dal *datum* al *quantum*

dalle tecnologie del dato agli ecosistemi del valore

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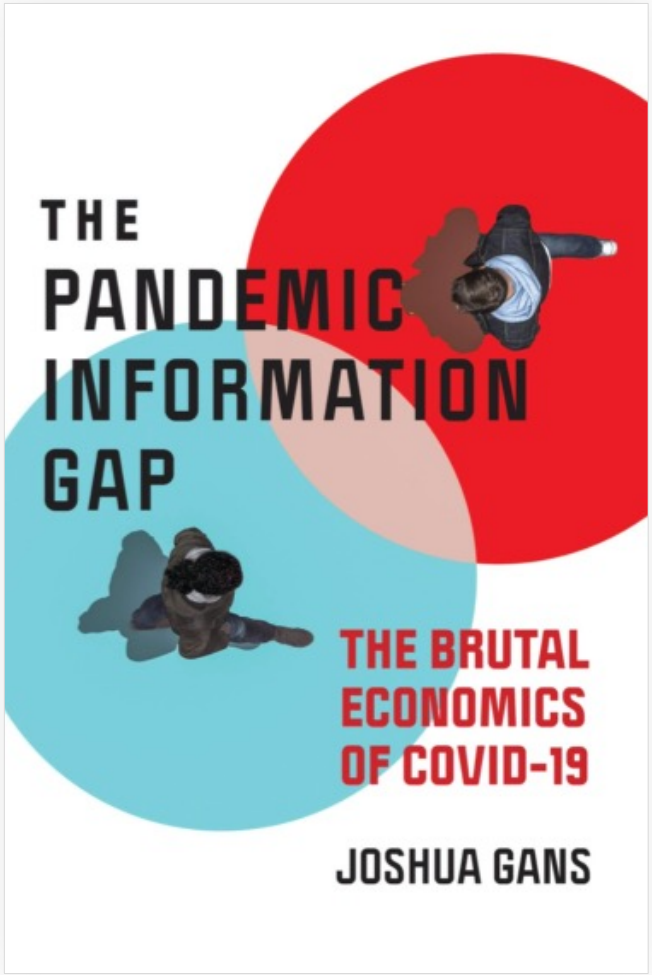

"COVID-19 is caused by a virus. The COVID-19 pandemic is caused by a lack of good information. A pandemic is essentially an information problem …"


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EVENT | 23 November 2020
Data Spaces for Manufacturing - current state of play

