

Big Data and B2B Platforms: the next big opportunity for Europe



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1st Workshop
Opportunities for T2D data driven
health
Health data market place

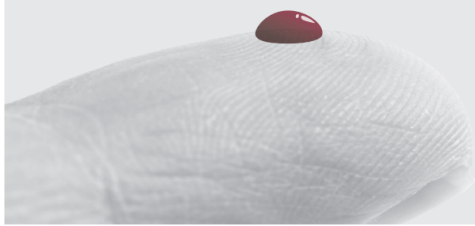
Big Data and B2B platforms: the
next big opportunity for Europe

EASME/COSME/2018/004

Andre Boorsma - TNO



Brussels
23 May, 2019



DIABETES

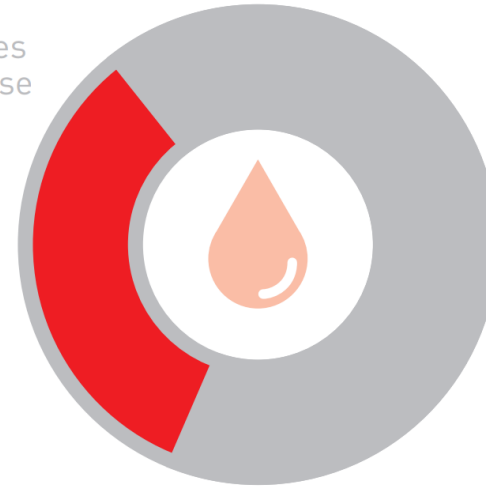
DIABETES IS
ON THE RISE



422 MILLION
adults have diabetes

3.7 MILLION
deaths due to diabetes
and high blood glucose

1.5 MILLION
deaths caused
by diabetes



THAT'S **1** PERSON IN 11



Main types of diabetes



TYPE 1 DIABETES

Body does not produce enough insulin



TYPE 2 DIABETES

Body produces insulin but can't use it well



GESTATIONAL DIABETES

A temporary condition in pregnancy

Consequences

Diabetes can lead to complications in many parts of the body and increase the risk of dying prematurely.

Stroke



Blindness



Periodontal disease

Heart attack



Kidney failure








Amputation



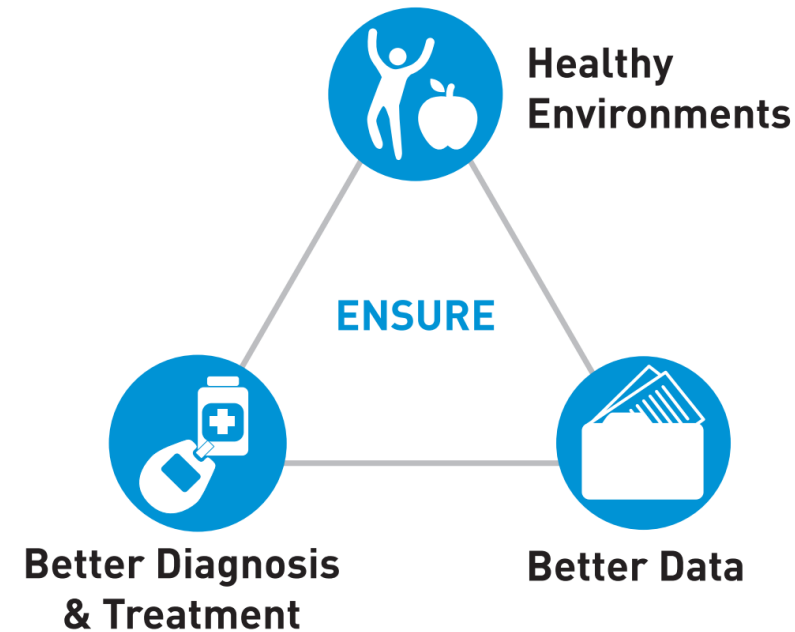
OECD: **89 billion euros were spent** on treating and managing diabetes and its related complications in 2011. However, the **true cost** of diabetes **also includes indirect** costs, such as productivity losses, which can dramatically increase the costs associated with diabetes

