

# FUTURE AGENDA

Open Foresight

## FUTURE OF PATIENT DATA

Insights from Multiple Expert  
Discussions Around the World

### PATIENT INFORMATION

Table Code: 8981-92-5578



Rene Georgene  
29 Y 6 M 9 D  
Female  
Caucasian  
United States American  
Catholic Christian

CORE BODY TEMP

CORE BODY PULSE



## Global Ambition

There are great expectations on the benefits from access to more and better patient data - A common aim is to 'give health data back to the individual' so the patient becomes the point of integration and control.





## Improving Efficiency

Implicit within many healthcare systems is the need to use data to improve efficiency and reduce costs. Without a fundamental shift driven by enhanced information use, several care services may become stressed to breaking.

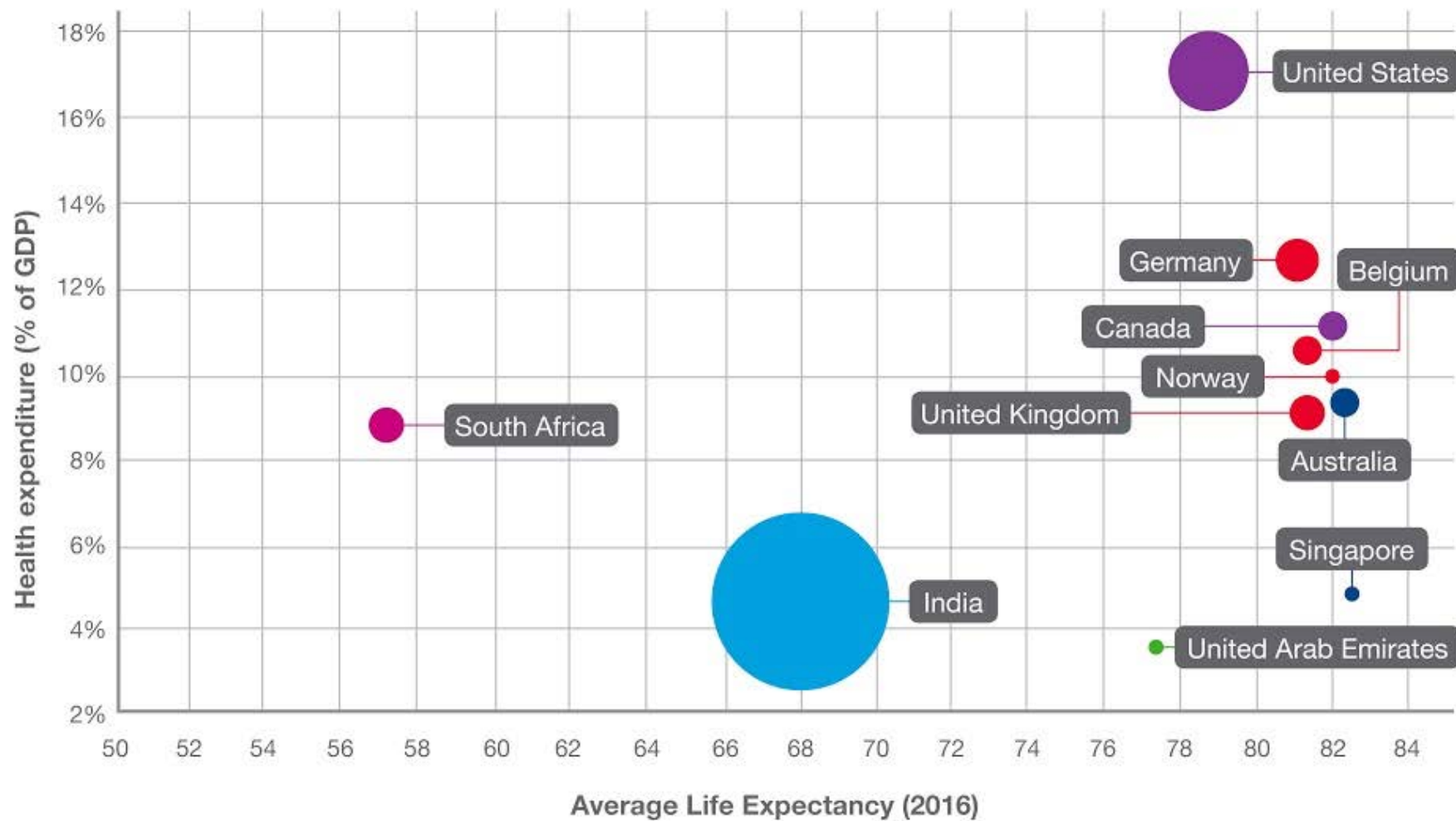


## RESEARCH CONTEXT





**Expert Insights | 12 Major Discussions Around the World (Sep 2017 to Jan 2018)**

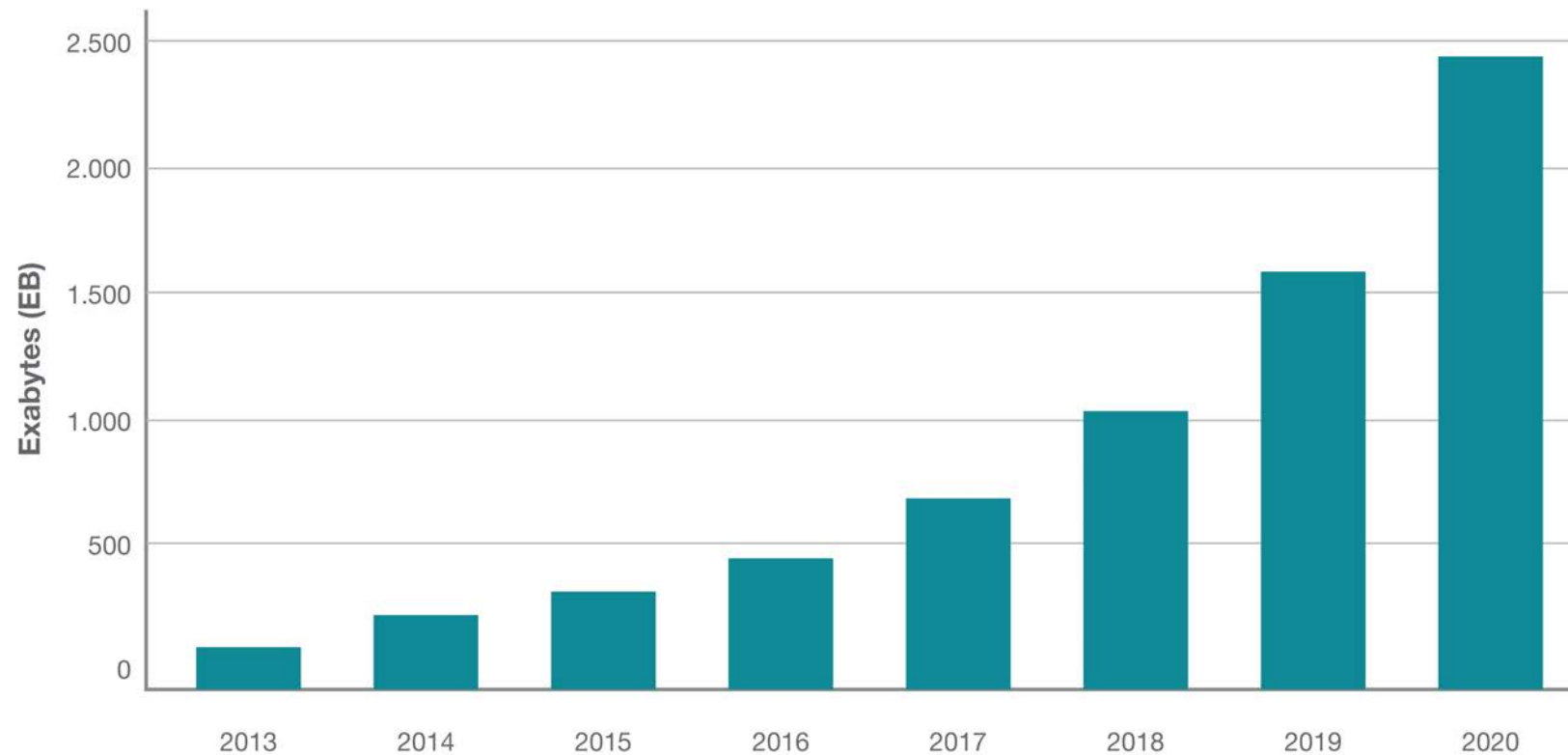


## Location Criteria

These twelve events were held in a selection of countries with different levels of health spending and average life expectancy - as well as varied combinations of public and private healthcare systems.

