FROST & SULLIVAN

Healthcare Market Updates

Weekly Newsletter

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Wearables

MC10 gets its first FDA clearance for BioStamp nPoint, a sensor platform for clinical trials – May 23, 2018

Applicable Product Categories: Wearables

Technologies	Wearable (Device + App)	**Therapeutic Areas**	Lifestyle and chronic health conditions such as cardiac conditions, diabetes, and sleep
Applications	Wearable biopatch for remote monitoring of patients in clinical trials	**Geographic Focus**	USA
Segment Focus	Clinical Grade	**Topics (News type)**	Tech Innovation
Companies	MC10	**Others**	NA

ANALYST TAKE:

- **Synopsis:** MC10, a spinoff from Massachusetts University, received FDA clearance for its new BioStamp nPoint biometric data acquisition system. The body patch-based wearable solution can continuously record parameters such as heart rate, step count, and movements during sleep with intended applications across clinical trials for remote monitoring of participants/subjects.

- **Industry Need:** Pharma clinical trials are slow and expensive processes. Based on industry estimates, due to lack of patient-centric trial designs, up to 35% of patients drop out of clinical trials. Another 35% are non-adherent to study protocols, which costs about $1 million per trial in lost productivity alone.

MC10 gets its first FDA clearance for BioStamp nPoint, a sensor platform for clinical trials – May 23, 2018

- **Value:** BioStamp nPoint system is the enhanced version of MC10's previous BioStampRC®. The system consists of reusable adhesive sensor patches that can monitor users for 24 hours at a time. The sensors record vital signs such as movement and heart rate and display them on an Android device such as Samsung Galaxy Tablet pre-loaded with the Investigator App provided by MC10. The system is designed to be used at home or in the clinic. The system comes with two companion apps:
    1. Patient-facing MC10 Link App: instructs patients on how to apply the patches, and can also be used to deliver alerts and reminders to trial patients to take medication, and even to deliver patient reported outcome surveys directly through the app.
    2. Researcher-facing MC10 Investigator app: Displays curated data from the sensors for research and clinical trial use cases.
- BioStamp nPoint will be available for purchase by enterprise organizations in June, 2018. MC10 already has partnerships lined up with pharmaceutical companies, and expects those trials to be up and running by the third quarter of 2018.
- Based on Frost & Sullivan's recent clinical trial digitization studies findings; early application and integration of wearable devices and smartphones app data offer compelling benefits around reducing trial costs, streamlining trial processes, and demonstrating real-world efficacy. Wearables and mHealth enabled remote or virtual trials at lower-cost facilities and/or in-home settings can reduce the patient enrolment time by 65-70%. Additionally, by leveraging remote medical devices and clinical-grade wearables, there is an opportunity to collect novel endpoints and supplemental data that could improve the regulatory case, making the case for reimbursement more compelling. MC10's nPoint body patch-based wearable solution therefore comes as a timely clinical-grade solution to tap the growing remote and virtual clinical trial segment apart from hospital and home monitoring use cases.

- **Target End-User:** The system is designed for initial application across clinical trials and research studies where collection of relevant data is needed.

WEBLINK: https://bit.ly/2JaKNI1

Accelerating the Singapore smart apparel ecosystem – May 28, 2018

Applicable Product Categories: Wearables

Technologies	Wearable IoT platform	**Therapeutic Areas**	Lifestyle and chronic health conditions
Applications	Wearable body and wellness-monitoring T-shirt	**Geographic Focus**	Singapore
Segment Focus	Consumer Grade	**Topics (News type)**	Tech Innovation
Companies	KaHa	**Others**	NA

ANALYST TAKE:

- **Synopsis:** KaHa, a Singapore-based end-to-end smart wearable IoT platform company, has launched a smart wearable body and wellness-monitoring T-shirt prototype developed in partnership with SIMTech. KaHa has also recently partnered with Collaborative Industry Project (CIP) which would help to identity potential application ideas, and partner with local manufacturers to spin-off the smart wearable prototypes into desired products, such as footwear, sports wears, and for customized use in nursing and healthcare.