KEY ACTIONS

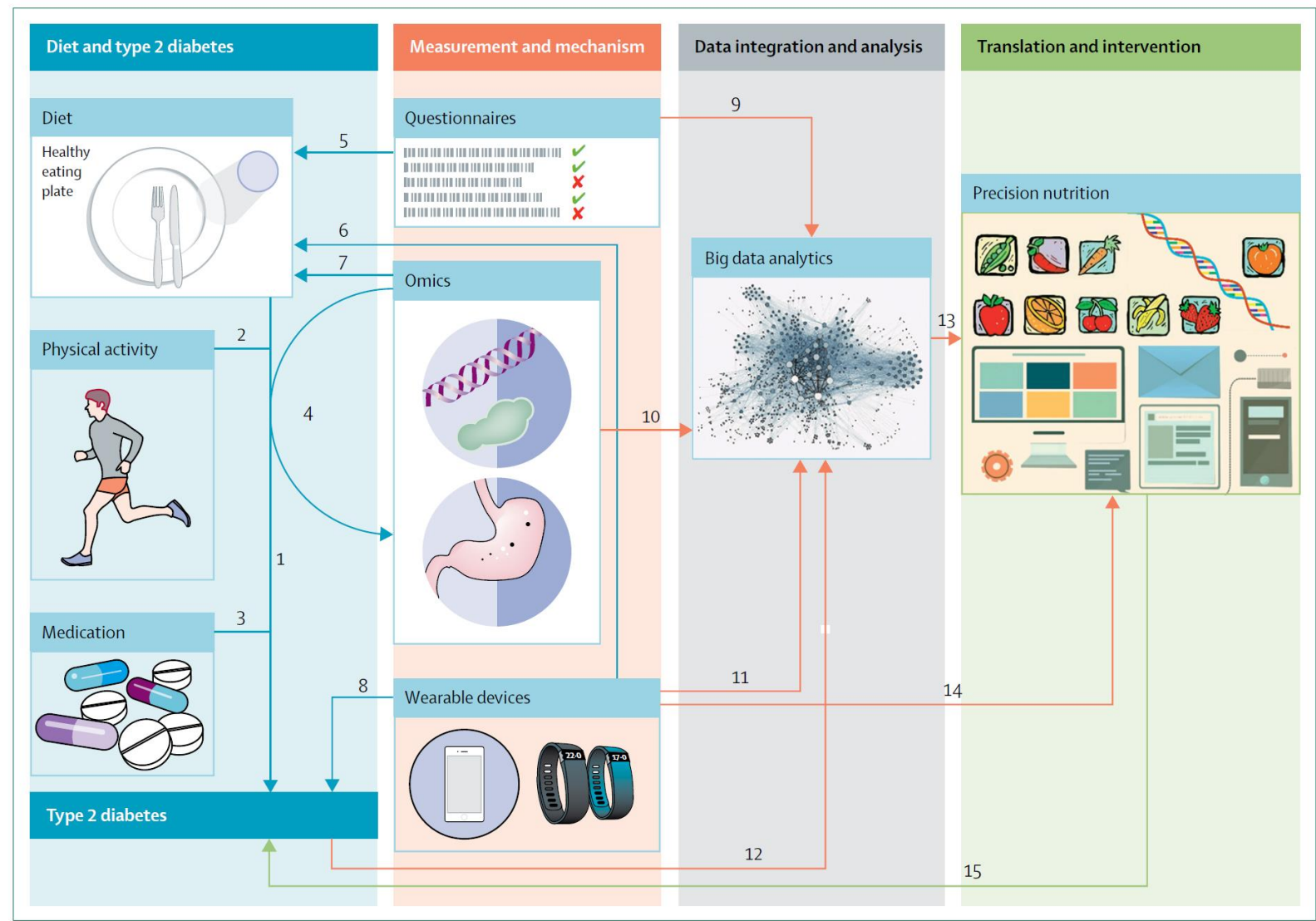
FOR EVERYONE

-  Eat healthily
-  Be physically active
-  Avoid excessive weight gain
-  Check blood glucose if in doubt
-  Follow medical advice