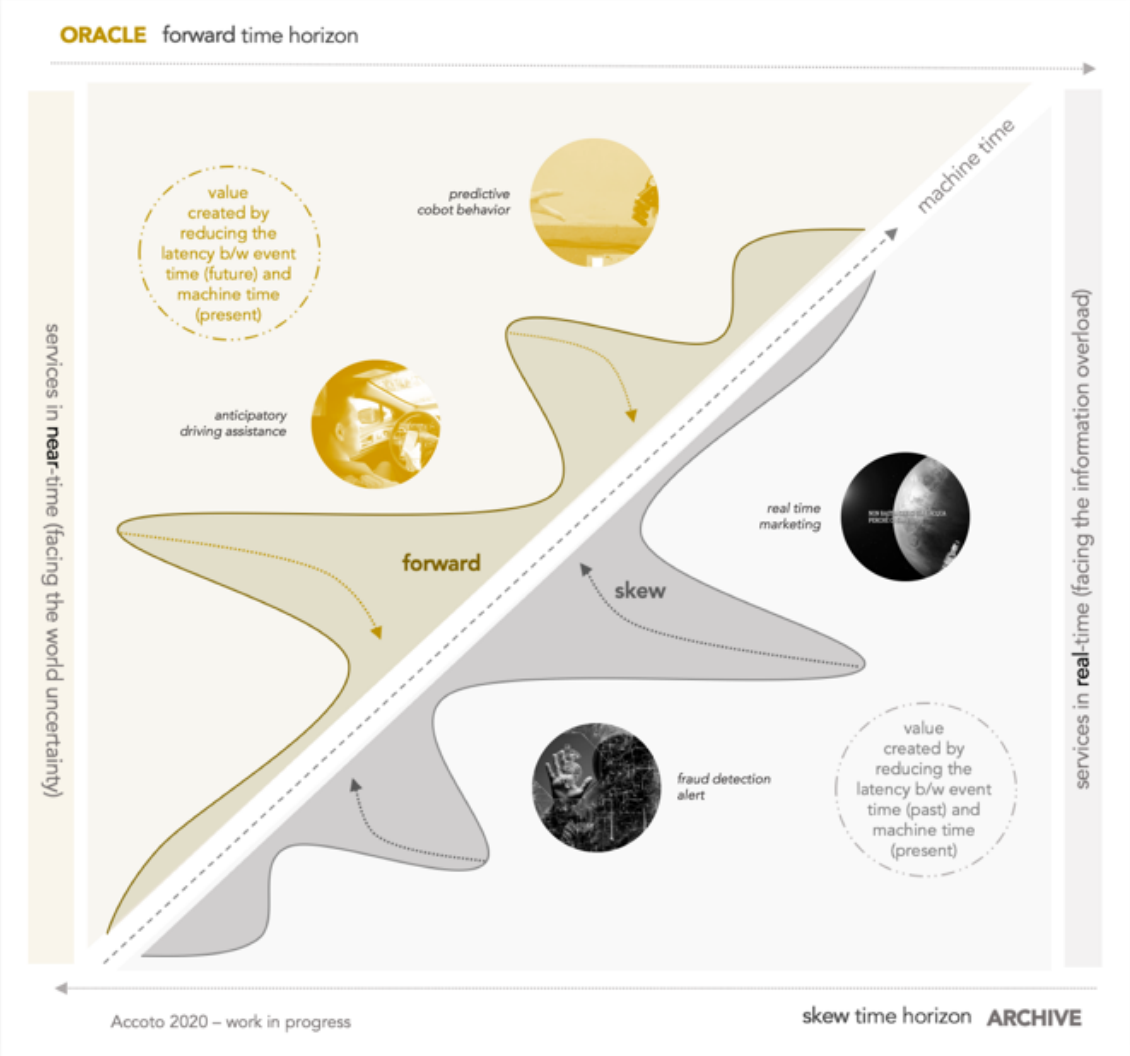

SCIENTIFIC AMERICAN.
How COVID-19 Decreases Weather Forecast Accuracy
By Julia Rosen on July 23, 2020
0:00 / 0:00
Jerry Zhang by Unsplash

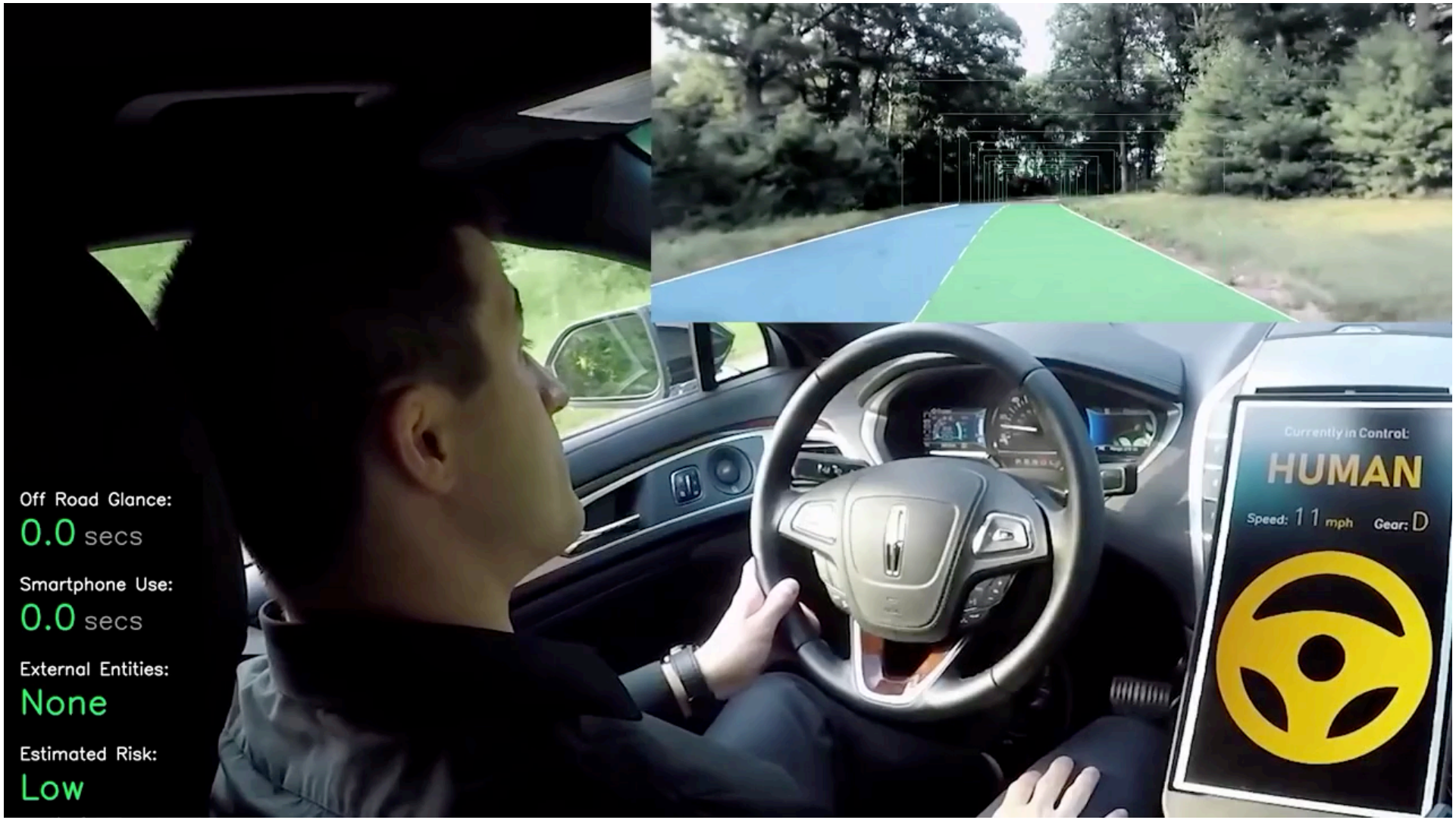
Dall’archivio all’oracolo

Usando sensori, dati e algoritmi di intelligenza artificiale, **le macchine possono modellare l’informazione dal/sul futuro** e usare questa per disegnare e progettare servizi e prodotti in modalità anticipatoria (e non solo posticipata e responsiva).

È la “**feed-forward economy**”. Siamo oltre il *real-time*, siamo nel *near-time*. Il design thinking si è preoccupato soprattutto di contrastare il sovraccarico informativo del presente (*info overload*), ma nei prossimi anni si lavorerà per ridurre l’incertezza informativa del futuro (*world uncertainty*).

