

Healthcare Market Updates



OHK		
AAPL	+2.35	
PRTG	-0.14	
AMZN	-0.73	
TSLA	+1.08	
AVGO	-0.87	-3.05
SIRI	-0.65	

Weekly Newsletter
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7th December, 2018

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Wearables

Empatica launches next generation Embrace 2 for epilepsy management – December 6, 2018 (1/2)

Applicable Product Categories:

Wearables

 Technologies	Wearable (Device + App)	 Therapeutic Areas	Mental Health (epilepsy management)
 Applications	Remote Patient Monitoring, Preventive care	 Geographic Focus	US/ Global
 Segment Focus	Clinical Grade	 Topics (News type)	Product Innovation
 Companies	Empatica	 Others	NA

ANALYST TAKE:

- **Synopsis:** Cambridge startup Empatica has launched Embrace 2. The latest generation wearable for epilepsy management comes with longer battery life, a more intuitive watch face, improved connection management and the stamp of approval from the FDA.
- **Industry Needs:** Based on industry estimates, mental disorders account for 25% of all disability-adjusted life years (YLDs) in children and youth globally. Among these, about 65 million people suffer from the epilepsy globally. For example, at least 1 out of every 26 people in the US suffer from epilepsy at some point in their lifetime. Additionally, research suggests that epileptic seizures make this condition a high risk one for patients, leading to sudden unexplained death in epilepsy (SUDEP) – For e.g. people with epilepsy are 11 times more likely to die prematurely. Considering this fatal risk for patients, wearables can aid in early diagnosis and assist caregivers in optimizing the physical and psychological health/well-being of patients to proactively manage epilepsy.

Empatica launches next generation Embrace 2 for epilepsy management –

December 6, 2018 (2/2)

- **Value Proposition:** Empatica's core technology traces to MIT Medial Lab research. The company launched the first generation band via Indiegogo few years back, and is now back with Empatica 2. The core device has been cleared by the FDA in the United States and certified as a medical device in Europe. The smartband uses advanced machine learning to detect unusual patterns that may be associated with tonic-clonic seizures. Compared to the initial device, Embrace 2 has a smart, minimalist design, and comes with an anodized aluminium case that can be paired with a selection of bands. The whole thing weighs about 13 grams and is water-resistant for up to 1m/3ft. Customers outside the US can order Embrace 2 from the company's website for around \$250. US customers will need a valid prescription from a healthcare provider in order to purchase the device.
- **How it works?** The device sensors' look out for movements that are frequent and repetitive in nature and last more than 20 seconds. This information is combined with electrodermal activity (EDA) data which is generated by the sweat glands and tends to increase with emotional stimulation. When epilepsy patients wear Embrace, they will get an alert when a seizure happens. It will go via their smartphone to parents, roommates or caregivers. As per the company, "Embrace is not meant to substitute your current seizure monitoring practices, but rather to serve as a supplement in expediting first-response time."
- Frost & Sullivan views Embrace 2 as the successful product extension by Empatica to make the device more aesthetic and consumer friendly. While many wearable devices were designed and positioned for consumer health and wellness applications, Empatica's Embrace device is uniquely positioned to cater to unmet needs for epilepsy management. On the application front, in addition to detecting dangerous medical events such as seizures in the real world, Embrace wearables are being used in a variety of ways in current clinical research studies to sensitively measure specific disease markers, such as gait and tremor, in movement disorders such as Parkinson's disease.
- Based on historic mental health digital solutions' regulatory approval trends - diseases such as Parkinson's, epilepsy and tremors have been approved by the FDA, and for dystonia and obsessive compulsive disorders have been granted exemption under humanitarian grounds. Considering this, Frost & Sullivan believes, mental health as a condition holds huge future potential for wearables OEMs to move beyond the already crowded consumer market to vetted clinical applications by targeting focused unmet industry needs.
- **Target End-User:** Epilepsy Patient, Clinical trials.


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

ResMed acquires digital respiratory health company Propeller Health

December 3, 2018 (1/2)

Applicable Product Categories:

Wearables

 Technologies	Wearable (Device + App)	 Therapeutic Areas	Chronic Respiratory Diseases (chronic obstructive pulmonary disease or COPD, asthma)
 Applications	Remote Patient Monitoring, Preventive care	 Geographic Focus	US/ Global
 Segment Focus	Clinical Grade	 Topics (News type)	M&A
 Companies	ResMed and Propeller Health	 Others	NA

ANALYST TAKE:

- **Synopsis:** Sleep therapy and respiratory equipment and technology company ResMed has acquired Propeller Health, a company that makes remote patient monitoring tools, for \$225 million.
- **Value Proposition:** Based on industry estimates, more than 4 million people die annually from chronic respiratory diseases. In fact, COPD is the fourth leading cause of death globally; affects 1+ billion people and 7% of all deaths annually. Globally, the healthcare cost of COPD is more than \$150 billion a year. Earlier and optimal management can slow the progress of COPD, helping patients to live a better and longer life. Innovative digital respiratory condition management solutions including wearables such as those from Propeller Health have proven to help patients and their doctors better manage their COPD and asthma.

