Talk to DFNHS York 7th October 2023 by Martin Blanchard KONP data WG and DiU

From citizens to corporate 'chattels'[1]; the 'neo-liberation'[2] of the NHS

Introduction

This article is based upon a talk about how our healthcare data is to be used to support our ambition for 'sustainable' healthcare, and perhaps more importantly it seems, it is about our government's expressed ambition that it will 'kick-start' economic growth and enable us to become some sort of 'AI superpower.' However, both the demand to 'innovate' in order to balance budgets legally imposed upon our 42 healthcare systems in the Health and Care Act 2022, and the creation of a remarkable healthcare database, bring major concerns about currently recognised issues such as the 'predation of knowledge and assets' by Big tech corporations.

Some of what is presented here is based on the research work of Cecilia Rikap, the rest is from KONP data WG research of recent developments in the English NHS. The situation presented may be perceived very differently not only, as one would expect, according to one's views about the use of the market to decide about our health futures, but also according to views about the use of 'monopoly power' within those markets. If we continue our current trajectory, both are set to become burning issues in the English NHS.

Context- a more than unfortunate conjuncture

Context is very important in terms of how our forty-two new 'learning systems' that are now the English NHS are to develop. It is not only a question of whether they could, or some may say should be commercially exploited but also how that is likely to be achieved. Major factors in this matter are: the enormous growth that has occurred in the last 10 years or so in the 'intangibles market' ; that the major beneficiaries, US Big tech[3] have decided to enter the healthcare market; that US Big tech appear as 'ambassadors' for the protection of US hegemony in the current global tech/geopolitical struggles; that within this environment our government has chosen to try to deliver 'sustainable healthcare' through the use of

[1] Chattels as in mediaeval English for 'assets'. I make this assertion in line with opinions that Big-tech represent a divergence from 'normal freemarket' capitalism which some call 'Techno-feudalism' such as Cédric Durand

[2] The Lansley white paper 'The Liberation of the NHS' (2010) is the first time I could find 'innovation' mentioned in a health policy document- however it failed to acknowledge the role of, and benefits for private enterprise in such 'innovation'. The allusion to neoliberalism is related to the books written by a number of Cabinet members such as Britannia Unchained and After the Coalition.

[3] Here I refer to mainly, but amongst others, what is known as 'GAFAM'- Google, Apple, Facebook, Amazon and Microsoft

'innovation' in the prevention, recognition and management of ill-health that is not just to improve care for individuals, but to continuously improve 'value' for the systems year on year as well.

The changes so far

The methods described in McKinsey's 2009 presentation and the FYFV and the Longer Term Plan require large, accurate, linked, complete datasets. The Health Systems Support Framework (HSSF) was set up to enable NHS organisations to rapidly commission government accredited, mainly private tech companies and consultancies to set up the infrastructure and begin the building of the NHS database. It seems that the element of public refusal concerning the use of our data has been trumped by the legal obligations placed on providers to develop safe, equitable, cost effective, value-based services.

NHS England is clear about the variety of benefits it wants with the investment in data driven ICSs and the NHS use of data and Artificial Intelligence (AI): automation, insights at scale, targeted prevention, system optimisation, standardisation of assessment and intervention, effective self-care, personalised care, year on year service quality improvement, the use of AI in diagnostics and for outcome prediction, assessments of system performance, anticipatory care, development of system 'allocative' value and more.

The corporations and companies accredited on the HSSF to assist with database development and utilization include some major transnational corporations such as Oracle Cerner and Optum/UnitedHealth, and many have multiple areas in the Framework in which they are cleared to work. I would add that EMIS has been bought out by UnitedHealth for 1.5 billion USD, and features in several other parts of the framework, while we await the entry of Big tech with 'NHS data partnering' and the 'Value Sharing Framework' which I will now move on to examine.

The Value Sharing Framework

NHS England are very keen to get our health data out as quickly as possible with their claim that 'data saves lives'. However, they are also clear that it is rare that a data partnership generates financial value, as often an idea developed through a 'data partnership' will not be widely adopted. To get the care systems 'innovating' i.e. processing data to create new and 'better value' ways of managing our health, there will be a network of Secure Data Environments (SDEs) at national level (NHS England); at subnational level -which are still growing in number and, as there are seven commissioning regions perhaps there will be that many; and a larger number