FOR GOVERNMENTS

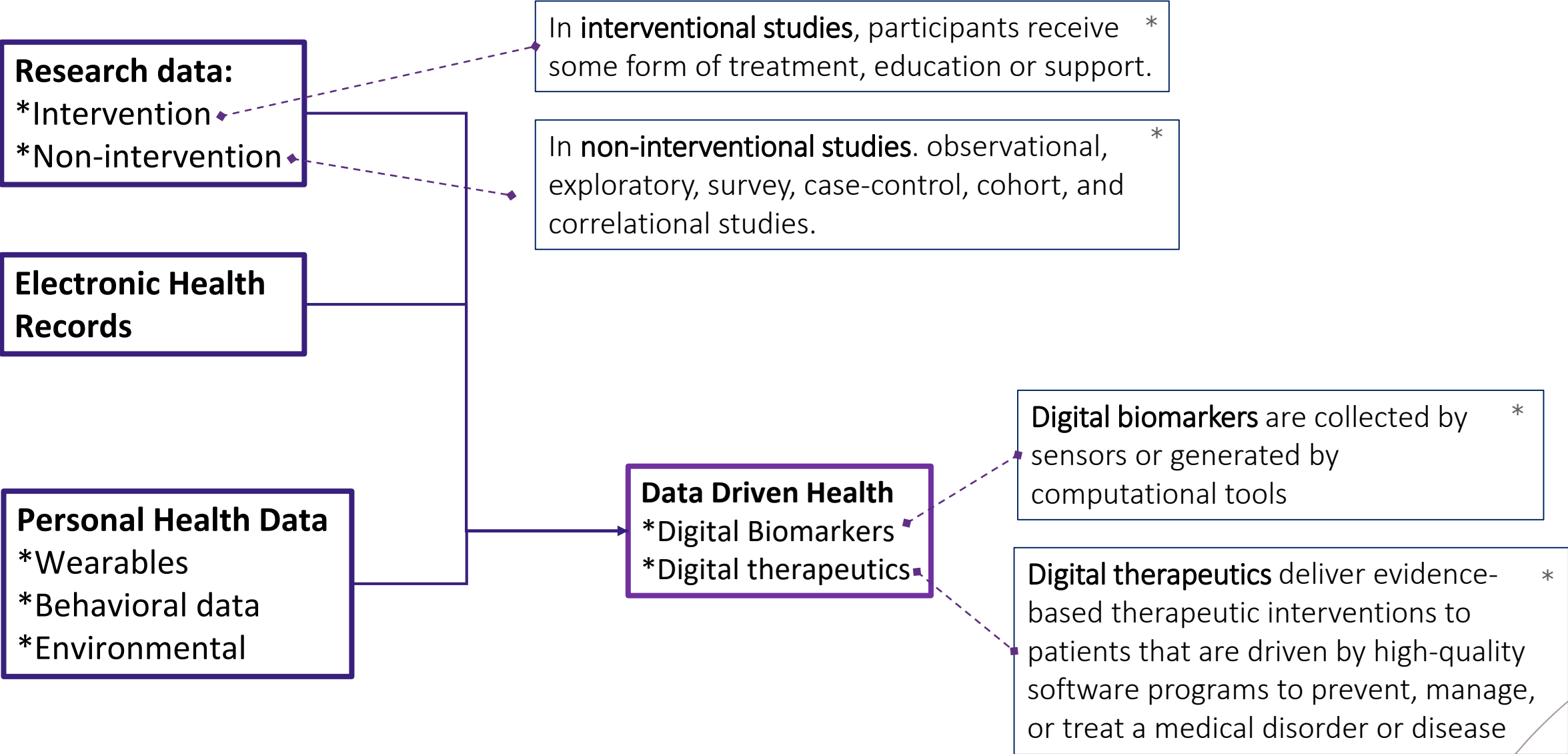


Data collection and integration for precision treatment of T2D



From: Precision nutrition for prevention and management of type 2 diabetes – Wang & Hu, The Lancet 2019

Data sources for T2D



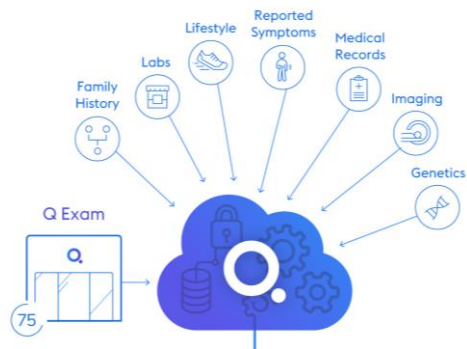
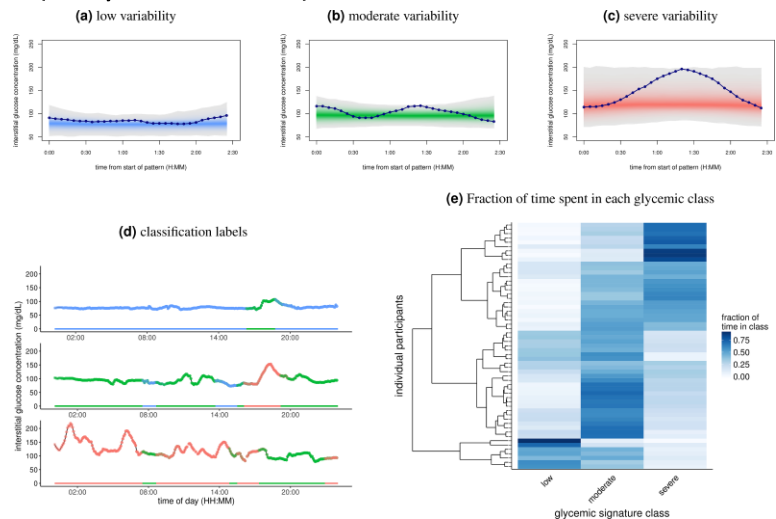
* Digital medicine, a primer on measurement. Caravos *et al.*,

Application of data: (digital) biomarkers

- **Susceptibility** to or the risk of developing a condition
- **Diagnosis** or health status monitoring
- **Predicting** whether an individual is more likely than others to experience a future change or clinical outcome
- Evaluating an individual's **prognosis**, or the likelihood that a disease recurs, progresses, or is cured, or that some other clinical event may happen in the future
- **Monitoring** the molecular effects of an intervention
- Detecting a **safety** signal or adverse event
- Precisely quantifying the time-course over which a dose of medicine has an effect on the body (its **pharmacodynamics**)

