



**ORACLE**  
Health Sciences

# Oracle mHealth

## Enabling Digital Clinical Trials at Scale

**CDISC UK**

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5 July 18

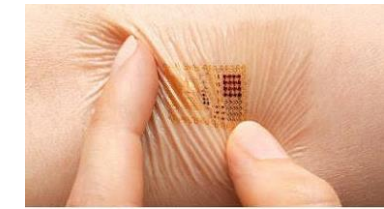
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# Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

# Connected Lives – Fitness, Wearables, Medical Devices, Sensors....

*How can we embrace such technology in Clinical Trials?*



# On the Road to Change with Technical innovation

**IMPACT**  
**INNOVATION**  
**mHEALTH**  
**BIG DATA**

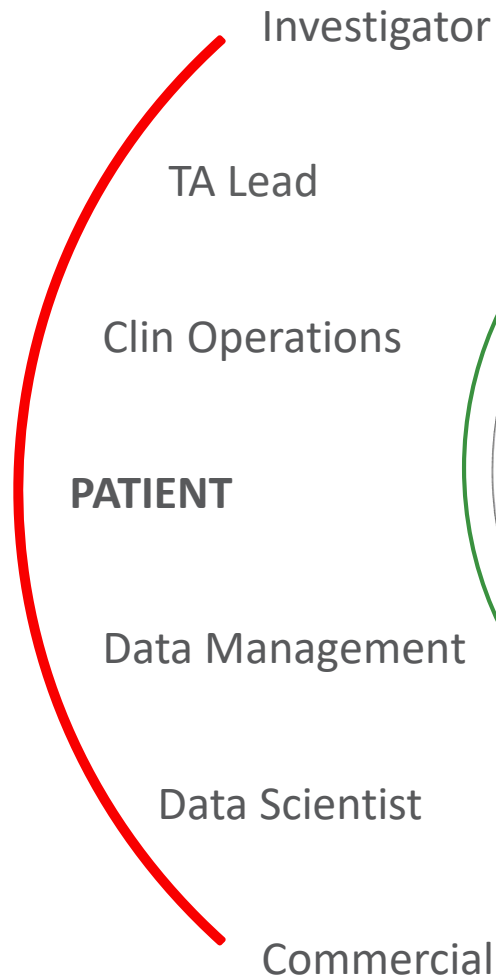
PATIENT ENGAGEMENT  
MOBILE APPS  
TELEMEDICINE  
RWD/RWE  
EHR  
CLINICAL AS CARE  
ARTIFICIAL INTELLIGENCE  
WEARABLES  
ePRO  
PATIENT DIARIES  
VOICE RESPONSE  
SITELESS TRIALS  
MACHINE LEARNING  
VIRTUAL VISITS  
eSOURCE  
SOCIAL MEDIA



