

# Democratizing AI for better health outcomes

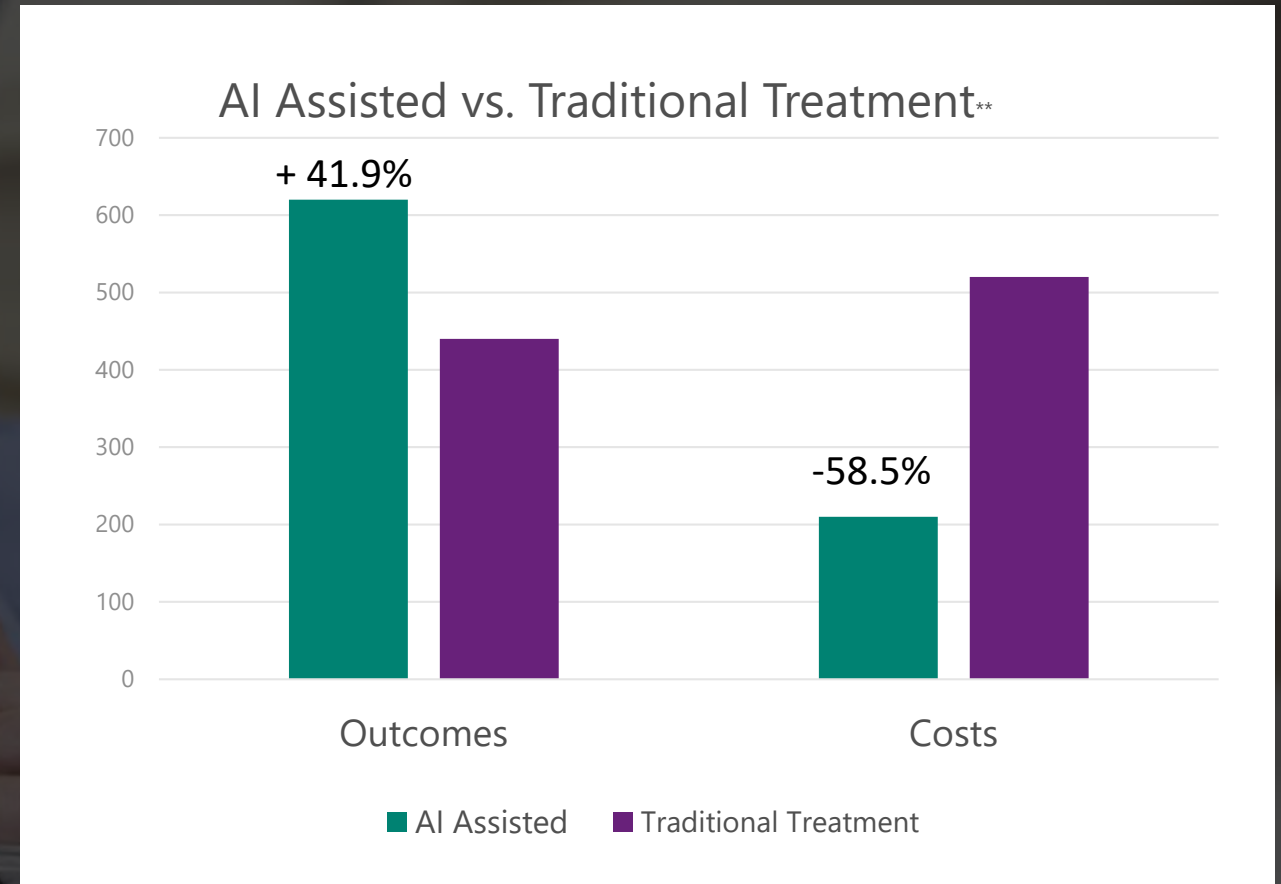
Elena Bonfiglioli

Senior Director, Regional Business Lead  
Health and Life Sciences, EMEA

Microsoft

# By 2025:

AI in 90% of the US and 60% of the global hospitals and insurance companies



\* Cognitive Computing and Artificial Intelligence Systems in Healthcare, Frost & Sullivan, December 2015

\*\* Artificial Intelligence Framework for Simulating Clinical Decision-Making: A Markov Decision Process Approach, Artificial Intelligence in Medicine, 2013

