The Changing Face of Healthcare

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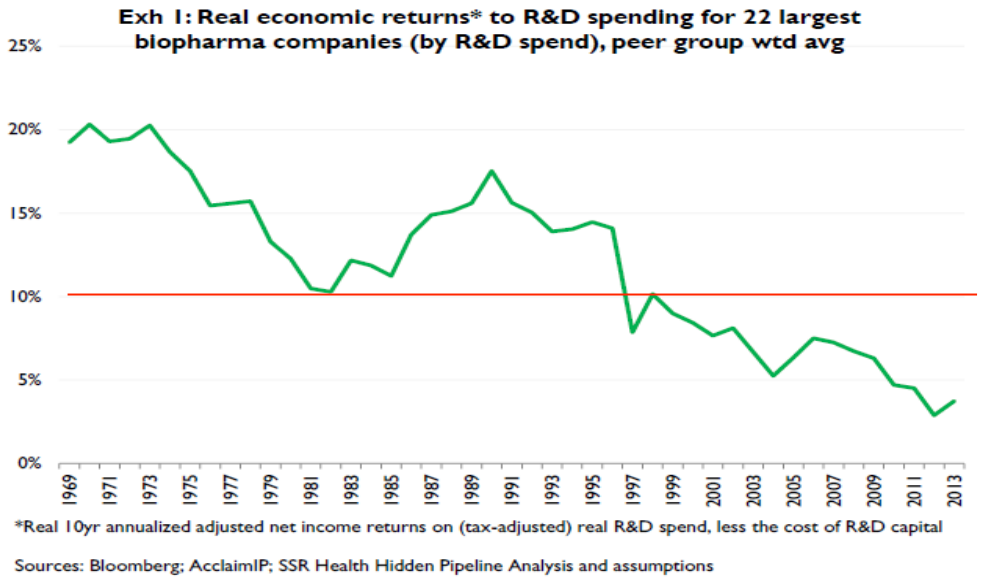
PPD

EXPECT EXCELLENCE

The Financial Pressures

- **Returns on R&D spending are below costs of capital**
  - Big Pharma R&D spending cuts
  - Restructuring/TA rationalization
  - R&D centers & academic partnerships
  - Outsourcing for flexible cost structure



Success rates for phase II have fallen from 28% to 18%, due mostly to insufficient efficacy

The Pressure Cooker

The Pharmaceutical Industry

+ Highly regulated
+ Historically risk averse
+ ‘niche market’
+ Group think

+ Best placed to offer innovation?

Fast moving consumer goods

- Increasing number of 'non traditional' players seeking to enter the Health Care market……
  - Apple/Google/Samsung
  - Nike/Unilever/Colgate/L'Oreal
  - Qualcomm/Microsoft/IBM
  - and more
- Mass market, customer centric
- Innovative
- Whole new perspectives

Which adds to the pressure!!

Shift from curative to prevantative

Information management

Patient Scrutiny

New entrants coming into Healthcare system

More risk averseness

Increased demand for data

Socio Economics & behavioural influences

Aging population

More Data, More platforms, security&privacy?

Fast pace of technological change

Rising awareness

Unsustainable healthcare costs

Digitisation and innovative technologies

Falling R&D returns

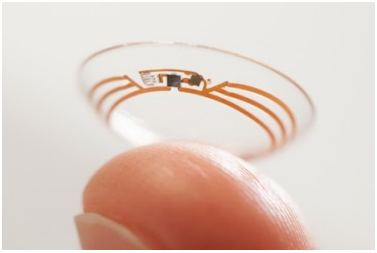
Precision Medicine

Driving partnerships

+ Google X - with 'clinical grade sensors'

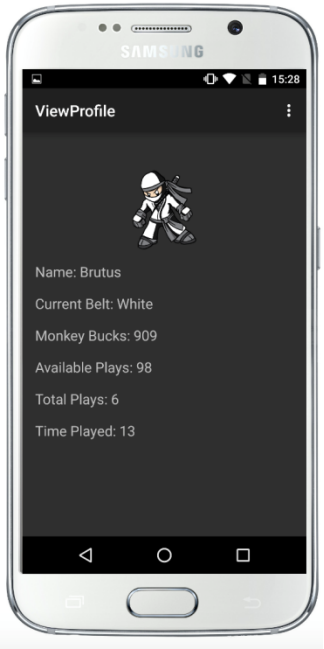
+ Google/Biogen to study MS using wearable sensors

+ Novartis/Google – smart contact lenses



Driving partnerships

+ Bayer / Nintendo – Didget Glucose Monitor



+ Endo's New Ninja App Will Gamify Diabetes Management

+ Qualcomm – 2net Platform

2net™ Hub by Qualcomm Life

In the news daily….

