

The background features a blurred image of a person's face on the right side. Scattered across the slide are several solid-colored circles: a small orange circle at the top, a dark blue circle to its right, a large yellow circle at the bottom left, a medium-sized pink circle in the lower center, and a large circle on the right that is split vertically into orange and purple halves.

nesta

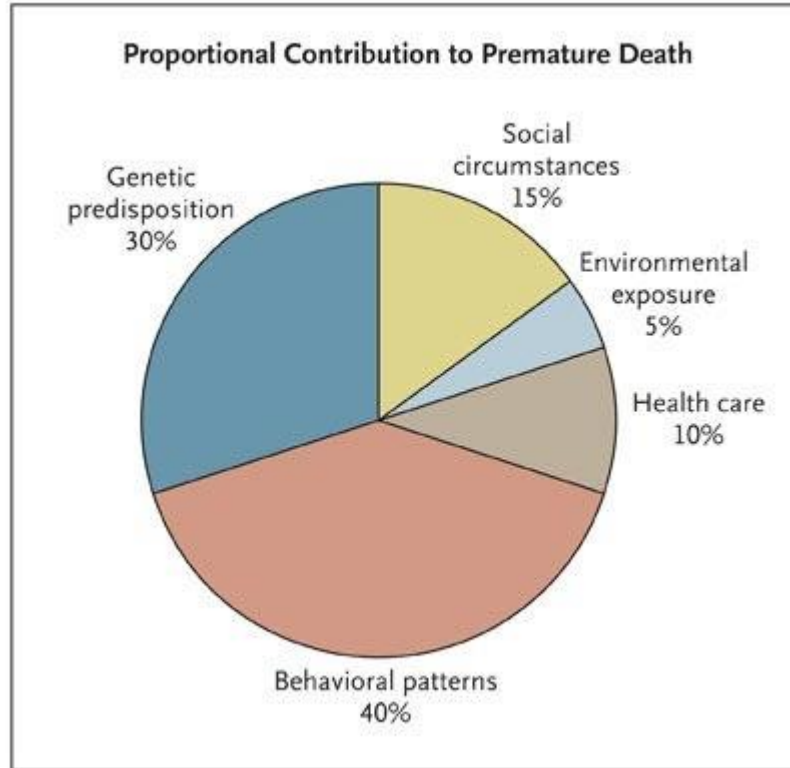
Collective intelligence and digital health