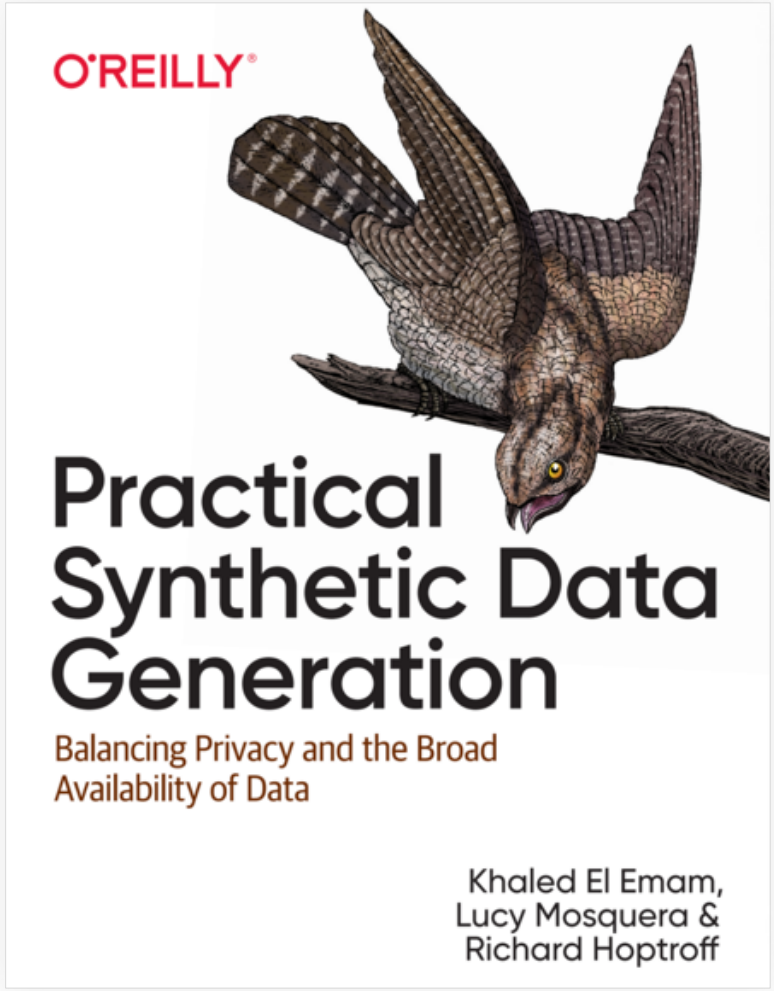
È il passaggio da una società archivistica (archivio/skew time) ad una società oracolare (oracolo/forward time).





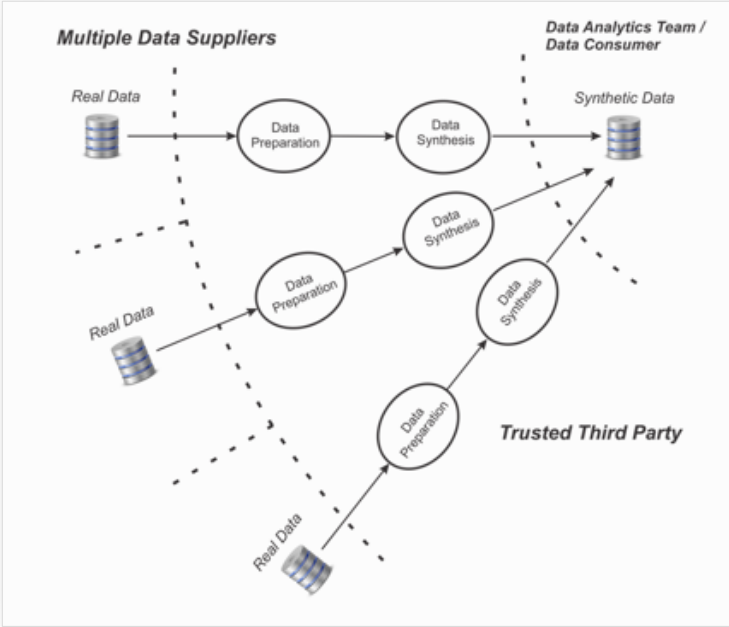
Lex Fridman, MIT Human-Centered Autonomous Vehicle