- **Industry Need:** More than 70% of all chronic disease deaths are attributed to cardiovascular diseases, obesity, diabetes and COPD. By administrating early warnings, continuous vital sign monitoring can reduce the serious disease likelihood by 82%.

Accelerating the Singapore smart apparel ecosystem – May 28, 2018

- **Value:** Co-developed by KaHa and SIMTech, the smart apparel prototype has printed Flexible Hybrid Electronics which captures body vitals and transmits it to a detachable Smart Module on the apparel. The module cleans the data, which is then shared with KaHa's IoT platform to be analysed. It monitors heart rate and automatically alerts users when their individual maximum prescribed heart rate reaches 80%. It also tracks electrocardiography (ECG or EKG), and VO_2 Max (maximal aerobic capacity), and can be extended to cover other biometric data such as blood pressure and breathing patterns – which will have wide-ranging applications, for example, from sports performance to health and wellness and uniforms for specialized industries such as construction.
- Based on Frost & Sullivan analysis, easy of use and seamlessness of wearables device into users' daily life are among the most desired factors by average consumers. As wearables technologies are becoming invisible, smart clothing segments by KaHa demonstrate a high value proposition to meet consumer needs. Additionally, as the value proposition between brand and technology blurs, many consumer wearable companies are collaborating with large consumer brand names (e.g. Nike, Fossil, Adidas, Ralf Lauren, etc.) to make the experience more meaningful for consumers. Thus, KaHa's collaboration with CIP can be a game-changer to strike win-win deals with leading footwear, sports wears, and other manufacturers in the local market. Most importantly, KaHa's smart wearable IoT platform based actionable health insights will be the true value add beyond the device play in a highly competitive consumer-grade wearable segment.

- **Target End-User:** Footwear, sports and fashion apparels and clothing manufacturers

WEBLINK: https://bit.ly/2Jkg7Y6

Self-repairing health wearables powered by body heat – May 30, 2018

Applicable Product Categories: Wearables

Technologies	Wearable (Device)	**Therapeutic Areas**	Lifestyle and chronic health conditions
Applications	Detection of vital signs as early digital markers for disease	**Geographic Focus**	Israel
Segment Focus	Consumer Grade	**Topics (News type)**	Tech Innovation
Companies	Wolfson Faculty of Chemical Engineering of the Technion-Israel Institute of Technology	**Others**	NA

ANALYST TAKE:

- **Synopsis:** Researchers at Technion-Israel Institute of Technology, Israel, have created a self-healing health wearable system called Technion that can be powered by body moment and heat to uninterruptedly monitor health vital signs.

- **Industry Need:** Based on Frost & Sullivan recent research, despite increasing adoption of consumer wearable devices their overall lifetime with consumer stickiness is decreasing. Our consumer survey indicates that key attributes of wearables such as always-on, easy of use, and multi- functional are some of the most desired features to ensure consumer stickiness. A majority of these attributes are highly dependent on the battery performance which calls for innovation around existing and alternate power sources as the need of the hour.

Self-repairing health wearables powered by body heat – May 30, 2018

- **Value:** While it is proven that wearables can monitor an individual's body vitals to promote preventive care practices, what is unique about the new Technion wearable monitoring system is that it can be powered by energy from the wearer's movements (kinetic energy) and body heat. Furthermore, Technion is made of advanced self-healing materials which can fix its own tears or scratches.
- Frost & Sullivan believes, these unique features will find greater acceptance among target consumers and would provide a great competitive edge to the Technion wearable monitoring system against competition in the consumer wearables space. However, to ensure future sustainability, the Technion wearable monitoring system should look beyond the device features and built capability around data and analytics platforms to provide meaningful and outcome-based health insights to its users.

- **Target End-User:** Healthcare Consumers, Clinical Trial Sponsors, Health Insurance and Wellness programs

WEBLINK: https://bit.ly/2J80QGv

Withings cofounder buys back digital health business from Nokia – June 1 2018

Applicable Product Categories: Wearables

Technologies	Wearable (Device + App); AI and big data and analytics	**Therapeutic Areas**	Lifestyle and Chronic Health conditions
Applications	Preventive health and chronic disease management	**Geographic Focus**	Finland/ Global
Segment Focus	Consumer Grade	**Topics (News type)**	Competitive Intelligence
Companies	Nokia, Withings	**Others**	NA

ANALYST TAKE:

- **Synopsis:** It's official now - Nokia is selling its health division back to the founder of Withings for an undisclosed amount, after poor earnings for Nokia Health. Nokia bought Withings two years ago for $191 million, before rebranding the start-up's products (including a smart scale and various well-received fitness tracker watches) as part of its new "Digital Health" business in 2017.