Geoff Mulgan

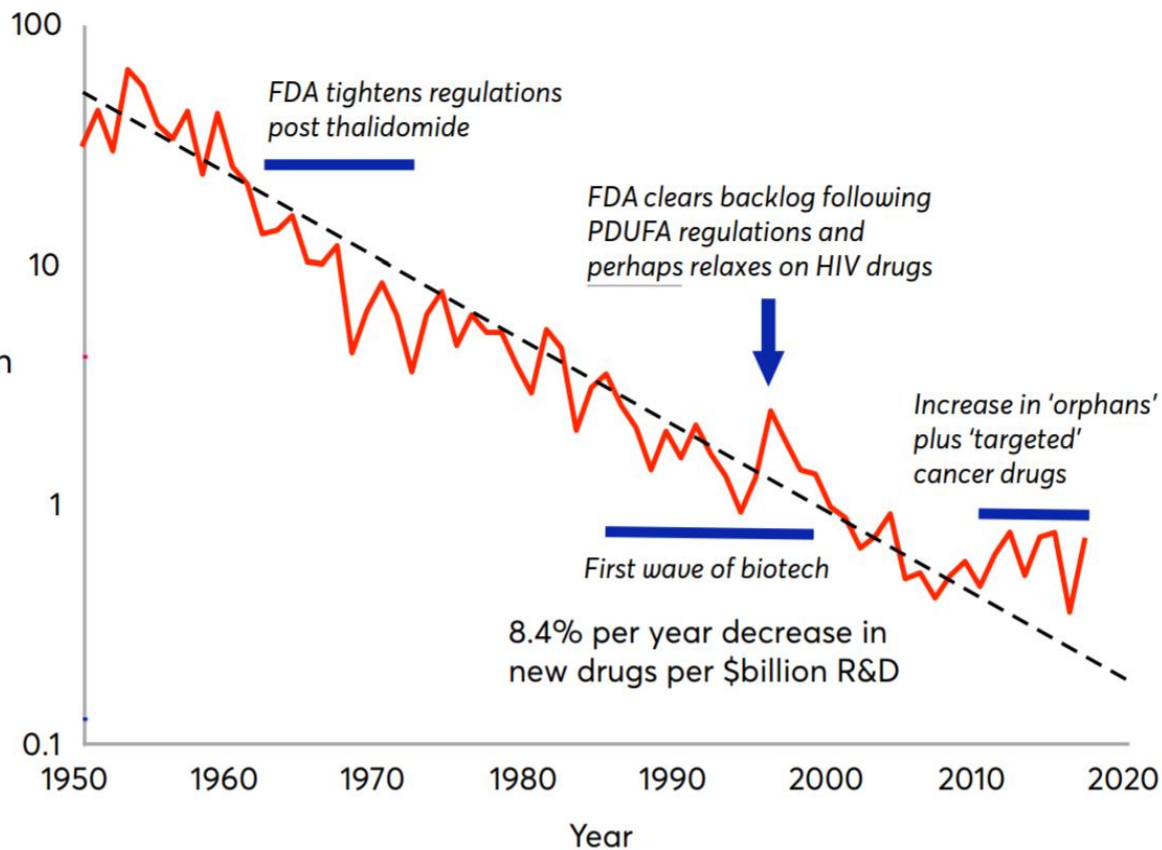
Milan, October 2018



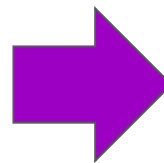
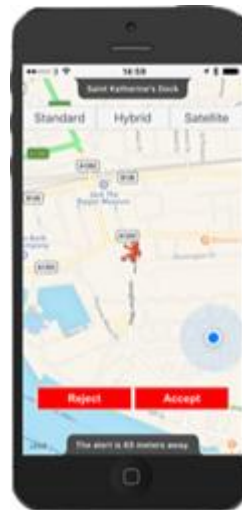
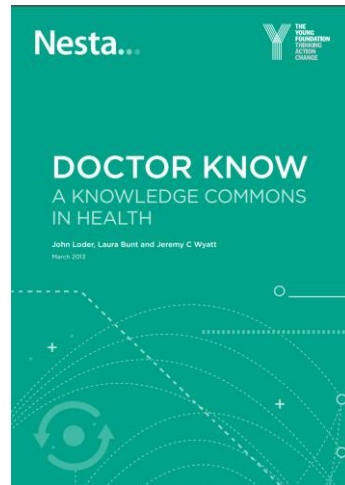
sources of health



New drugs per \$billion R&D (log scale)



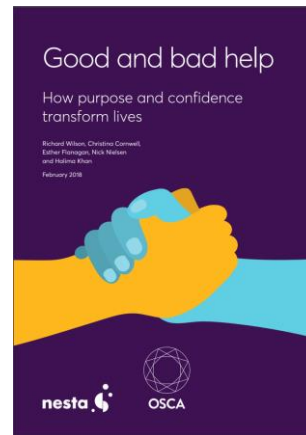
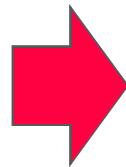
Digital health combining data, AI and people power



Opinion Group: 1 2 Majority Opinion

 Anonymous
I think we should review staff. Passenger protection. Must take into account the interests of driving. The most important thing is safety first
92% Agreed