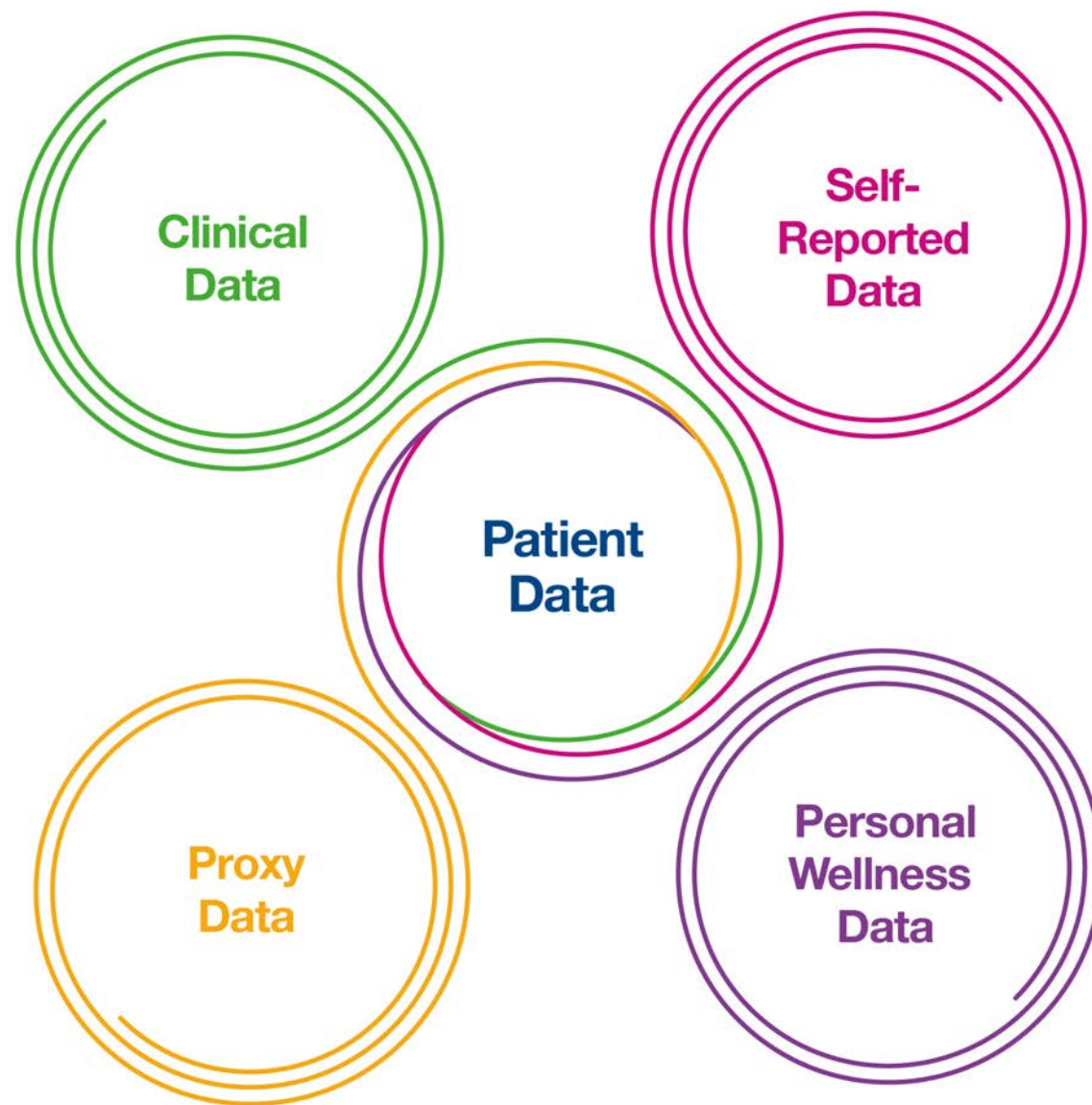


## Growth In Healthcare Data



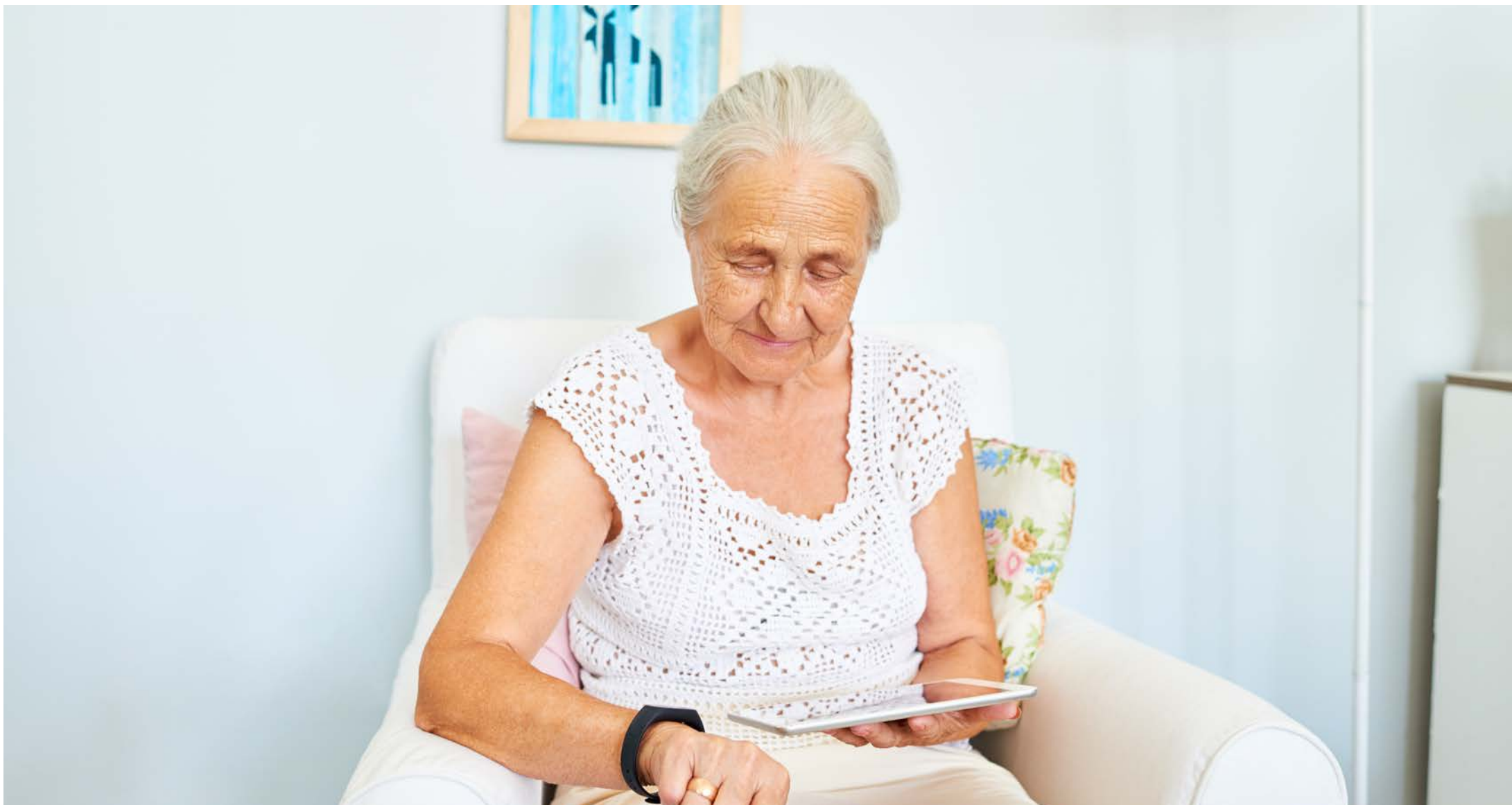
Source: EMC Digital Universe / IDC

**More Data** | The volume of health data is evidently growing rapidly



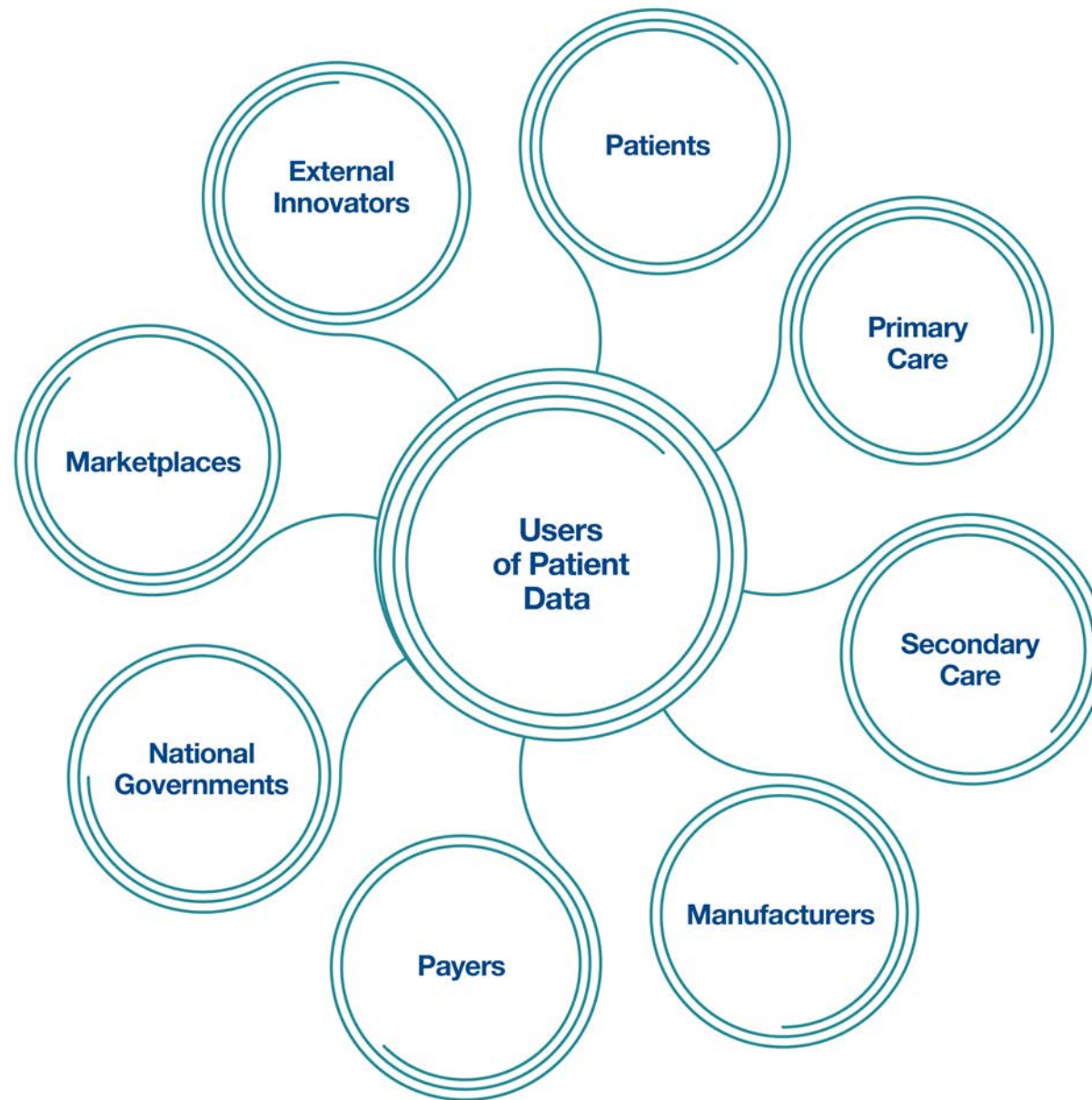
## Sources of Patient Data





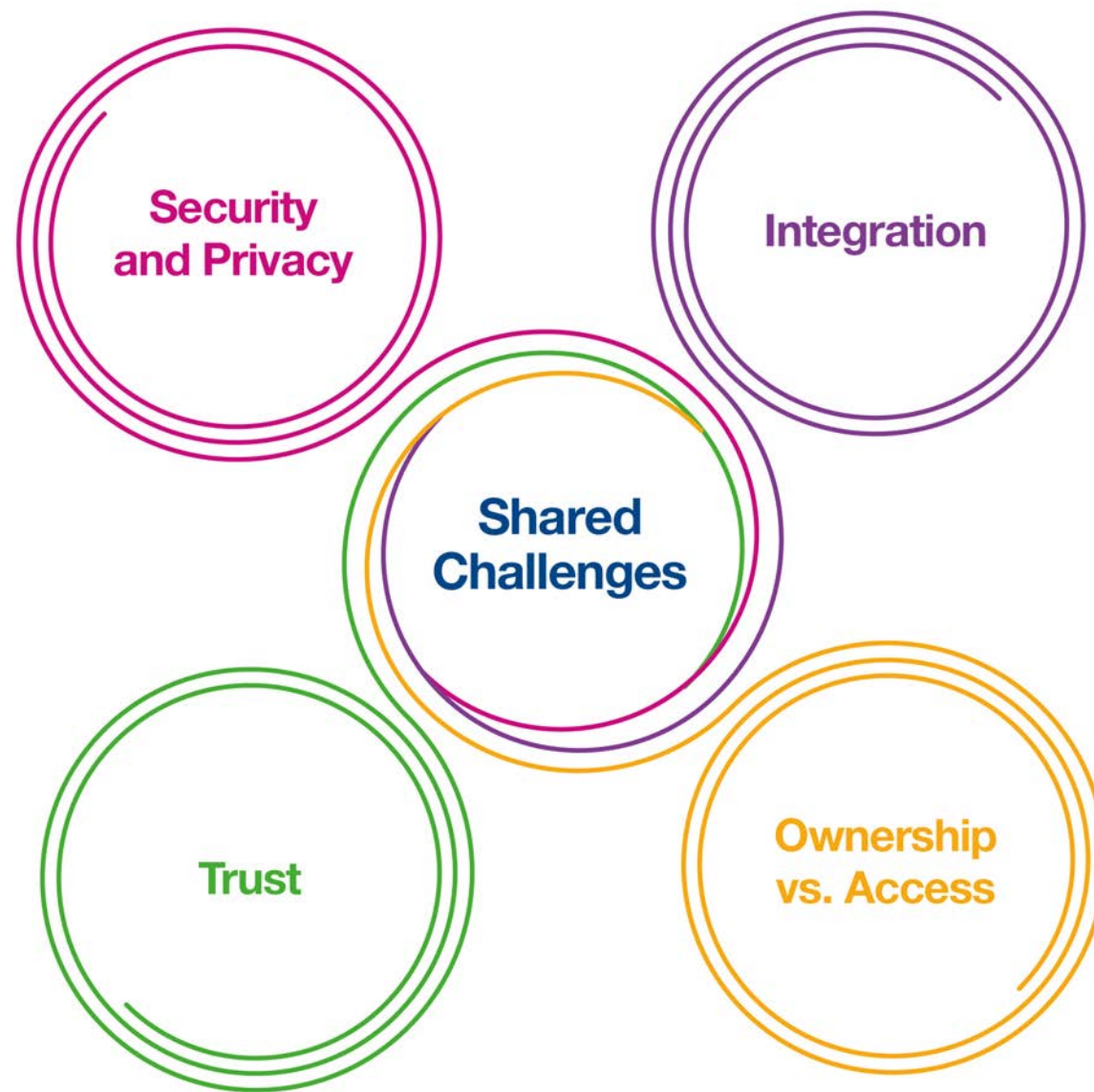
## **Changing Definition of Patient Data**

The patient data set is expanding: It includes high-quality clinical information, more personal data from apps and wearables plus a broadening portfolio of proxy data, as well as insights on the social determinants of health.