una società (e un’economia) a feed-forward

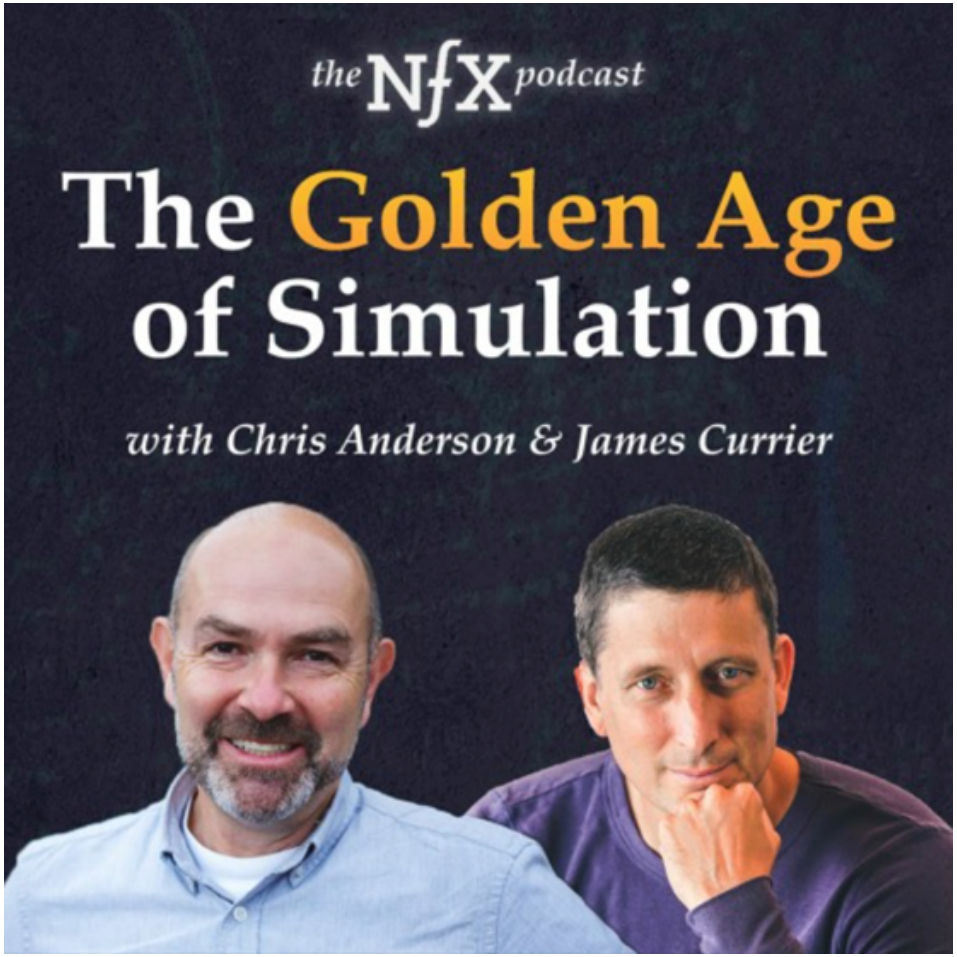


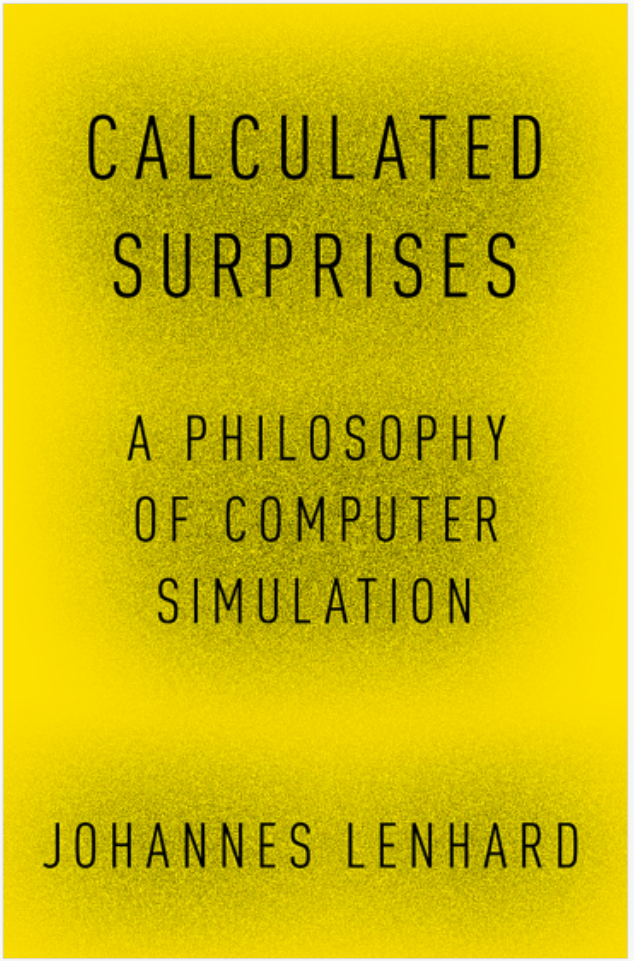
Defining Synthetic Data

At a conceptual level, synthetic data is not real data, but data that has been generated from real data and that has the same statistical properties as the real data. This means that if an analyst works with a synthetic dataset, they should get analysis results similar to what they would get with real data. The degree to which a synthetic dataset is an accurate proxy for real data is a measure of *utility*. We refer to the process of generating synthetic data as *synthesis*.



El Elman, Mosquera, Hoptroff, Practical Synthetic Data Generation, 2021





Le simulazioni computazionali riducono lo scarto epistemico tra modello matematico e mondo fisico

