.
- **Industry Need:** With increasing commoditization in the consumer wearable and fitness band devices, industry experts view hearables as the next growth segment that are deemed more accurate against wrist wearables. Based on industry estimates, the consumer hearables segment and the hearing health market are expected to grow at 48% and 22% CAGR, respectively through 2022.
- **Value Proposition:** The upcoming AirPods is expected to expand Apple's offerings for healthcare applications by adding biometric sensors such as a heart rate monitor. The AirPods is expected to come with additional features such as noise cancellation and water resistance. The earbuds are anticipated to be costlier than the current version, which is priced at \$159.
- Frost and Sullivan views this Apple's continued focus to further push into the healthcare and fitness space with its growing array of healthcare focused solutions and products ecosystem. By beefing up audio devices, Apple will be able to better compete with other players in the wearable space.

WEBLINK: <https://bit.ly/2KqKLj5>











Mobile Phones/ mHealth

Rapid Zika detection test uses smartphone technology

— June 28, 2018 (1/2)

Applicable Product Categories:

Mobile Phones

 Technologies	Software Solutions, Sensors, Nanotechnology, Digital Health	 Therapeutic Areas	Infectious Disease
 Applications	Zika detection test	 Geographic Focus	Global
 Segment Focus	Clinical	 Topics (News type)	Tech Innovation; Care Delivery Innovation
 Companies	Brigham and Women's Hospital (BWH)	 Others	NA

ANALYST TAKE:

- **Synopsis:** Leveraging nanoparticles and digital health technology, BWH investigators have developed a rapid, deployable, low-cost diagnostic test for Zika virus known as the nanomotor-based bead-motion cellphone (NBC) system, which combines a smartphone with a low cost optical device to detect motion of Zika virus complex
- **Industry Need:**
 - Zika virus infections remains a public health concern, especially in limited resource settings, and far flung areas with lesser penetration of primary healthcare services. Early diagnosis of Zika is an urgent unmet need, and novel diagnostic methods using ubiquitous devices such as a smartphone, represents a good market opportunity, especially in developing and third world countries mainly afflicted by the Zika virus.
 - This may also prove to be a significant enabler of effective care management and delivery in instances of outbreaks, when timely diagnosis becomes more difficult due to logistical limitations of traditional laboratory tests on blood or other body fluids, such as urine, saliva or semen.

Rapid Zika detection test uses smartphone technology

— June 28, 2018 (2/2)

- **Value Proposition:**









- Traditional diagnostic methods of Zika include pathology tests which detect antibodies or other nucleic acid building blocks of Zika virus, using blood and other bodily fluid samples. In addition to being resource intensive and time consuming, these tests have traditionally shown high false positive rates due to similar antibodies elicited by closely related viruses such as dengue.
 - Considering the above limitations, the researchers at BWH have developed a solution which harnesses the smartphone's capability to capture high quality images and leverages an image processing algorithm to detect Zika viruses itself, rather than using antibodies.
 - The researchers have developed tiny platinum nanomotors and microbeads that bind the Zika virus. When both components are added to a sample containing Zika, they form a three-dimensional complex that moves in the presence of hydrogen peroxide. This movement can be detected using a smartphone connected to a \$5 optical device.
 - The NBC system also claims to differentiate Zika with other closely related viruses based on uniqueness of the motion of the three dimensional Zika complex relative to others. It has also detected Zika in samples with viral concentrations as low as 1 particle per microliter. The team also reports that the NBC system was highly specific - in the presence of other viruses, it accurately detected Zika.
 - Given the high risks of microcephaly and other neurological complications it poses to newborns from Zika infected mothers, the research team also positions the tool as a home based point of care test for couples who are trying to conceive, particularly in locations with high risk of infection.
- Frost & Sullivan believes that while the technology is not commercialized yet, this developmental solution is a good in-licensing or collaboration target for companies which could effectively leverage their existing technologies and distribution capabilities in key countries to offer this solution as part of their home based health and wellness value proposition to existing smartphone and allied offerings such as wearables.
- **Target End-User:** Patients, pathologists; clinical and pathology laboratories; hospitals; clinics

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Amazon shakes up drugstore business with deal to buy online pharmacy PillPack — June 28, 2018 (1/2)