## Users of Patient Data



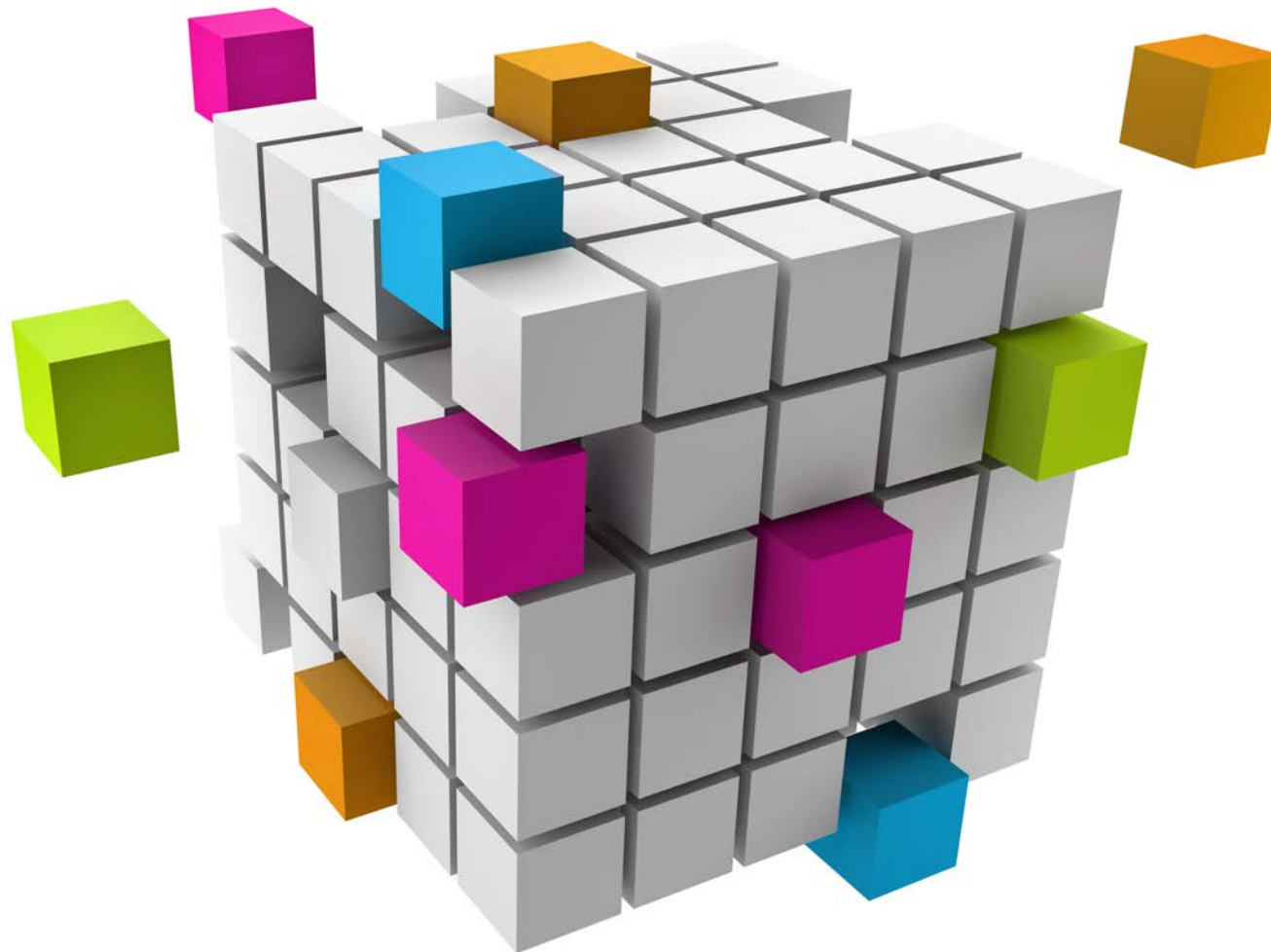


## SHARED CHALLENGES



## INTEGRATION





## Gaps and Interoperability

Given the multiple data gaps in existing systems, the expectation is that technology will provide solutions that better bridge these and ensure interoperability. Common standards and cleaner data will be fundamental drivers of change.

## Doctors with EHR and Multifunctional Health IT Capacity

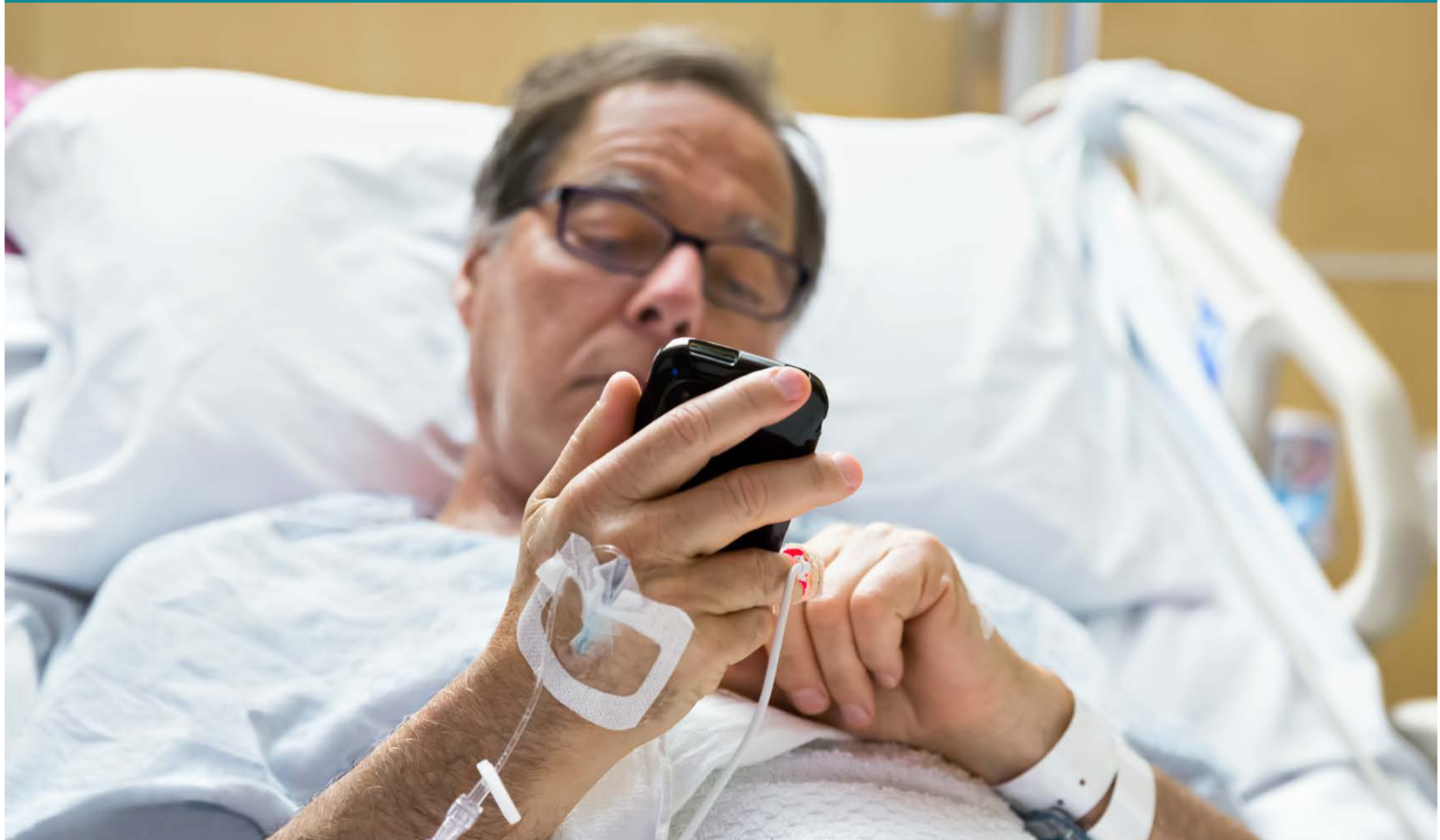


Source: Commonwealth Fund 2014

● Uses EHR
 ● Uses EHR with multifunctional HIT capacity

**EHR Integration** | A core ambition in combining data sets





OWNERSHIP



## Increasing Control

The question of ownership of health data is in flux - especially on access vs. use. Patients may have increasing 'control' of their data, but whether they become 'custodians' depends on culture, regulation and need.



TRUST





## **Building Trust**

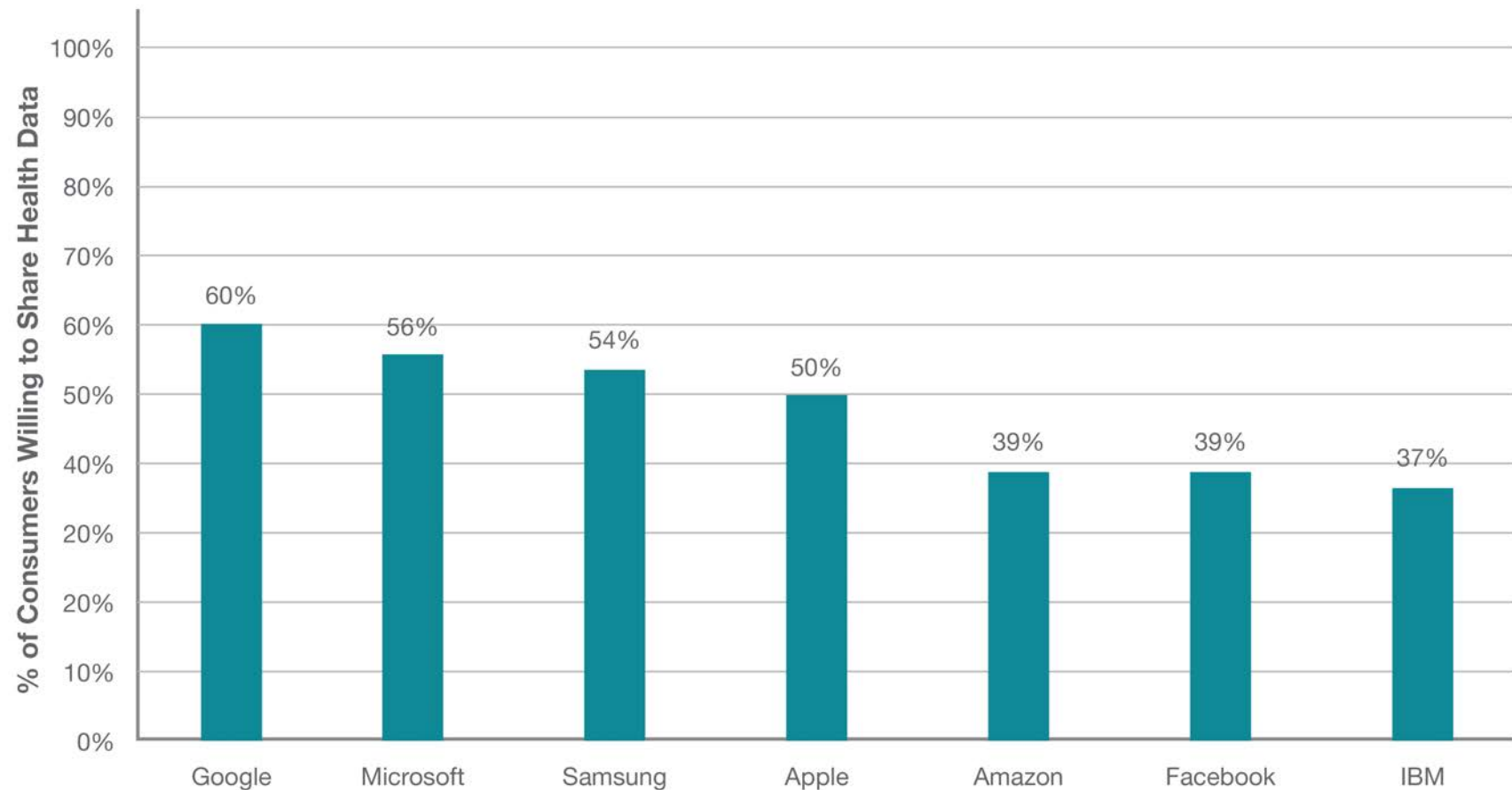
In many regions, trust needs to (re)built between payers, providers and patients as well as with new entrants. New technology platforms and improving communication with the public both play a major role.



## **Managing Distrust**

Concern about ulterior motives for the use of data is high and some see AI adding to the challenge. Many recognise the need for greater transparency on practice in some pivotal areas.