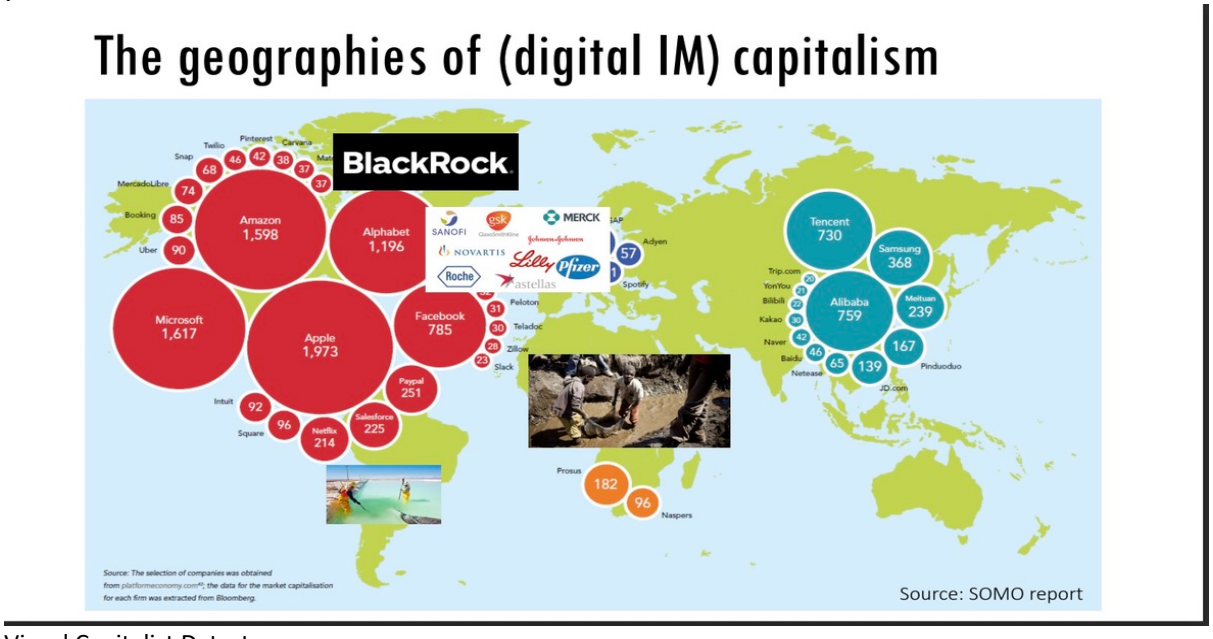
of local/subregional SDEs-some linked to the Academic Health Science Network (AHSN) e.g 'Discover Now' owned by Imperial College Health Partners Ltd.

The Value Sharing Framework (VSF) has been developed by the Centre for Improving Data Collaborations (CIDC) which moves the NHS towards 'data sharing by default' and this includes sharing with private enterprise.
VSF Principles are:

1. That the cost of access should not prevent 'good use of data'.
2. That the NHS will always charge a fee for accessing data (or else lose money from frontline services!)
3. That the use of data only, and NOT the nature of any partner, could be used to influence cost.
4. That the NHS should take a share in any value created through use of its data, proportionate to its contribution to any partnership. However, we are warned that: i) 'foreground Intellectual Property Rights (IPRs)'-legal ownership placed on the product of any data processing- are best held by the partner with experience in marketing in order to maximise any financial benefit, and also ii) that the payment of any Royalties to NHS organisations 'generally reduces any commercial partner's incentives to commercialise and market a product'.[4]

Geopolitical matters

Now we need to take a sudden change of perspective, to a level above our daily perturbations.



