
Prisme Forum:
“AI in a Bio-Pharmaceutical Company”
A non-technology point of view...

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Vice President, Otsuka Information Technology
16 November 2017



An Unmet Need

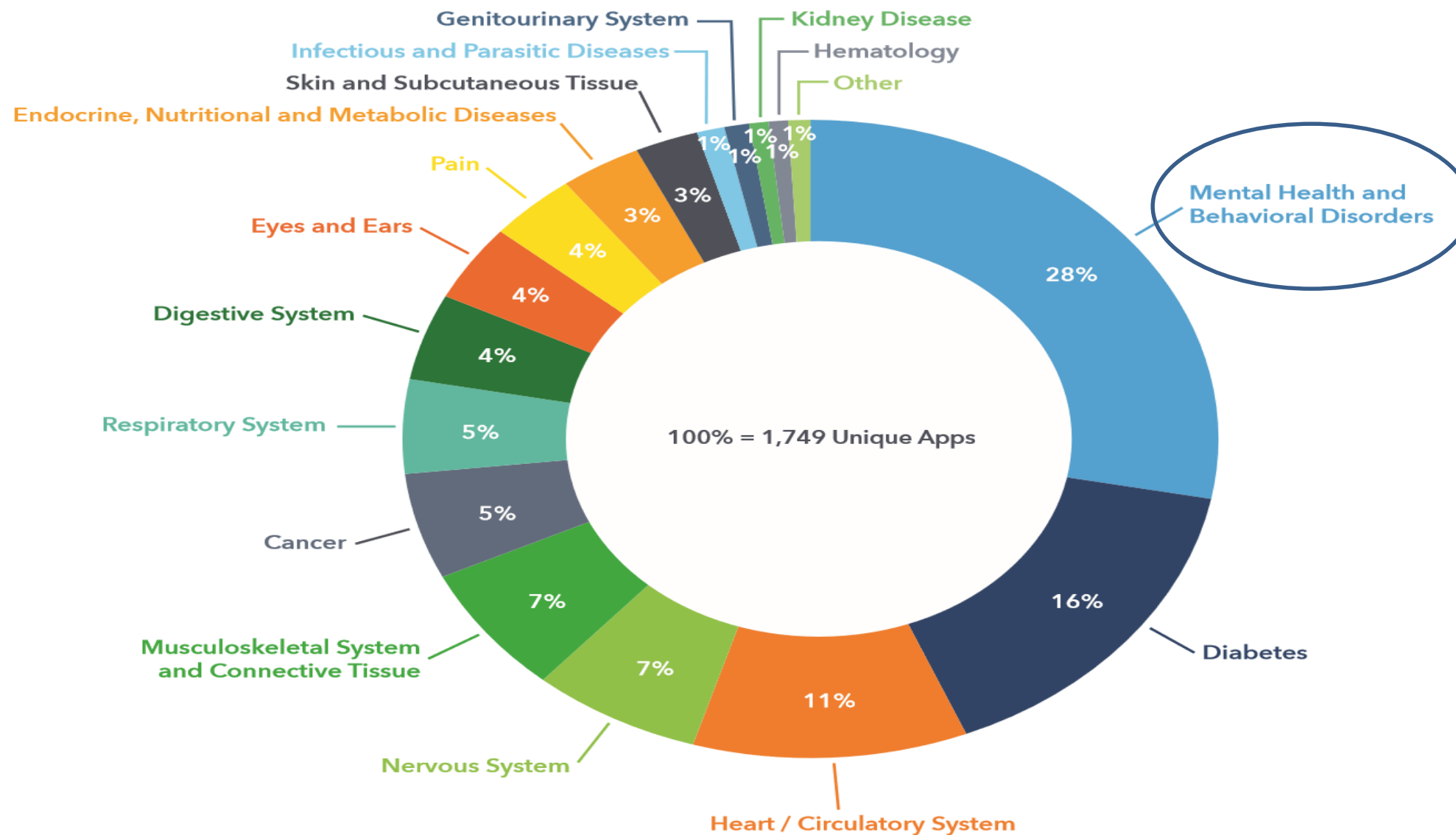
Accurate Diagnosis and Adherence Is A Problem