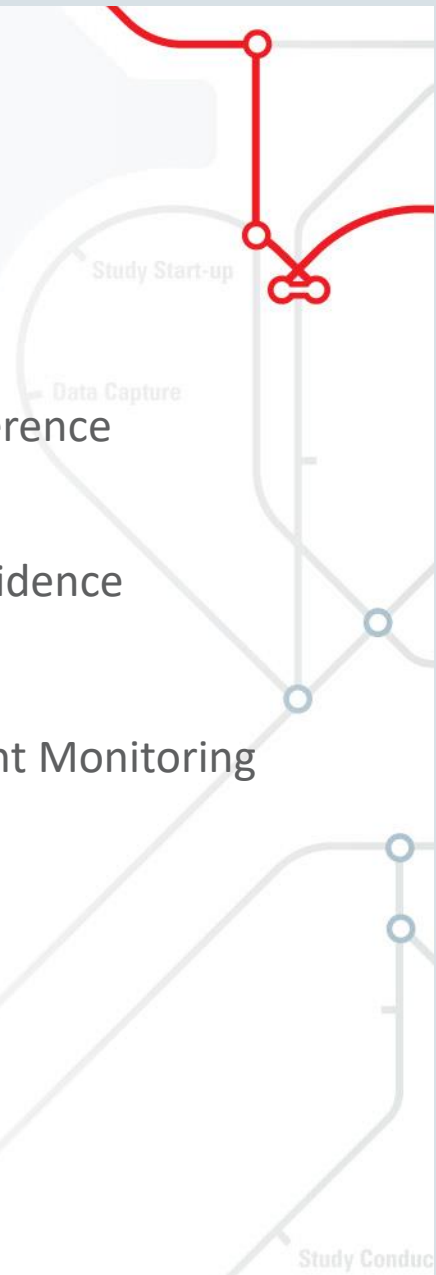


# Digital Clinical Trials - *Agility & Flexibility* NOW

Demanding Internal/External Stakeholders



- 1 Medication Adherence
- 2 Real World Evidence
- 3 Remote Patient Monitoring
- 4 *Siteless* Trial
- 5 Digital Therapy