Visual Capitalist Datastream

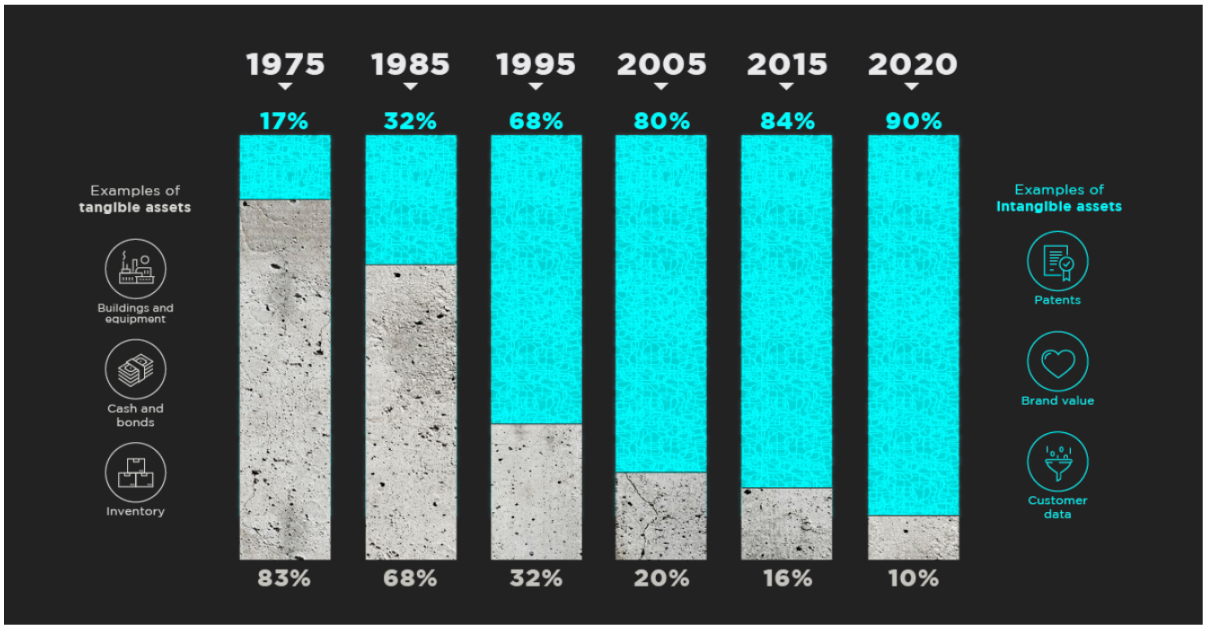
[4] Apparently, rather than sharing any Royalties the corporation may prefer instead to use the 'asset' as an 'added free bonus' alongside the sale of products without any agreed Royalties.

Science and Technology (S&T) supremacy has been paramount in the explanation of Geopolitical differences and conflicts between countries and regions, at least since the post-war period. There is currently a 'cold war', a tech-war, a struggle that many commentators see as a challenge to U.S. hegemony. The rapid advances in tech 'capability' are enriching the Global Market across many sectors with trillions of USDs being generated and inequality growing. It is also the case that such 'tech' can at times serve 'dual purposes' and enhance each contender's military capability- dare I mention DIANA, the Defence Innovation Accelerator for the North Atlantic co-headquartered in White City, London. While the Chinese government plans the strategies of their 'state centred capitalism', the U.S. government may also be supportive of its Big tech companies and anxious not to undermine them. How and where Big tech companies gain their wealth now needs to be understood.

Big tech wealth extraction

The knowledge required for innovation is among the many 'intangible' assets created and owned using international Intellectual Property Rights (IPRs). In 1975, only 17% of assets in the U.S. 'Top S&P 500' were 'intangibles', by 2020 that figure was 90%.

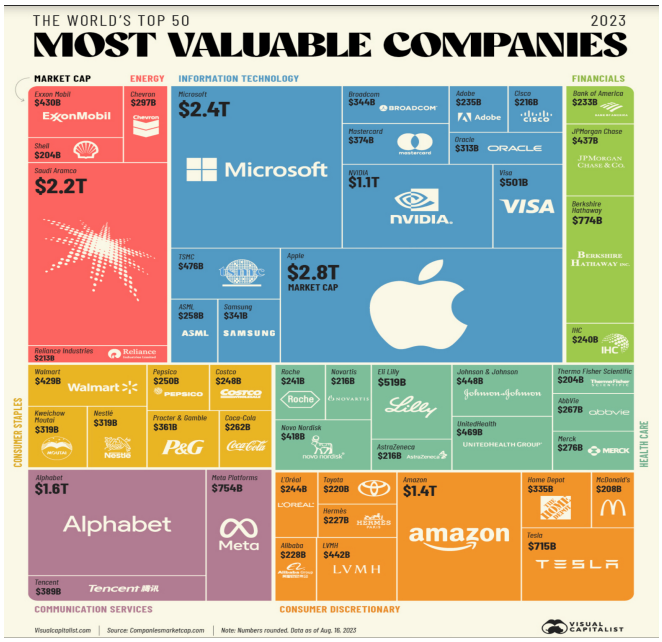
The Soaring Value of Intangible Assets in the S&P 500



Visual Capitalist Datastream: Ocean Tomo Intangible Market Value study

The combined market capitalisation of some of the biggest 'intangible' corporations Google (Alphabet), Apple, Facebook (Meta), Amazon and Microsoft (GAFAM) was 5.6 trillion USD in 2019 that is half a trillion USD more than Japan's

GDP in the same year. The top 0.001% of the largest Global corporations account for 1/3 of all corporate earnings and their growth accounts in a huge part to global inequalities.
Below you can see where the GAFAM corporations that deal in 'intangibles' sit in all their glory among the world rankings of all the most valuable.