- **Competitive Intelligence:** The Nokia and Withings ordeal can be viewed as a good learning lesson for others to further gauge and optimize their current and future tech licensing and deals with innovative start-ups. Frost & Sullivan believes that for health wearable technologies, often use case dictates the market positioning and key target audience. With the shifting focus toward more clinically meaningful use cases, health wearables should go beyond consumers and justify their value to other potential stakeholders (payers, patients, clinicians, hospitals, employers, and so on) to instil trust and buy-in for the stated use cases and health applications.

Withings cofounder buys back digital health business from Nokia – June 1 2018

- **Value:** Post the departure from Nokia brand, Withings' former chairman and co-founder Eric Carreel has announced his plans to relaunch the business once again under the Withings brand by the end of this year (2018), with renewed products focused on preventive health space. The new start-up will be based out of Paris with operations also in the U.S. and Asia.
- Frost & Sullivan sees this departure as a potentially good move for Withings, both from a governance as well as future strategic position in the connected health space. In the meantime, Withings product offering has expanded much beyond its connected scales, and today the company makes activity tracking watches, blood pressure monitors, a smart thermometer, and a sleep tracking pad. Most interestingly, Withings has also developed a companion app called 'Health Mate' that works as a unified data insight platform for all its devices/wearables. Frost & Sullivan believes, moving forward, continuous innovation around the existing smart devices portfolio and creating robust data insight solutions will be the key focus for Withings, with specific focus on preventive health and chronic disease management.

- **Target End-User:** Healthcare Consumers, Home Care Settings, Preventive Care programs by payers and employers

WEBLINK: https://tcrn.ch/2LLYAWZ

Ava, maker of a fertility-tracking bracelet, raises $30M to double down on women's health – May 30, 2018

Applicable Product Categories: Wearables

Technologies	Wearables (Device + App)	**Therapeutic Areas**	Women's Health
Applications	Female Cycle and Fertility-tracking	**Geographic Focus**	Switzerland, United States of America
Segment Focus	Consumer/Clinical Grade	**Topics (News type)**	Funding
Companies	Ava	**Others**	NA

ANALYST TAKE:

- **Synopsis:** Zurich, Switzerland based company Ava founded in late 2014, has built a $199 wearable device with a companion app to help women track their fertility cycles. In a recent series B round, the company has raised $30 million to expand into other aspects of female health.

- **Industry Need:** Based on industry estimates about 30% of women around the globe face the challenge of irregular periods. Even according to a recent Fitbit reported survey, 80% of women don't know how many phases are in menstrual cycle and more than 70% are unable to correctly identify the average length of a cycle. These uncertainties impact a woman's daily activity, body characteristics, emotional state, social well-being and even child planning.

Ava, maker of a fertility-tracking bracelet, raises $30M to double down on women's health – May 30, 2018

- **Value:** Ava's wearable is powered by AI, big data and analytics to track a woman's cycle. The company reported that, the cycle-tracking sensor bracelet, can detect a 5.3-days long fertile window in a woman's cycle in real time. The system also supports women during pregnancy by tracking sleep, stress, and weight gain. The company reported that till date it has enabled 10,000 pregnancies since launching in July 2016. With its recent $30 million funding round, the company has managed to raise a total of $42.3 million finding since 2014. The company will use the new funds for further product research and development to enhance the existing product and create new applications that empower women to take control of their reproductive health via data insights and science such as detecting pregnancy, identifying infections during pregnancy, and eventually for use in preventing pregnancy (contraception). Down the line, it might mean detecting signs of perimenopause and more.
- Based on Frost & Sullivan research, in the past two years Women's health digital solutions (or Femtech) have become a great interest area for the investment community. With the on-going funding spur other competing wearables solutions in this space have managed to raise funds (e.g. Clue and Natural Cycles have raised $30 million and $37.5 million respectively). As the female fertility-tracking wearables market gets crowded, Frost & Sullivan believes that there will be a selective churn of devices/solutions. In the long-run, fertility-tracking wearables that can prove to be better than industry gold-standards with superior data-driven insight services will find greater acceptance, both by users and care providers.