**Yet We Have
The Technology**

Moving Beyond the Pill: Disease Specific Apps by Therapeutic Area



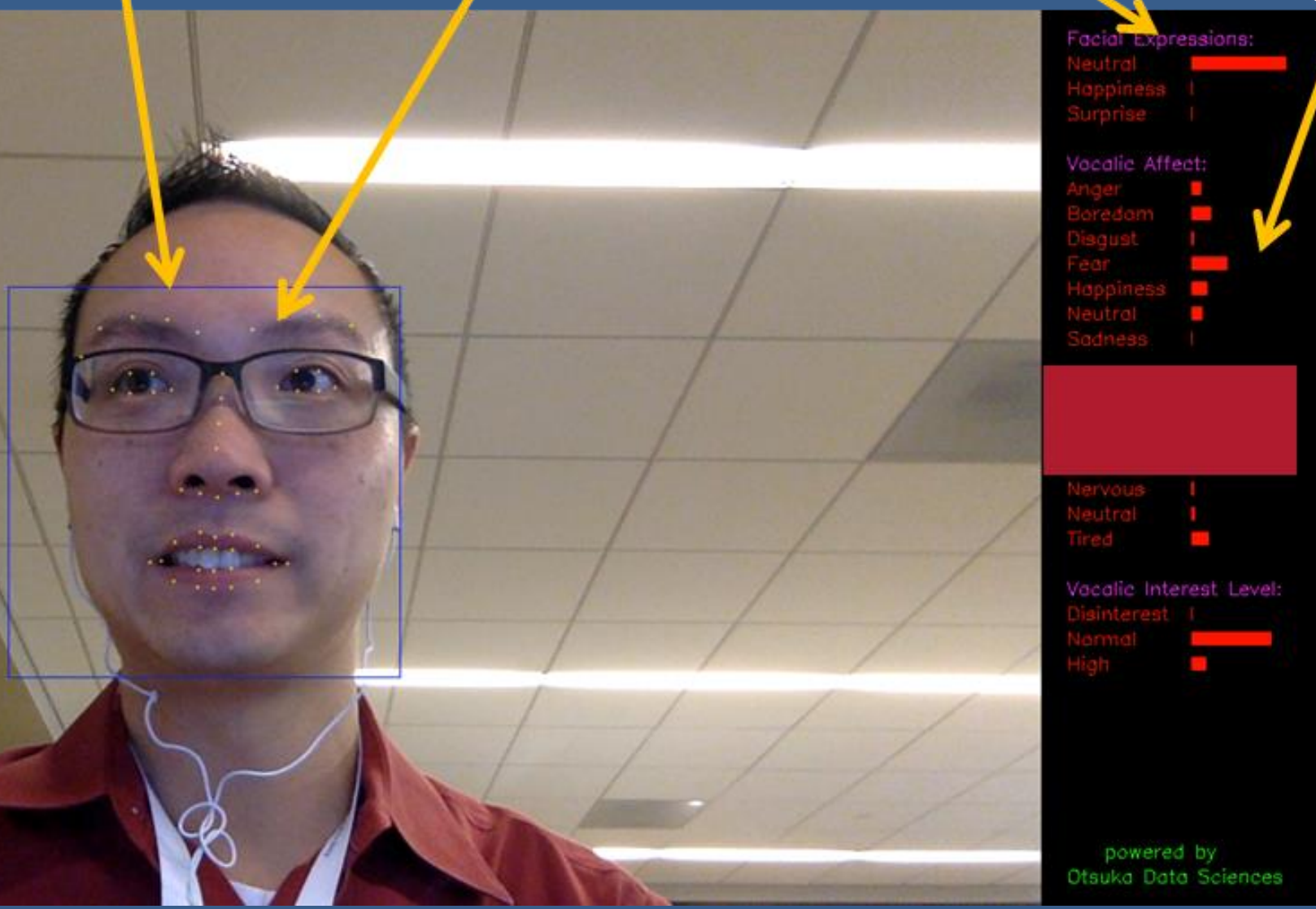
...AI is on Our Doorstep