## Consumers Willing To Share Health Data



Source: Rock Health 2016 Consumer Survey

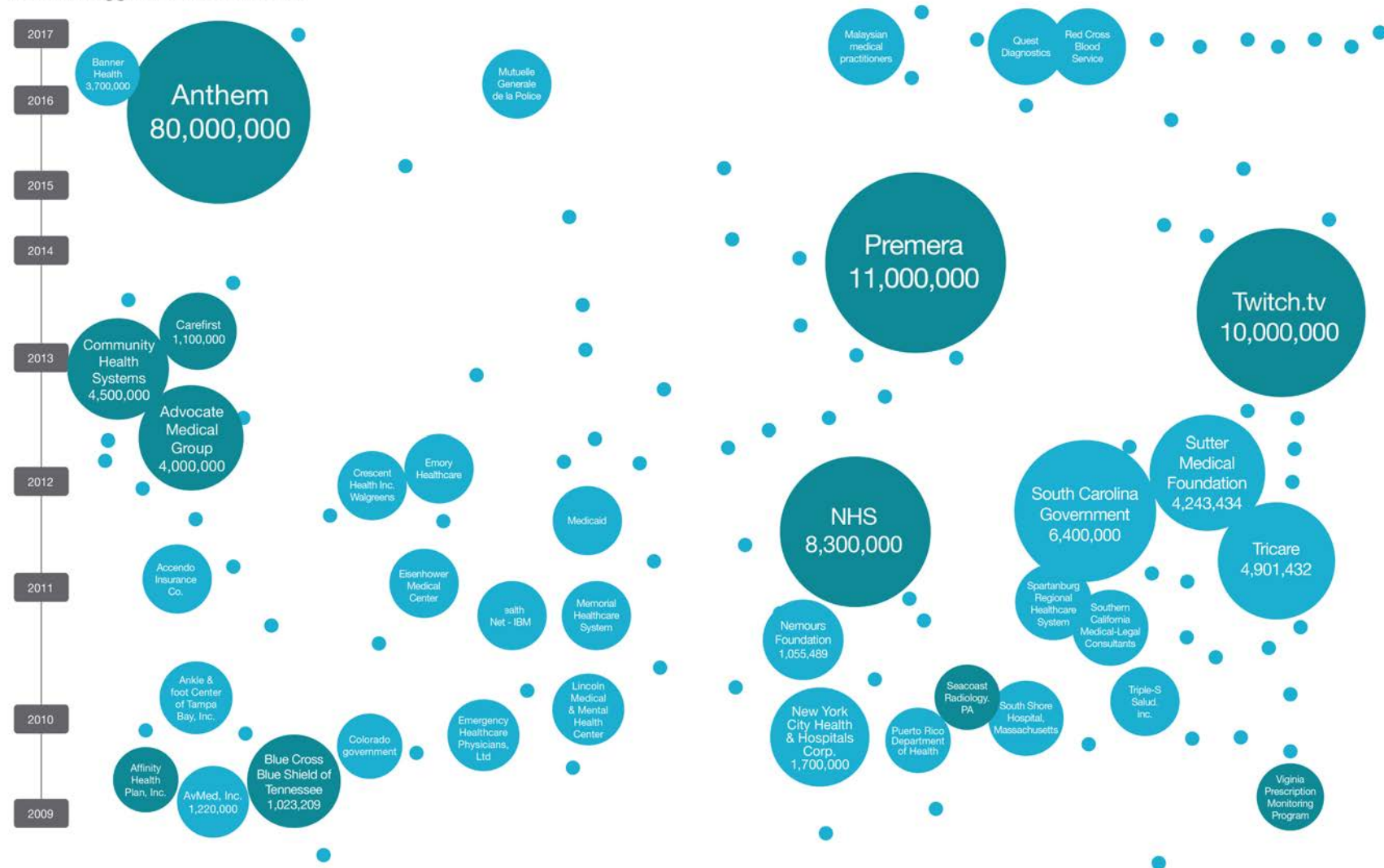
**Data Sharing |** Who we trust with our health data is critical





SECURITY AND PRIVACY

## World's Biggest Data Breaches



**Data Breaches** | Health data breaches have been amongst the biggest globally

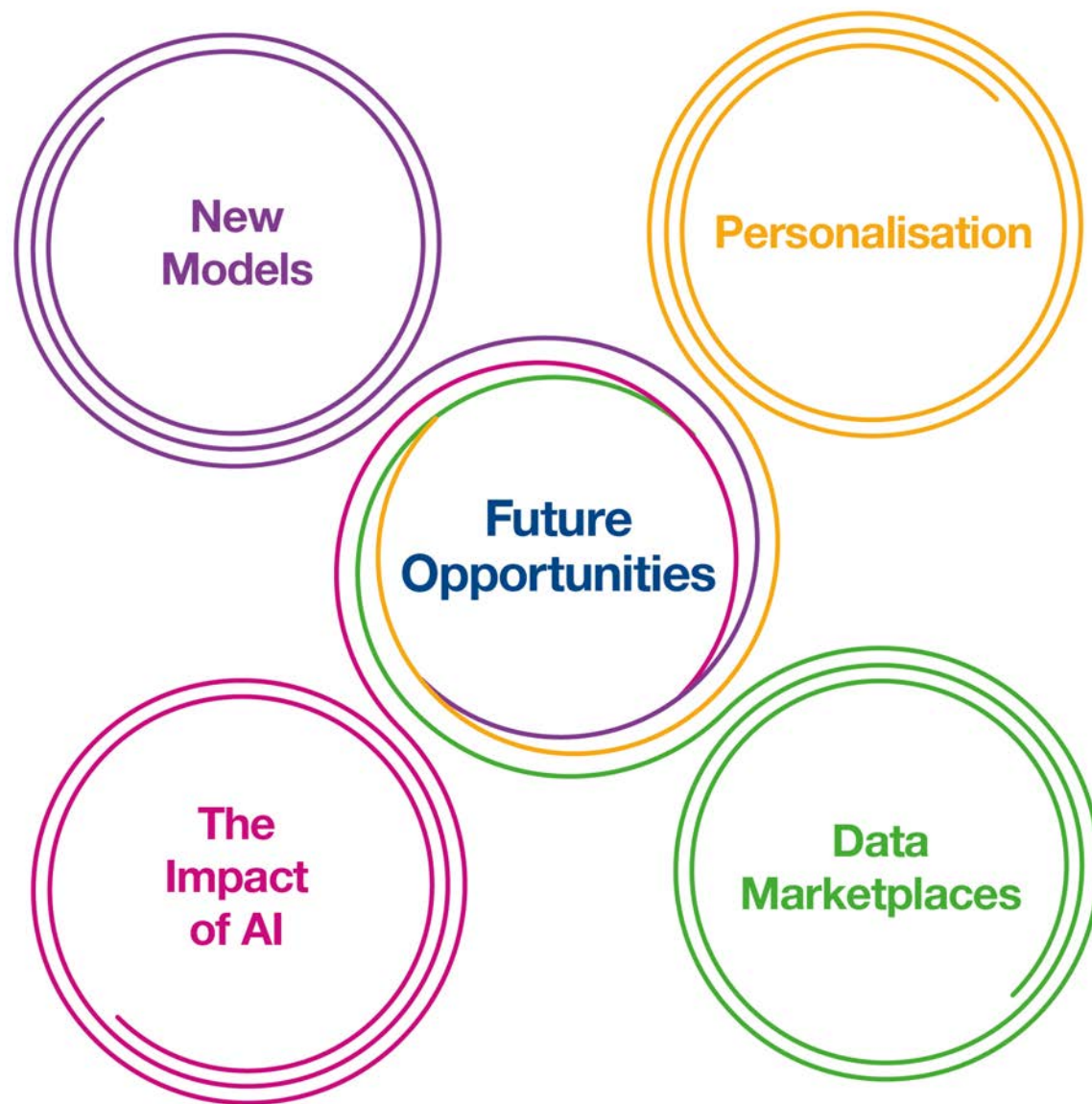




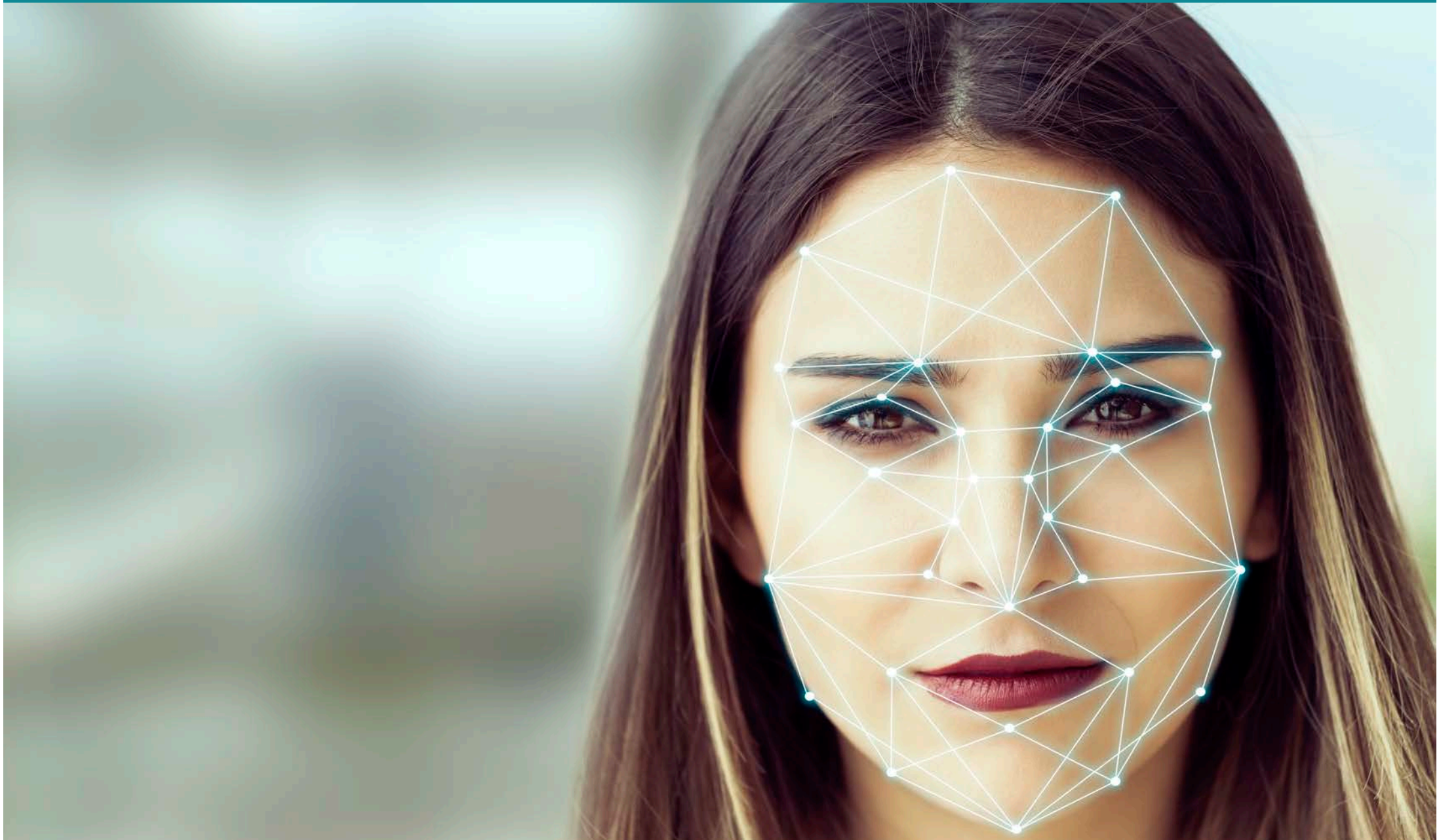
## **Enhanced Protection**

Anonymized, aggregated data is more easily re-linked and sensitive health data is a target for cyber-attacks. Questions are raised around the benefits of centralized vs. decentralized data, encryption and the impact of localisation.





## FUTURE OPPORTUNITIES



**PERSONALISATION**

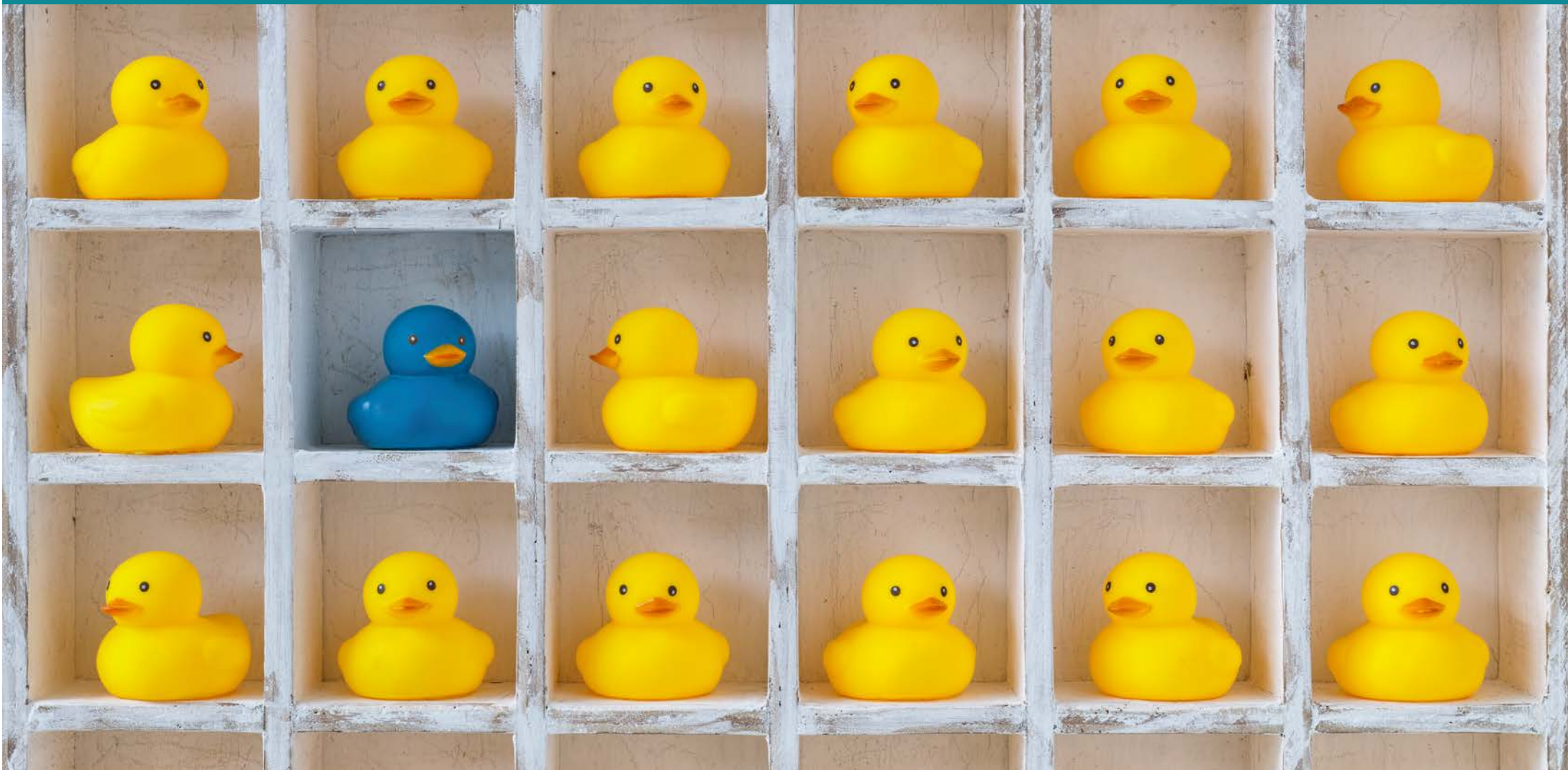




## Individualized Medicine

The prospect of more individualized 'n=1' healthcare is accelerating. Predictive analytics and genetic profiling transform medicine: But will the benefits be for all or just a lucky few?