Applicable Product Categories:

Mobile Phones

 Technologies	Mobile app, Software Solutions	 Therapeutic Areas	Medication Management, Drug Delivery
 Applications	Online pharmacy, medication management and adherence	 Geographic Focus	USA
 Segment Focus	Clinical	 Topics (News type)	Business/ Monetization Model Innovation; M&A/ Collaborations/ Investments
 Companies	Amazon, PillPack	 Others	NA

ANALYST TAKE:

- **Synopsis:** Amazon enters healthcare mobile app marketplace (Rx Drug) with PillPack purchase. PillPack is an online pharmacy which packages, organizes and delivers drugs. It sends packages with the specific number of medications patients are supposed to take at specific times and is licensed to ship prescriptions in 49 states in the US.
- **Industry Need:**
 - Online pharmacy and drug distribution is a fast evolving business model fuelled by the need for customer empowerment via digital enablers such as mobiles, and digital dash-boards. While, easy drug acquisition, delivery and management are great benefits offered by the online pharmacies such as PillPack, the role of pharmacy benefit managers (PBMs) complicates the industry dynamics in deciding what is on a formulary, what drugs are on what tier (which dictates the patient co-pay), and what rebates the PMB will receive when purchasing drugs from the manufacturer.
 - Additionally, the control of insurance companies in deciding which online pharmacy will be covered under reimbursements, coupled with the fact that online pharmacy market is driven by specialty high cost prescription drugs, with majority of patient population still resorting to traditional retail channels, further confounds the industry dynamics, with potential impact of the Amazon move hard to predict.

Amazon shakes up drugstore business with deal to buy online pharmacy PillPack — June 28, 2018 (2/2)

Value Proposition and Competitive Insights:

- PillPack adds to Amazon's capabilities to enter Rx drugs play —
 - Amazon already sells private label over-the-counter drugs through a partnership with Perrigo and has obtained pharmacy licenses in a few states. It also has licenses to distribute medical devices in nearly every state. The company already owns the domain name AmazonRx.com prospecting the lucrative prescription drugs market.
 - Some of the complementing capabilities that Amazon would gain collaborating with PillPack include;
 - PillPack, which organizes and delivers packages of medications for consumers, is licensed to ship prescriptions in 49 states, according to its website. This provides a quick win for Amazon to cover the entire US states through this inorganic expansion.
 - Unlike traditional e-Pharmacy models, PillPack's value proposition goes beyond the drug play to meaningfully improve its customers' lives and medication adherence/dosage errors. PillPack's team has a combination of deep pharmacy experience and a focus on technology which will complement Amazon's expertise around e-commerce and user-experience.
- Frost & Sullivan believes that the deal is further expected to integrate the healthcare experience of patients through definitive synergies with Amazon's existing portfolio such as Alexa, Amazon Echo and its proprietary app, as well as partnerships, such as that with healthcare content provider WebMD, with which Amazon announced a technology and marketing partnership in March 2017, enabling users of Amazon Echo, Echo Dot and Amazon Fire TV to gain access to WebMD's library of healthcare.
- That being said, it's important to recall Amazon's past lessons with Drugstore.com Inc. a couple of decades ago, when they bought 40% stake in the entity, and followed it up with 100% stake acquisition. Amazon had to eventually sell off the company due to non-performance, underlining the risks and uncertainties of Rx e-retailing as compared to other industries.
- Frost & Sullivan also views that moving forward retail ecommerce giants such as Amazon and Alibaba (AliHealth) are going to play a significant role in disrupting current ecommerce models for healthcare services and products leveraging mobile apps