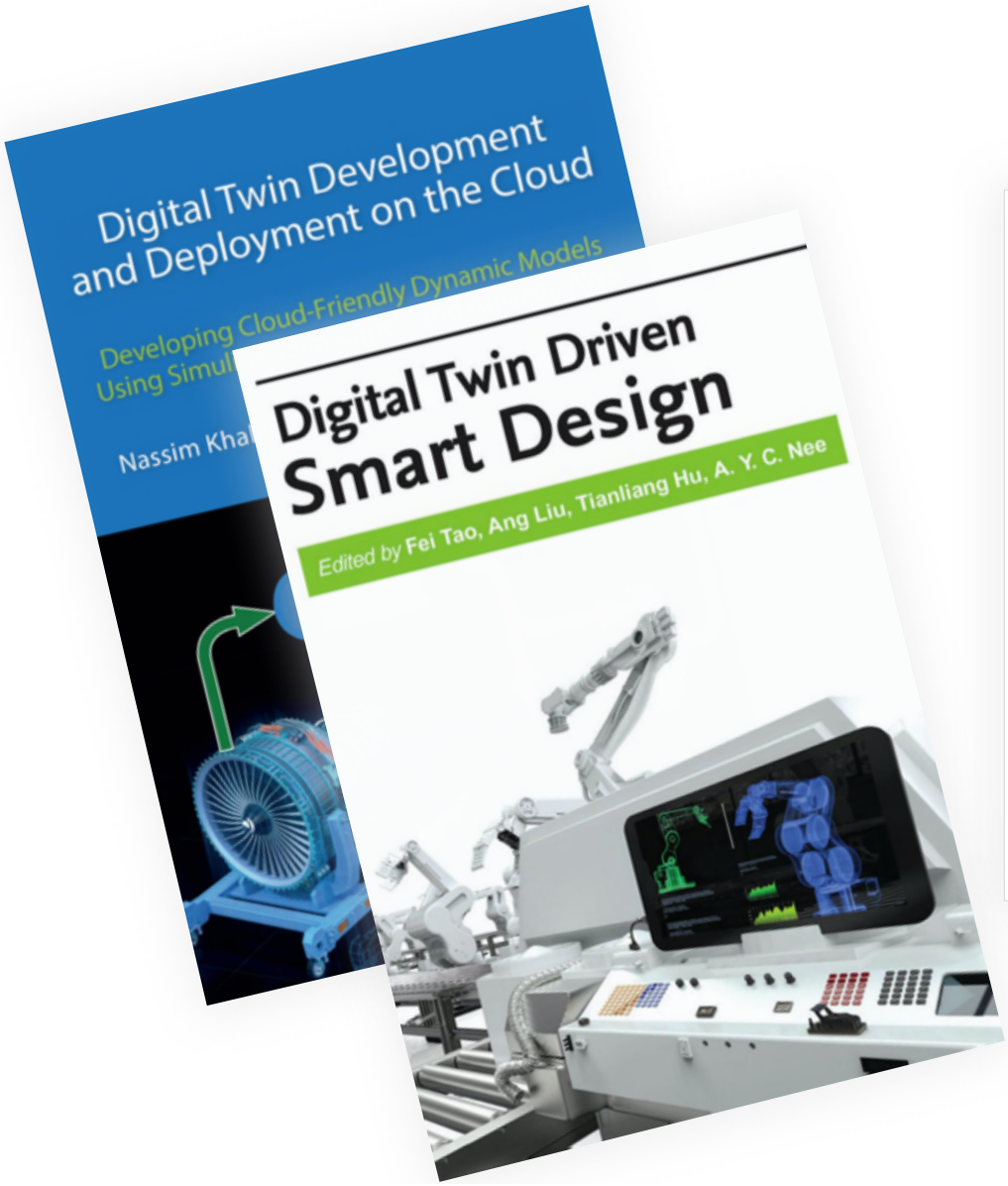
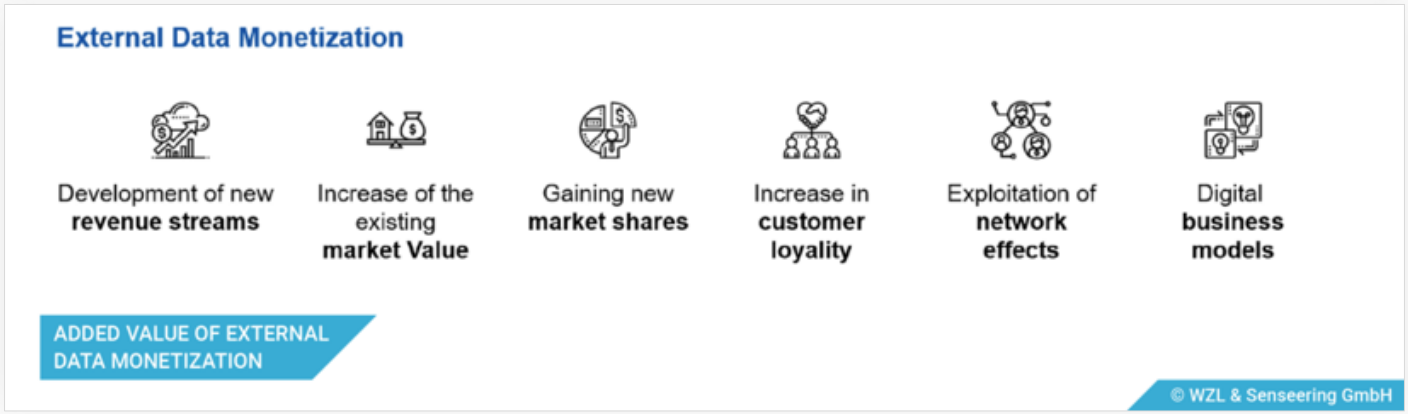


FIGURE 1. A working digital twin of an offshore oil platform. Screenshot from Kongsberg Digital's Dynamical Digital Twin for oil and gas, demonstrating interlinked 2D process diagrams and 3D visualizations of an oil and gas production facility enriched with real-time data from the asset. The color on the pipes shown in the 3D rendering can be used to show data such as flow rates, water / gas / oil fractions etc. The Dynamical Digital Twin can also run and explore what-if scenarios generated by process simulators in which case it will be more appropriately called a Digital Sibling. Copyright Kongsberg Digital 2019.