- **Target End-User:** Female Consumers, Gynaecologists, Wellness Programs, Health Insurance and Wellness programs

WEBLINK: https://tcrn.ch/2suPK7f

Australia's Compumedics looks to "make history" as it signs China deal for its sleep technology – June 1 2018

Applicable Product Categories: Wearables

Technologies	Wearables (Device)	**Therapeutic Areas**	Sleep Disorders
Applications	Sleep health management digital solution	**Geographic Focus**	China, Australia
Segment Focus	Consumer/Clinical Grade	**Topics (News type)**	Partnership
Companies	Compumedics	**Others**	NA

ANALYST TAKE:

- **Synopsis:** The proposed joint venture with Meinian Onehealth Healthcare Holdings, known as Health 100, will commercialise Compumedics' Somfit device - a wearable system for monitoring sleep. Shares in Compumedics have soared after it reported this joint venture. As part of the proposed joint venture, Health 100 has committed to purchasing one million Somfit devices for the China market over two years, once the product receives China FDA approval, Compumedics will be paid $11.3 million as part of the joint venture deal, mostly for intellectual property and technology rights for Somfit. The CEO of Compumedics reported that the agreement is expected to generate at least $133 million in the long-run.

- **Industry Need:** Based on research, poor sleep quality is highly prevalent (varied from 6% to 40%) among elderly Chinese residents especially in urban areas. Proper monitoring by wearable devices can result in timely diagnoses and help treat sleep disorders such as sleep apnea, as well as prevent other chronic diseases.

Australia's Compumedics looks to "make history" as it signs China deal for its sleep technology – June 1 2018

- **Value Proposition:** Compumedics's sleep technology comes with nearly three decades of research and innovation. The company was founded in the 1980s following its development of computerised sleep polysomnography. It installed the first fully computerised sleep clinic in Australia at Melbourne's Epworth Hospital in 1987 and entered the US market in the 1990s with the development of the portable sleep monitoring tech, winning two NASA astronaut monitoring contracts. The company also owns US-based Neuroscan and Germany's DWL Elektronishe GmbH.

- Based on Frost & Sullivan research, the importance of good sleep is progressively growing in terms of market presence as a serious component of health for consumers. With this, sleep management digital solutions are becoming one of the fastest growing categories in consumer health segment. Looking at national markets, diving down to a per capita level shows that though the US and China are two of the largest markets for sleep management digital solutions. Compumedics partnership with one of the leading Chinese sleep management network will provide access to Health 100's growing network of medical and physical examination centres throughout China, which is expected to reach 1000 centers by 2020. At its current capacity, Health 100 reported conducting 20 million health checks last year alone. Moving forward, it will be interesting to see how these two companies would monetize the huge volume of data to being generated, to drive future research and product innovation.

- **Target End-User:** Health 100 and other sleep health networks, Home Care Settings, Preventive Care programs by payers and employers

WEBLINK: https://bit.ly/2J9rzCi

Mobile Phones/ mHealth

Sony's Take on the Crowded Self-Driving Game Is Turning Cars Into Mini-Hospitals — May 30, 2018 (1/2)

Applicable Product Categories: Mobile Phones

Technologies	Sensors, AI, Software Solutions	**Therapeutic Areas**	All
Applications	Image based sensors used for continuous monitoring	**Geographic Focus**	USA
Segment Focus	Medical / Consumer Grade	**Topics (News type)**	Tech Innovation / Competitive Intelligence
Companies	Sony	**Others**	NA

ANALYST TAKE:

- **Synopsis:** In a USPTO patent application on May 10, Sony proposed the idea of a device that can detect medical conditions of a passenger in a driverless car and offer real-time alerts on the most suitable care facility, arrival time and coordination of treatment.
- **Industry Need:** Autonomous self driving cars, while closer to reality, are far from large scale commercialization. Healthcare is a massive, untapped segment which is expected to be disrupted by self driving cars by enabling safer and more connected mobility, while, offering several real-time health monitoring and wellness value proposition enabled by a diverse set of specialized sensors and cameras, thereby offering an opportunity for differentiation.
- **Value Proposition:**
    - The Sony device in the patent application is expected to receive sensor data from a variety of sensing devices close to the passenger, such as a smartphone, a smart-watch or a fitness tracker. The device will "diagnose" by analyzing the sensor data against the person's heath parameters and generate an alert if it finds something out of line.