Their major investors are the 'bedrock' of U.S. stability and financial hegemon[5] which shared an amazing growth in 'assets under management' from $15.3tn in 2017 to $27.2tn in 2022[6]. Some say this is the biggest 'financial bubble' in the history of the world. By the way, the UK GDP in 2021 was just over $3tn.

A large part of 'tech' growth has resulted from a U.S. initiated, and now globalised Trade-Related aspects of Intellectual Property Rights agreement or TRIPS following which Dernis et al (2019) found that 60% of patents across the world were owned by only 2000 corporations- this signified the emergence of a 'legal Intellectual Monopoly'. Research by Rikap and Lundvall developed this idea further and suggested that the term 'Intellectual Monopoly' should refer to how organisations establish and sustain exclusive control and access to knowledge and information. They also identified some large corporations with what is called 'absorptive capacity'[7] that can innovate faster than others and engender intellectual monopolies without recourse to IPRs. Then there is the use of a 100-

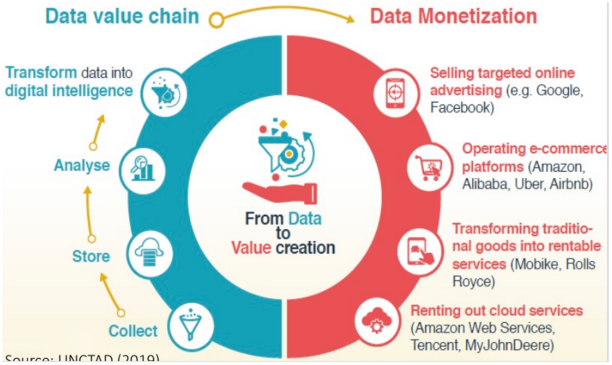
[5] Vanguard; BlackRock; Fidelity; State Street; Berkshire Hathaway, and T. Rowe Price.
[6] NASDAQ.com 2022
[7] In business administration, absorptive capacity is defined as a firm's ability to recognise the value of new information, assimilate it, and apply it to commercial ends.

year-old piece of legislation that grants Trade Secrets which Fisk[8] describes, and which Weiss notes has become more important as production has increasingly become Science and Technology (S&T) led since the Cold War. There is also the acceleration effect of new Information and Telecommunication Technologies (ITT) in the circulation of Public knowledge, which has facilitated the appropriation and 'asset' creation of knowledge (aka assetization) by those corporations with the highest 'absorptive capacities'.

Here are two views of the Creation of Innovation- the NHS 'Data, Information, Knowledge and Wisdom' (DIKW) pyramid on the left and the U.N. Conference on Trade and Development (UNCTAD) 'Data to Value Creation wheel'….

A methodology for future healthcare?*

Figure 1: The DIKW pyramid
From NHS "How to benefit from data linkage 2023



Source UNCTAD 2019

*ensuring a monopoly for corporates capable of extracting innovative ideas from data;

While we in the English NHS get 'wise'- on the right we see how UNCTAD are already aware as to how resourceful companies can garner huge profits in multiple ways. It is clear that 'advertising targets' have already been captured and used in healthcare. It is however the knowledge that Big tech predates that will be used monopolistically and rented out for 'innovation' creation; and of course, they will seek rent from the vast data storage, and the access to analytics, on 'Clouds' as SDEs, both of which I will now move on to.

Big-tech's business model: knowledge predation

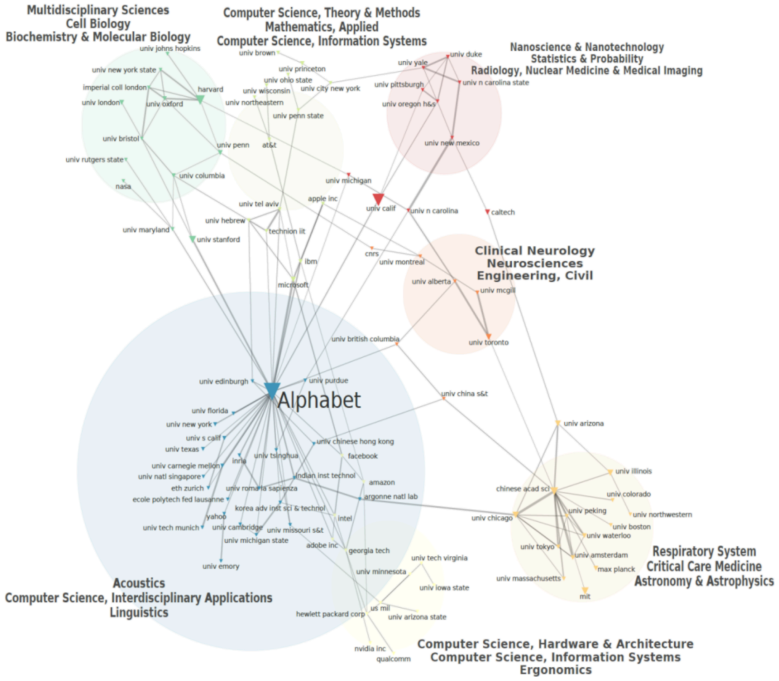
As an example of how 'Big tech' operates, I would now like to bring in elements of Google's journey into healthcare. Below is a cluster diagram of Google 's knowledge predation from Cecilia Rikap's paper (2022).