# The Application of Artificial Intelligence

Automating  
Image analysis

Organizing  
knowledge

Targeting  
patient cohorts



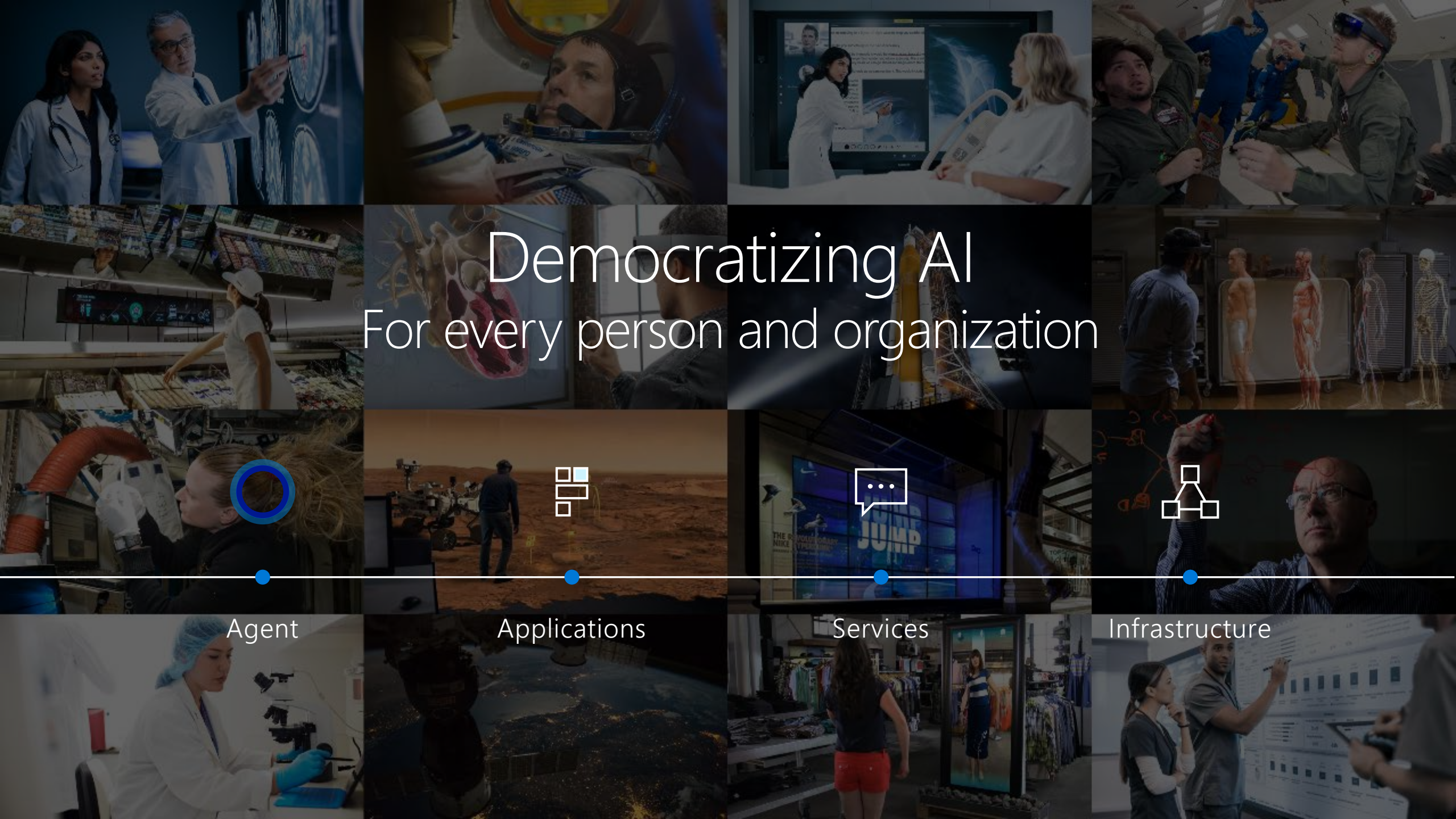
# The Future Computed - AI and its role in society



The Future Computed: Artificial Intelligence and its role in society



Brad Smith, President, and Harry Shum, EVP of AI & Research, co-authored the foreword for Microsoft's The Future Computed: Artificial Intelligence and its role in society.



# Democratizing AI

For every person and organization

Agent

Applications

Services

Infrastructure



# Microsoft Software Recognizes Images Better Than Humans Do

And it's a foundational step in the next wave of interaction.

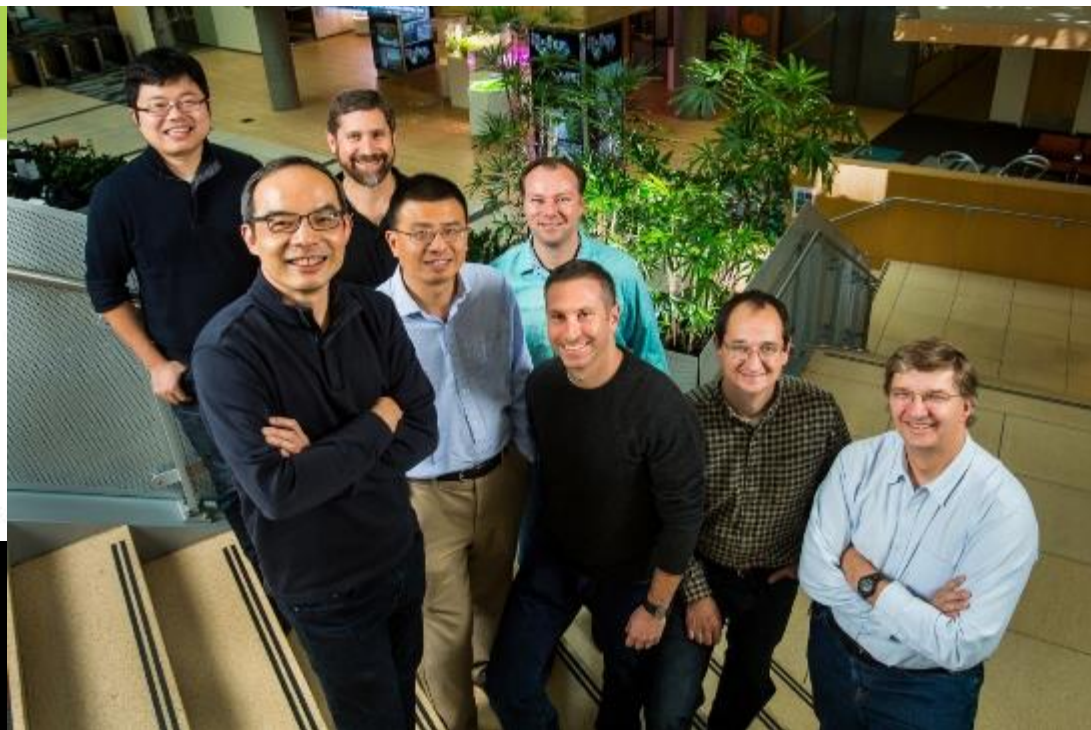


Microsoft made speech recognition software that's as accurate as humans

2.4k  
SHARES

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# Augmenting Human Abilities