Face Detection

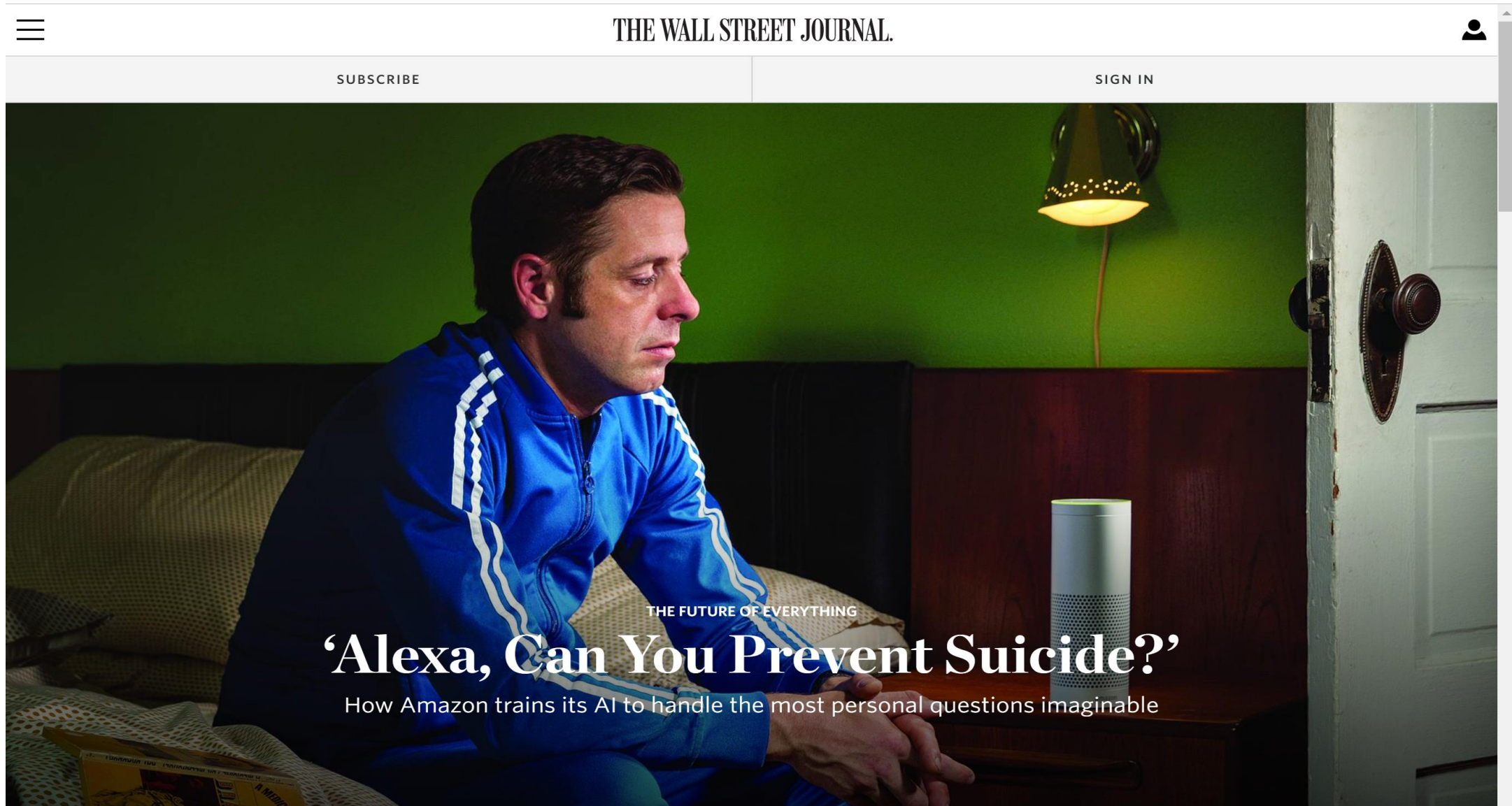
Face Landmarking

Facial Expression Analysis

Vocalics Analysis



We are only at the start of this journey...