Sony's Take on the Crowded Self-Driving Game Is Turning Cars Into Mini-Hospitals — May 30, 2018 (2/2)

- The device, in addition to alerting the passenger in the driverless car, also intends to offer customized suggestions in terms of nearby doctors and healthcare facilities, find the most optimum route and arrival time as well as help coordinate the treatment.
- Sony is trying to leverage its technological know-how in image sensors to find an edge in the car market, which makes sense as autonomous cars start taking off. Another possible application is in the passive monitoring space, which heavily relies on cameras to analyze blood flow in the face, for example.
- Frost & Sullivan believes, the overall concept of passive health monitoring, if integrated into already existing consumer electronics solutions such as smartphones, smart-watches and other wearables, could be well extended and positioned to normal day-to-day transportation, thereby enabling enhanced and effective care coordination on the go and offering an unmatched healthcare value proposition.

- **Target End-User:** The technology, though in its nascent phase, has wide applications and could potentially be targeted to any kind of end-user be it a patient, care giver, or an unsuspecting healthy individual. The overarching concept, if applied to broader category of mobility, could turn out to be highly effective healthcare service on the go with people remaining ever connected with their health on the go.

WEBLINK: https://bit.ly/2xsBYI7

Best Buy sees opportunities in healthcare — May 31, 2018 (1/2)

Applicable Product Categories: Mobile Phones

Technologies	Sensors, AI, mHealth Apps, Software Solutions
Applications	In-home health monitoring through an integrated system of specialized cameras, sensors and mHealth apps
Segment Focus	Consumer Grade
Companies	Best Buy, Inc.
Therapeutic Areas	Home health, Elderly Care, Pediatric Health
Geographic Focus	USA
Topics (News type)	Competitive Intelligence, Business/ Monetization Model Innovation, Care Delivery Innovation
Others	Amazon, Apple

ANALYST TAKE:

- **Synopsis:** Best Buy Inc., has announced its intentions to explore healthcare as a growth opportunity and potential revenue channel. It is testing its in-home health monitoring service introduced in 2017, Assured Living, to help the aging population stay healthy at home with assistance from caregivers, family members, and also technology products and services.
- **Industry Need:**
  - The market for using technology to assist an aging population promises to be both lucrative and competitive. There are 17.7 million adult caregivers in the United States looking after someone 65 and older, according to federal reports, and the numbers will accelerate rapidly in the next decade as baby boomers hit their 80s.
  - Best Buy suppliers such as Apple have already expanded their health function through its Apple watch and host of other solutions. Additionally, Amazon has already taken a plunge in the market with its in-home services, repair and installation services and the company further expects to integrate these with its range of smart home care offerings such as Alexa.

Best Buy sees opportunities in healthcare — May 31, 2018 (2/2)

- **Value Proposition:**
  - The Assured Living program from Best Buy helps caregivers and family members keep track of aging patients with remote patient monitoring (RPM) technologies which can help them better manage their illness and chronic health conditions. As healthcare becomes increasingly digital, the electronics retailer sees health and wellness as a strategic area for opportunities moving forward.
  - The Assured Living Advisors offer in-home assessment, recommend the appropriate devices based on the seniors' living conditions and health concerns, and Best Buy's Geek Squad workers install the systems. In addition to the up-front cost of the devices, customers pay Best Buy a $29.99 monthly fee for access to a smartphone app that helps seniors and family members monitor health data and activity.
  - Assured Living's in-home installation service provided by the Geek Squad is a process consumers are already accustomed to - it's no different than installing a smart TV or connected speaker into a customer's home. This could help to normalize RPM technology.
  - Additionally, access to more elderly patient data could help insurers and providers cut healthcare costs. Tracking vitals and lifestyle behaviors could help caregivers improve treatment and medication adherence. Providers and insurers are eager for tools that can help clamp down on the 80% of healthcare costs that come from chronic diseases, especially as the US healthcare system stares down an expanding aging population.
  - Frost & Sullivan believes this could be a potential co-branding business model and cross sales strategy as retailers like Best Buy already assort a variety of health-related products and technology products designed for seniors, like specially designed phones and medical alert systems. With appropriate product portfolio mix and targeted value proposition, this could be a game changing strategy, not only for elderly care, but also for other segments such as pediatric care.
- **Target End-User:** Home health-care, adults with ageing parents, pediatric care

