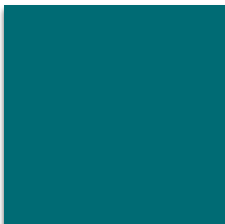
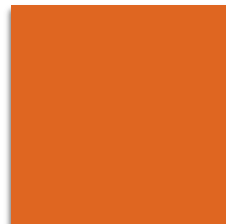
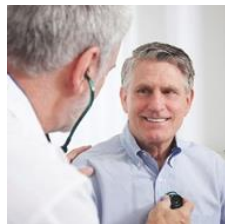


# Digitalisation of the medicines lifecycle: challenges and opportunities



Anthony Rowe  
Data & Knowledge Management SGG



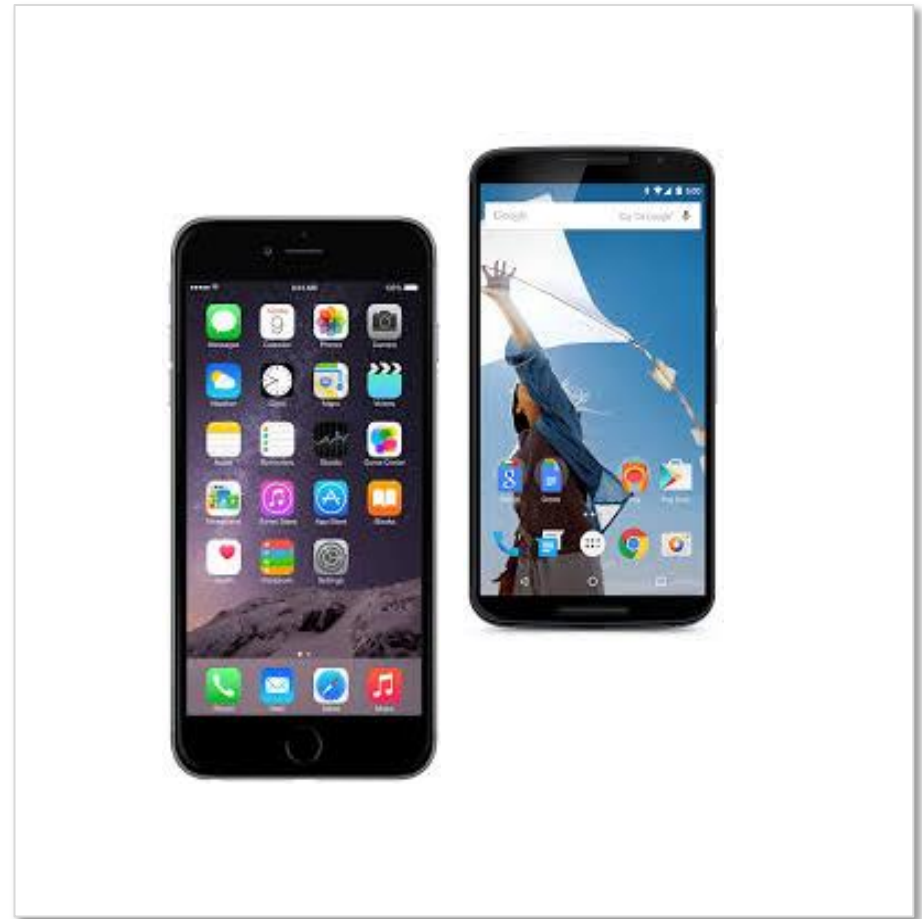
# Three trends in technology today

## \* Ubiquity of the Internet



# Three trends in technology today

- \* Ubiquity of the Internet
- \* Rise of the Post-PC Era



# Three trends in technology today

- \* Ubiquity of the Internet
- \* Rise of the Post-PC Era
- \* The volume of data



# Using Digital Technology for Research

<http://www.parkinsonsvoice.org/>

- \* A voice based study for Parkinson's disease
- \* Create a database 10,000 recordings to build digital biomarkers of PD
- \* *Accessible to 750,000,000 individuals*

	Neurologist Voice test	
Non-invasive	✓	✓
Existing infrastructure	✓	✓
Accurate	✓	✓
Remote		✓
Non-expert		✓
High-speed		✓
Ultra low-cost		✓
Scalable		✓