Where is pharma?

≡ FORTUNE

Amazon's Alexa Will Soon Be Able to Detect How You Feel



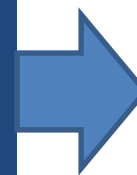
Amazon's Alexa Will Soon Be Able to Detect How You Feel



Search of Clinicaltrials.gov
"Artificial Intelligence:

Results - 32 Studies

- Sponsor = Pharma – 0
 - Sponsor = Academic/Medical Institutions – 31
 - Sponsor = Start up/Health = 1
- Where?
- US Studies – 14
 - Non US Studies – 18



Do we have ...

The right talent

The right process

The right technology

Are we really ready for AI?



No - The Clinical Trial Process is Broken...

...Think Foundational - and Paperless



Continuous Evaluation User Experience, Patch performance, Tolerability,
adhesive performance, IEM Performance for 16-20 weeks

Week 0-2

Clinical Study: Subjects are provided with **prototype (eg, pre-V1.0)** for evaluation..

After Week 2: User Feedback on system application provided back to technology (IT) group based on user questionnaires and continuous monitoring of user experience data

Week 2-4

Clinical Study: Subjects continue with **prototype**, and **safety and user experience data will continue to be collected**

IT uses this time to develop the new version (ie, V1.0) and uses this time for bench testing or other mechanism to iterate technology

Week 4-6

Clinical Study: Subjects are Provided with **V1.0** for evaluation.

User Feedback on Application provided back to IT group after Week 4 Questionnaire and also continuous monitoring of user experience data

Week 6-8

In the Clinical Study: Subjects continue with **V1.0**, and **Safety and User Experience Data will continue to be collected**

IT uses this time to develop the new version (ie, **V1.1**) and uses this time for bench testing or other mechanism to iterate technology

Week 8-16

Repeat Iterations every 2 weeks*

Week 16-20

Follow up

...Think Different & Iteratively

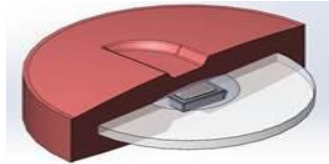
**Evaluation time period of every 2 weeks is a place holder; Will be modified based on the development turnaround time from IT.*