HEADLINES > **CLINICAL DEVELOPMENT**

AA Text size | Print | Forward | 9

New Bracket apps turn patients' smartphones into trial data reporting techs

By Melissa Fassbender, 25-May-2016
Last updated on 25-May-2016 at 16:54 GMT

Bracket said BYOD, which stands for Bring Your Own Device, is the future of clinical trial technology. (Image: iStock/Poike)

Related tags: Patient-reported outcomes, Clinical trials, Technology

Bracket has released several new mobile applications to support Bring Your Own Device, a clinical trial technology which allows patients to report symptoms using a smartphone.

And how much is it worth?

Clinical grade wearables market to reach $18.9bn by 2020

By Melissa Fassbender, 31-May-2016
Last updated on 31-May-2016 at 16:13 GMT

The global healthcare wearable devices market earned revenues of $5.1bn in 2015. (Image: iStock/alexey_boldin)

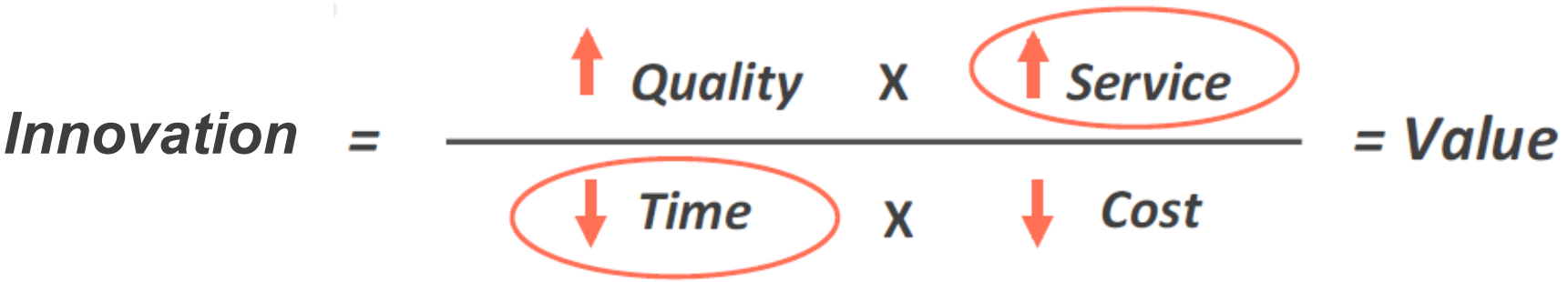
Related tags: Wearables, Technology, Clinical trials, Data

Clinical grade wearables support "*anywhere-anytime*" paradigms, allowing clinical trial participants flexibility and CROs better access to data.

The global healthcare wearable devices market earned revenues of $5.1bn in 2015, according to recent Frost & Sullivan report, which estimated that this number will reach $18.9bn in 2020.

As Outsourcing-Pharma.com previously reported , the widespread adoption of new technologies, such as wearables, will change many aspects of how clinical trials are conducted. This adoption is being driven by government, pharmaceutical companies, and consumers alike.

What is Innovation?



Imagine trials of the future

1. **Protocols and developments plans** are developed and optimized by simulating patient data and trial outcomes using data sources and predictive statistical models and simulations.

2. **Big-Data Sources** are mined to identify patients to join the trial OR data/endpoints to use within the trial OR to actually conduct the trials in their entirety
   - Ongoing connections with "quantified-self" patients OR patient-advocacy groups provides the ability to directly connect patients with trials then investigators/ coordinators through electronic means.

3. **Patient convenience** and protocol compliance are maximized by leveraging
   - Wearable devices/sensors & smartphone/tablet apps
   - eSource including eConsent
   - Local health centers / retail pharmacies
   - Ingestible sensors / facial recognition for medication adherance
   - Telehealth 'facetime/skype' physician interaction or virtual-health (Dr. 'Siri')

   All designed to reduce/remove the burden of site visits/procedures for patients and improve quality/comprehensiveness of data

Imagine trials of the future

4. **Patient data** are continuously uploaded to the 'cloud' and analysed in real-time for CRO/sponsor operational and scientific oversight
   - Data standards and improved technology enable seamless data upload and join respectively
   - Real-time data analysis further enables adaptive trial models to become the norm
   - External 'technology-giant' companies investments drive disruptive commercial opportunity / risk
   - Miniature, patient-side lab testing devices disrupting/displacing central labs

5. **Collaborative / platform trials** with shared investments are common place, as biopharma companies compete on scientific not development strength

What does all of this mean for B&P?

+ Innovations are centred around data collection, monitoring
+ Data and trial complexity continuing to rise

➡ Data and those working with data to be at the centre of our industry

Continued growth, in all regions, at all levels

More career opportunities

A thought to take away, or to discuss:

What about innovations in our field?

Questions