A test for Parkinson's with a phone call  
Max Little, TEDGlobal 2012

**HOW HAS THE IMI  
RESPONDED?**

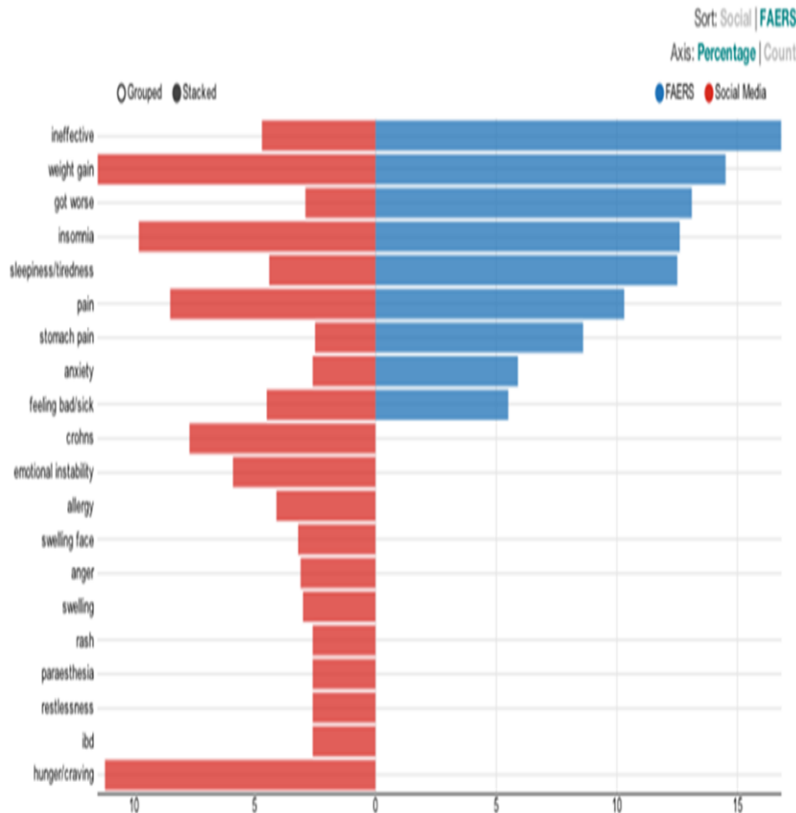
# WEB-RADR: Mobile and Social Technology for Pharmacovigilance

prednisone

Date Range: Sep 1, 2013 - Oct 31, 2013 | Sources: Twitter Facebook MedWatcher Forums | MedDRA Class: All