...THINK INTEGRATION

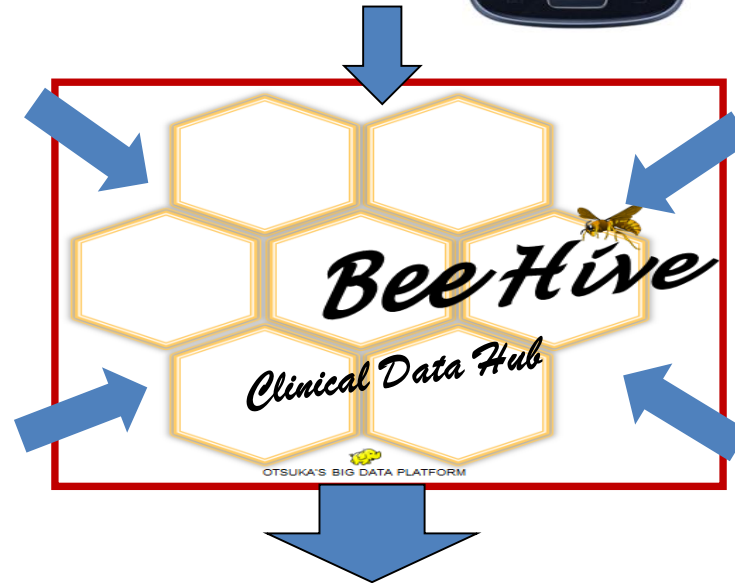
...THINK REAL TIME



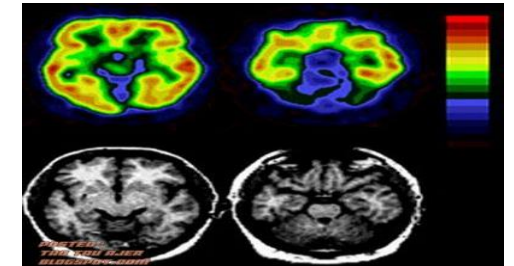
Ingestible Sensor Data



Wearable Data



Imaging Data



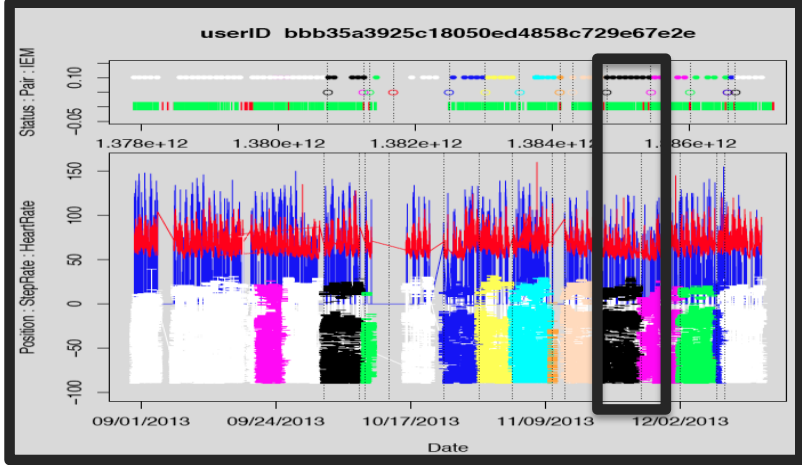
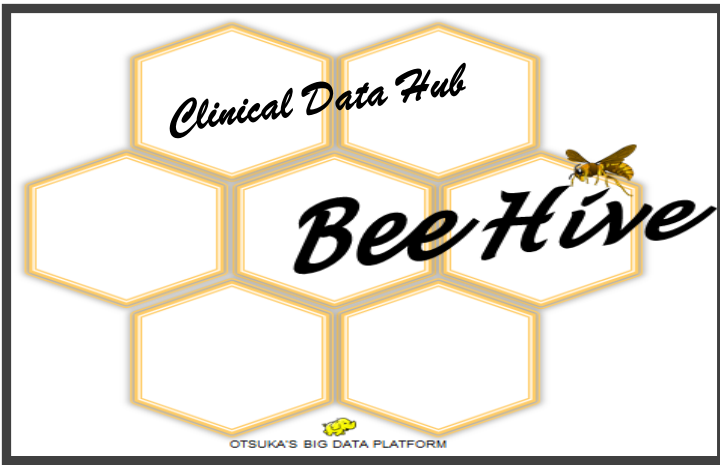
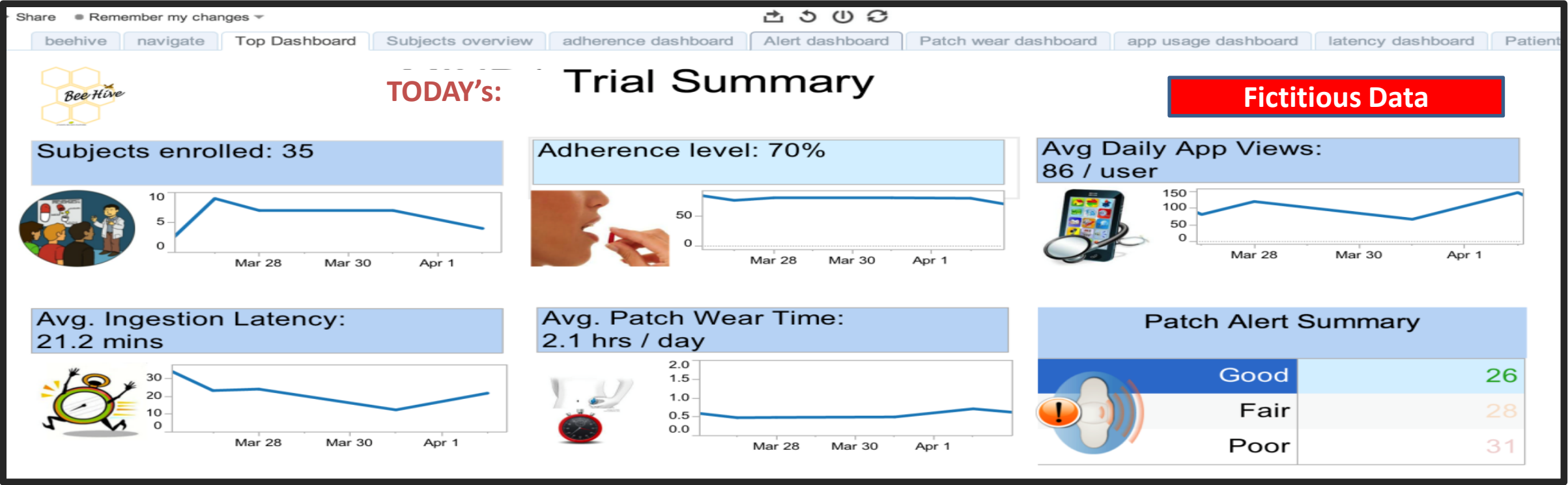
Call Center Data