Rasheed et alii, Digital Twins, IEEE Access, 2020

Manufacturing: la monetizzazione del dato

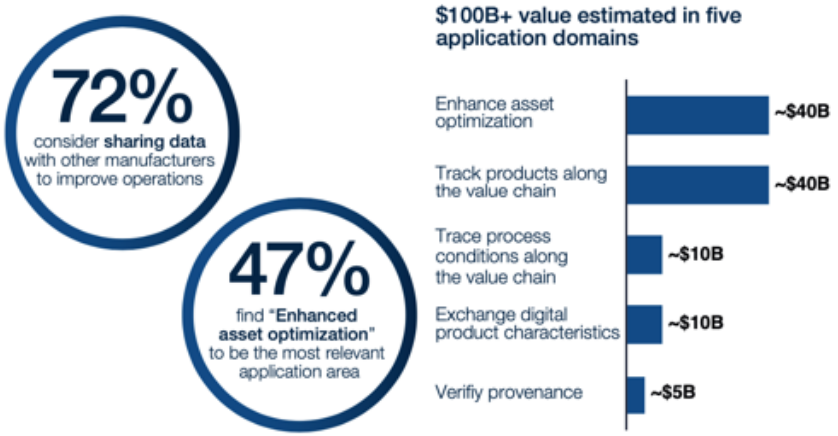


Trauth et alii, The Monetization of Data Manufacturing, 2020

Manufacturing: il potenziale della monetizzazione del dato

The total value that companies can create in five key areas of data sharing is estimated to be more than $100 billion, focusing on operational improvements alone (see Figure 2). To tap into this potential, manufacturers need to understand the mechanisms behind data sharing and the factors that make data-sharing relationships successful.

Figure 2: An estimated value of more than $100 billion in improved operations alone

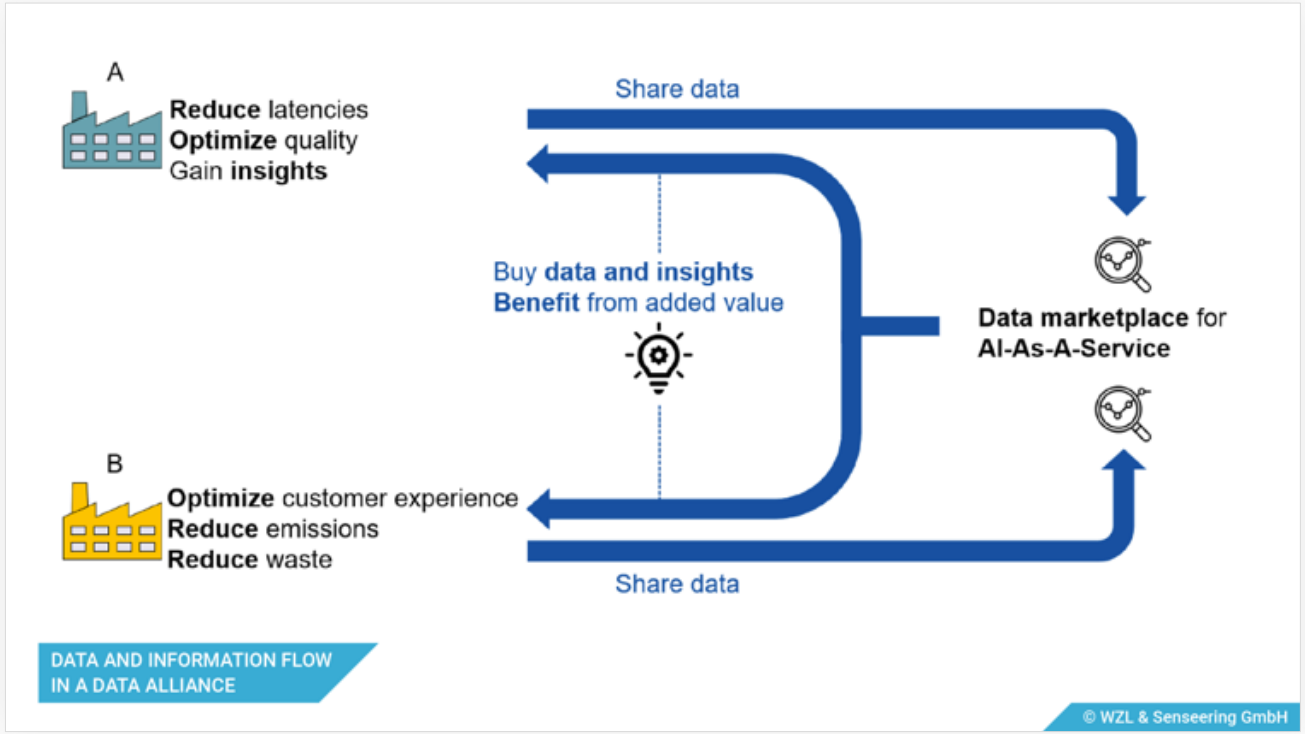


Note: The estimated value only considers efficiency improvements in operations through data sharing. Quantification is based on a global BCG survey (among 996 manufacturing managers) and available industry examples.