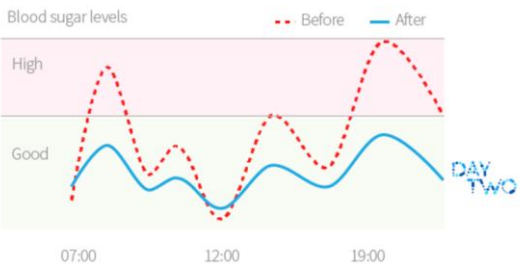
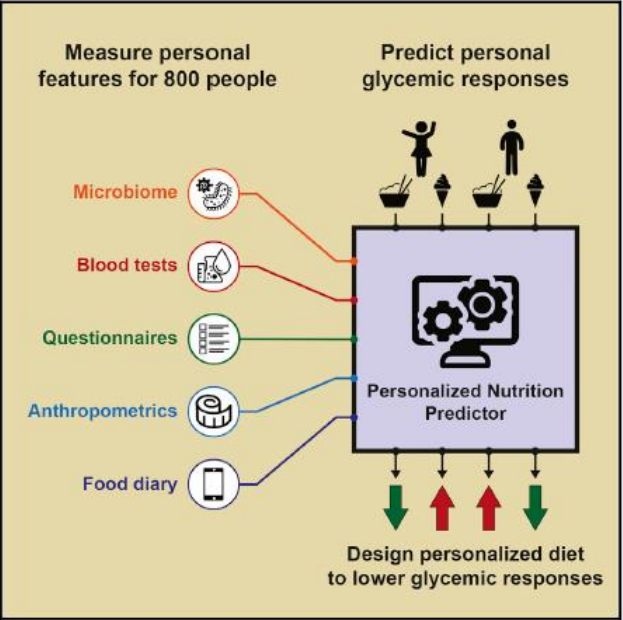
New T2D insights applying 'big-data'

Prediction of glucotypes (Snyder et al)



Company Q

Prediction of personal glycemic response (Zeevi et al)