# Oracle Technology supporting the Fastest Car on the Planet

## *Bloodhound SSC – Supersonic Car*

350+  
Sensors

500+ readings  
per sec/sensor

1 million+  
readings per test



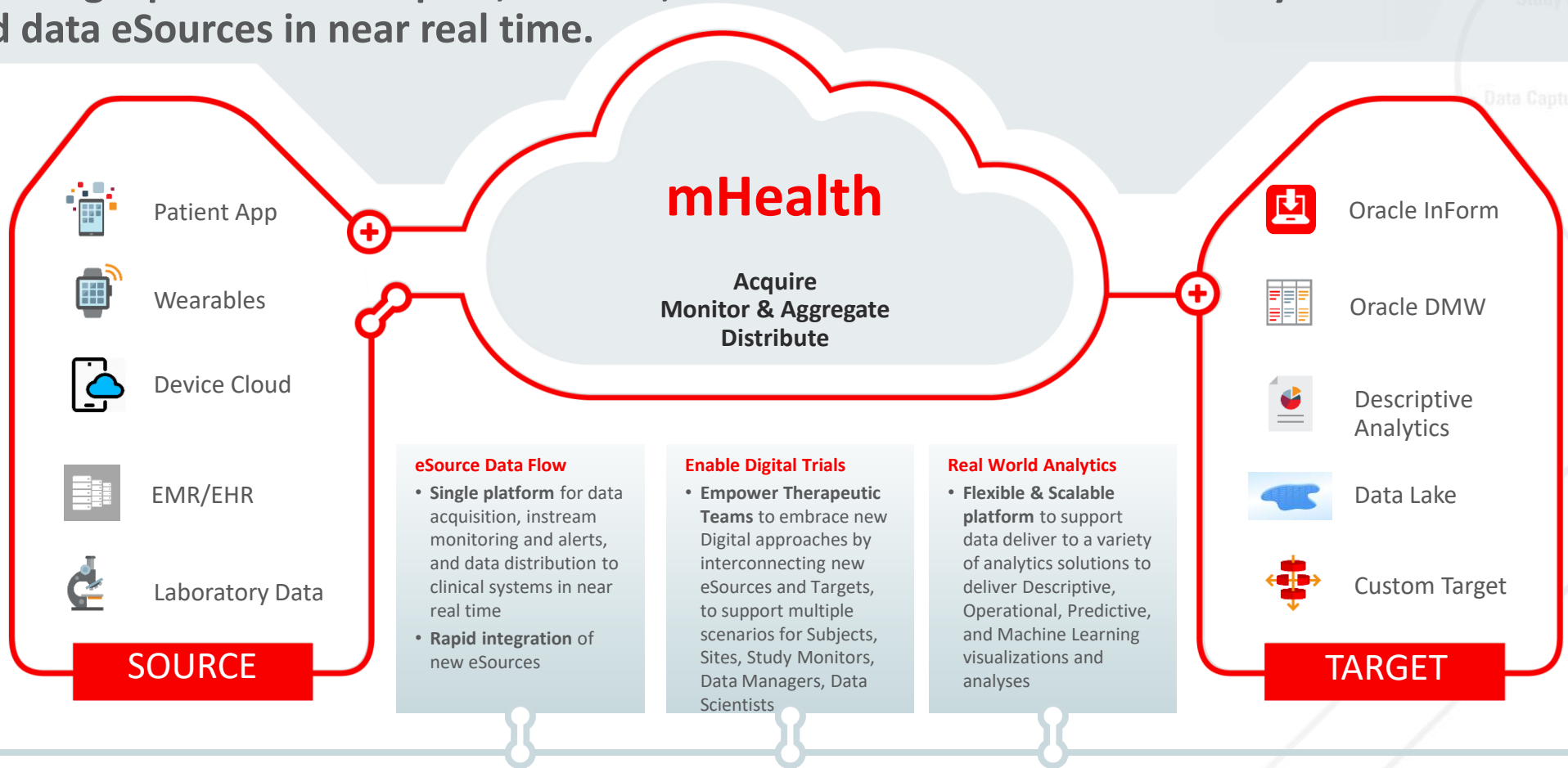
# POWERING THE 1000MPH CAR WITH DATA

ORACLE



# mHealth / Digital Data Collection

Oracle Health Sciences **mHealth Connector** enables you to embrace digital clinical trials, via a single platform to acquire, monitor, and distribute data from a variety of real world data eSources in near real time.





# Digital Trials – Full Speed Ahead...

Oracle Health Sciences **mHealth Connector** enables you to embrace digital clinical trials, via a single platform to acquire, monitor, and distribute data from a variety of real world data eSources in near real time.

# Empowered Therapeutic Teams



- eSource Data Flow**
  - Single platform for data acquisition, instream monitoring and alerts, and data distribution to clinical systems in near real time
  - Rapid integration of new eSources
- Enable Digital Trials**
  - Empower Therapeutic Teams to embrace new Digital approaches by interconnecting new eSources and Targets, to support multiple scenarios for Subjects, Sites, Study Monitors, Data Managers, Data Scientists
- Real World Analytics**
  - Flexible & Scalable platform to support data deliver to a variety of analytics solutions to deliver Descriptive, Operational, Predictive, and Machine Learning visualizations and analyses