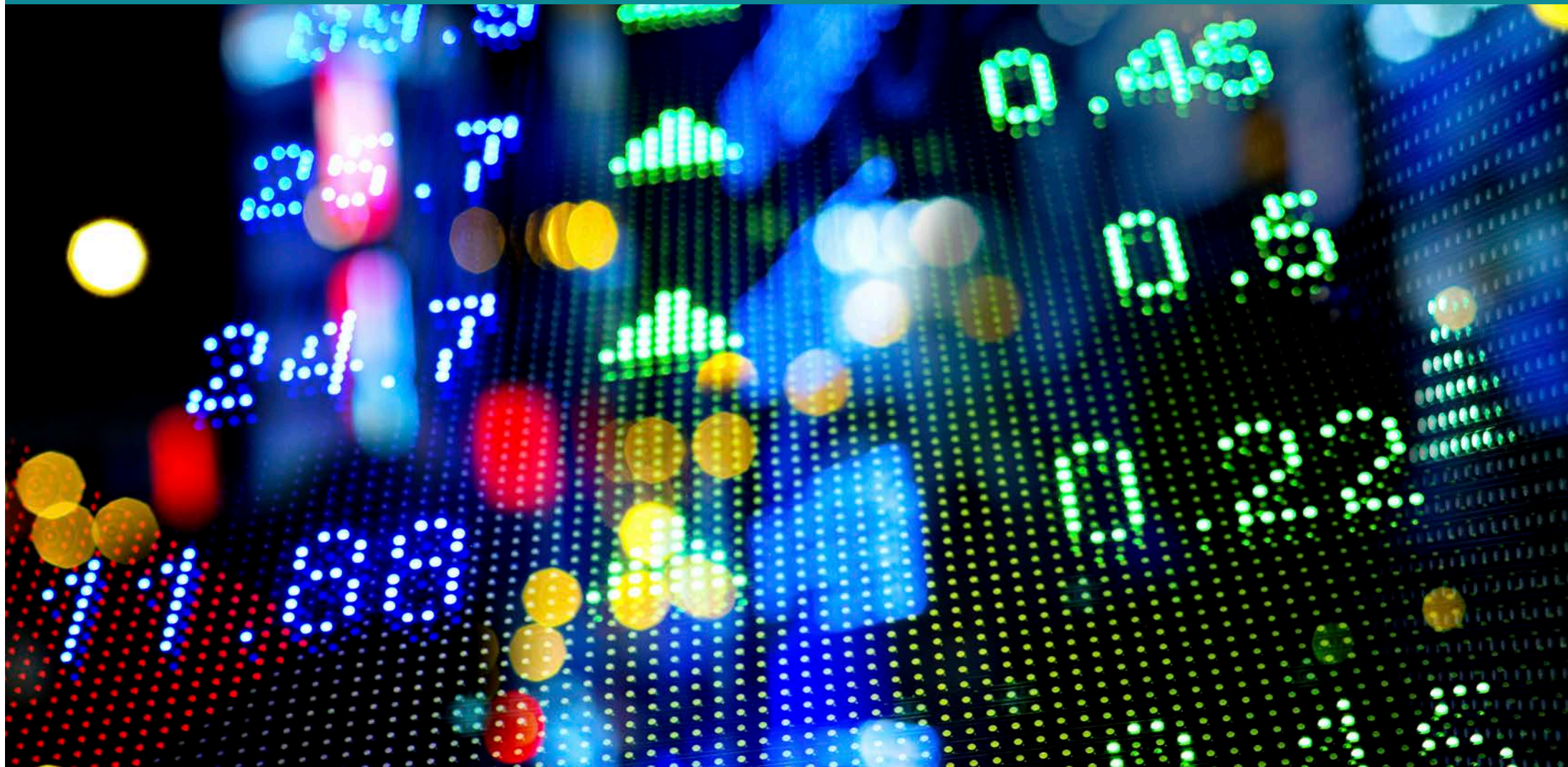
## Personal Data Stores

New platforms help patients and providers to manage and curate their data across multiple partners. Universally accepted credentials help to drive greater personalisation of health services.



## DATA MARKETPLACES

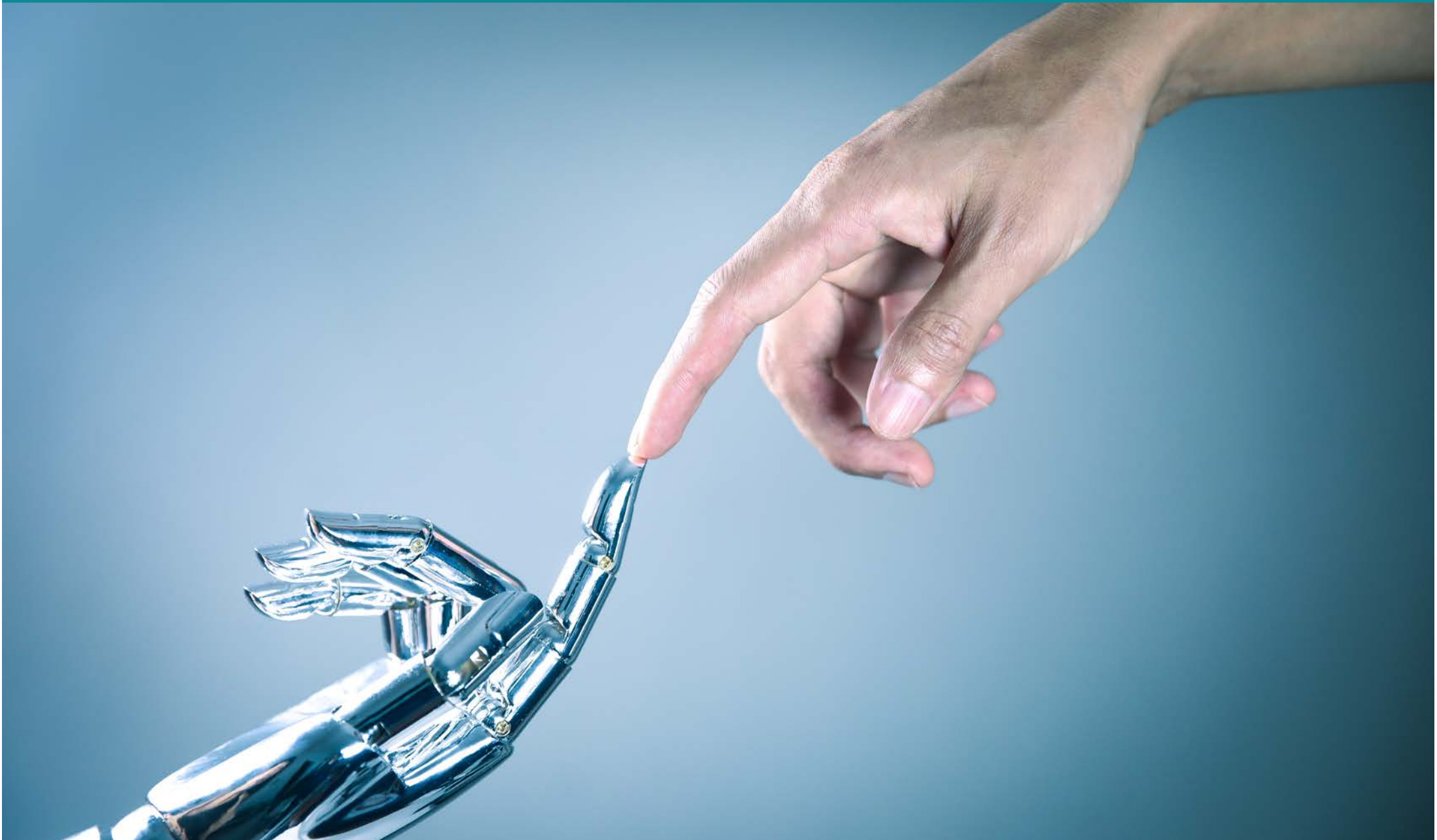




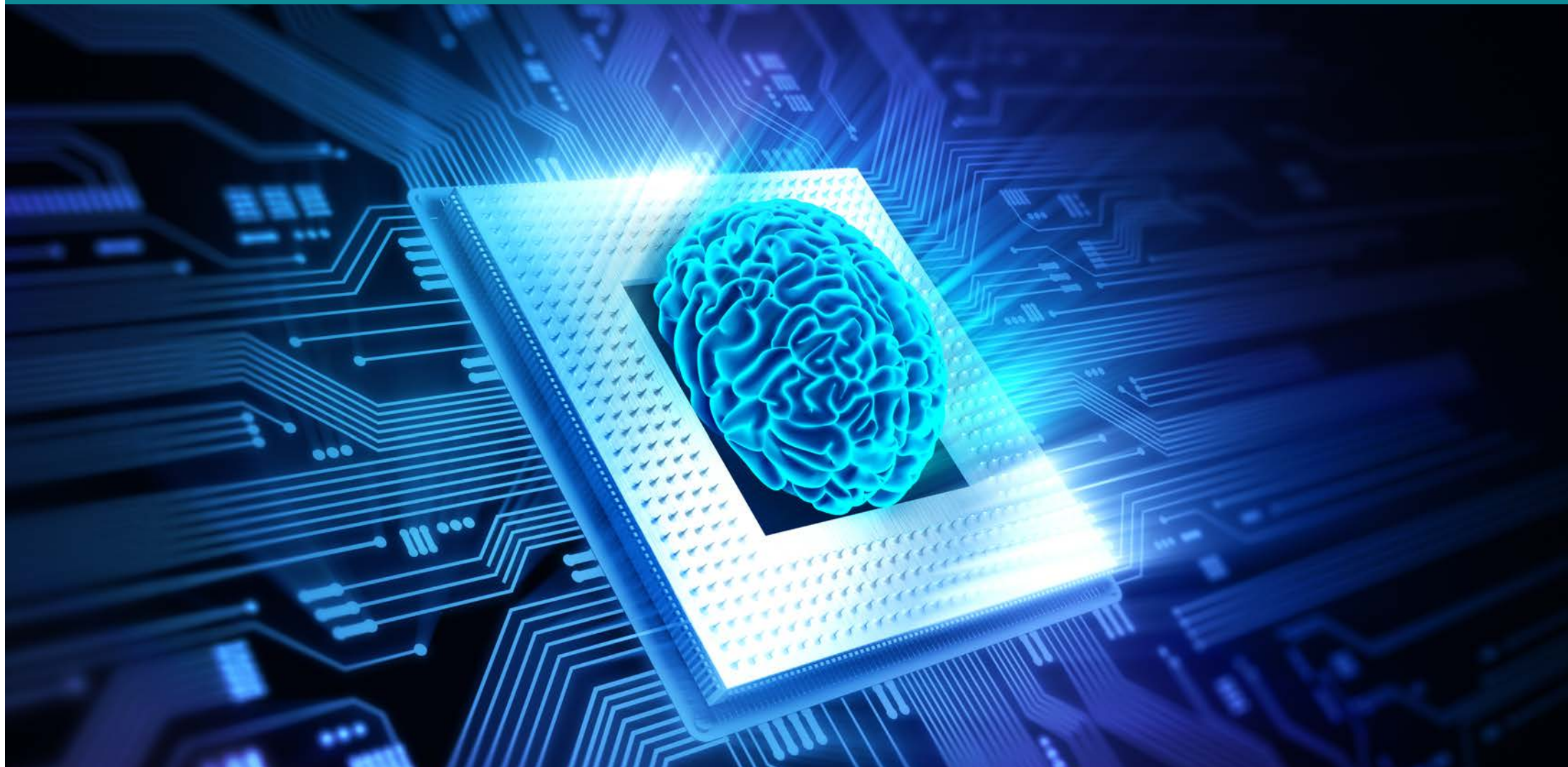
## Health Data Marketplaces

Embedded in the future of access to health data, is its value, exchange and what will be public commons vs. what is for commercial purposes. Personal and clinical data will increasingly be represented in healthcare data marketplaces.