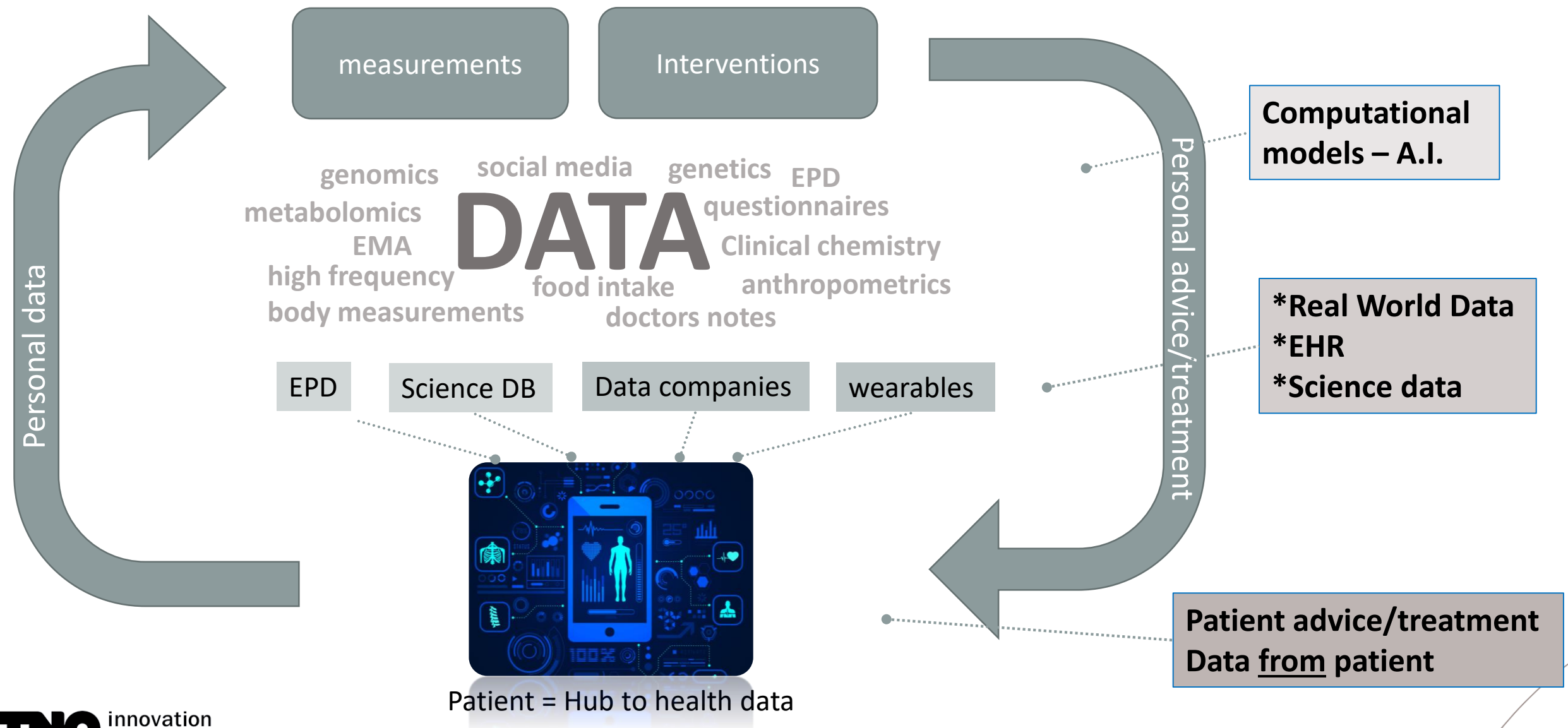
Company: DayTwo

Health data is giving rise to a new health economy

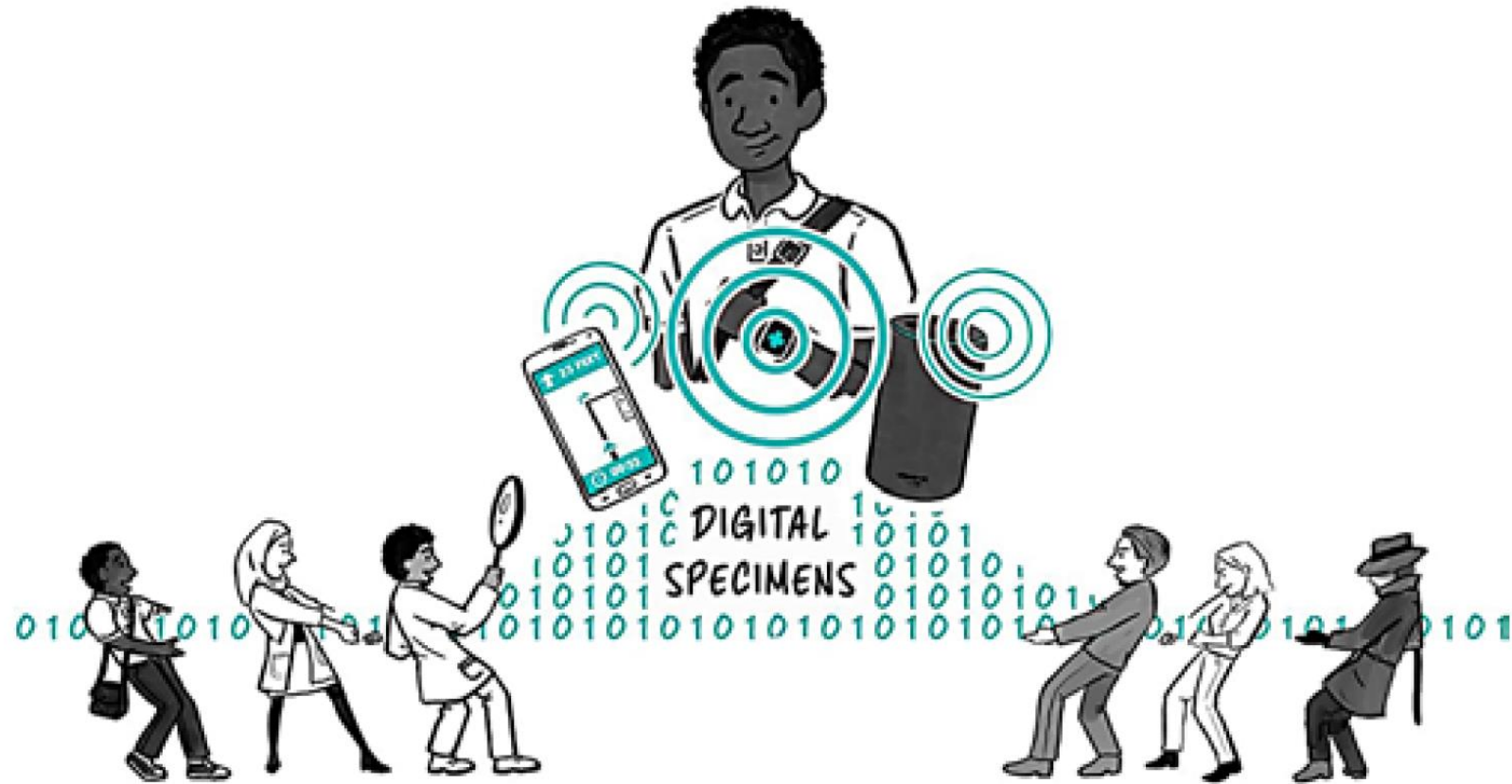
- Data is the new oil! Algorithms the new refineries
- Potency for a new health data economy; **however data is hardly traded**
- If health data would be traded, health data will be **valorised** more efficiently
- patient/citizen is the hub to health data
- Personal health data is needed, but is sensitive data
- Valorisation of health data should benefit the **patient**/citizen

Need for: **FAIR-trade of personal health data**

Patients are the central hub to personal health data



Who owns and controls your data?