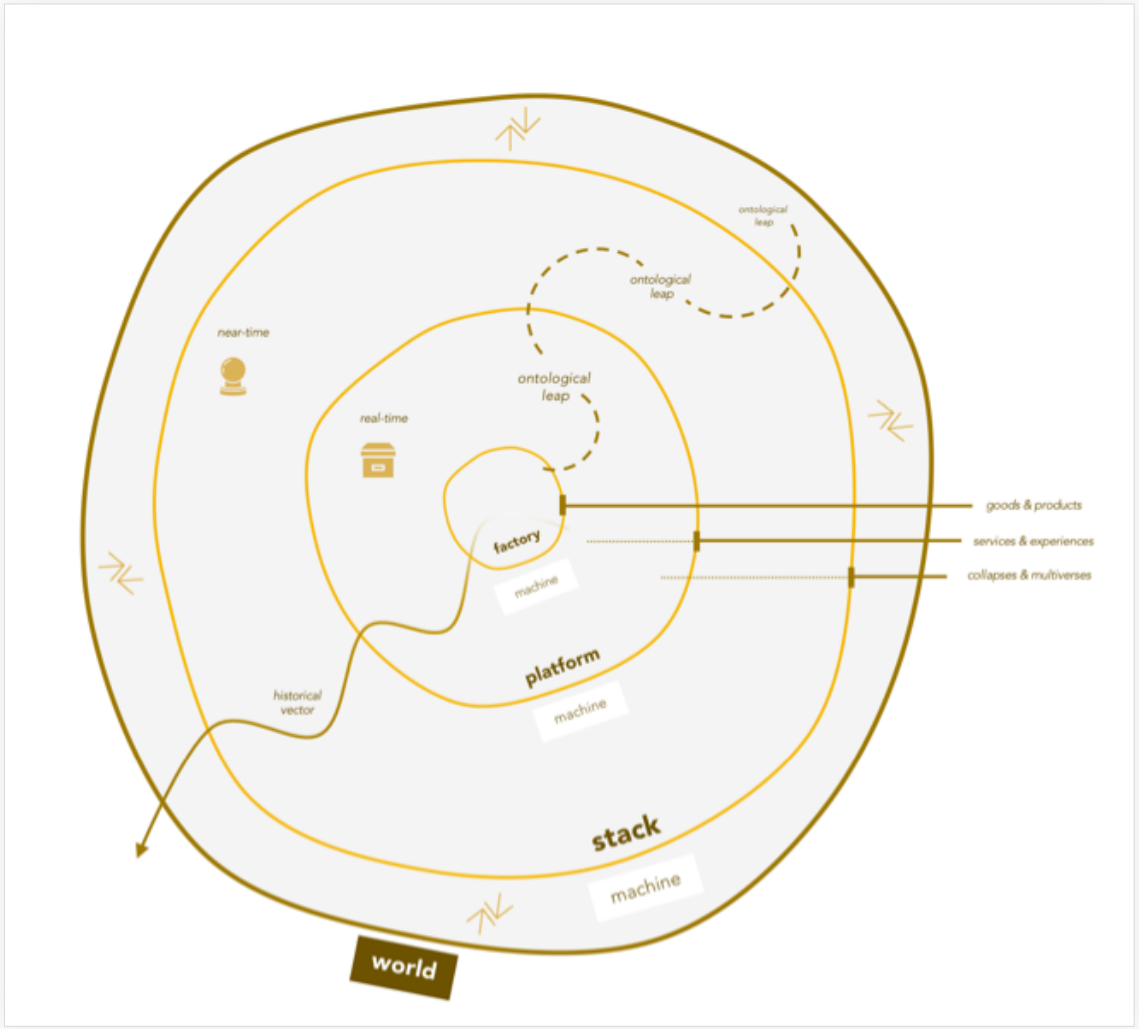
Source: Authors

World Economic Forum, Share to Gain: Unlocking Data Value in Manufacturing, 2020

Manufacturing: stack infrastrutturali per scambio di dati dalla data monetization verso la data economy



Trauth et alii, The Monetization of Data Manufacturing, 2020



Accoto, 2021

Dalla fabbrica alle piattaforme agli ecosistemi di dati ("mega macchine quantistiche")

Le operazioni di misurazione e i dati degli stack collassano le probabilità di business (e creazione di valore) in realtà

… e non solo nel manufacturing

REVERSE

From Dedicated Resources to Multi-Usage Resources

2006 ~~ 2019

Big Data Trends: 23andMe

Big data, the analysis of extremely large data sets, opens up many opportunities for new growth using the "from dedicated to multi-usage" pattern, as illustrated by 23andMe.

1 From Dedicated Usage: Genetic Testing

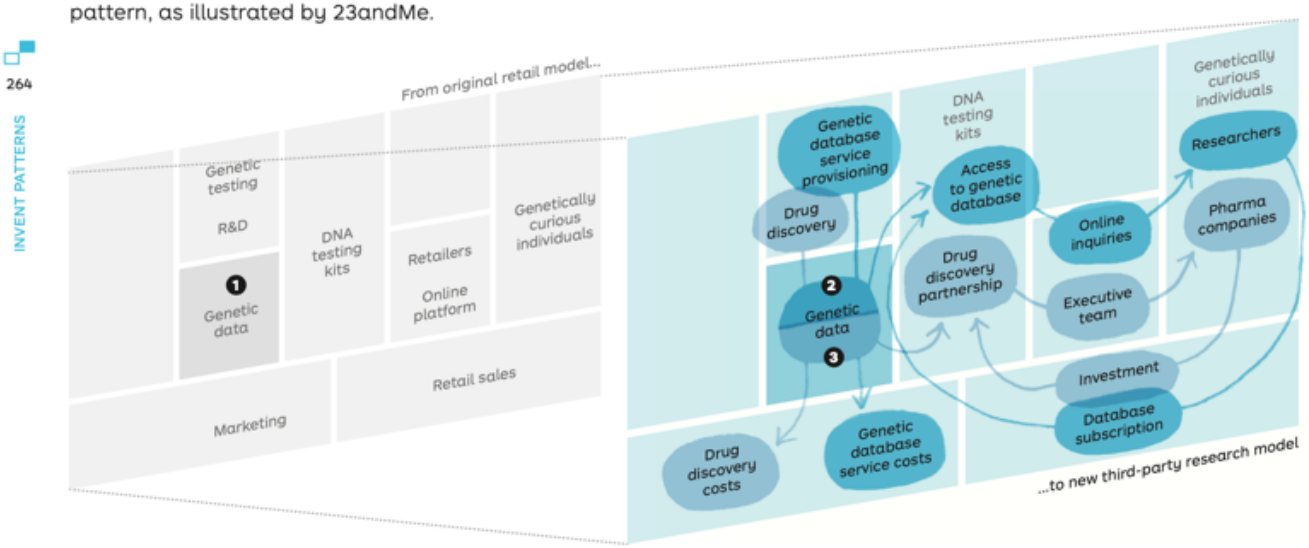
23andMe begins selling direct-to-consumer DNA testing kits in 2006. They offer both an ancestry report and a health analysis. 23andMe asks consumers buying their kits to opt into its research "to become part of something bigger." On average 80% of users accept. With every new sale, 23andMe grows its database of users, DNA information, and self-reported behavioral data.