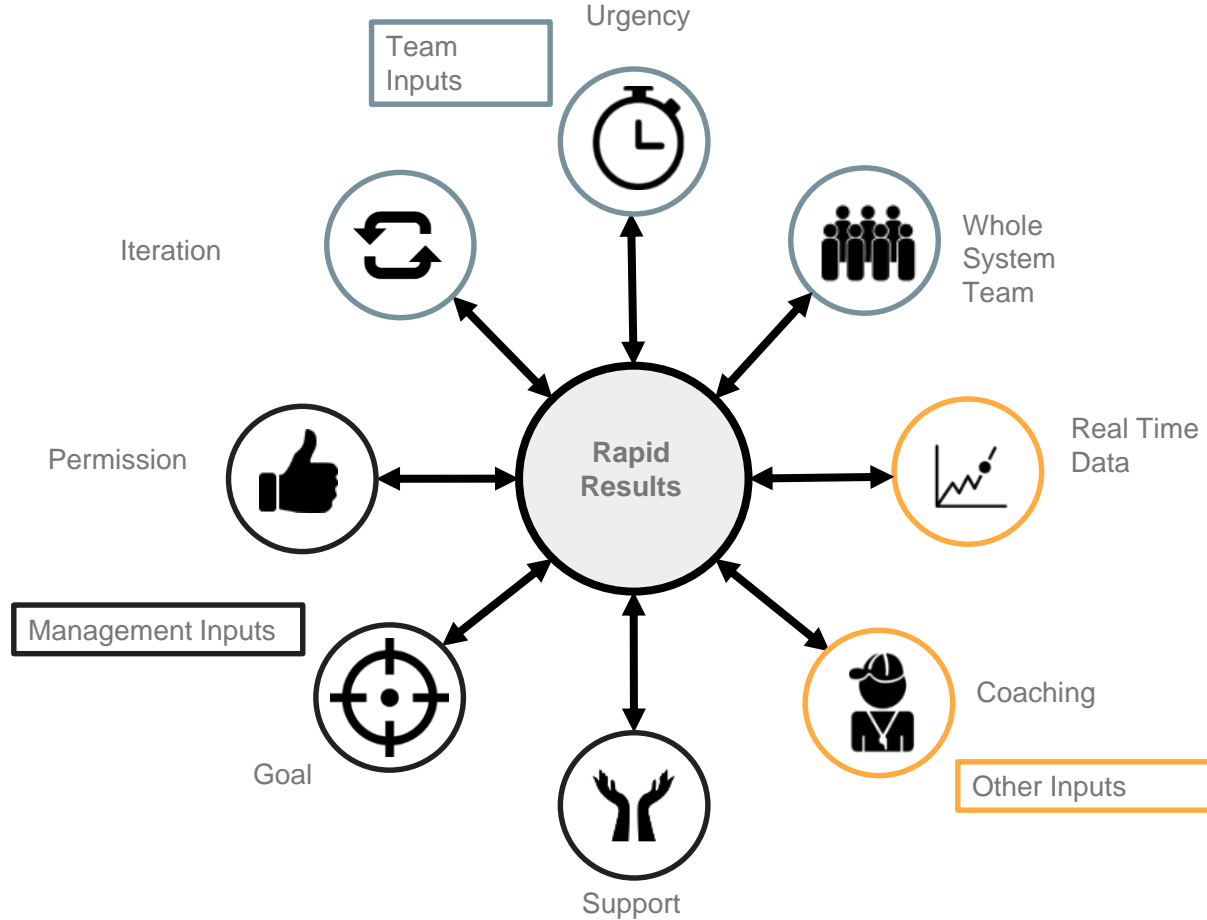
Social health – mobilising peer to peer and mutual support



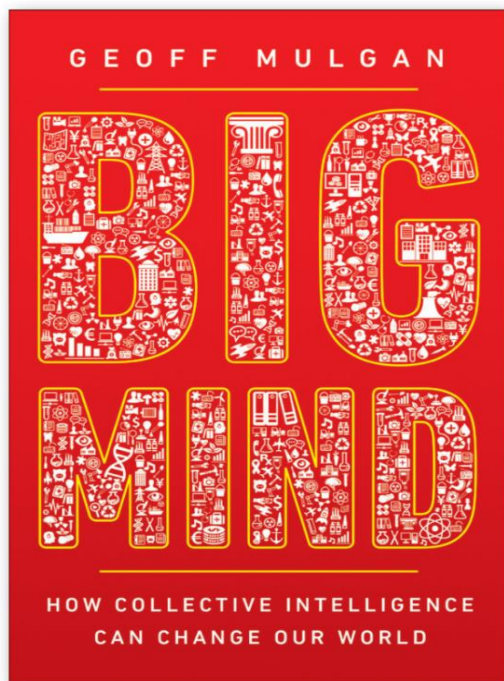
Innovation methods to help systems think and act as systems



Helping systems think and act as collaborative systems

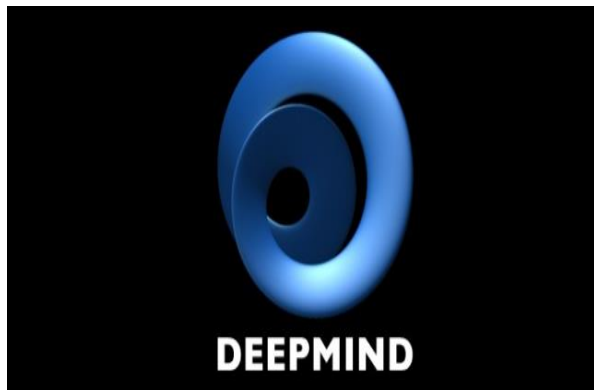
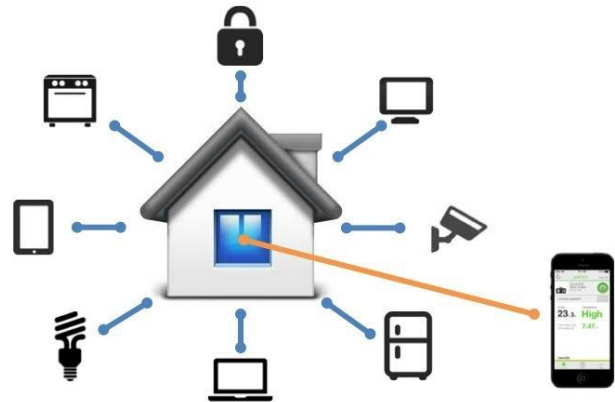