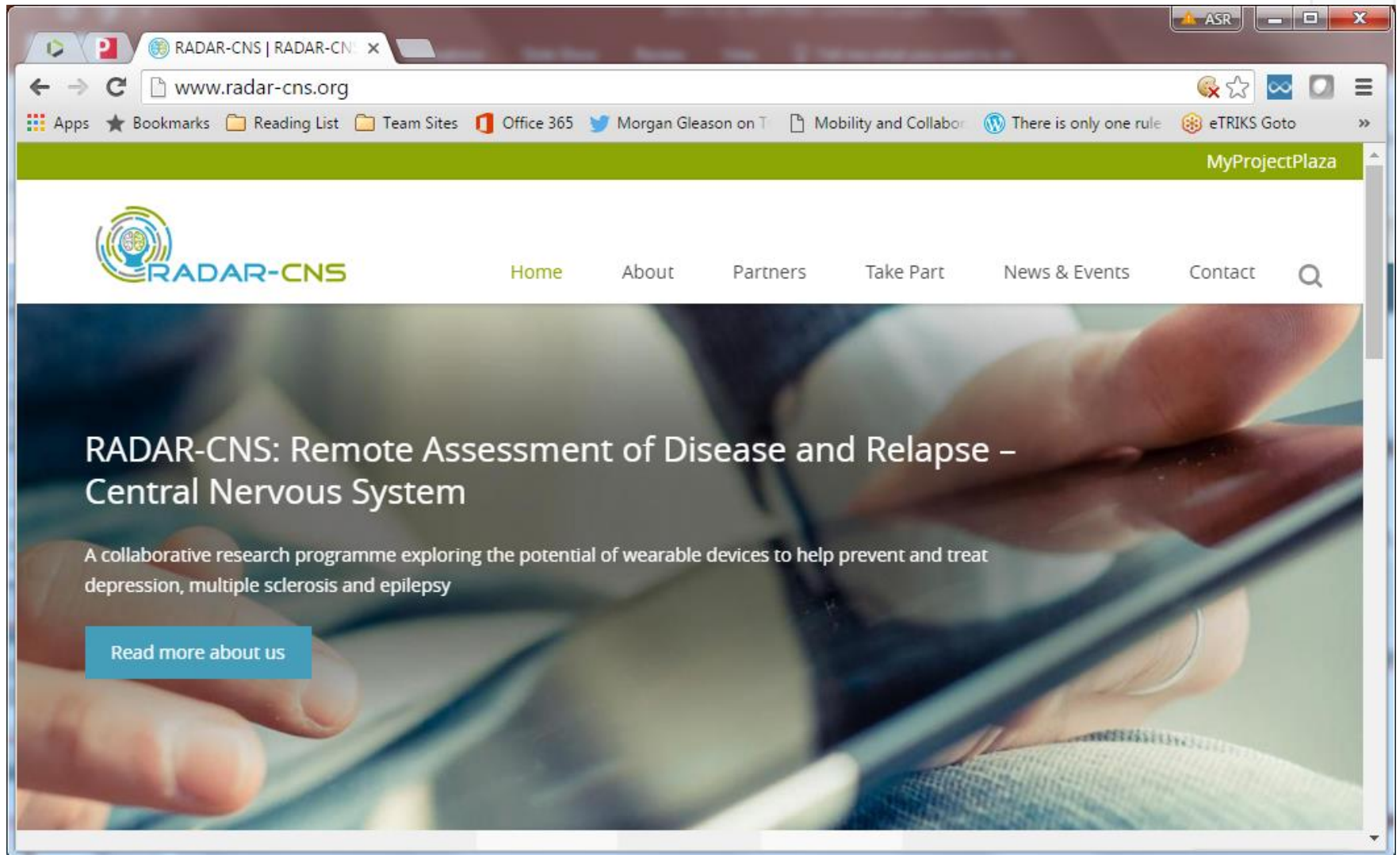


Social Media vs. FAERS



- English, French and German or Spanish language analysed
- Consortium keen for global applicability
- What else can social media tell us
  - Abuse?
  - Misuse?
  - Counterfeit?
- Geo pharmacovigilance a possibility?

# RADAR-CNS: Remote Assessment for Disease and Relapse



The image shows a screenshot of a web browser displaying the homepage of the RADAR-CNS website. The browser's address bar shows the URL [www.radar-cns.org](http://www.radar-cns.org). The website features a green header with the RADAR-CNS logo on the left and a navigation menu with links for Home, About, Partners, Take Part, News & Events, and Contact on the right. Below the navigation menu is a large hero section with a background image of hands holding a smartphone. The text in the hero section reads: "RADAR-CNS: Remote Assessment of Disease and Relapse – Central Nervous System" followed by a sub-headline: "A collaborative research programme exploring the potential of wearable devices to help prevent and treat depression, multiple sclerosis and epilepsy". A blue button with the text "Read more about us" is positioned in the lower-left corner of the hero section.