WEBLINK: https://bit.ly/2LdlNQW

Medical App CancerAid Lands First U.S. Partnerships with Cedars-Sinai and Apple — June 1, 2018 (1/2)

Applicable Product Categories: Mobile Phones

Technologies	mHealth Apps, EMR, Software Solutions	**Therapeutic Areas**	All
Applications	Interoperability of a medical grade app with hospital EMR system and wearable devices to demonstrate effective care coordination	**Geographic Focus**	USA
Segment Focus	Medical Grade	**Topics (News type)**	M&A/ Collaborations/ Investments, Care Delivery Innovation
Companies	CancerAid, Apple, Cedars-Senai	**Others**	NA

ANALYST TAKE:

- **Synopsis:** Australian cancer support app, CancerAid, a self-reporting and symptom monitoring tool for cancer patients which is also available in the UK, has entered the US through partnership with Cedars-Sinai and Apple.
- **Industry Need:**
  - Effective, data augmented management of chronic and life-threatening diseases is of utmost importance in order to reduce overall healthcare system costs and burden through enhanced home and primary care, efficient disease management and reduced hospital visits and readmissions.
  - Results from a randomized clinical trial presented at the 2017 American Society of Clinical Oncology annual meeting revealed that patients who used a symptom tracking system were able to achieve improved clinical outcomes with improved management of symptoms, better patient quality of life and fewer emergency departments visits and 30 day readmission rates, thereby saving significant healthcare costs. Additionally, the study claimed an average survival benefit of five months.

Medical App CancerAid Lands First U.S. Partnerships with Cedars-Sinai and Apple — June 1, 2018 (2/2)

- **Value Proposition:**
  - CancerAid allows patients to access medically reliable cancer information, log their symptoms, medications, treatments and activity, and join a community of more than 20,000 users worldwide using the app.
  - The company has developed a platform named ClinicianLink that will integrate into the Epic EMR at Cedars-Sinai and with Apple's HealthKit. The Apple integration will offer seamless, real time health and symptomatic data collection through the wearable devices like Apple Watch, which could be then be passed on to the Epic EMR of Cedars-Sinai for immediate distribution to care givers database.
  - The resultant synergies in terms of effective disease management and reduced emergency visits has been pegged as the key value proposition for the solution.
  - The CancerAid app is now commercially available with more than 80 US hospitals signed up. It remains free for patients and caregivers. It is ranked in the top 200 medical apps in the Apple App and Google Play stores, out of 96,000 currently on the market.
  - Frost & Sullivan believes this is among the first of many such partnerships to be witnessed over the next few years with specialized apps targeting high acuity conditions such as cancer, diabetes, Alzheimer's, as well as mental health, finding increased value out of the seamless data interoperability and exchange between the patient, care-giver as well as insurers, enabling optimized care delivery.
- **Target End-User:** Patients, care-givers, hospitals, insurers and pharmaceutical companies

WEBLINK: https://bit.ly/2srZrDo

Smart Home Devices & Appliances

This Smart Pantry System Will Make Sure You Never Run Out of Snacks Again – May 30, 2018

Applicable Product Categories: Smart Home Appliances

Technologies	Sensors	**Therapeutic Areas**	NA
Applications	IoMT	**Geographic Focus**	US
Segment Focus	Consumer	**Topics (News type)**	Tech Innovation
Companies	WePlenish	**Others**	NA