## Key Benefits





# *Traditional vs Data Science* Centric Data Management

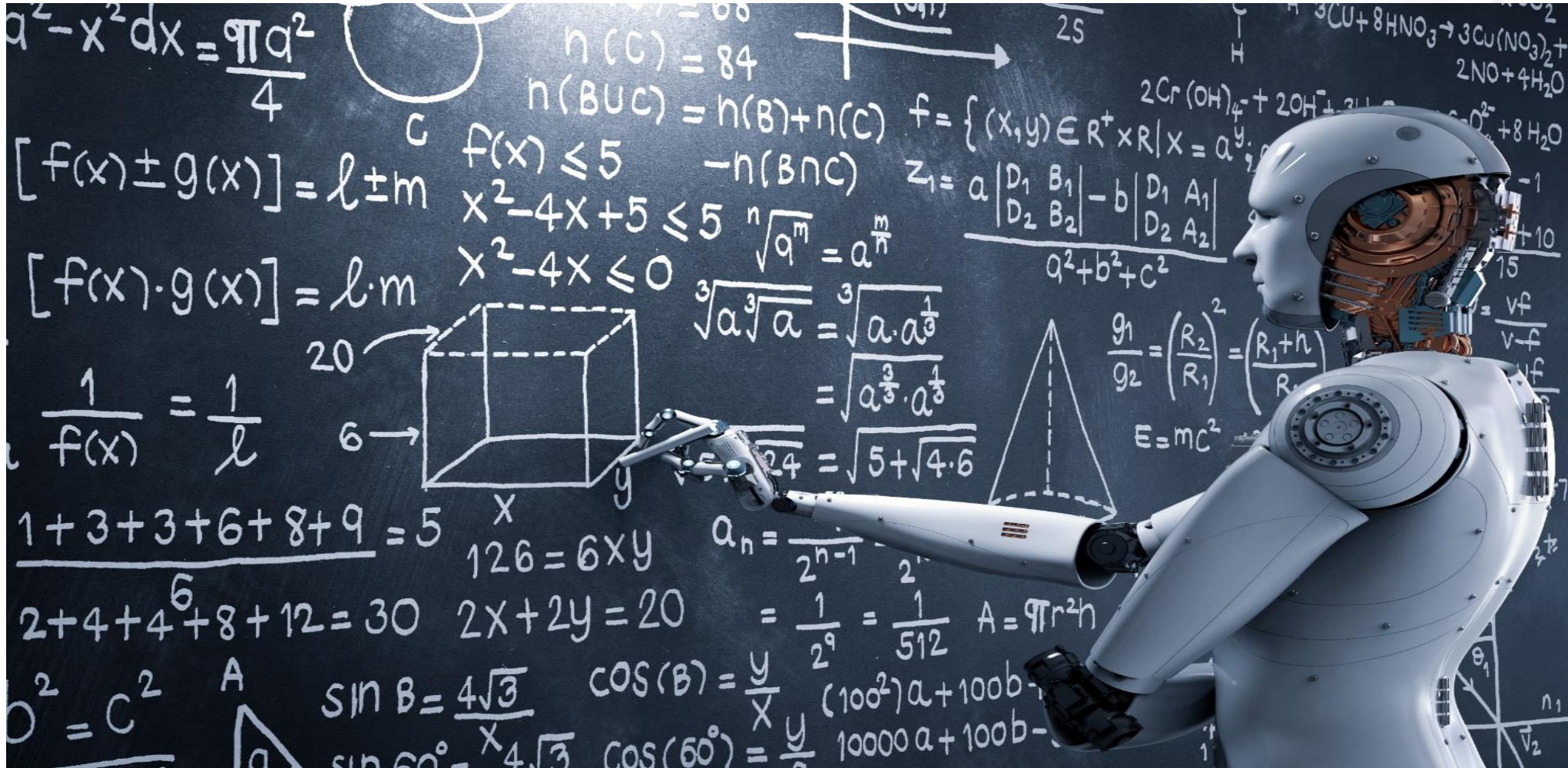
## Traditional

- ▶ Curation
  - Collect
  - Clean
  - Repair
  - Transform
  - Handoff

## Data Science

- ▶ Insight, Now!
  - Acquire
  - Monitor
  - Explore
  - Adapt
  - Learn

# Three Enabling Technologies....



# ACQUIRE – *Internet of Things*

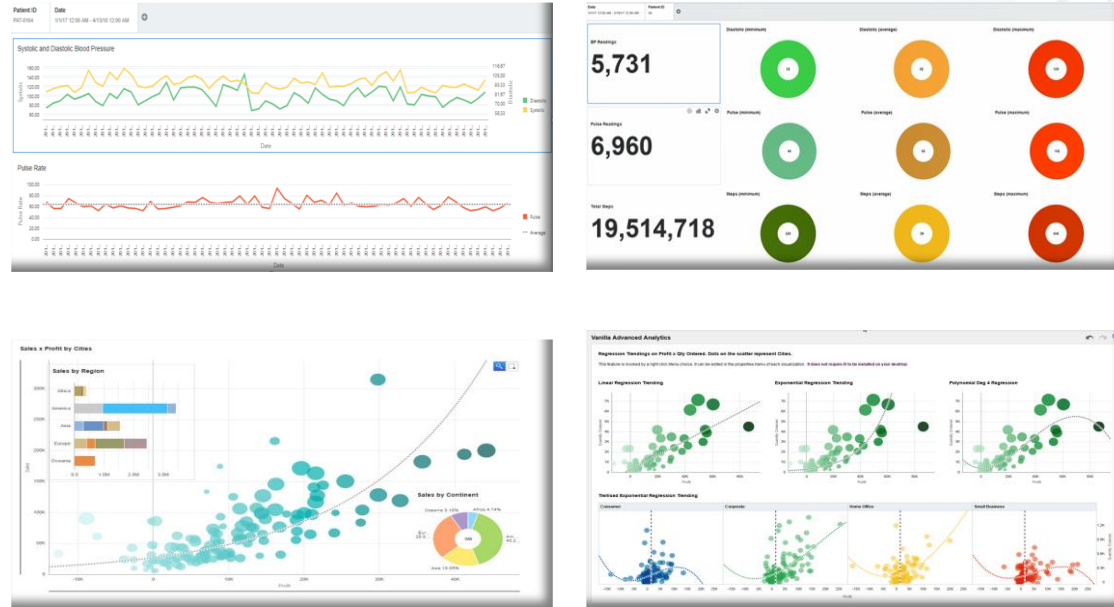
- ▶ Streaming Data
- ▶ Varied eSources
- ▶ Real Time Insight
- ▶ Real Time Action