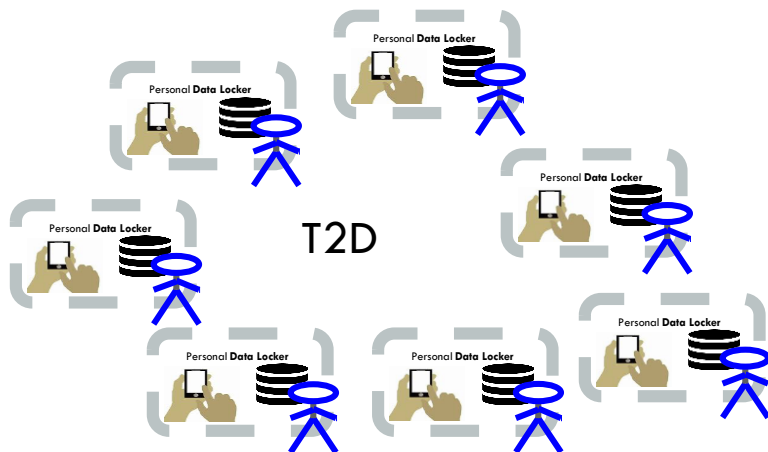


YOUR **DIGITAL SPECIMEN** IS UP FOR GRABS ...
DO YOU KNOW WHO HAS THE RIGHT TO LOOK AT IT?

Fair-trade of health data

Governance of health data

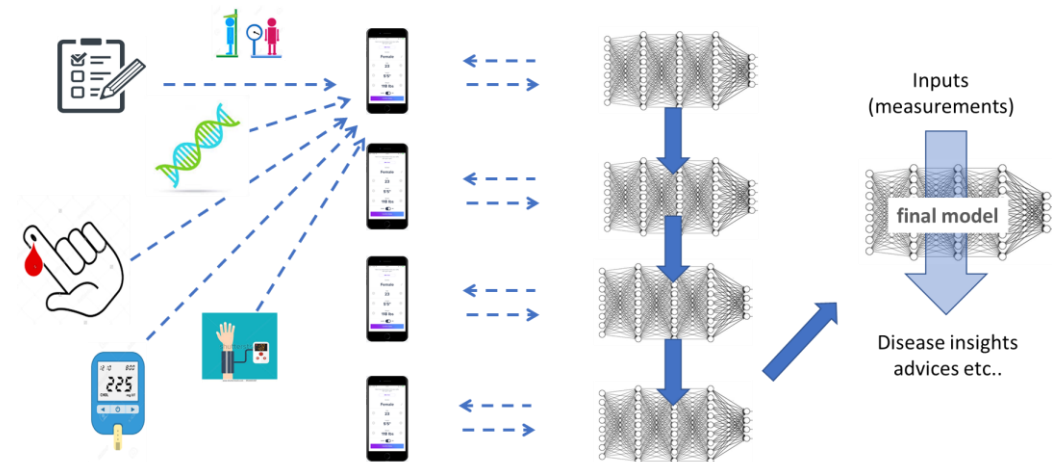
- *data stewardship
- *data privacy – trust –transparency
- *security
- *dynamic consent
- *responsible and explainable A.I.
- *agency over data



Technical needs

- *data standardization (FAIR)
- *decentralized personal data stores
- *personal Health Train (PHT) approaches
- *dynamic **consent** management tools

A privacy-by-design, trust and transparency framework



Value drivers for consumers in Digital Health



EMPOWER PATIENTS



Patients manage their health through increasingly self-directed, digital offerings

DEMOCRATIZE INFORMATION



Patients and providers have the information they need to successfully navigate the healthcare system

ENABLE HEALTH DATA OWNERSHIP



Patients access and share their medical records and self-tracked information with trusted entities

IMPROVE ACCESS TO CARE



Patients access care when and where they need it

LOWER HEALTHCARE COSTS



The market competes on price so patients can choose from affordable options

Health data marketplaces and markets segments

Health Data Cooperatives:

MiData.coop
HealthBank.coop
Savvy Cooperative
Holland Health Data Cooperative

Commercial :

Health Data Exchange fueled by Digi.me
AmDex Amsterdam Data Exchange
IQVIA clinical development trials
IDS International Data Spaces