WEBLINK: <https://cnb.cx/2IDhvAI>

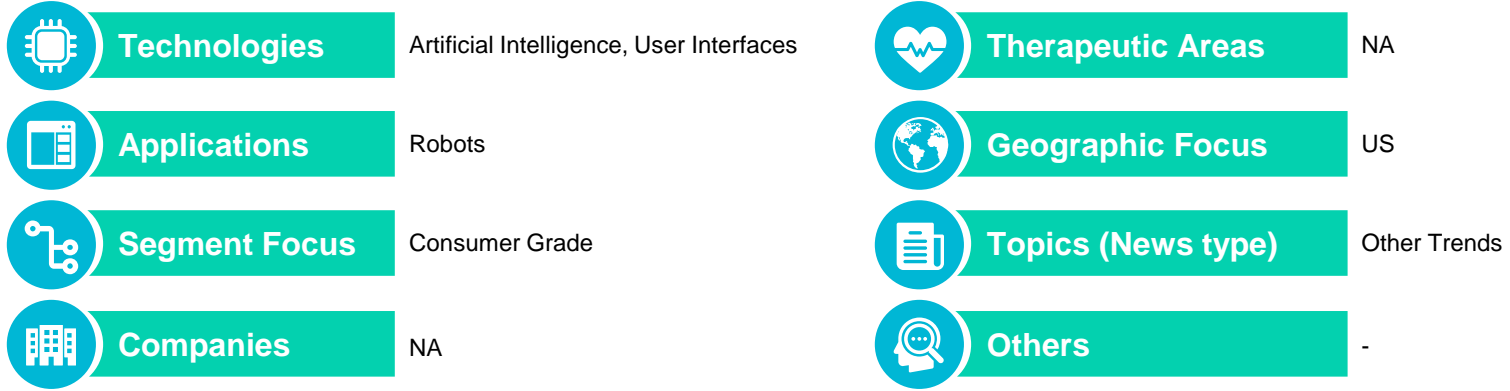


Smart Home Devices & Appliances

Poll Shows Americans Shun Physical Robots But Welcome Smart Home Assistants (1/2) – June 26, 2018

Applicable Product Categories:

Smart Home Devices



ANALYST TAKE:

- **Synopsis:** A survey by Brookings Institution reveals that a majority of those surveyed (61%) were not comfortable with the idea of having a robot in their homes.
- **Industry Trend:** The industry is searching for the right 'interface' for smart tech users to be comfortable with – these are voice assistants on smartphones and smart speakers, or now even on home appliances, or robots for use in various settings and for several applications. While the sale of smart speakers is growing rapidly, that is not the same case for robots – owing to lack of mature technology as well as high costs. Which interface works well is a rather complex question, which this poll does not do enough justice in attempting to answer it.

Poll Shows Americans Shun Physical Robots But Welcome Smart Home Assistants (2/2) – June 26, 2018

- **Frost Perspective:** While an interesting finding that points to the fear of what we don't know, the article rightly points to some of the shortcomings of the poll. Most people had vague ideas of robots –ranging from automated bots (such as vacuum cleaning bots) to autonomous cars. But more importantly, the responses by demographic profiles would also be interesting to check, and compare with those who have had experiences with robots in the past.
- Why is this important for healthcare? With aging populations, robots are being used to provide comfort and prevent social isolation, help manage health by reminding about medications, reciting doctors' instructions for therapy regimen and also connecting with them via video (telehealth), and also in general to help the frail to get in and out of bed, for example. Several such robots not only exist, but are already in use – ElliQ, Mabu, Robear, Riba. There are also pediatric use robots for autism disorders, phobias and distraction – Phobot, PARO, Nao and Milo.
- Unless surveys focus on the right age group and with a clear definition for robots, the survey results may not point to a true trend. However, this particular survey does have an interesting point – the population not exposed to robots may have a tough time accepting a physical form of a moving, talking robot. This has implications that impact areas ranging from robot design to the kind of interactivity deemed necessary, as well as for privacy and safety of the users.
- **Target End-User:** Smart home device and services users.

WEBLINK: <https://bit.ly/2lyT3QQ>

Smart home technology aims to keep older people safe in their homes (1/2)

– June 25, 2018

Applicable Product Categories:

Smart Home Devices

 Technologies	Artificial Intelligence, Sensors	 Therapeutic Areas	Elderly Care
 Applications	Software Solutions	 Geographic Focus	UK
 Segment Focus	Consumer Grade	 Topics (News type)	Care Delivery Innovation
 Companies	Salix Homes, Salford Royal NHS Foundation Trust, The University of Manchester, and The University of Salford	 Others	Microsoft

ANALYST TAKE:

- **Synopsis:** The partnership aims at outfitting senior homes with Microsoft Kinect sensors to help those elderly who are frail and those who may have memory problems (dementia) due to conditions such as Alzheimers.
- **Industry Need:** Over time, especially with the elderly population, changes in health result in subtle changes in behavior. For example, changing gait may be the result of something as simple as calcium and vitamins deficiency to as complex as an undiagnosed joint / spine / orthopedic issue. If these subtle changes are noted and tracked over time, using sensors, deteriorating health conditions could be diagnosed much earlier and preventive steps can be taken, ensuring longer healthier lives, improving quality of life.