# Use of Real World Data



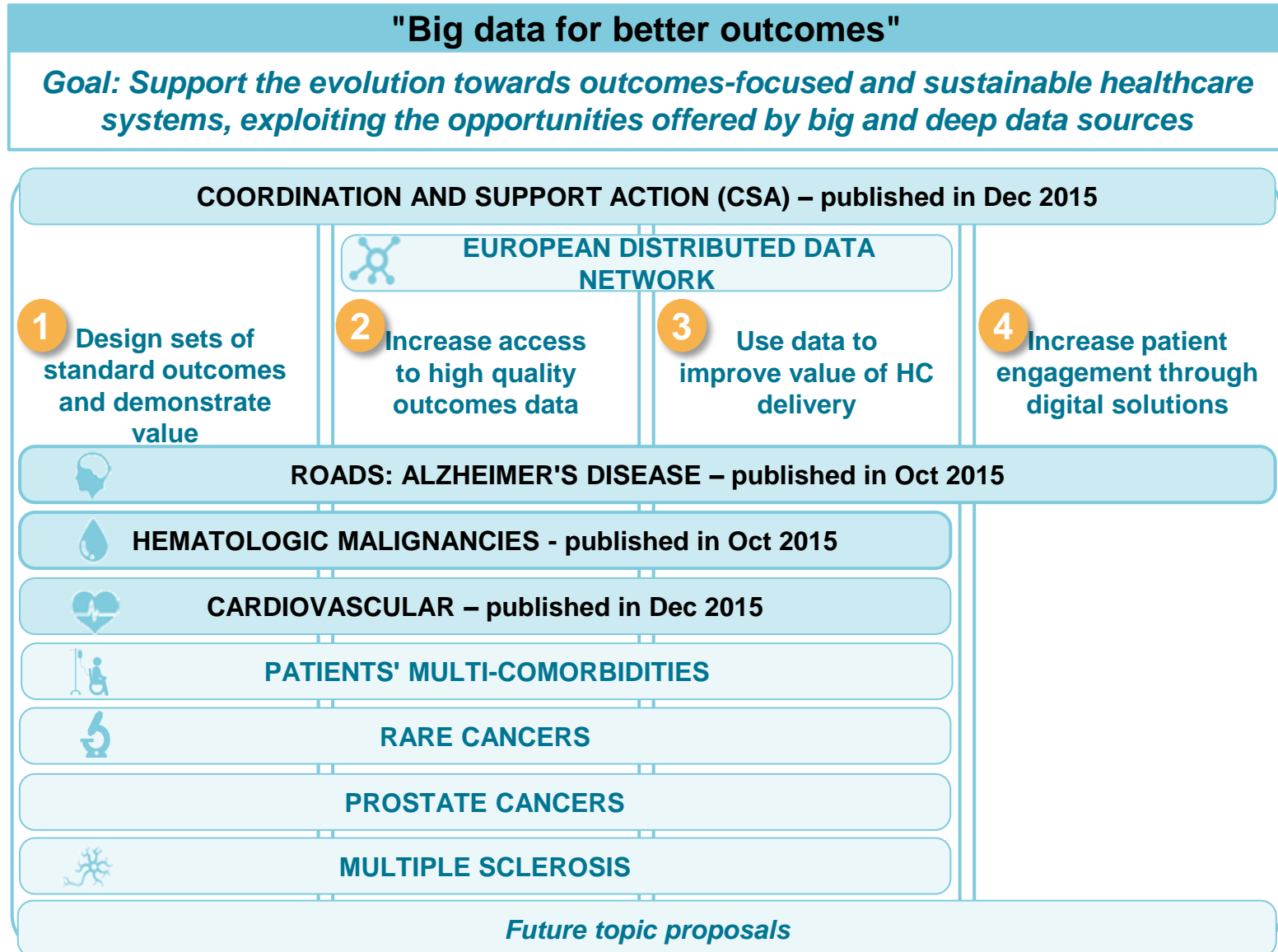
Big Data for Better Outcomes

European Medical Informatics Framework

Electronic Health Records for Clinical Research



# The Big Data for Better Outcomes programme at a glance



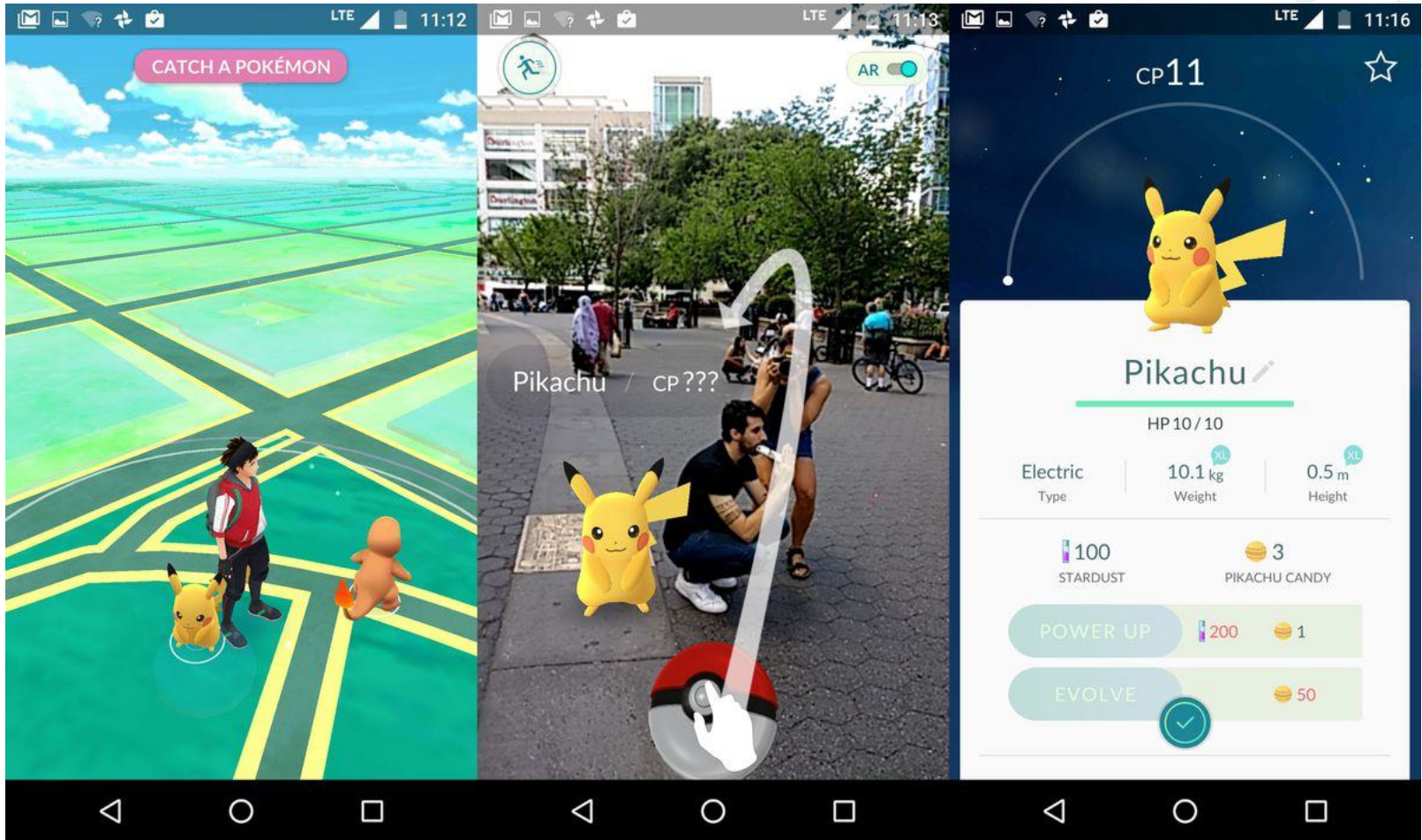
# Enabling Precision Medicine across the IMI



- 40 Supported Public Private Partnerships
- 9 Open Source tools for the analysis of Omics data
- 350 Researchers trained in eTRIKS technology
- 58 Publically available data sets