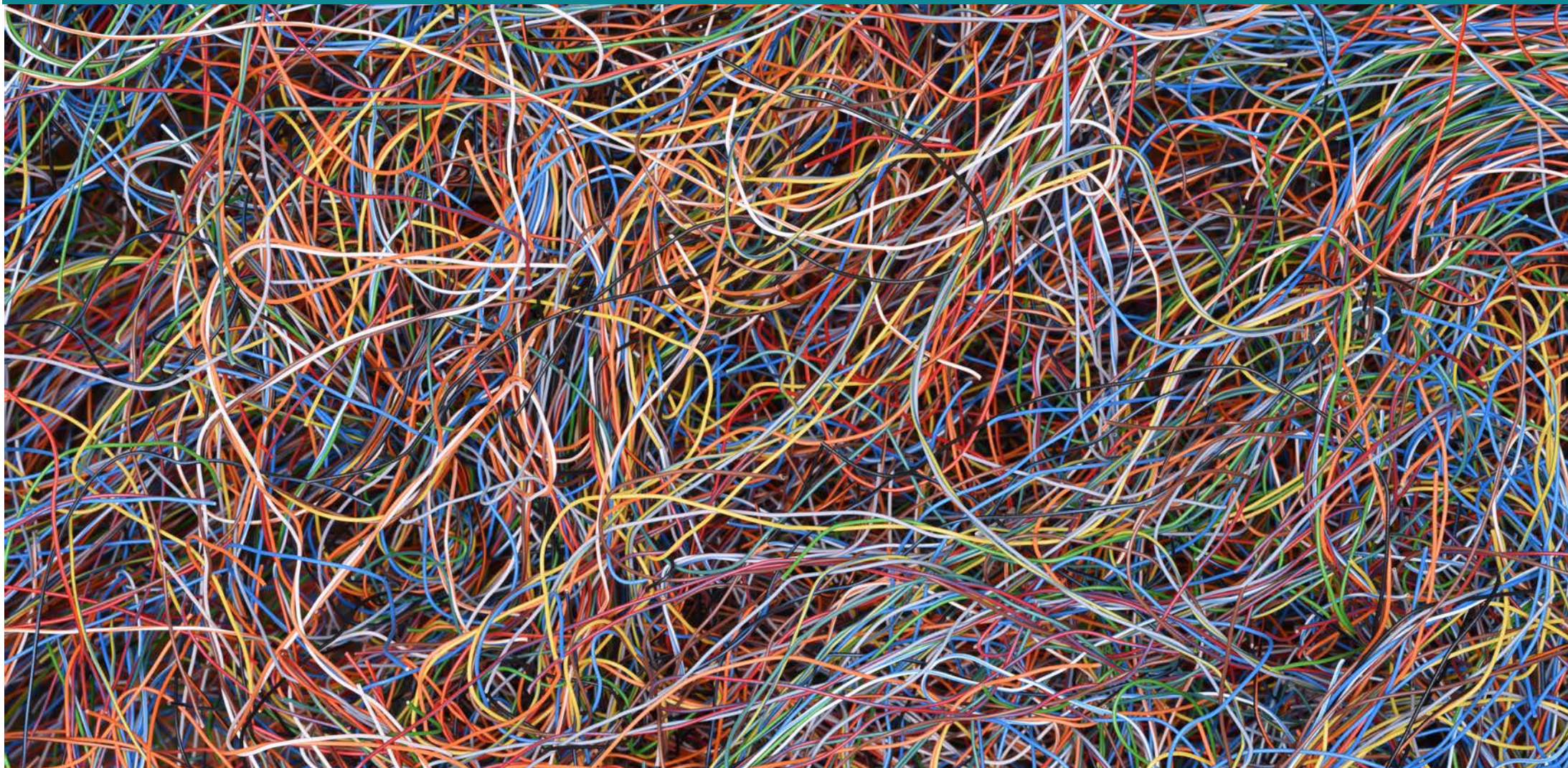
## THE IMPACT OF AI



## **The Initial Impact of AI**

There are great expectations around AI. Initial advances from machine learning and pattern recognition will be most significant in enabling more efficient diagnosis and better prediction.





## **AI and Unstructured Patient Data**

As deep, self and reinforced learning develop, the ability to deal with unstructured data delivers major improvements in diagnosis and treatment. AI agents learn by trial and error and AI is embedded into many clinical decisions.



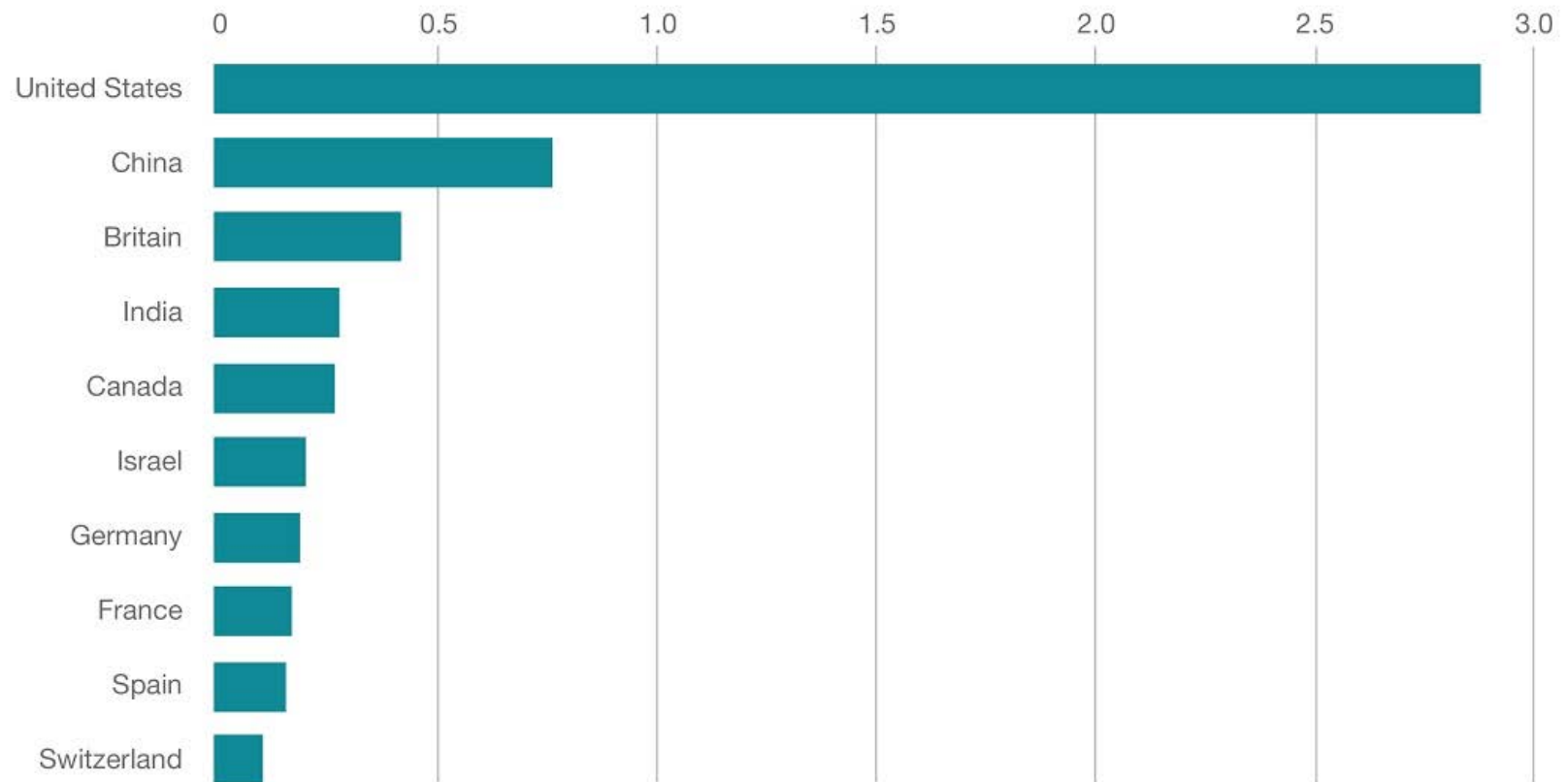


## AI and Mental Health

With voice and facial recognition increasingly analysing users' patterns of behaviour, AI is applied to identify stress and anxiety. Some patients are more comfortable and honest talking to machines rather than humans in high-stress situations.

## Number of Artificial-Intelligence Companies

Selected countries, 2016, '000



Source: Economist.com 2017



**NEW MODELS**





## **Re-engineering from Within**

Change is coming from governments and major existing healthcare companies. More patient-focused and collaborative business models are targeted on changing reimbursement mechanisms and driving shared risk across the payers and providers.



## **India and China Setting Standards**

Significant new approaches for global healthcare may emerge from India where the scale of Aadhaar and related platforms drives integration and innovation. China is also building momentum across surgery, AI and predictive analysis.

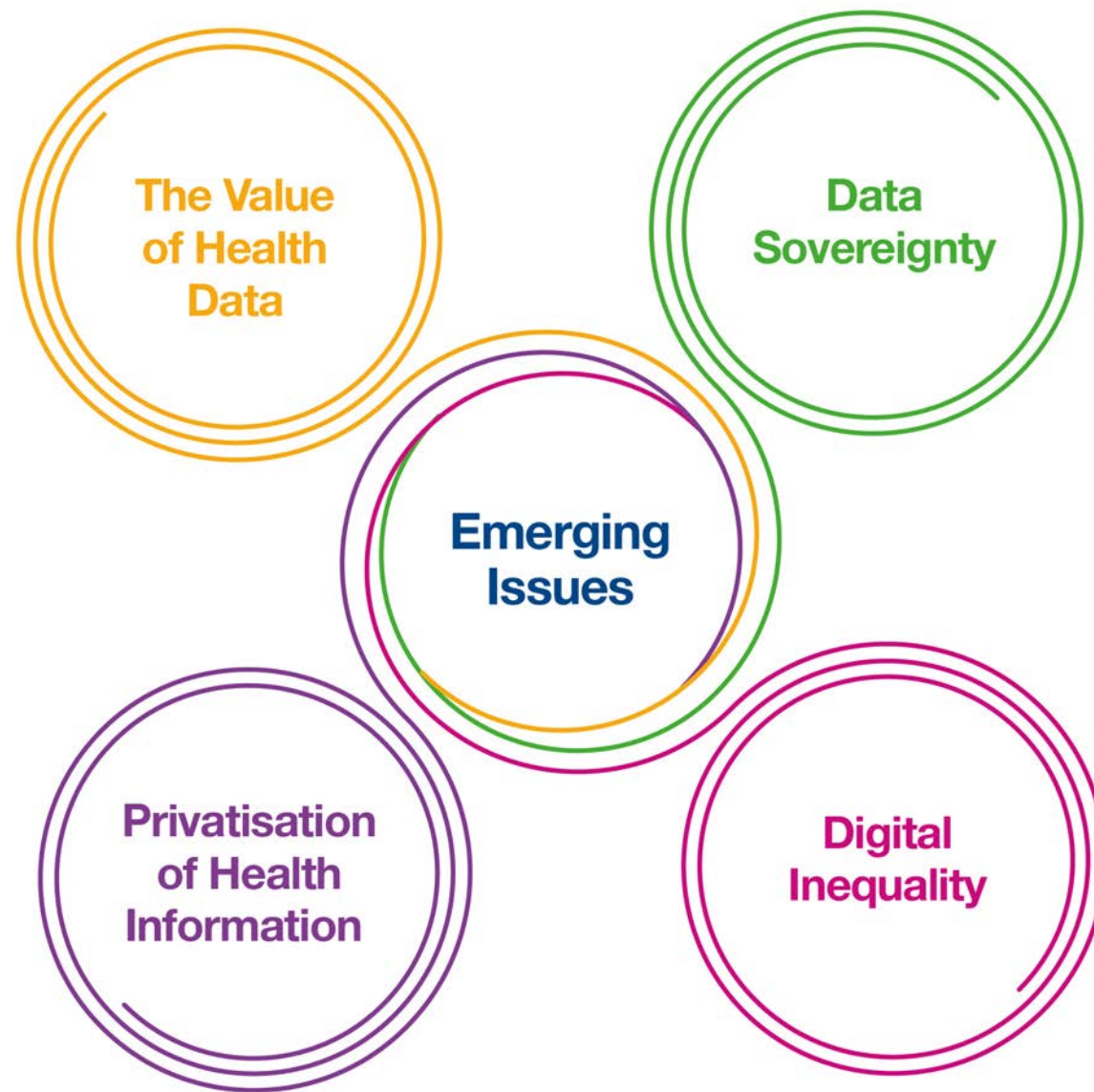




## Big Tech Health

Led by Amazon, big tech will disrupt and reinvent some core elements and unify fragmented systems. All of the big 5 are investing heavily in major 'special' projects focused on the radical transformation of healthcare centred on the individual.