[8] Fisk, CL. Working Knowledge: Trade Secrets, Restrictive Covenants in Employment, and the Rise of Corporate Intellectual Property, *1800-1920*, 52 Hastings L.J. 441 (2001). Available at: https://repository.uclawsf.edu/hastings_law_journal/vol52/iss2/3

Alphabet's (Google) innovation system

Source: Web of Science (2014-2019)

- Google's healthcare research takes place in collaboration with several other organizations (**none of its 539 healthcare papers between 2014 and 2019 was authored exclusively by Google**)
- **But it profits alone:** 507 applied health patent families, shared ownership of 20 (3.9%), all with other corporations (Abbvie and Johnson & Johnson).

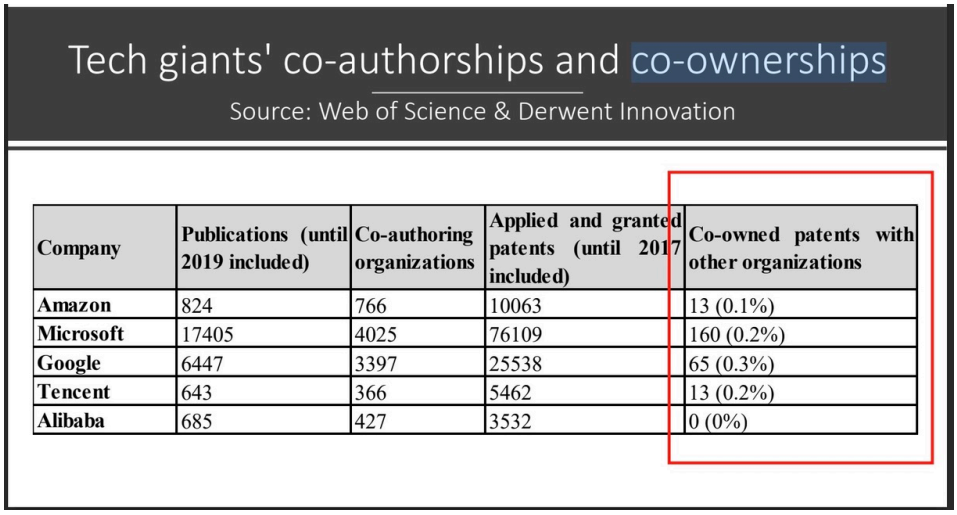


The clusters above that are focused on computer sciences include all the other U.S. Big tech (Amazon, Facebook, Apple and Microsoft) and other Information and Communication tech leaders (such as AT&T, IBM, HP, Qualcomm and Adobe). Likewise, clusters working on Health and Biomedical Sciences include leading institutions in this field like John Hopkins, Harvard and the University of Pennsylvania. Google co-authors research findings with its collaborators, but only it, and a few other big corporations, benefit financially from shared ownership.

Partnering with Big pharma

From other findings, there is a possibility that Google is engaging in a technological competition and/or cooperation with Big pharma as Novartis was the first company to licence Google's smart contact lens for people with diabetes; while Google's Verily Life Sciences partnered with GlaxoSmithKline for a project called Galvani Bioelectronics, and Onduo is a joint venture between Verily and Sanofi. In the near future, Big pharma companies could be among Google's top co-authors.