# The Application of Artificial Intelligence

Automating  
Image analysis

Extracting  
Knowledge

Targeting  
patient cohorts



POINTER

SCROLL

MEASURE

NEW STRUCTURE

CONTOUR

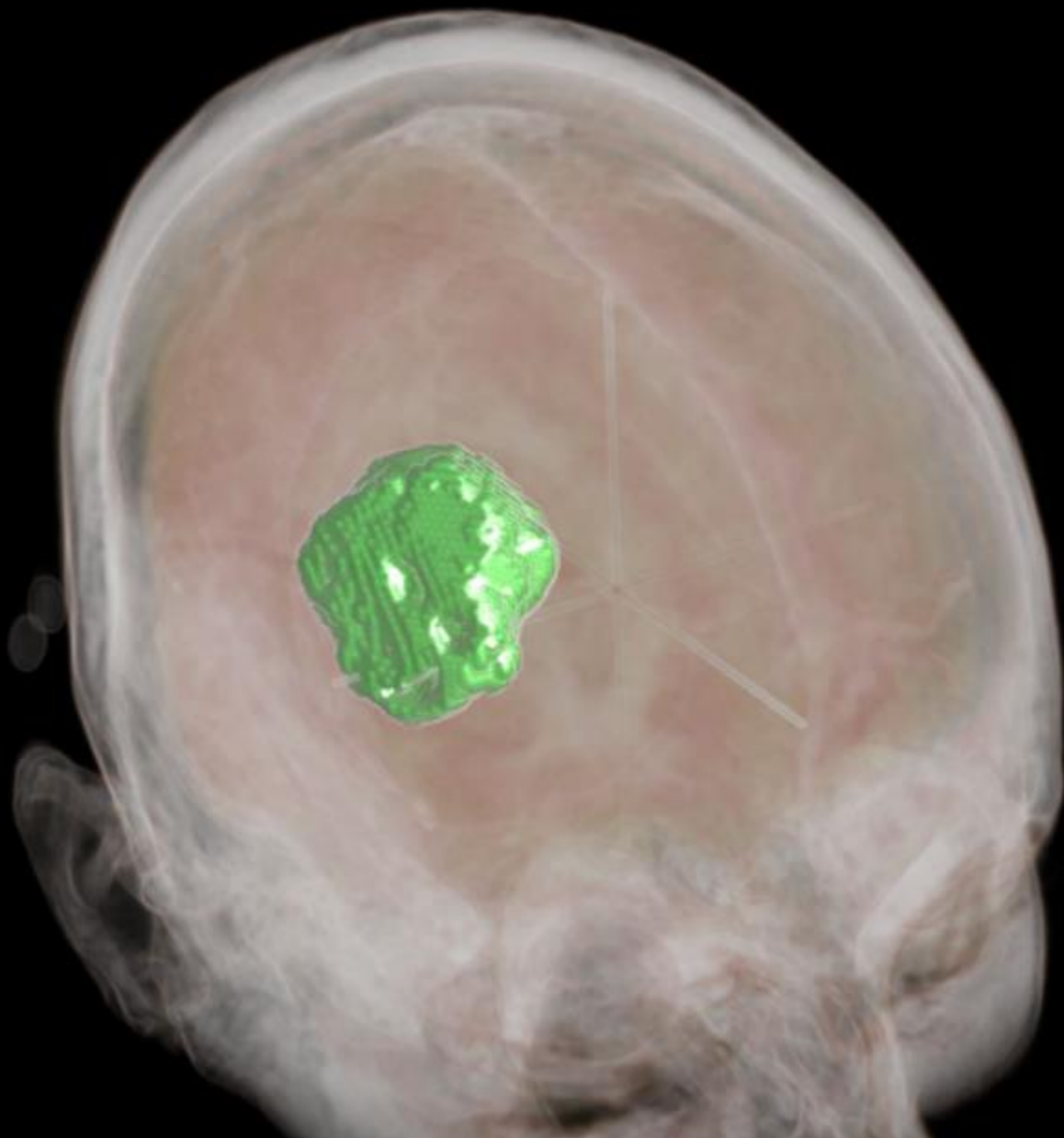
ADD/REMOVE

INTERPOLATE SLICE

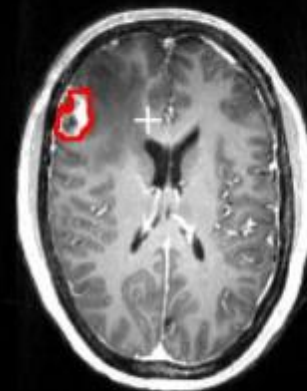
UNDO

REDO

UNDO ALL



A



R



Axial

P



H



R

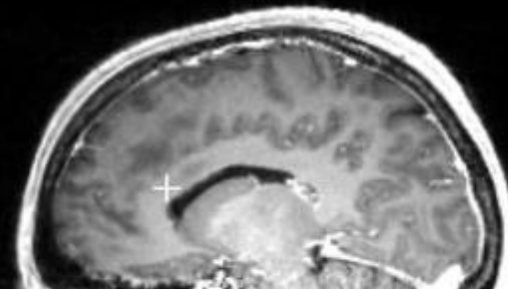


Coronal

F

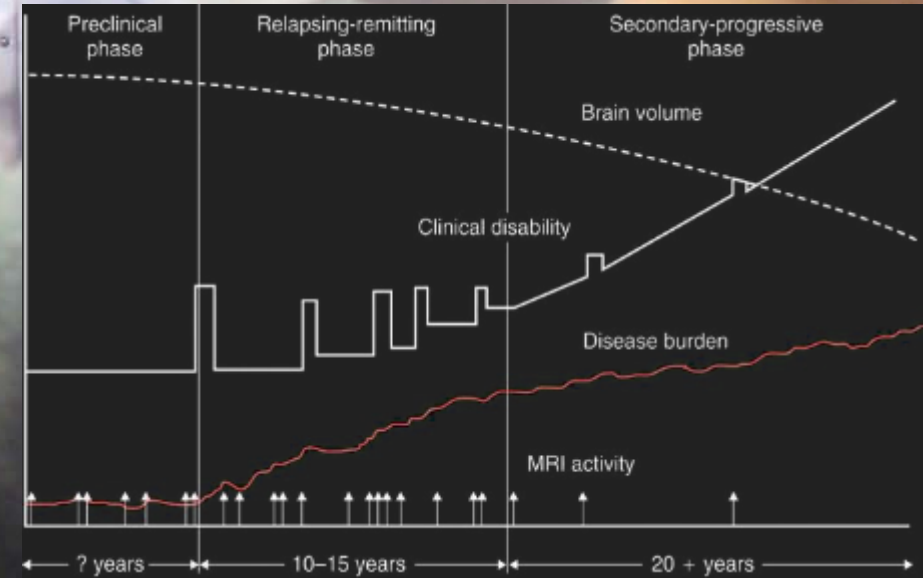
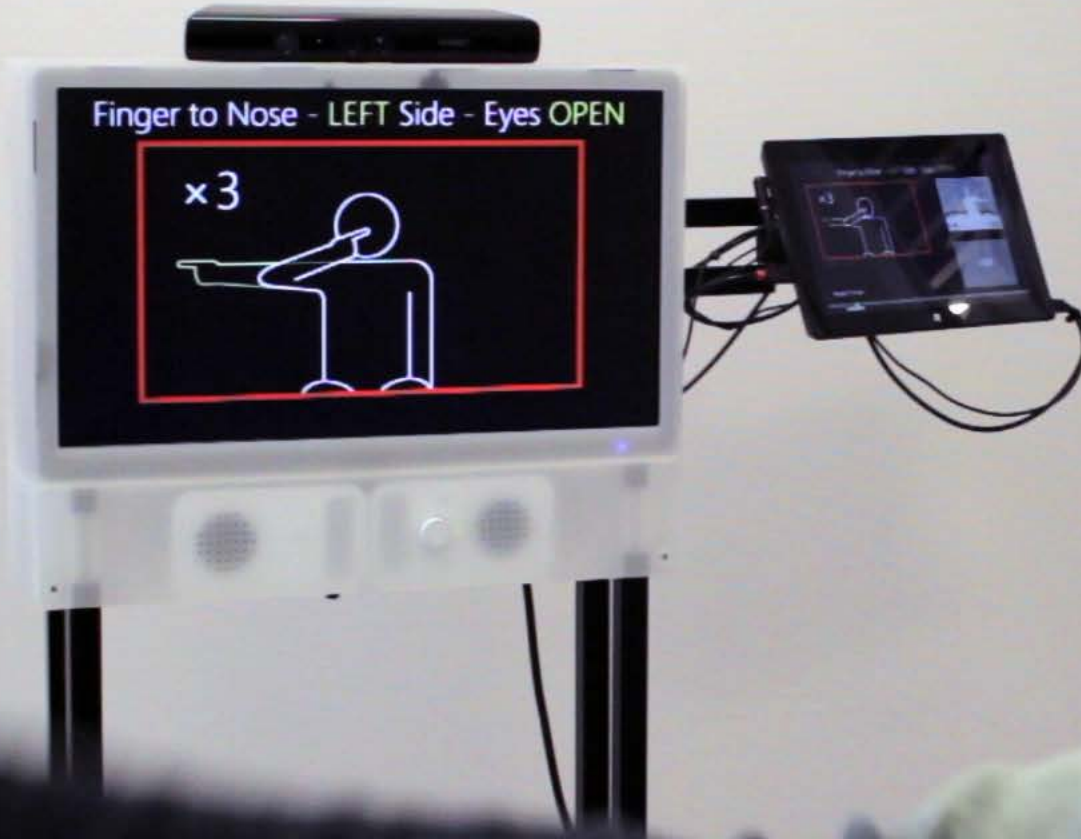


H



A

# AI tracking multiple sclerosis





## IRIS Retinal Scan Result for Bollinger, Leanda

Bollinger, Leanda, 04-12-1961 (MRN: tsng65400) presented to Iris Demo- Leanda Bolinger on 7/30/2014 for a retinal scan of the left and right eyes.

### Patient Instructions

Severe Pathology Noted:

**Please advise the patient to schedule an appointment**

### Diagnosis Present

**• 362.06 - Severe**

**Images and Findings** The original images are shown with the findings below each image.

Right Eye

Lef

# Digitalization -> Deep Learning AI



- **Advanced Image Storage and Collaboration tools in Cloud**

- Compatibility
- Efficient compression

- **Deep Learning Algorithms for Intelligent Image Analysis**

- No local hardware
- Indefinite possibilities for algorithms

- **Disruptive business model**

- Affordable SaaS model for all sizes of projects



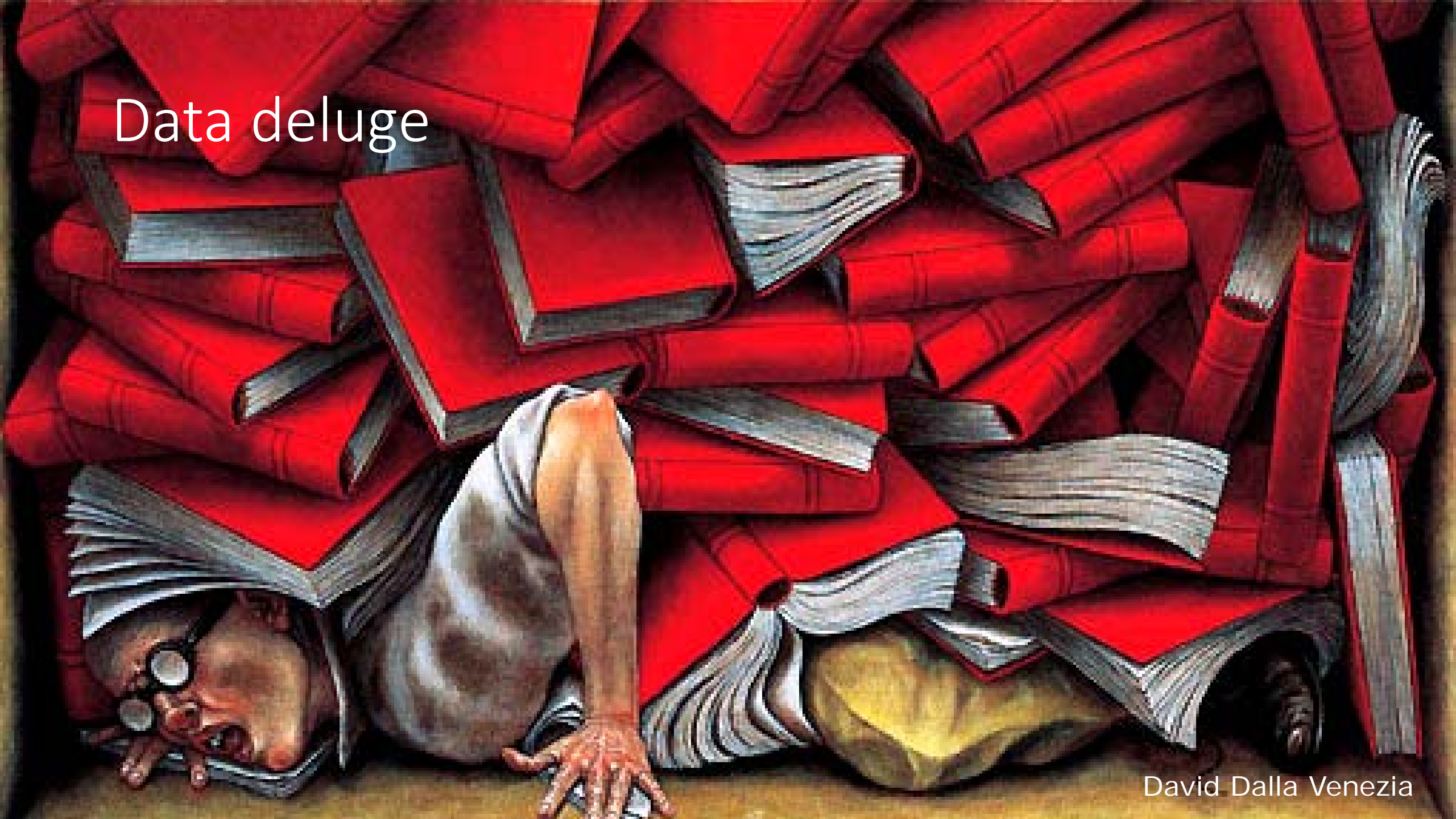
# The Application of Artificial Intelligence

Automating  
Image analysis

Extracting  
Knowledge

Targeting  
Patient Cohorts

Data deluge



David Dalla Venezia



Mining thousands of medical reports to improve the effectiveness of systematic reviews:

- 37.000 contributors in 130 countries
- Cochrane crowd trained algorithm on 300.000 reports and 30.000 clinical trials in collaboration with UCL in the UK
- Adopted across NICE across UK NHS



[aka.ms/cochrane](https://aka.ms/cochrane)