# Is it a Game, Is it Healthcare



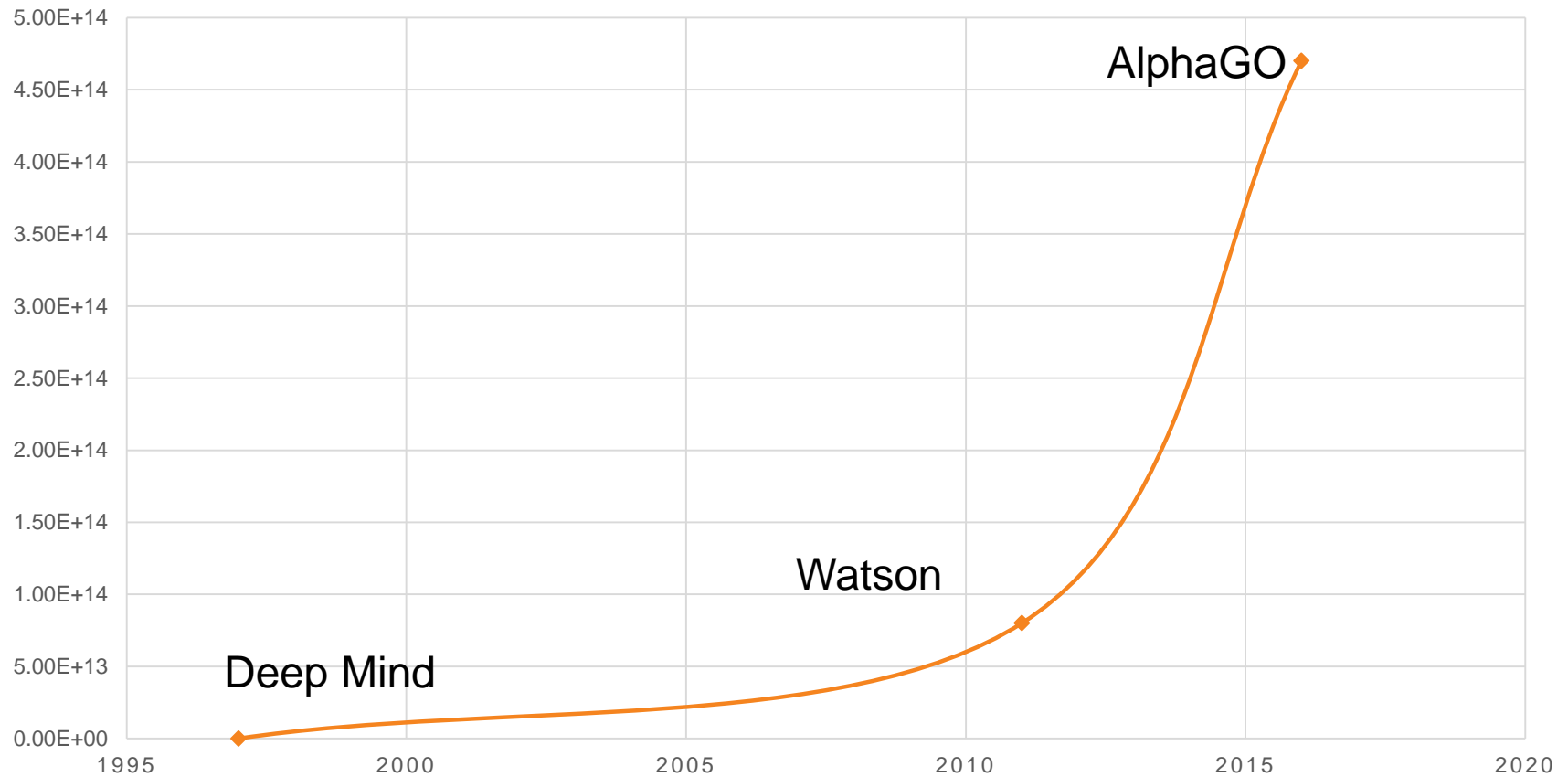
# AI Breakthroughs: Jeopardy and Go...

- \* 1997 – IBM's Deep Blue beats top ranked Chess Champion
- \* 2011 – IBM's Watson wins Jeopardy
- \* 2016 – Google DeepMind's AlphaGo Beats 9<sup>th</sup> Dan Go Champion
- \* AI & Machine Learning is having a renaissance – how can we safely and ethically use this in the future of medicine