The next table shows that knowledge predation is practiced by many Big tech corporations with only between 0-0.3% of IPRs shared:



Company	Publications (until 2019 included)	Co-authoring organizations	Applied and granted patents (until 2017 included)	Co-owned patents with other organizations
Amazon	824	766	10063	13 (0.1%)
Microsoft	17405	4025	76109	160 (0.2%)
Google	6447	3397	25538	65 (0.3%)
Tencent	643	366	5462	13 (0.2%)
Alibaba	685	427	3532	0 (0%)

Mechanism of Entry into the Healthcare Sector

'Platforms' are digital infrastructures that connect users while at the same time they are businesses and organisations capable of curating those connections to set their own terms. It is suggested that platforms can be used to generate inherently asymmetrical relations between Platform operators and users by design of a 'core architecture' that both provides for, and governs, the infrastructure of what is called Platform Capitalism. Jacobides et al and Franco et al identify the infrastructural power of Big tech platforms in AI, **largely as a consequence of their role as 'Cloud computing' providers**. Tech giants are powerful business organisations in that they own such privileged infrastructures.

In order to move into health, Big tech has been able to obtain data from people's everyday lives such as prescription orders, refills and e-commerce purchases relating to physical and mental fitness which is gathered to develop what is called Emergent Medical Data (EMD) for use within the sector. Their expansionary strategies are driven by Intellectual Monopoly (IM) power in two complementary ways: first, they enter new sectors by building on the insights from their current 'intangible' assets (knowledge and data), what is called a 'monopolised intangibles driver'; and, second, they expand not only to establish dominant market positions in new sectors, but also to acquire new knowledge and data sources to perpetuate their Intellectual Monopolies, what is termed an 'intangibles prospecting driver'.

To be clear, these assets are privately appropriated goods that are used to capture value from society in the form of long-lasting economic rents. In the case of 'intangible' assets as Foley explains, unlike land, knowledge and information 'can be rented or sold over and over again'.

Intellectual Monopolies (IMs) also set up Corporate Innovation Systems (CIS) that are usually local, and organized and controlled by them. They are constituted by 'subordinate' organizations (such as innovating companies and Universities) participating in Innovation Networks -the IM defines the general R&D directions but without anticipating every step to be followed, and so it leaves degrees of autonomy (and risk) to the 'subordinate' actors. It then gathers rents (financial and assets) from all the 'subordinates'. This represents a slightly different picture to the exciting Innovation Ecosystems our government paints.

Acquisitions

The acquisitions made is another way to examine a corporation's expansionary strategy. Until the middle of 2021, Google had acquired 248 companies. Up until 2014 it concentrated on software, internet services, apps, IT and mobile technologies. From then on it moved into 'Big data' and analytics, buying out 18 AI companies, and then it focused on companies related to education and healthcare. It applied for 53 patents in healthcare between 2014 and 2019- the well-known Fitibit, and the less well-known North-a pioneer in human computer interfaces and smart glasses- and Eyefluence, an 'eye interaction' technology with 18 utility patents from eye-tracking to biometric security scanning. Google's healthcare ventures are channelled through Google Health, Verily Life Sciences, Calico (which focuses on aging and age-related diseases) and DeepMind, a leader in generic AI that was acquired in 2014. In 2019, DeepMind claimed to have reached its biggest healthcare breakthrough: an AI model for continuously predicting the future likelihood of developing acute kidney injury (AKI) initially in partnership with, while in receipt of 1.6 million healthcare records from, the Royal Free Hospital NHS FT London. A year later, it achieved another breakthrough: an AI model that predicts protein structures. Google is also applying AI to disease detection for diabetes, Parkinson's and heart conditions, and it is working with different universities, such as Duke and Stanford, to define a healthy individual's biochemical fingerprint.