# The Application of Artificial Intelligence

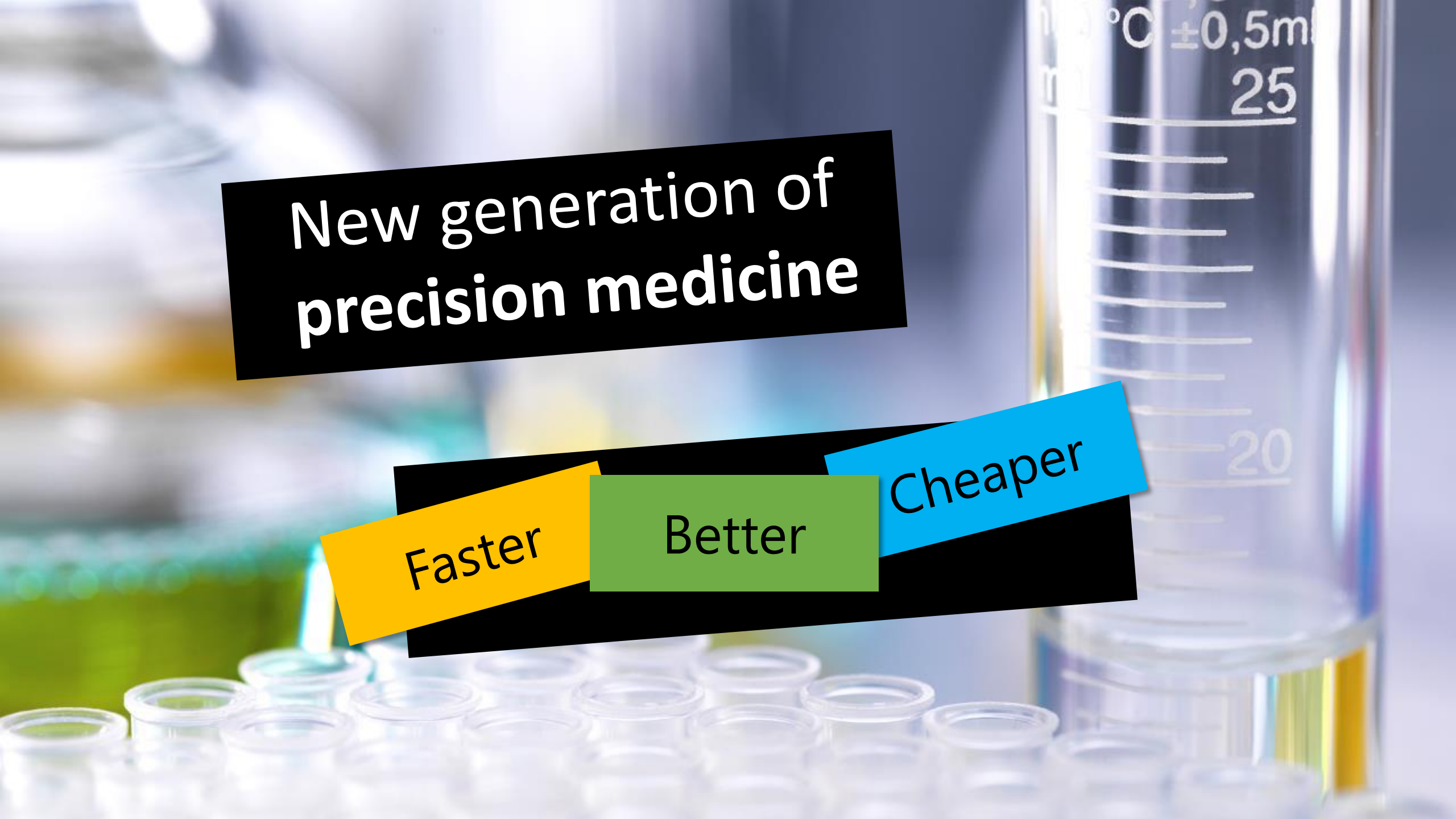
Automating  
Image analysis

Organizing  
Knowledge

Targeting  
Patients' Cohorts





A laboratory setting with a blurred background of test tubes and a graduated cylinder. In the foreground, there is a rack of many small, clear test tubes. To the right, a large graduated cylinder is visible, containing a yellow liquid. The cylinder has markings for 20 and 25, with a temperature reading of 37.0 °C ± 0.5 ml. Overlaid on the image are three colored rectangular boxes containing text: a black box at the top, an orange box on the left, a green box in the center, and a blue box on the right.