Smart home technology aims to keep older people safe in their homes (2/2)

– June 25, 2018

- **Value Proposition:** As a research project, the residents of these smart homes would be monitored for three months, post which the data will be analyzed to link it to changes in health. Using existing sensor technology of Microsoft Kinect, the idea in the long term, is to replicate this model without any significant infrastructure costs wherever necessary. A larger pilot will be held in 100 odd homes across Salford.
- Frost & Sullivan believes this is a great initiative on part of the NHS, and part of a trend that is growing in the UK. These are early stages, but pilots such as these are crucial in developing solutions for aging-in-place in the future. Given a growing elderly population, such solutions have an increasing market potential.
- **Target End-User:** Elderly population, aging-in-place seniors.









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Introducing The Latest Innovation From HiMirror, HiMirror Mini

– June 27, 2018

Applicable Product Categories:

Smart Home Devices

 Technologies	Artificial Intelligence, Sensors	 Therapeutic Areas	Skin care
 Applications	Software Solutions	 Geographic Focus	US
 Segment Focus	Consumer Grade	 Topics (News type)	Tech Innovation
 Companies	HiMirror	 Others	-

ANALYST TAKE:









- **Synopsis:** The smart Hi Mirror Mini provides in-depth skin analysis, and was recently launched at a competitive price of \$119.
- **Industry Need:** From a cosmetics standpoint, the beauty industry has some solutions, but none as advanced as this. Kohler and other bathroom fittings manufactures also have smart mirror products. None of them however, yet caters to the healthcare needs beyond cosmetics.
- **Value Proposition:** The mirror assesses “wrinkles, fine lines, complexion, dark circles, dark spots, red spots, and pores, measuring and tracking progress and providing recommendations on how to improve the skin's condition”. It also features Amazon Alexa and can connect with Spotify, YouTube, Instagram and Facebook, which can be operated using its touch screen interface.
- Frost & Sullivan believes that such products can ultimately evolve to also detect skin conditions such as melanoma, smartphone app based services for which already exist. Other mirrors like ‘Naked’ also provide body statistics akin to measuring body mass index, which can also be helpful.
- **Target End-User:** Largely female users for their beauty needs.

WEBLINK: <https://prn.to/2tFABB1>

Qualcomm and Gizwits Work to Create the World's First Commercial IoT Development Platform Supporting Field Upgrade to LTE IoT – June 27, 2018

Applicable Product Categories:

Smart Home Devices

 Technologies	Artificial Intelligence, Sensors	 Therapeutic Areas	NA
 Applications	IoT	 Geographic Focus	aChina / Global
 Segment Focus	Consumer Grade	 Topics (News type)	Tech Innovation
 Companies	Qualcomm, Gizwits	 Others	-

ANALYST TAKE:

- **Synopsis:** Qualcomm and Gizwits will co-develop IoT platform that will “allow manufacturers and service providers to offer economical 2G solutions that are upgradable Over-the-Air to” latest LTE IoT standards.
- **Industry Need:** With 2G networks still being the norm in a majority of the world, developing LTE compatible solutions maybe expensive and unnecessary, but can leave devices obsolete when upgrades to LTE networks occur. To keep solutions future ready, while serving on today’s available infrastructure, is a challenge – for smart homes and healthcare applications.
- **Value Proposition:** Allowing devices to serve needs throughout lifetime, with over-the-air upgrades for LTE compatibility.
- Frost & Sullivan notes this to be a remarkable development, that will allow for latest smart home and /or health devices to be available in the developing world as well.
- **Target End-User:** Makers of smart home and digital health solutions dependent on cellular connectivity.

WEBLINK: <https://prn.to/2tDbm2E>