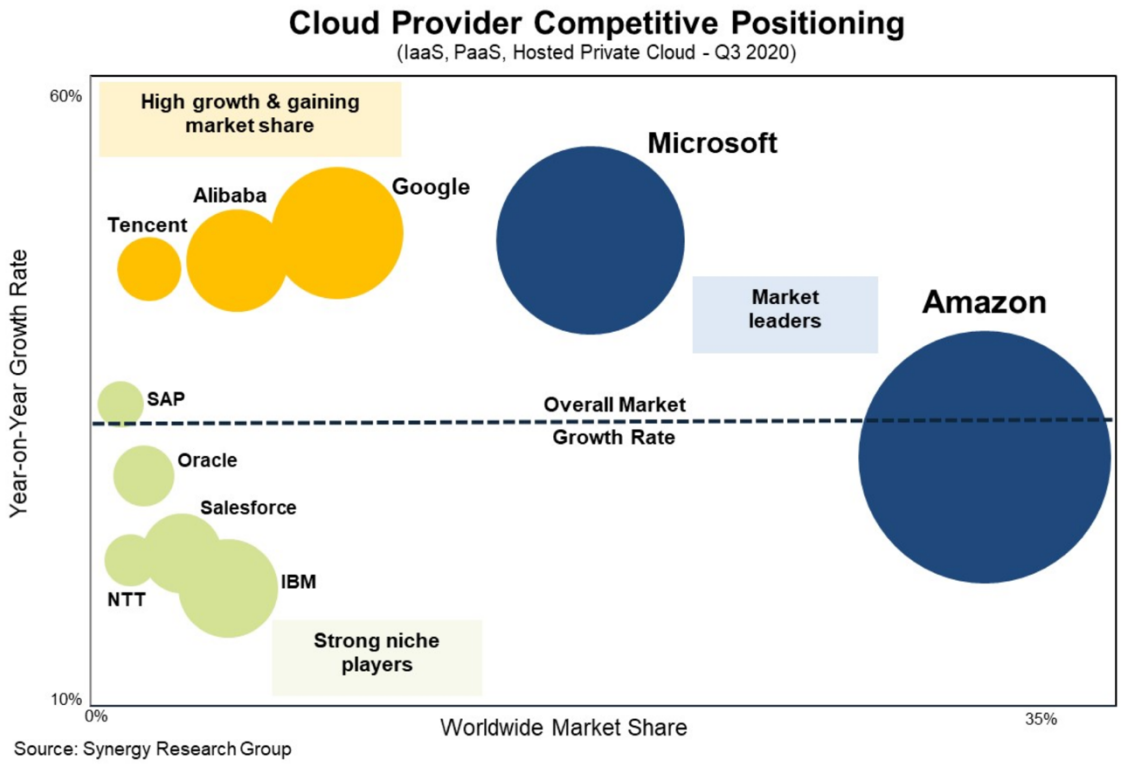
Kill Zone

Overall, Google is diversifying the technological fields of its acquisitions. This expands its intellectual monopoly and also, what Kamepalli et al define as a 'Kill Zone'. This is created when Google or other Big tech acquire a start-up, because venture capitalists then reduce their investments in competing companies or companies in close markets, in the anticipation that the acquisition will lead to a winner take all market.

Monopoly Power

The predation of knowledge, creation and ownership of intangibles, control of 'subordinate' partners from which they gather rents, and the ability to choose to withhold knowledge from academic institutions and/or the market are part of what creates Big tech 'monopoly power'.

To this we must add the imbalance in the provision of 'Data Storage on Clouds' which are then rented out to customers including Public Services, while offering 'a marketplace' of said 'subordinate' companies on the Platform to provide data-related services such as curation and analytics.



The global data stored in 'Public Clouds' increased from 5% in 2010 to 50% in 2023; the market share of corporations can be seen in the chart above. Between 2010-2018 Amazon data-centres grew 1,337% in surface area. Microsoft has over 100 data-centres in 54 countries, while 50% of the undersea internet cables (which carry 95% of data) is owned and rented out by Google, Apple, Microsoft and Meta.

Yet another important factor is Big tech's ability to 'mine' large, linked datasets with machine learning algorithms in order to discover new knowledge, whether that data is gathered (scraped), curated, and linked from the internet, or access to

established databases is offered by governments or services. Either way, new 'intangibles' and 'assets' can be created to continue the cycles of expansion.

Considerations

More than ever knowledge (hence someone's need for 'innovation') is power and contemporary capitalism is driven by those corporations monopolising it whom, it seems, are continuously expanding.

The 'Intellectual Monopolies' grow and generate 'surplus value' at the expense of other organisations participating in the innovation process, including the innovator firms and different types of research universities and public research organisations.

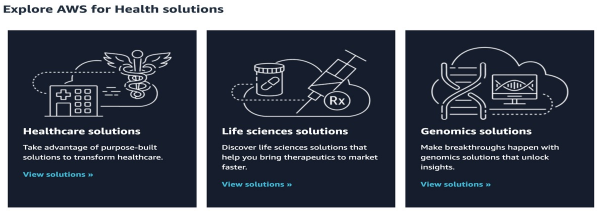
Veblen as long ago as 1899 (p.138) defined predation as 'the relation of superior and inferior, noble and base, dominant and subservient persons and classes, master and slave.' This is a manifestation of 'superior force' which equates to the Intellectual Monopolies' production relation of spoliation by planning the activities of other firms and institutions.

A consequence of this predation has been the weakening of the link between innovation and growth which has affected Global Capitalism particularly in what can be termed 'peripheral' countries as opposed to high tech 'core' countries. As the digital economy expands, more data are created expanding the power of those controlling access to them and reducing the chances of structural change for others. This leads to a widening and further deepening of any underdevelopment. Indeed, any knowledge produced in the peripheries tends to be 'assetized' in the centres with such data 'extractivism' opening a new colonising arm- a data colonialism.