# New generation of precision medicine

Faster

Better

Cheaper

## HOW A BRANCH OF ARTIFICIAL INTELLIGENCE CAN HELP DOCTORS PERSONALIZE CANCER CARE



# How Microsoft computer scientists and researchers are working to 'solve' cancer

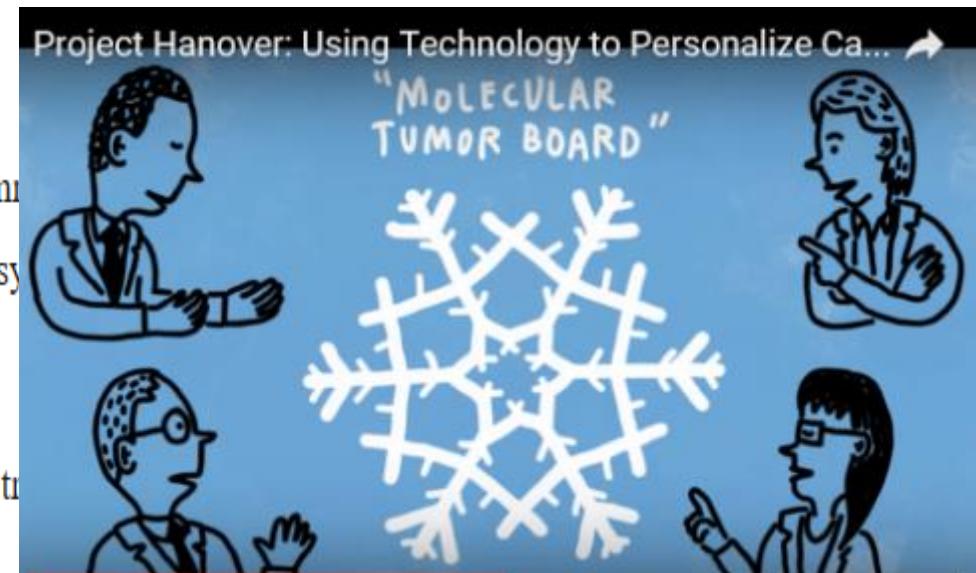


Allison  
Linn

A

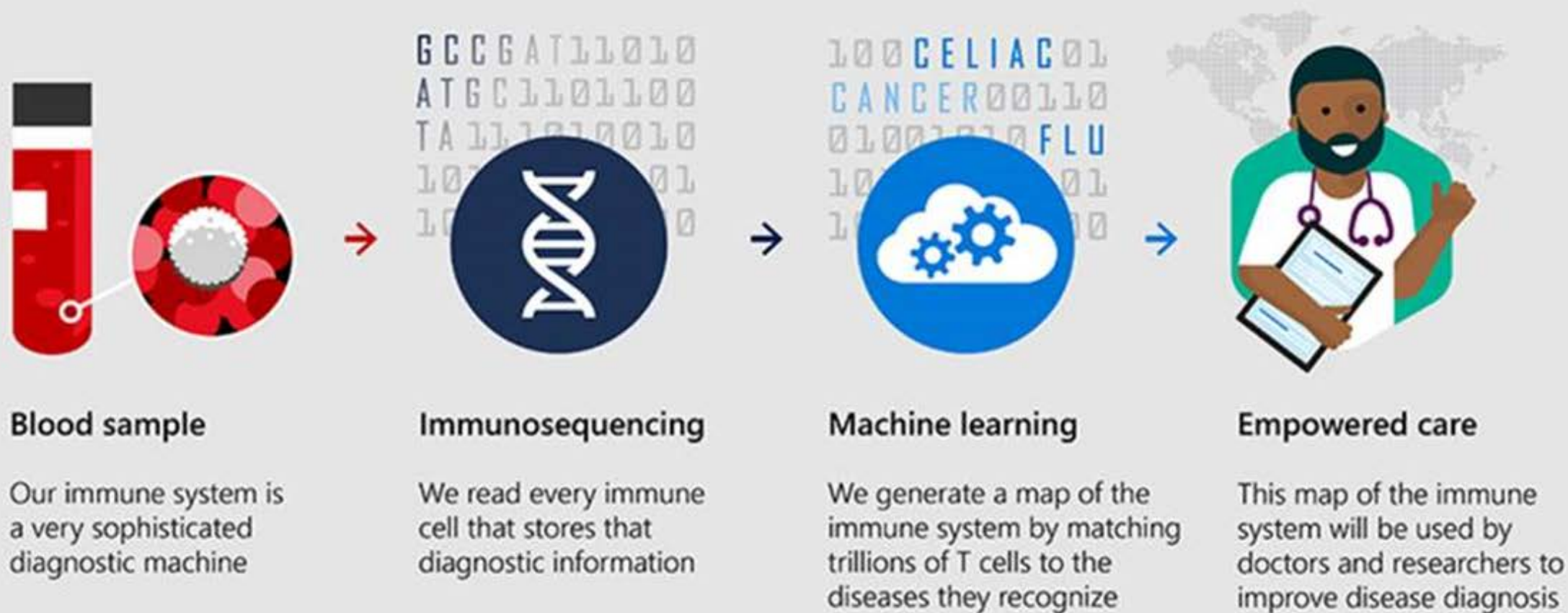
t Microsoft's research labs around the world, computer scientists, programmers, and data scientists are working to crack some of the computer industry's toughest problems, from system security to artificial intelligence, machine learning, and data visualization.