Health Care

Pharma
Diagnostics
Medical devices

Research

Consumer Health

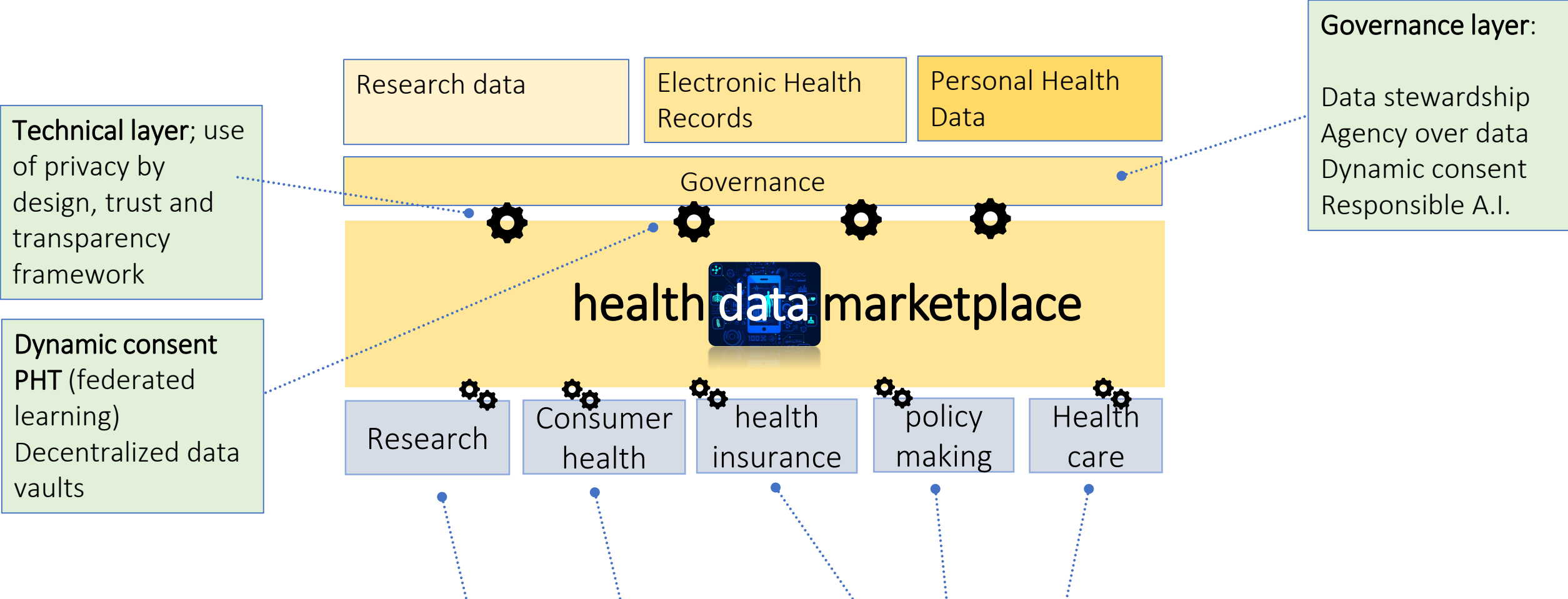
Wellness
Retail
Supplements

Insurance companies

Policy

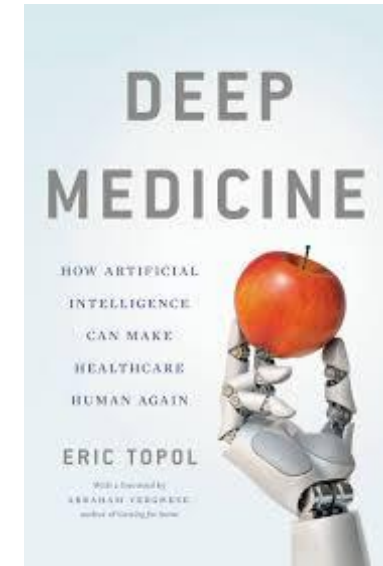
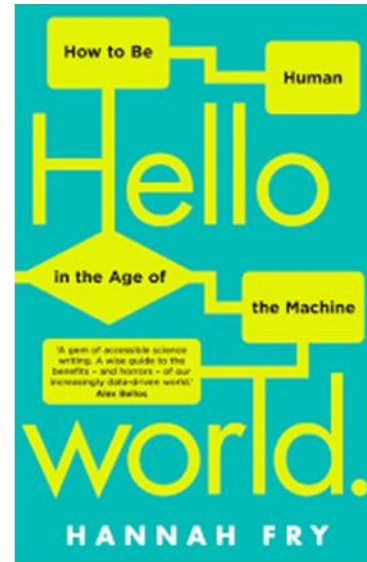
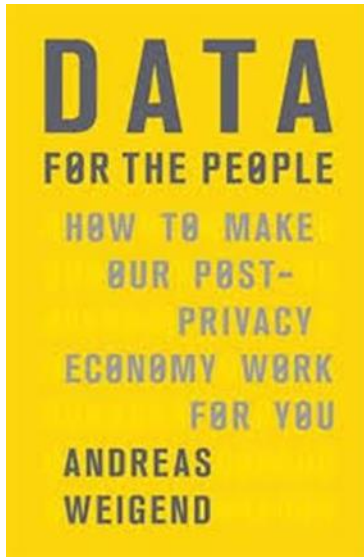
Government
Regulatory bodies