App Data

Provide visualization in real/near time to an evolving list of stakeholders; patients, caregivers, social workers, nursing homes

... Think Visualization



... Think New Competitors, Agility and Speed

...Last 30 days

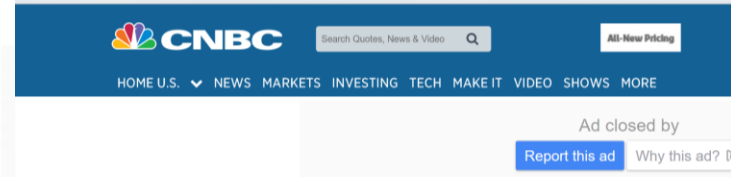
Pharma & Healthcare / #BigBusiness

Amazon Is About To Disrupt The Drug Industry, But Not The Way Most Think



Steve Brozak, CONTRIBUTOR
FULL BIO

It's now a foregone conclusion that Amazon.com will enter the healthcare sector. Every day there is another article on how Amazon is planning to dominate some new corner of the American economy. One day Amazon is taking down Grainger and Home Depot. The next it's single-handedly taking down not only FedEx, but also UPS and the United States Postal Service. No sector seems safe as Amazon sails its ship into new waters. But those expecting Amazon to cannon ball into healthcare may need to bide their time.



TECH

Apple explored buying a medical-clinic start-up as part of a bigger push into health care

- Apple's health team was until recently deep in talks to buy Crossover Health, the venture-backed start-up that runs its on-site medical clinic.
- It's not clear if Apple wanted to own and operate a network of health clinics, like its retail stores, or simply partner to sell products with a health-related angle, like the Apple Watch

Christina Farr | @chrissyfarr

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Nokia focuses on patent, brand and technology licensing and targets faster growth in digital health with sharpened strategy for Nokia Technologies

Science 37 concludes its first fully virtual clinical trial

By Dave Muoio | October 24, 2017

Los Angeles-based research company Science 37 announced the completion of a clinical study for **AOBione Therapeutics** conducted entirely through a smartphone app.

The Phase 2b study ran on the back of Science 37's mobile Network Oriented Research Assistant (NORA) platform, which allows for real-time video chat, customized self-photography models, data collection, and electronic consent. Science 37 Co-founder and CEO Dr. Noah Craft said that this study marks the first time an interventional, randomized, placebo-controlled trial of this kind has been conducted completely in the virtual space.