A subset of those scientists, engineers and programmers have a different goal: They're trying to solve one of the most complex and deadly challenges humans face: Cancer.





## Learning to decode the immune system to diagnose disease



## Swedish startup company and global life science company Bayer initiate partnership

October 26, 2017



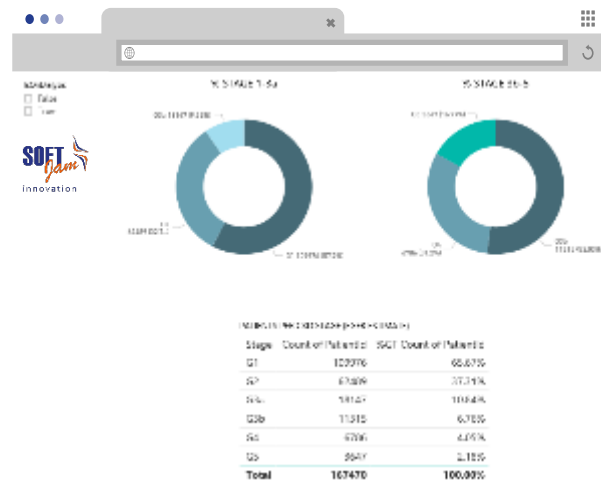


# SoftJam's Chronic Kindey Disease solution

## Delaying dialytic therapy by raising awareness

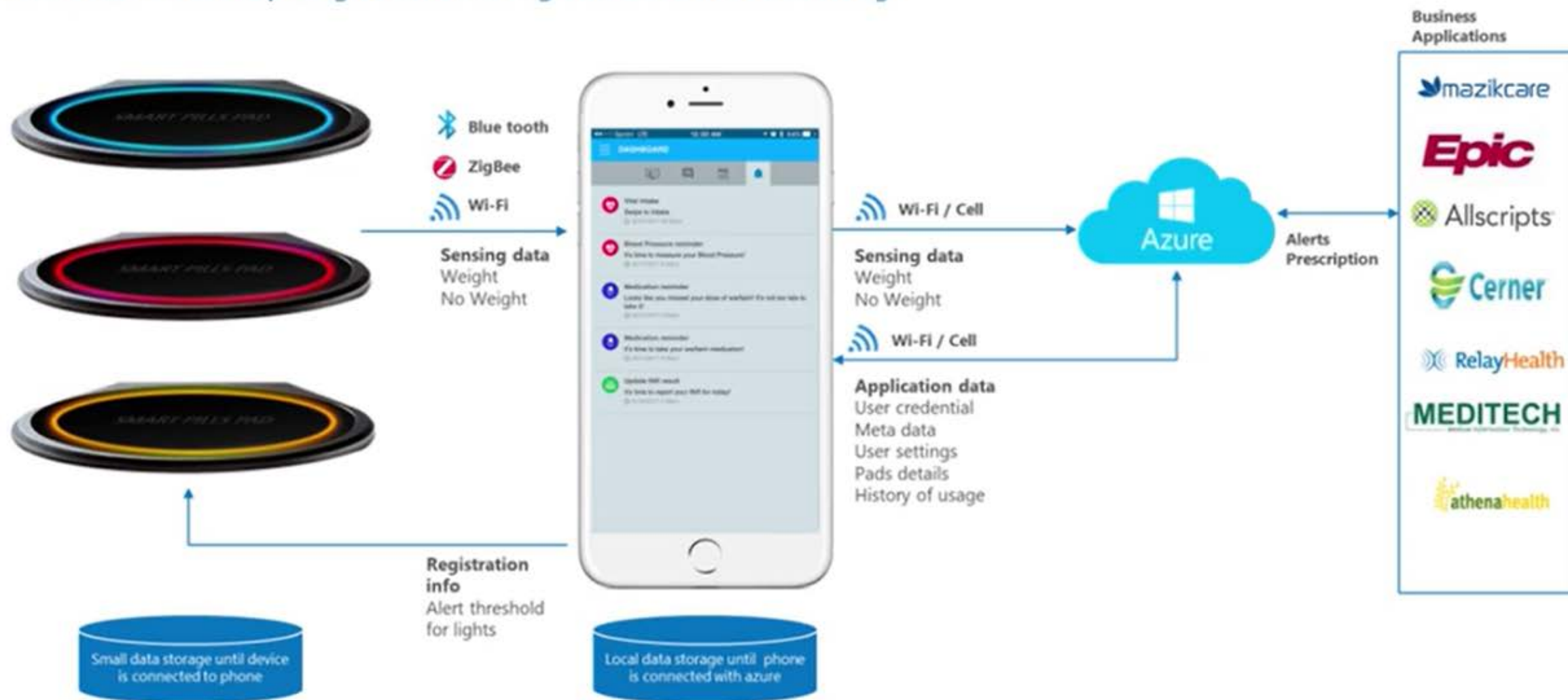
The population in dialytic therapy grows by 6% annually.