# Underlying Computing Trends



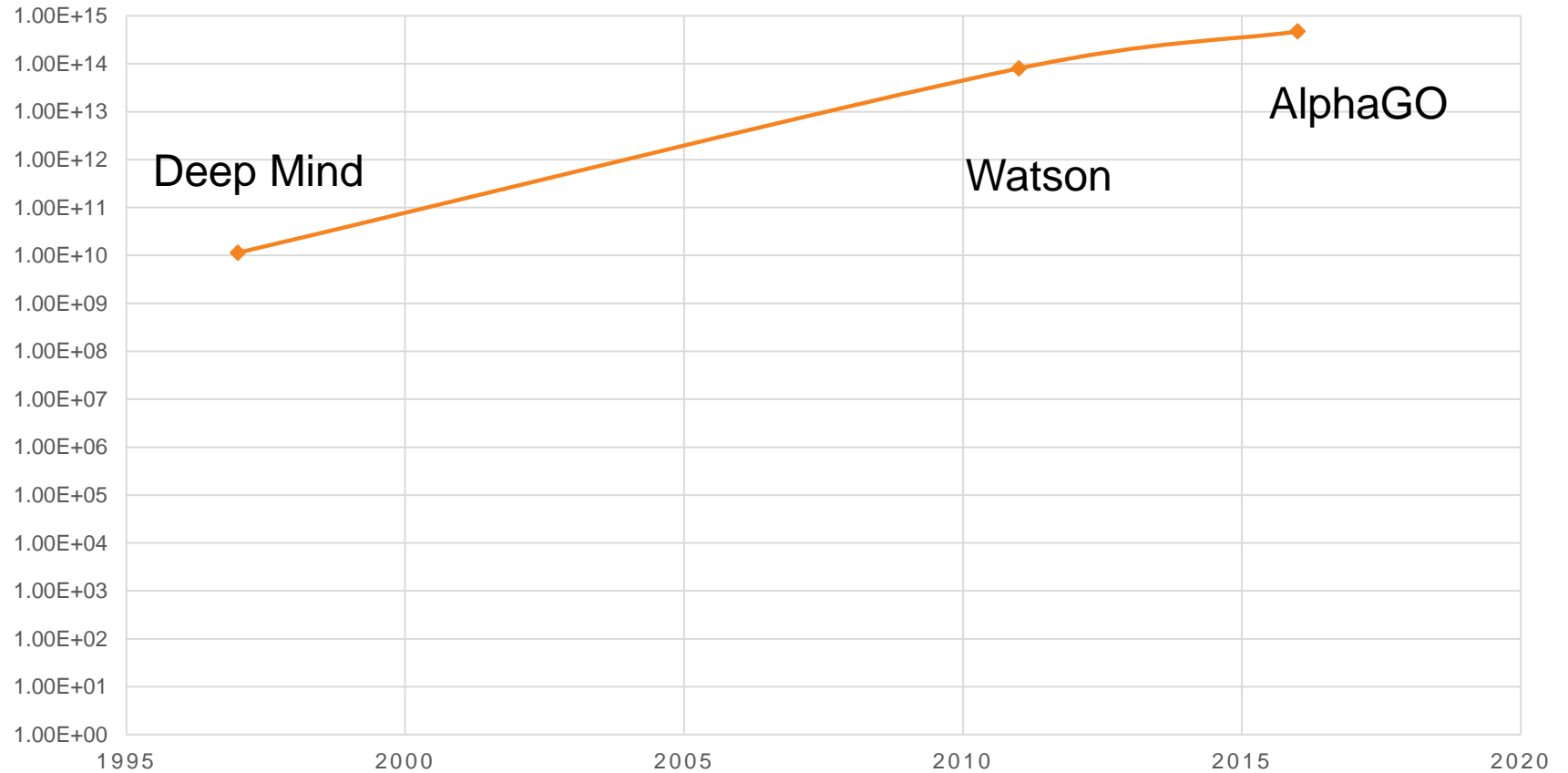
## LINPACK SCORES



# Underlying Computing Trends



## LINPACK SCORES





# Hyperconnected People, Things & Services

- \* What does healthcare look like in a world that has
- \* 8 Billion Connected People\*
- \* A Trillion Connected Sensors\*
- \* Software as a Diagnostic SaaDX
- \* Software as a Therapy SaaRX

**efpia**

European Federation of Pharmaceutical  
Industries and Associations



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