"Over the last three years we have had great success using our 'Metasite' approach to complete portions of larger trials; this is the first time we have run an entire trial virtually from start to finish," Craft, who was also the study's principal investigator, said in a



Medgadget Joins the Verily Baseline Project Study, Part 1: The First Visit

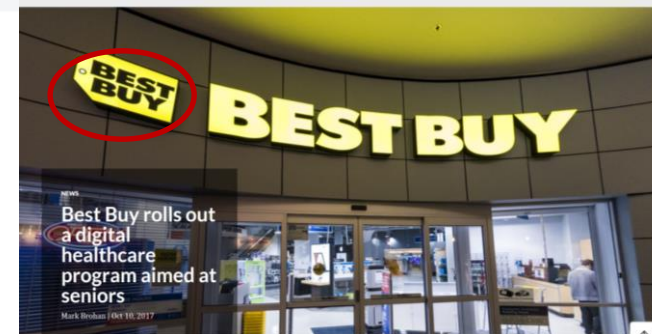
OCTOBER 18TH 2017 | SCOTT JUNG | EXCLUSIVE MEDICINE, NET NEWS, SPORTS MEDICINE

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Project Baseline

Over the past few years, just about all the major tech giants have shown significant interest in health. It's basically now a necessity for smartphones and smartwatches to contain sensors, apps, and other features to monitor your health and fitness. And many of these companies are partnering with research institutions to analyze and mine user data for insights about our bodies, such as Apple's and Stanford's recently announced study to use Apple Watch data to identify cardiac arrhythmias.

One of the other notable studies uses technology from Verily (Alphabet's life sciences division) and medical expertise from Stanford and Duke universities to learn what the "normal" measures of health are for a population and how genetics, lifestyle choices, and other factors affect these measures of health. It's called the Baseline Study, and it's a four year study of 10,000 subjects all over the United States utilizing both smartphone-based devices and old-fashioned in-clinic medical tests.



Best Buy rolls out a digital healthcare program aimed at seniors

Mark Brubaker | Oct 18, 2017

Microsoft's Life Sciences Push Continues With Parexel Partnership

By Pedro Hernandez | October 25, 2017
0 comments

Parexel International will use Microsoft Azure to accelerate clinical trials and enhance patient engagement.



Microsoft and Parexel International, a biopharmaceutical services company, have partnered to create cloud-based services aimed at helping pharmaceutical firms speed up the delivery of new drugs and therapies.

Under the terms of the alliance, Microsoft Azure becomes Parexel's preferred cloud platform, similar to Adobe's Redmond, Wash. software giant has struck with Adobe and SAP SuccessFactors. Microsoft and Parexel are also collaborating on cloud services and technologies that help life sciences organizations conduct clinical research and expand market access.

Together, Microsoft and Parexel will explore ways of helping the industry advance the field of precision medicine. They also plan on building systems that promote making clinical trials participation more accessible and improve patient engagement, the two companies said in an Oct. 24 announcement.



Google is putting its massive amount of health and disease data to use

- Google's News Lab works with designers and artists to visualize its search data.
- The lab unveiled a new tool to help journalists and researchers understand how searches for health information correlate with actual incidences of disease.

Christina Farr | @chrissyfarr
Published 4:22 PM ET Mon, 2 Oct 2017

CNBC



Images | Justin Sullivan



Home Health Technology News

GOVERNMENT PAYERS PROVIDERS VENDORS GENERAL NEWS ALSO NOTED PRODUCTS

ON THE EDITOR'S DESK



YOU ARE HERE: HOME / VENDORS / INTEL LAUNCHES PLATFORM FOR REMOTE CARE

Intel launches platform for remote care

OCTOBER 24, 2017 BY KATHY DION — LEAVE A COMMENT

"It's time to go for it"
SANTA CLARA, Calif. — Intel has rolled out a Health Application Platform that eliminates the need for patients and caregivers to use tablets in their home and gives remote care providers the ability to control their data.

The HAP is an Internet of Things compute engine with an intelligent, connected edge device that provides wireless connectivity to peripheral devices like blood pressure and glucose monitors, pulse oximeters, and weight scales. Once configured by the provider, it works right out of the box—all a patient or caregiver

THANK
You!