2 To Multi-Usage: Access to Database

23andMe knows its database will become a key resource for scientific research. 23andMe anonymizes the data and sells access to the database to researchers (in medical, government, and educational fields). In 2018, more than four million of 23andMe's customers have agreed to let their DNA be used in research. The average 23andMe customer contributes to more than 230 studies.

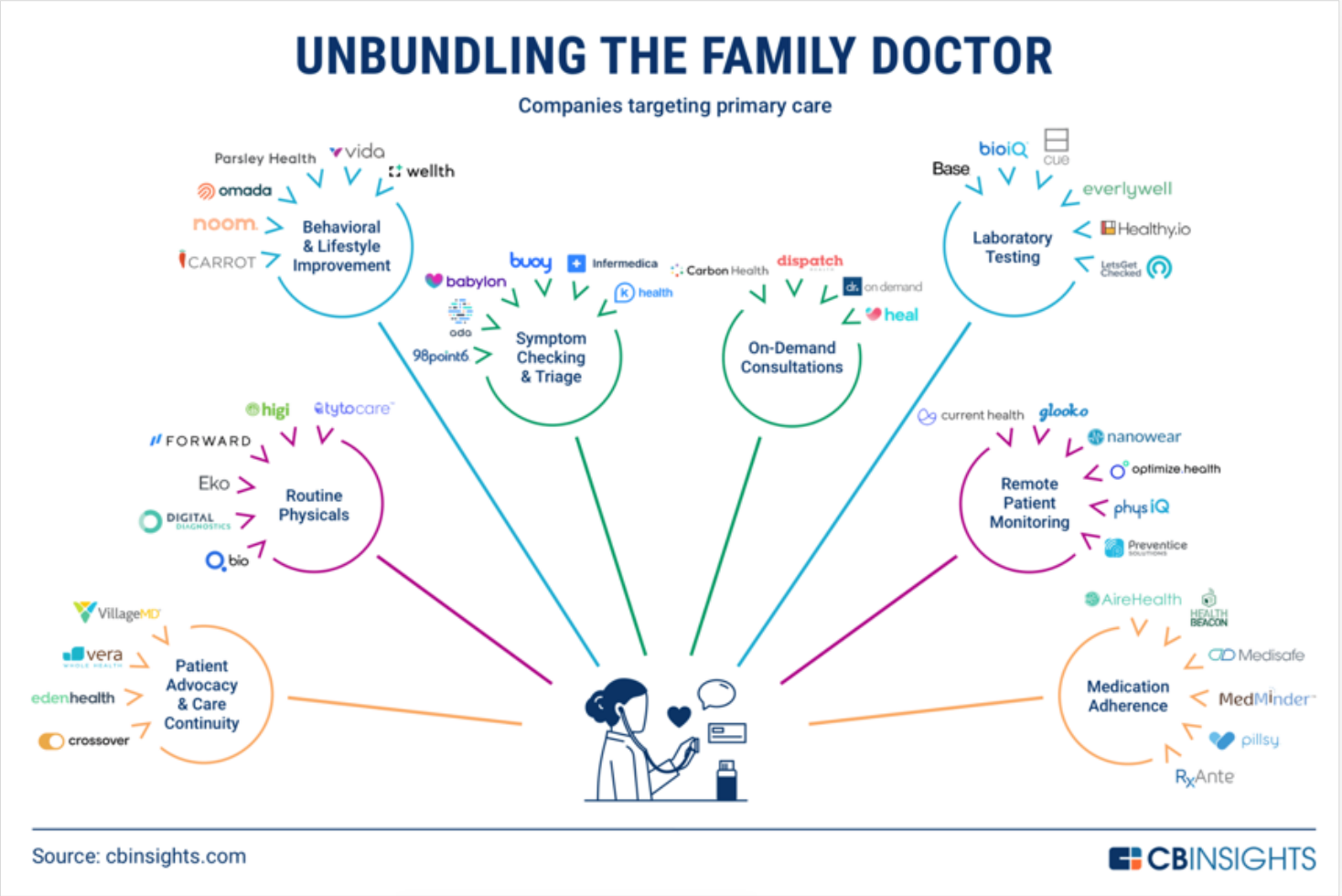
3 To Multi-Usage: Drug Discovery

This wealth of data also enables 23andMe to enter the field of drug discovery. They explore this new field both on their own and through partnerships with leading pharmaceuticals companies. At the start of 2020, 23andMe, for the first time, has sold the rights to a new drug that it has developed using its customers' data. This paves the way for substantial new revenue streams.



Osterwalder et alii, The Invincible Company, 2021

… ridisegnando
settori e mercati



grazie

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