ResMed acquires digital respiratory health company Propeller Health

December 3, 2018 (2/2)

- **M&A Details:** ResMed, a provider of cloud-connected medical devices and out-of-hospital software-as-a-service (SaaS) business solutions, announced it has entered into a definitive agreement to acquire Propeller Health, a digital therapeutics company providing connected health solutions for people living with COPD and asthma. Under the agreement terms, ResMed will acquire Propeller for \$225 million, which ResMed will fund primarily with its credit facility. Upon closing, the transaction is expected to have a dilutive impact on ResMed's quarterly non-GAAP earnings per share in the range of \$0.01 to \$0.02 during Fiscal Year 2019. ResMed and Propeller expect to finalize the deal before the end of the third quarter of ResMed's fiscal year 2019 (March 30, 2019), subject to customary closing conditions, including regulatory approvals. DLA Piper is serving as ResMed's legal counsel. Allen & Company LLC is serving as exclusive financial advisor to Propeller, and Fenwick & West LLP is serving as its legal counsel.
- This marks ResMed's second major acquisition within a short time frame. At the beginning of November the respiratory company announced a \$750 million deal to acquire Minnesota-based EHR company MatrixCare. The MatrixCare acquisition was expected to help ResMed further its foothold in the software-as-a-service space, specifically in the long-term care setting.
- Frost & Sullivan views this as a great synergetic deal in the digital respiratory condition management space. For example, Propeller's ability to support people in stage II and III severity levels of their COPD are complementary to ResMed's own suite of cloud-connected ventilators for those with stage III and IV COPD, including Astral, Stellar and AirCurve 10 ST-A with iVAPS—plus ResMed's new portable oxygen concentrator Mobi. As per ResMed CEO, Mick Farrell, "Acquiring Propeller is a significant step for ResMed toward becoming the global leader in digital health for COPD." Furthermore, by joining forces with ResMed would enable Propeller Health to accelerate the adoption of its solutions at a global scale, and serve as a powerful platform for a broad set of pharmaceutical and healthcare partners.
- Entailing this, Frost & Sullivan views this deal as the marriage of two of the biggest names in the digital health respiratory arena. Propeller's clinically-validated solutions have demonstrated a 58% improvement in medication adherence, 48% increase in symptom-free days and 53% reduction in emergency room visits, according to a press release from ResMed. Propeller also has some major deals in its portfolio. One of the most notable took place in February of 2017, when the company inked a deal with Pharma giant Novartis to develop a custom add-on sensor for the company's Breezhaler, which is used for Novartis's portfolio of COPD treatments.
- **Target End-User:** COPD and Asthma Patients, Health Systems, Payers, Clinical Trials

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

Tata-backed startup Goqii to launch two smart health devices – December 6, 2018

Applicable Product Categories:

Wearables

 Technologies	Wearable (Device + App)	 Therapeutic Areas	Chronic Disease monitoring and management (ECG, Blood Glucose, mental health)
 Applications	Remote Patient Monitoring, Preventive care	 Geographic Focus	India/Japan/Asia
 Segment Focus	Clinical/Consumer Grade	 Topics (News type)	Product Launch/ Localization of Innovation
 Companies	Goqii (Ratan Tata-backed healthcare startup)	 Others	NA

ANALYST TAKE:

- **Synopsis:** Ratan Tata-backed healthcare startup Goqii will launch two new smart health devices focusing on cardiac and diabetes care by next March.
- **Value Proposition:** The wearable devices-maker Goqii, recently announced its plan to launch two smart health devices--'Goqii VitalECG' and 'Goqii VitalGluco' focusing on cardiac and diabetes care, by next March. However, as per Goqii CEO, Vishal Gondal, the upcoming non-intrusive device to monitor blood sugar levels will take a few more years to develop and the key future focus for the company will be to develop mental health monitoring solutions. Goqii is also funded by Paytm founder (Vijay Shekhar Sharma), and has managed to raise over \$30 million recently, led by Japanese conglomerate Mitsui & Co. As part of Goqii's growth plans, the company is planning to enter the Japan market in the second or third quarter of 2019.
- For decades, much of the pipeline of pharma innovation has flowed from West to East. Companies such as Gogii, reflect the shifting focus of healthcare innovation and R&D localization to meet the tailored needs of Asian bodies and lifestyles. Furthermore, based on industry estimates, currently 80% of emerging Asian population cannot afford medical products designed for developed markets. Entailing this, Frost & Sullivan believes, in next 1-2 years it will be imperative for global wearable OEMs to localize their product strategy to meet the needs of Asian countries, which is deemed as the future growth engine for the healthcare industry.