Proper **identification** and **follow-up** of patients can delay the treatment up to 3 years.



# Smart Pill Mat – Reference Architecture

Potential to deliver hospital-grade monitoring outside of the care setting





Empowering every person and every organization  
with systems of intelligence

 Vision

 Scenarios

 Solutions

 Approach

 Alliance

Our approach rooted in Research, brought to market  
with Partners and supported by Trust



# AI in Health Partners Alliance



Microsoft

Democratizing AI in Health

Democratizing AI in Health

The future of health relies on the notion of Artificial Intelligence (AI), on the capability of intelligent systems to sense the world, comprehend, act and learn.

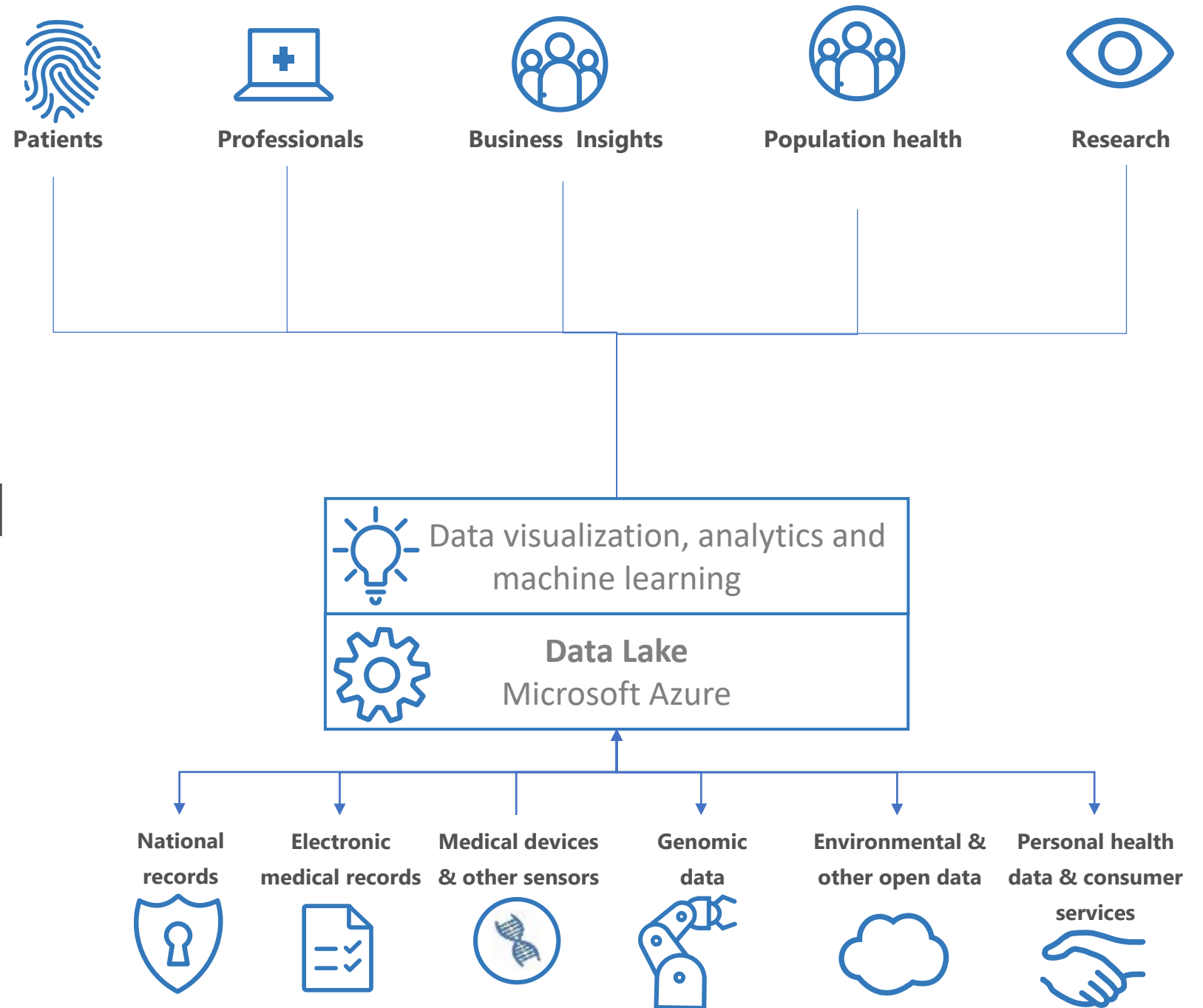
DISCOVER AI SOLUTIONS >

Empowering every person and every organization with systems of intelligence



# HUS pioneering in utilizing health and wellbeing data

(open, scalable, compatible)





An **invisible** revolution is coming

Thank you

[elenab@microsoft.com](mailto:elenab@microsoft.com)