## EMERGING ISSUES



**DATA SOVEREIGNTY**





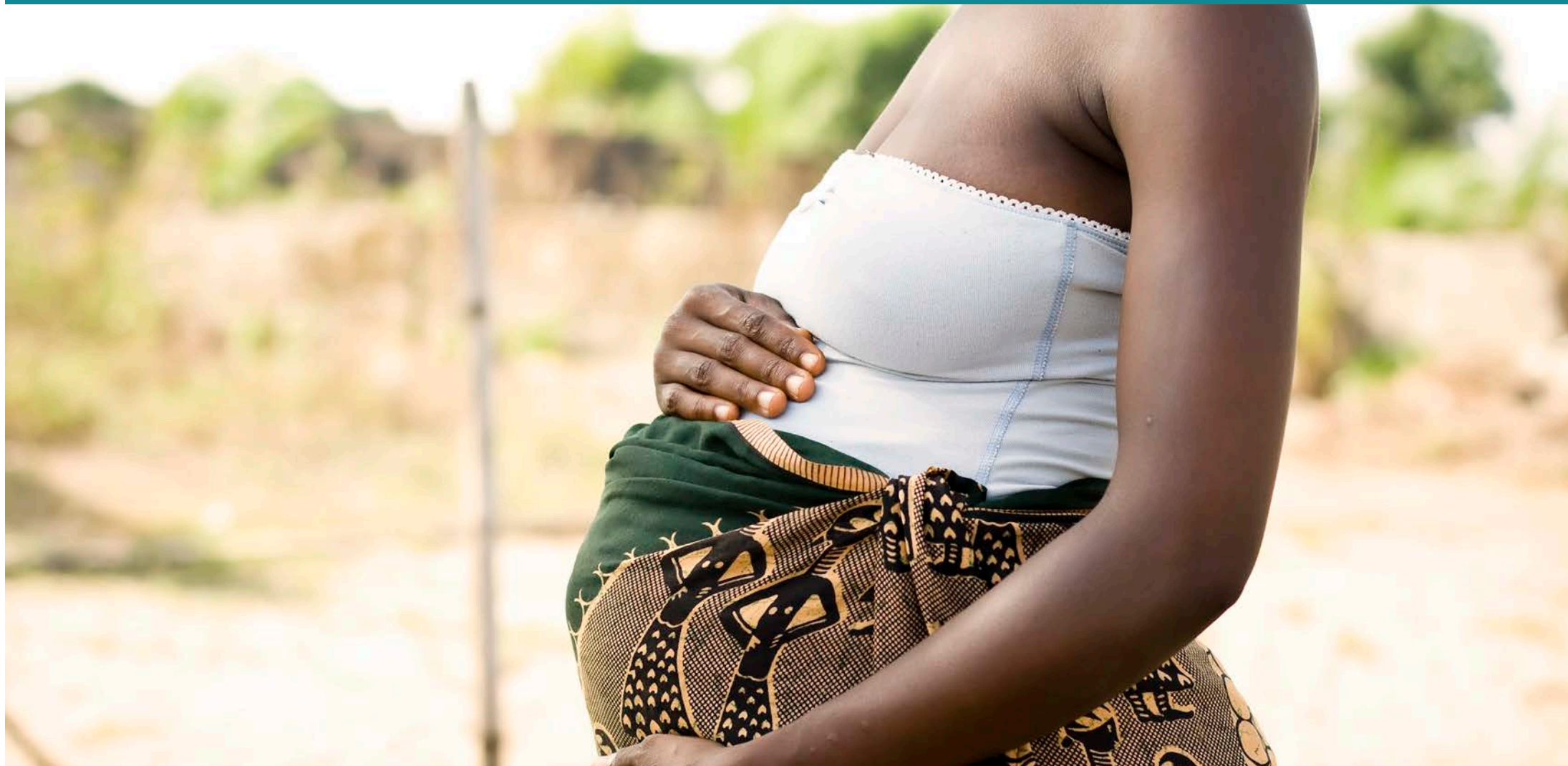
## **Data Localisation and Control**

Driven by national security, commercial interest and privacy standards, more governments seek to restrict the sharing of health data beyond their borders - and so push-back against some global ambitions.



**DIGITAL INEQUALITY**

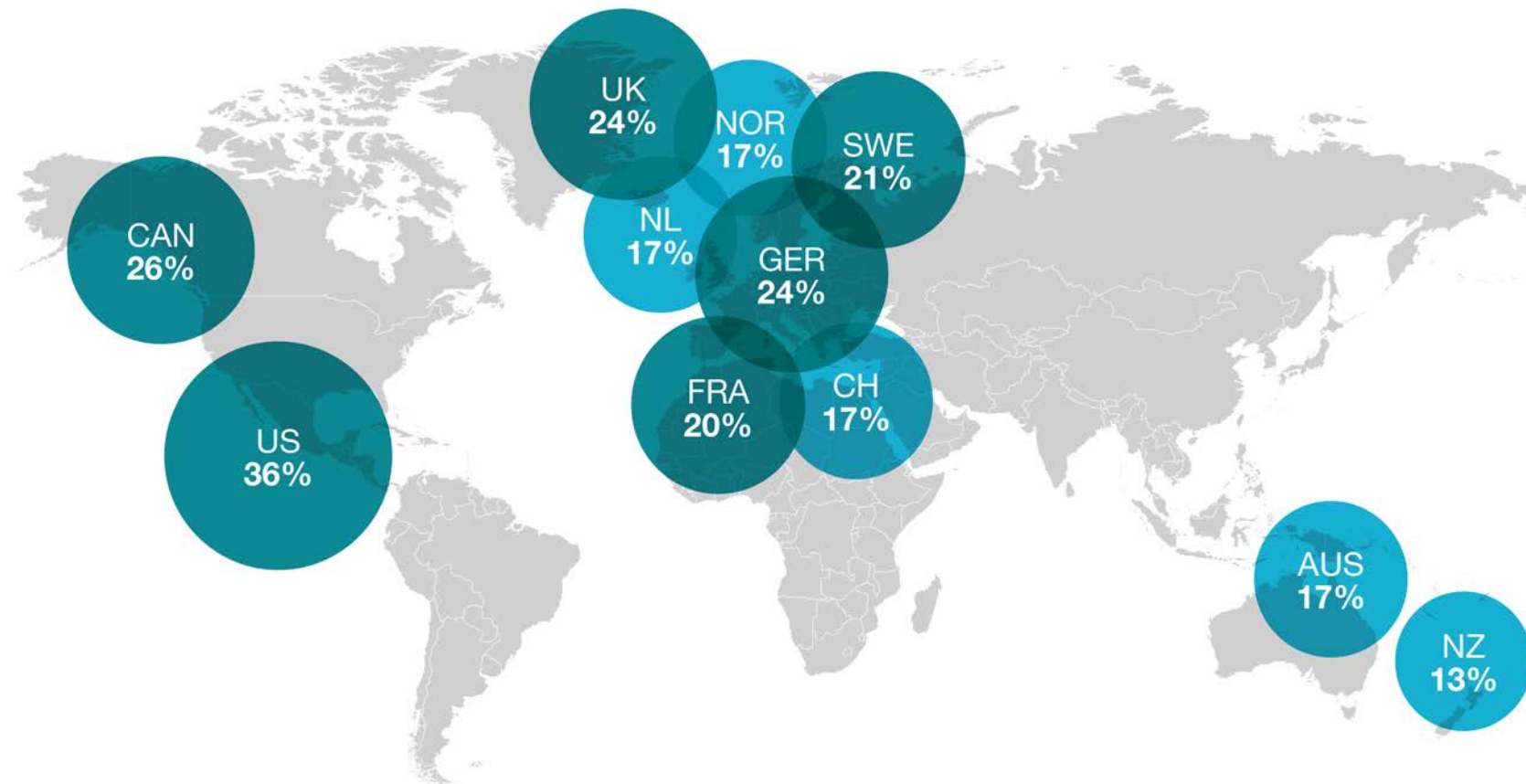




## Access Inequality

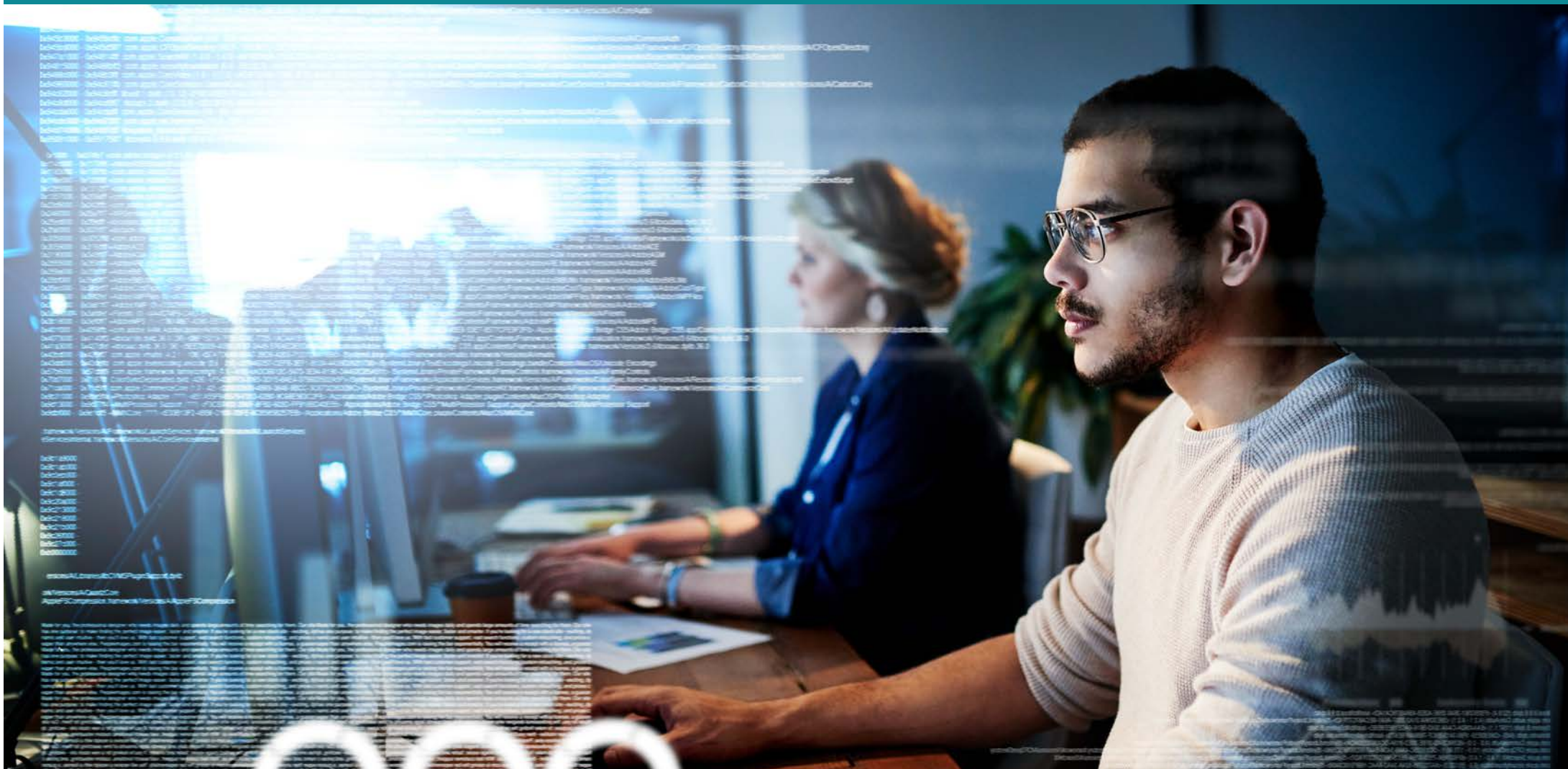
As advances roll out, there is growing concern for those being left behind. Some hope that, with more and better data, health inequality can be reduced. Others see a widening divide between those with access and those without.

## Older Adults With Three Or More Chronic Conditions



Source: 2017 Commonwealth Fund International Health Policy Survey of Older Adults





## Digital Skills

Some healthcare professionals lack the skills for digital transformation. Whether we need to learn, unlearn and relearn new skills, or if new systems can evolve fast enough to provide seamless support for doctors, is a growing debate.