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











Mobile Phones/ mHealth

Proposed mHealth App Could Detect Anemia From a Smartphone Photo

December 6, 2018

Applicable Product Categories:

Mobile Phones

 Technologies	mHealth App, Smartphone Camera	 Therapeutic Areas	Anemia
 Applications	Image based noninvasive screening of anemia	 Geographic Focus	Global
 Segment Focus	Clinical Grade (under development)	 Topics (News type)	Care Delivery Innovation
 Companies	Georgia Institute of Technology and Emory University	 Others	-

ANALYST TAKE:









- **Synopsis:** The app, which uses proprietary algorithms for image based assessment of finger nails and their color to detect anemia, has reported a 97% accuracy in a study involving 100 participants with and without anemia.
- If approved and commercialized, the app could prove to be an effective replacement of current invasive, expensive and time consuming methods of assessing the disorder which accounts for 5,349 deaths in the US annually and affects more than 2 billion people globally.
- Frost & Sullivan research shows previous efforts towards noninvasive detection of anemia with researchers at the [University of Washington](#) working on a smartphone based technology which used a video to record light from the phone's flash and additional LED lights to detect anemia. While this development is in line with the general trend of using smartphone based apps and other digital tools to enable early disease detection, their effective commercialization, adoption and monetization would require care planning, customer demand awareness and innovative positioning to eventually emerge as a commercial winner.

WEBLINK: <https://bit.ly/2UoGL4g>

Pillsy launches supplement service alongside smart pill bottles – December 5, 2018

Applicable Product Categories:

Mobile Phones

 Technologies	mHealth App, Software Platform,	 Therapeutic Areas	Medication Adherence, Nutrition
 Applications	Integration of medication adherence and nutritional insights	 Geographic Focus	US
 Segment Focus	Clinical Grade	 Topics (News type)	Care Delivery Innovation
 Companies	Pillsy, Stride Nutrition	 Others	-

ANALYST TAKE:









- **Synopsis:** Smart pill bottle cap manufacturer Pillsy, has launched a subscription service through its subsidiary, Stride Nutrition, that works as a digital assistant managing various aspects of nutrition in addition to medication adherence.
- The device, which pairs with a smartphone app to not only deliver reminders and order refills for the patient's nutritional supplement dosage, but also educates the patient about the product, which might go a long way in improving nutritional adherence.
- Frost & Sullivan believes that this is an automatic and obvious adjacency which a company like Pillsy could get into, especially because in addition to medication adherence, maintaining proper diet and nutrition through supplements is an important aspect to managing patient care. This could also lead to additional sources of monetization for the company as dietary and nutritional supplement manufacturers may find it an attractive channel to educate patients about their products and position them as per their requirements.

WEBLINK: <https://bit.ly/2StH3W2>

Freeletics raises \$45M for its AI-powered mobile fitness coach – December 4, 2018

Applicable Product Categories:

Mobile Phones

 Technologies	mHealth App; Artificial intelligence	 Therapeutic Areas	Lifestyle and General Wellness
 Applications	AI enabled fitness app coach	 Geographic Focus	Global
 Segment Focus	Clinical Grade	 Topics (News type)	M&A/ Partnerships/ Funding
 Companies	Freeletics	 Others	-

ANALYST TAKE:

- **Synopsis:** Freeletics, an online fitness start up based in Germany, raised an additional Series A funding of \$45 million which will be used to enable the company to expand into the US fitness market, which is growing at more than 120% year on year as per the company.
- The app, which has received success in the European market, uses a freemium model with a tiered pricing approach beginning at \$11.99 per month and a yearly subscription at \$74.99.
- The company also plans to add a Netflix-style training platform, where “unlimited relevant training plans” will be available to paying users, as well as nutritional guidance to help people stay fit. The startup, however, has no plans to expand into hardware.
- Frost & Sullivan believes that the general wellness and professional fitness market is highly fragmented and competitive with several digital health start ups startups like Aaptiv, Virtuagym and Fiit, as well as more established fitness chains such as Gold’s Gym, competing for their pie. Beyond the app based fitness, connected in home exercise devices such as Peloton and Mirror and virtual reality based fitness solutions are also adding to the competitive fervor of the industry.