FAIR-trade of T2D health data



T2D Health Data Marketplace has the potential to spur a new data driven health economy

Discussion – Workshop



Willingness to share data

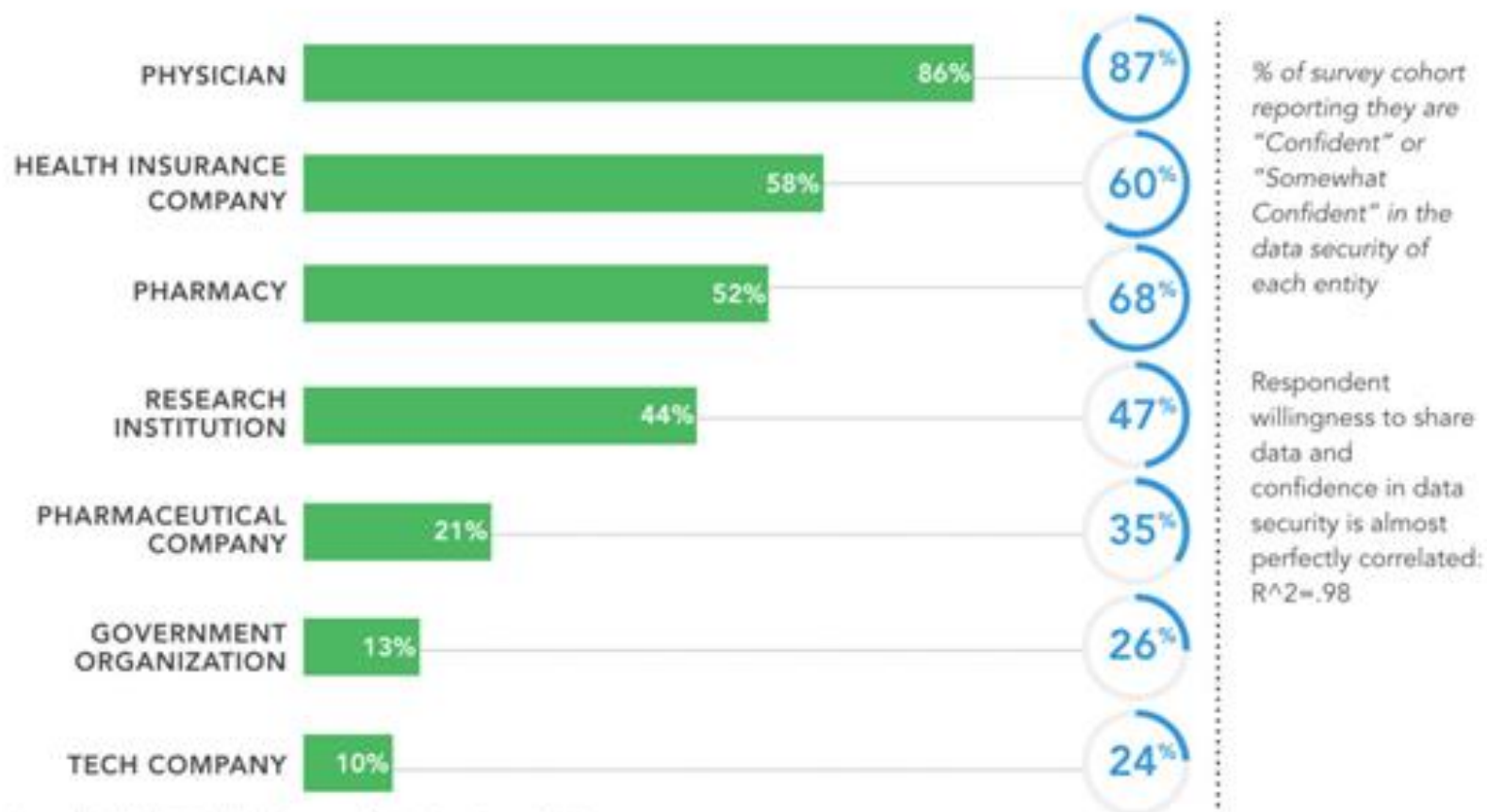
CONSUMER SENTIMENT ON DATA SHARING AND SECURITY

By entity, 2017



WILLINGNESS TO SHARE HEALTH DATA WITH ENTITY*

CONFIDENCE IN DATA SECURITY



Source: Rock Health Digital Health Consumer Adoption Survey (n=3,997)

Note: *"Health data" includes medical records, genetic information, and physical activity data.