ANALYST TAKE:

- **Synopsis:** A US startup recently started a campaign on Kickstarter for it's smart food containers that can order your favorite foods before running out.
- **Industry Need:** Busy mothers and housewives may sometimes be unable to keep track of essential food supplies - running out can mean compromising on nutritional needs for kids as well as adults.
- **Value Proposition:** Similar to Amazon dash, the container detects when supplies are low, and can reorder them automatically for the user. Currently limited to coffee pods, tea, snacks and similar essentials, we see this product as a first step, that can evolve into detecting other food items such as fruits and vegetables as well. Smart fridges could benefit from similar tech, ensuring eating fresh (similar to Ovie's tech covered in the previous newsletter) and healthy, while never running out (resulting a scenario of eating out or ordering in junk fast food). Frost & Sullivan thus believes that these technologies will eventually make an impact on healthcare, even though they are not currently targeted as such.
- **Target End-User:** Tech-savvy consumers, smart home/ smart fridge manufacturers.

WEBLINK: https://bit.ly/2J2yfpZ

Smart, Pressure Sensitive Stool Helps to Improve Posture and Avoid Sitting Too Long – May 30, 2018

Applicable Product Categories: Smart Home Devices

Technologies	Sensors, Artificial Intelligence	**Therapeutic Areas**	NA
Applications	IoMT	**Geographic Focus**	Europe / Global (later)
Segment Focus	Consumer	**Topics (News type)**	Tech Innovation
Companies	Fraunhofer Institutes for Industrial Engineering and for Silicate Research	**Others**	NA

ANALYST TAKE:

- **Synopsis:** Researchers have developed a “smart stool that monitors a person’s sitting posture and the time spent sitting down”.
- **Industry Need:** The increasingly sedentary lifestyles of people have necessitated tools to ensure they move around more frequently, to ensure not just proper digestion and exercise, but in the long-run, also to arrest the rising incidence of obesity and associated chronic conditions.
- **Value Proposition:** The device’s ability to communicate with a smartphone app allows users or their caregivers to track their posture and also how much time they have spent sitting. In Frost & Sullivan’s opinion, improving the posture and encouraging lesser sitting time is useful for (a) elderly, in hospitals, senior homes or even at their own homes, (b) chronic disease patients (diabetes, obesity, cardiac conditions) to ensure they get enough exercise and activity, and (c) recovering patients, from physical rehab or acute procedures.
- **Target End-User:** Elderly, recovering patients (hospitals / home health agencies), chronic condition patients (insurers, disease prevention programs)

WEBLINK: https://bit.ly/2L8UVBC

Digital Map to Monitor Users' Health – May 29, 2018

Applicable Product Categories: Smart Home Devices

Technologies	Sensors, AI	**Therapeutic Areas**	All, including healthy populations
Applications	Data Analytics, Software solutions, IoMT	**Geographic Focus**	China
Segment Focus	Consumer	**Topics (News type)**	Care Delivery Innovation, Business Model
Companies	iCarbonX	**Others**	NA

ANALYST TAKE:

- **Synopsis:** Chinese unicorn ($1 bn valuation, touted as the Google of biotech) iCarbonX has developed a digital map for every individual (1+ mn and counting) using DNA and urine samples. Ongoing health data collection in return for a subscription enables users to monitor health and detect diseases earlier.
- **Industry Need:** A single shop for monitoring health regularly (even daily) to detect diseases earlier is lacking in the industry.
- **Value Proposition:** iCarbonX leverages AI and aims to serve as a one-stop shop for all health and wellness needs, going as far as developing an alliance of all digital health startups This is unheard of the industry, especially also because of the scale of data collection it has already achieved and continues to gather. The reason this news is included here, is because of the company's plan to collect health data from subscriber's homes, using 'smart toilets' to analyze urine, smart toothbrushes for analyzing saliva and smart mirrors for analyzing skin. While Japanese toilet maker TOTO has toyed with the idea of smart toilets for a long time, even building a prototype, no commercial product exists yet. Target users currently include Chinese consumers.

WEBLINK: https://bit.ly/2LNROjz, https://bit.ly/2xxgBFx, https://www.icarbonx.com/en/