WEBLINK: <https://bit.ly/2QHLO0Q>



Smart Home Devices & Appliances

Malware will hit smart homes in 2019 – November 30, 2018

Applicable Product Categories:

Smart Home Appliances

 Technologies	IoT	 Therapeutic Areas	NA
 Applications	Cybersecurity, AI	 Geographic Focus	Global
 Segment Focus	Consumer Grade	 Topics (News type)	Technology Innovation
 Companies	McAfee	 Others	-

ANALYST TAKE:

- **Synopsis:** McAfee reports that cybercriminals are designing smart malware (AI-assisted even) that can avoid detection in virus scans or do not even show up as active processes – one of their targets would be smart home devices, for enabling crypto mining for example. Antivirus companies will therefore have to equip themselves with AI tools to become more efficient.
- Frost & Sullivan notes that smart home devices can be a prime cybersecurity target (as we have noted in past issues as well). However, it is important to know that healthcare is the #1 attacked industry. A 2017 US government cybersecurity report noted that in a ranking of 18 industries, healthcare appeared at the 13th position, while telecommunications (provider for smart homes) figured at the 17th position. – meaning smart homes can very easily be targeted by malware. Therefore this article is not surprising, but alarming for sure – and more needs to be done to prevent hacking of smart devices – including smart appliances, as such hacking can not only lead to data and privacy breach, but also result in significantly higher electricity bills for users whose devices are unknowingly being used for cryptomining.

WEBLINK: <https://bit.ly/2RAr5tc>

Airbnb to build its own prototype smart homes from 2019 – November 30, 2018

Applicable Product Categories:

 Technologies	IoT	 Therapeutic Areas	NA
 Applications	Smart Devices	 Geographic Focus	Global
 Segment Focus	Consumer Grade	 Topics (News type)	Business Model Innovation
 Companies	Airbnb	 Others	-









ANALYST TAKE:

- **Synopsis:** Airbnb's innovation lab, Samara, has launched the 'Backyard' project to rethink how properties are constructed and shared by tenants, around the areas of manufacturing and smart home technologies.
- Frost & Sullivan notes that with Airbnb's business focus, smart home technologies will fit right in the new design of homes meant to be shared or rented. Having users' preferences 'ported' over to the Airbnb home during their stay –as a subscription service maybe, can become a new revenue model for companies. From a healthcare perspective, having the same monitoring patterns being replicated during the users' stay can ensure seamless, continuous monitoring for patients – homes that have these smarts, will be preferred by such patients.

WEBLINK: <https://bit.ly/2E4YAQs>

Open source AI voice assistant takes aim at Amazon and Google – November 28, 2018

Applicable Product Categories:

 Technologies	IoT & more	 Therapeutic Areas	-
 Applications	Voice Assistants	 Geographic Focus	US / Global
 Segment Focus	Consumer Grade	 Topics (News type)	Competitive Intelligence
 Companies	Mycroft	 Others	-

ANALYST TAKE:

- **Synopsis:** Mycroft is pitching its new platform, Mark II, as more secure and customizable than voice assistants currently on the market..
- Frost & Sullivan notes Mycroft is pitching with a USP “flexible, customizable, vendor neutral, and privacy focused”. While it does hit on some notes that are seen as issues with existing speakers, it lacks the strong networks that Google and Amazon have built, and not to mention the technology, financial and resource prowess that each have, to bring newer applications based on voice to the market. Yet, this kind of an approach, “privacy focused” will likely hit the chord with healthcare organizations, especially if they manage to secure HIPAA compliance. In that case hospitals, who are already using Amazon Alexa and Google Home for administrative purposes, might pivot to such solutions that are HIPAA compliant for patient facing applications. However, both Google and Amazon are taking efforts for HIPAA compliance. It will be worth following the product when it launches at CES in January to see how they build up the business model around it.

WEBLINK: <https://bit.ly/2ro3wbl>

Other Interesting Articles

When available, other interesting articles will be covered here in short.

News Title	Link	Remarks
Review: Polk Assist is an attractive and small speaker with Google Assistant support	https://bit.ly/2AUrWxC	Audio entertainment / speaker companies are also developing their own 'smart speaker' versions, powered by existing voice assistants, in this case the Google Assistant – this gives consumers the choice of staying loyal to their brand of choice, and yet access smart features.
This \$20 2-in-1 plug can turn virtually any device into a smart one	https://bit.ly/2RD8EUI	The idea of retrofitting existing 'dumb' appliances to make them smart is a powerful one – especially with one of the several smart plugs available now (with compatibility to Google / Amazon / IFTTT). This opens up a large market, but also builds an opportunity to provide smart routines that can be customized by users. This can be similar to a GPU or a chip manufacturer providing free tools to build software that runs using those GPUs – appliance makers could make customizable routines available to their customers to improve adoption of smart technology.