# EXPLORE & MONITOR – Integrated Analytics

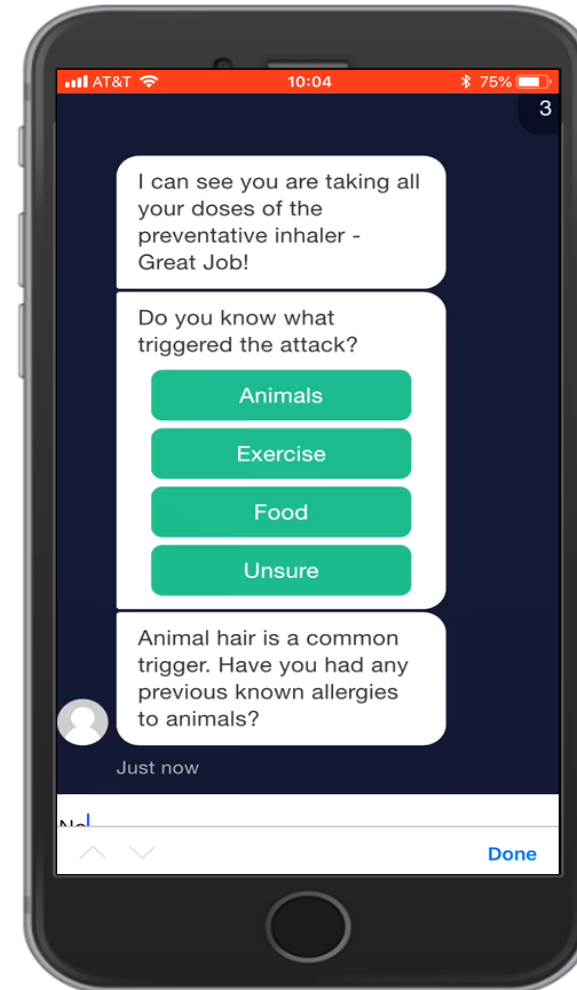
- ▶ Descriptive Analytics
- ▶ Operational Analytics
- ▶ Structured Exploration
- ▶ Unstructured Exploration
- ▶ Mobile Analytics





# ADAPT & LEARN - Machine Learning and AI

- ▶ Pattern & Trend Analysis
- ▶ Prediction
- ▶ Hypothesis Generation
- ▶ Image Analysis
- ▶ Natural Language
- ▶ Chatbot



# Example eSource Collaborations



# Example eSource Providers – Collaborations

**A&D**  
A&D Medical

**NONIN**

**MIR**  
MEDICAL INTERNATIONAL RESEARCH

**Integration: Bluetooth / Mobile App / Apple Health**

**AliveCor®**

**mc10**

**fitbit.**

**VALIDIC**

**ActiGraph.**

**Integration: Vendor Cloud to Oracle mHealth**





KardiaMobile



KardiaBand

## FDA clears AliveCor's Kardiaband as the first medical device accessory for the Apple Watch

Posted Nov 30, 2017 by Sarah Buhr (@sarahbuhr)