## Agreed Standards

Many want standardisation of outcome-based measures. With regulators behind the curve, compliance, consent and privacy are shared concerns. How countries deal with these is as much political and commercial as it is technological.





## PRIVATISATION OF HEALTH INFORMATION



### **Open vs. Private Knowledge**

Escalating privatisation of medical knowledge and more 'secret software' challenge the view that healthcare information, especially concerning AI, should be open source or shared within agreed governance systems: Deep pockets have greatest impact.

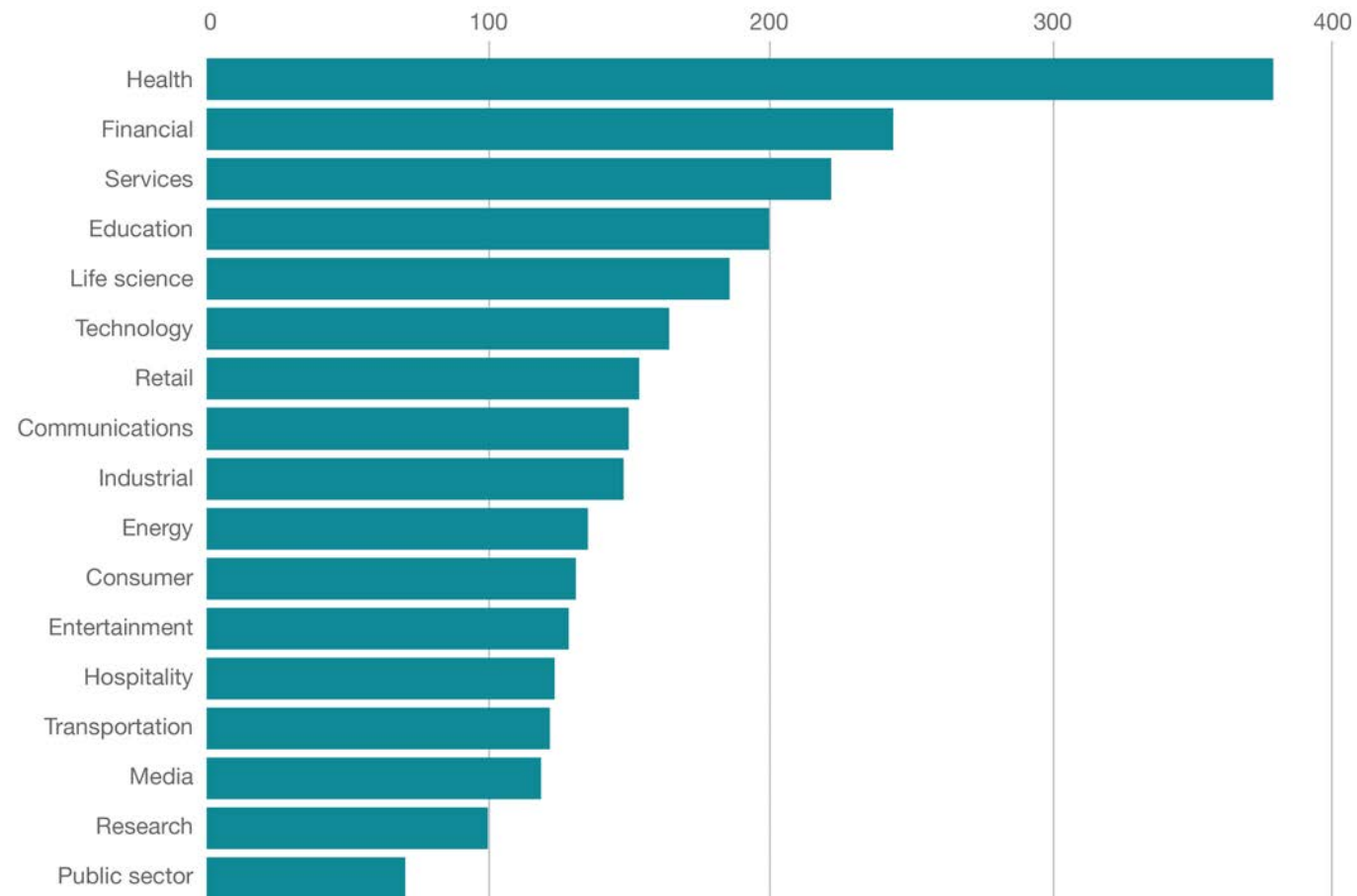




THE VALUE OF HEALTH DATA

## Data Breach Cost Per Capita

By industry classification, 2017 (\$)



Source: Ponemon Institute / FT

**Value of Data** | Health data is seen as being increasingly valuable





## Financial vs Social Value

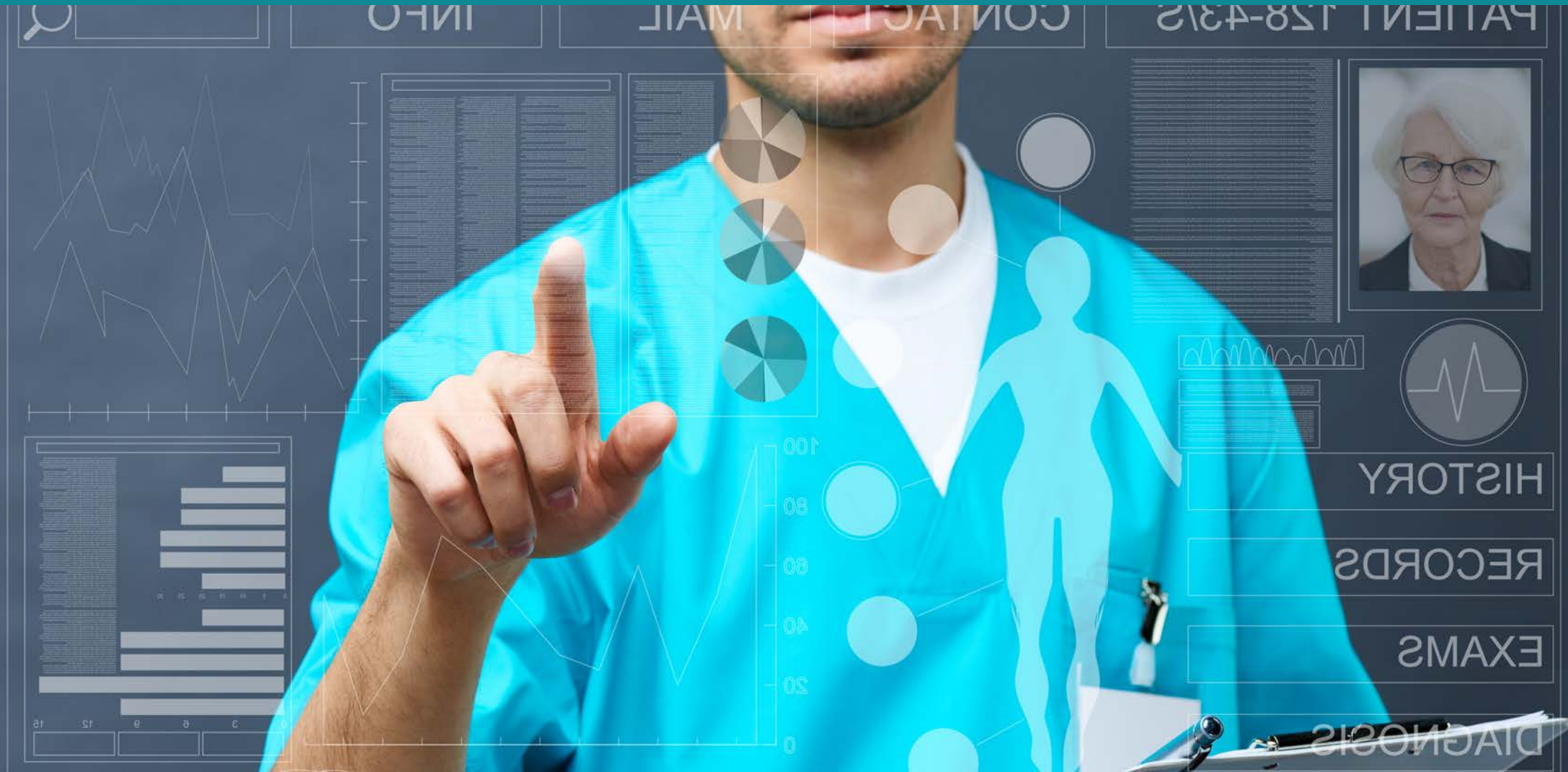
As organisations retain as much information as possible, health data has a price. It is increasingly prized and what may be public vs. commercial is a major debate. Many compete to prioritise the social value of health data over the financial.





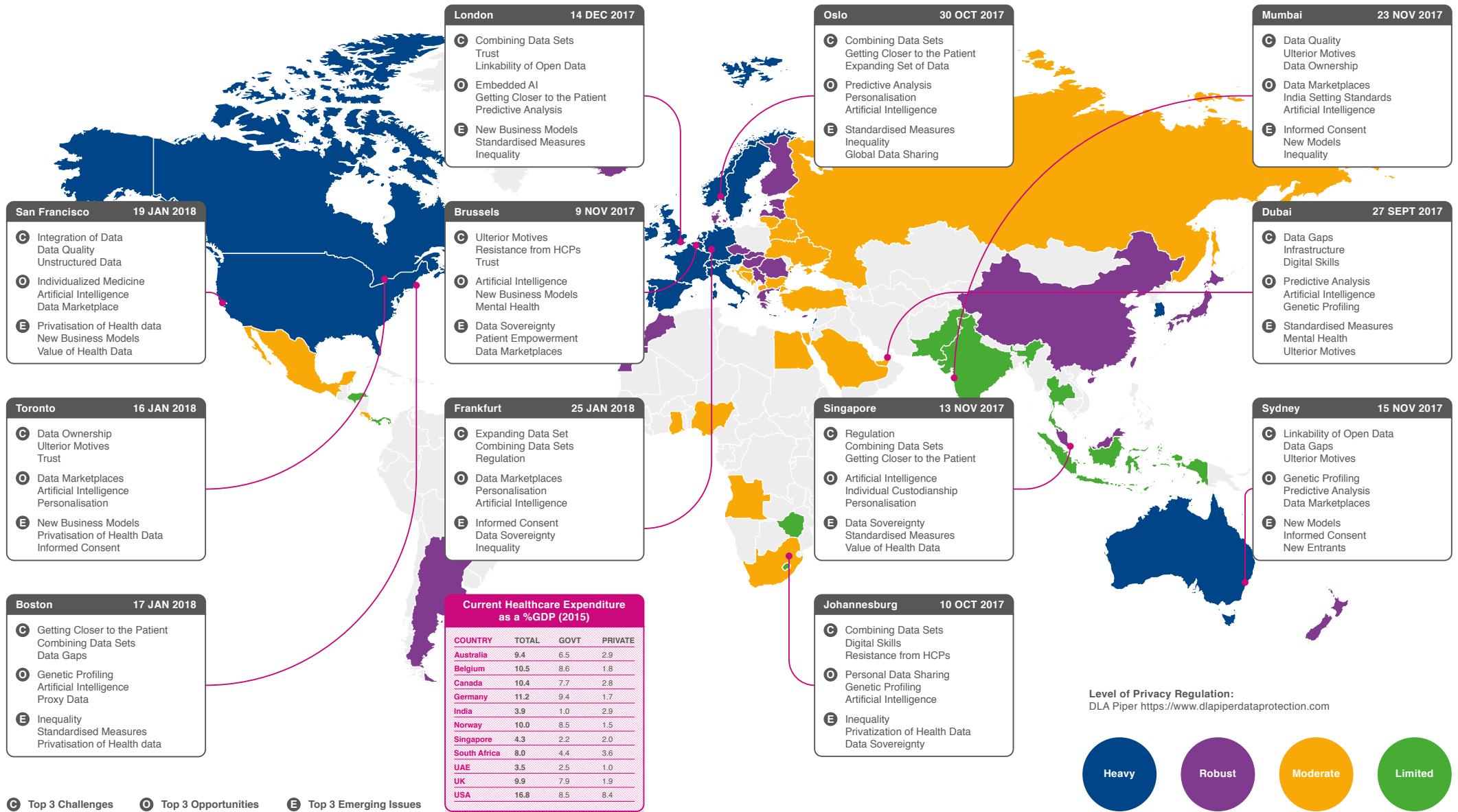
CONCLUSION





## Ensuring Impact

There is lots of potential, but also many challenges. Change may occur more at a regional than global level but, to have impact, it must deliver clear advantage for those who most need better healthcare – often the weakest and most vulnerable.



## Project Summary | Locations and Key Insights





## Thank You

We would like to thank all hosts and partners for their support in enabling this important project to take place. In addition, we are hugely grateful to all participants for their time, insight and willingness to challenge views.

# FUTURE AGENDA

Open Foresight

**Future Agenda**  
84 Brook Street  
London W1K 5EH  
[www.futureagenda.org](http://www.futureagenda.org)