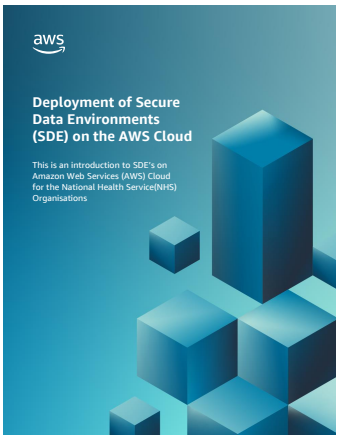
Although healthcare data analysis with AI as well as digital healthcare solutions could be paramount for improving people's health, the priorities on which data should be gathered and analysed and by whom, the definition of a digital healthcare research agenda and the benefits of applying digital technologies for treatment and prevention cannot be left in the hands of a few corporate players that, more often than not, prioritize their economic gains – including data harvesting for the reinforcement and expansion of their businesses – over the healthcare that is provided. The potential effects echo many of the harms caused by Big pharma.

https://crashcourseeconomics.org/

See https://crashcourseeconomics.org to learn more about and how to resist these changes



'AMAZON NHS DATA MARKETPLACE FOR SDEs-on AWS CLOUD'



CLICK AND PRETEND TO BE AN NHS DATA SHARER

https://partners.amazonaws.com/search/partners?facets=Industry%20%3A%20Healthcare

https://partners.amazonaws.com/search/partners?facets=Industry%20%3A%20Healthcare

POSTSCRIPT

DARTMOUTH COLLEGE FAILURE

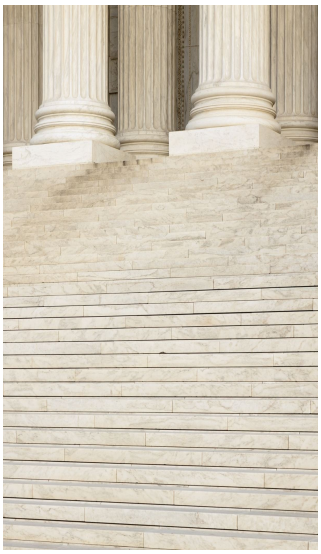
Dartmouth exits health program it developed

Financial losses threaten model

BY ROBERT PEAR NEW YORK TIMES 2015

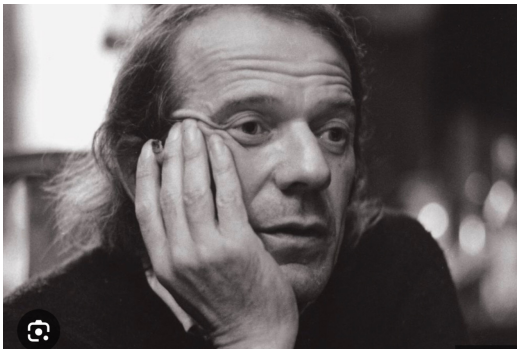
Dr. Elliott S. Fisher, director of the Dartmouth Institute for Health Policy and Clinical Practice, said:

"It's hard to achieve savings if, like Dartmouth, you are a low-cost provider to begin with. I helped design the model of accountable care organizations. So, it's sad that we could not make it work here."



….and we had been the most cost-efficient healthcare service in the world according to the Commonwealth Fund analyses over many years!
However, some commentators take the view that any improvement in efficiency, preventative healthcare and diagnostics for the NHS will simply be an added bonus. Harnessing the power of NHS data can help to maintain the UK's position as an AI leader and attract an 'ecosystem' of data and healthcare specialists to the UK to kick-start our economy.

POST-SCRIPTUM SUR LES SOCIETIES DE CONTROLES
L'autre journal
nº 1, Mai 1990
Gilles Deleuze



This is the philosopher Gilles Deleuze and his paper written after a difficult TV debate. (I have put this at the end of the article in case I lost 90% of readers straight away.) However, just four brief points from this brilliant, original thinker which I think are wholly relevant.

1. The factory has given way to the corporation.
2. The operation of markets is now the instrument of social control.
3. For the *hospital system*: the new medicine 'without doctor or patient' that singles out potential sick people and subjects at risk, which in no way attests to individuation--as they say--but substitutes for the individual or numerical body the code of a 'dividual'[9] material to be controlled.
4. How can we be saved? Can we already grasp the rough outlines of the coming forms, capable of threatening the joys of marketing?

[9] divided among or shared by a number
'the moon … her reign with thousand lesser lights *dividual* holds'—John Milton