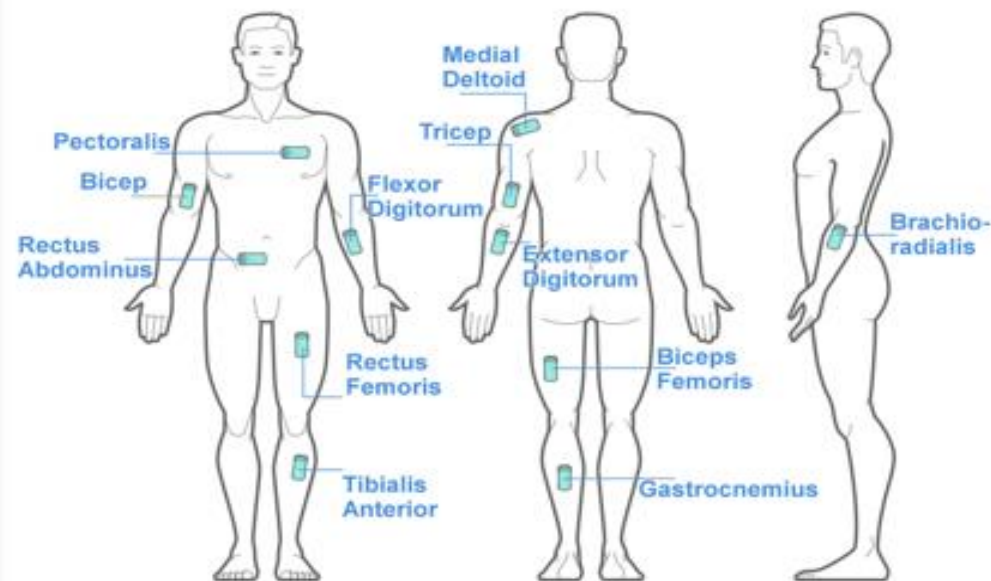
Working with  
**11 out of the top 15 pharma companies**



**PROJECT BLUE SKY**

## World's Most Soft, Comfortable Medical-Grade Wearable Biosensor and Analytic System for Clinical Research

- **Passive Continuous Monitoring**
- **Objective Real-Life Subject Data**
- **In the Clinic and the Home**
- **Strong Clinical Validation and Data**
- **Capture Digital Endpoints, QOL metrics**



Demo Time

*Need Healthy Volunteers*



# Summary





# Let's *Change* Clinical Research Now!



## Data Science

### ► Insight, Now!

- Acquire
- Monitor
- Explore
- Adapt
- Learn



# Additional Information

## mHealth

- [Datasheet](#)
- [YouTube](#)
- [White Paper](#)
- [Oracle.com](#)



**ORACLE Health Sciences**  
Unifying Action, Accelerating Results.

Oracle Health Sciences  
mHealth Connector Cloud Service  
Enabling Digital Trials at Scale

Today, with sensors, wearables, mobile apps, and a array of smart things tracking every aspect of our daily lives, there is a wealth of new ways to generate real world data for clinical trials. But, acquiring data from such a wide variety of eSources and aggregating it for use in clinical trials can be difficult.

**Easy eSource Data Aggregation**  
New eSources, emerging every day, offer a great opportunity to get closer to the patient. Remotely monitoring a patient's vital signs multiple times a day, combined with collecting pain scores via a mobile app, could be the key to identifying new digital biomarkers that could accelerate disease understanding. But, acquiring and aggregating data from disparate eSources can be complex, time consuming, and expensive.  
**What if there was a simple and quick way to include new eSource data?**  
Oracle Health Sciences mHealth Connector Cloud Service empowers therapeutic teams to embrace and integrate new eSources into their clinical trials in a quick and simple manner.

**Data from Anywhere – Just Plug It In**

- If an asthma team finds an amazing new spirometer – just plug it in!
- If the cardiovascular team finds a new ECG device – just plug it in!

**mHealth and the Transformation of Clinical Trials**  
Harnessing data, advanced analytics, and the Internet of Things to optimize digitized clinical trials

ORACLE WHITE PAPER | JUNE 2017



## Analytics

- [Oracle Storage Cloud](#)
- [Oracle Big Data](#)
- [Oracle Analytics](#)



## Bloodhound

- [YouTube](#)



# Integrated Cloud

## Applications & Platform Services

ORACLE®