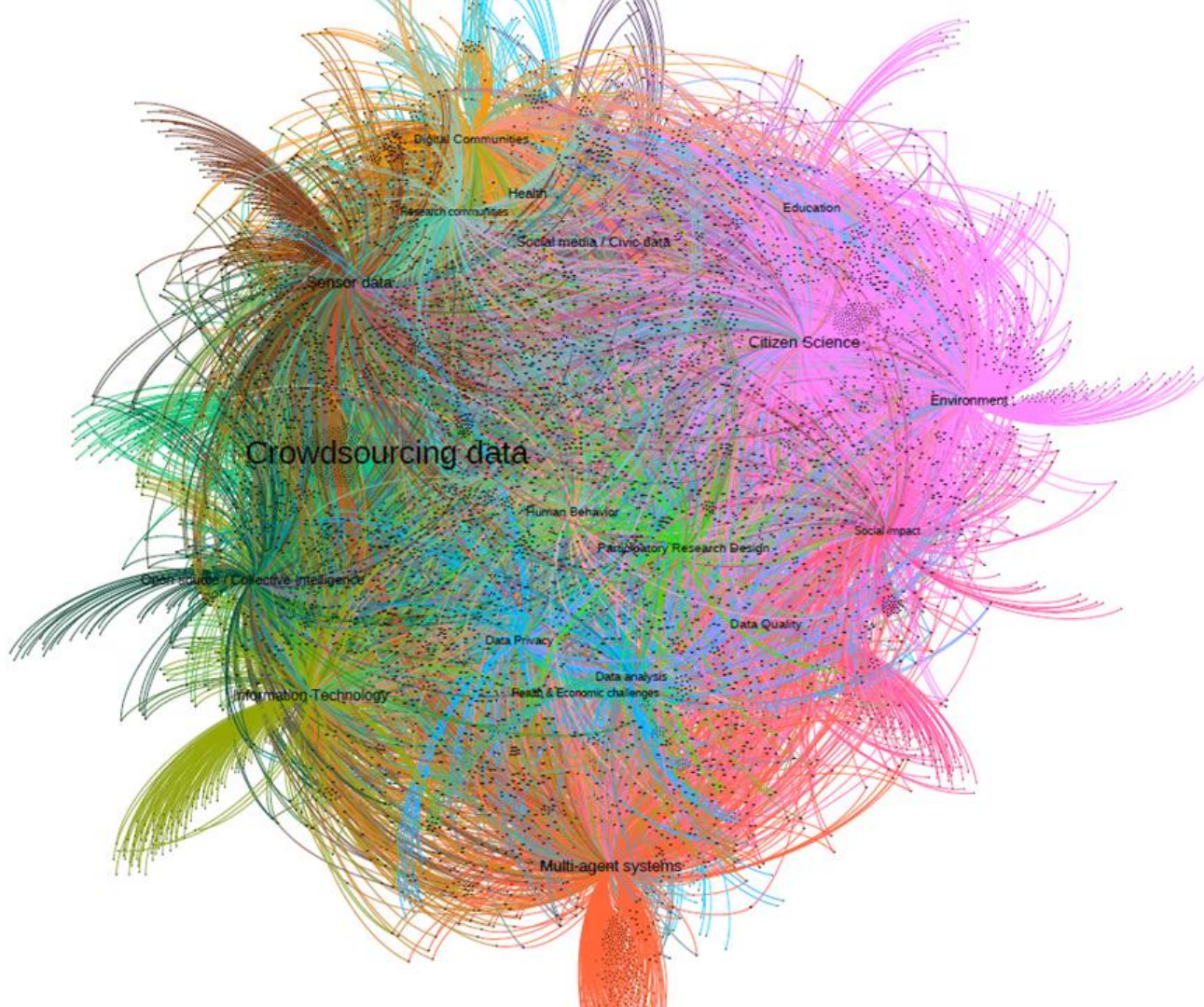
- Collective intelligence beyond big data and traditional digital models





amazon





- **Live models of the world**
- **Observation and data**
- **Analysis and prediction**
- **Memory**
- **Empathy**
- **Motor coordination**
- **Creativity**
- **Judgement**
- **Wisdom**

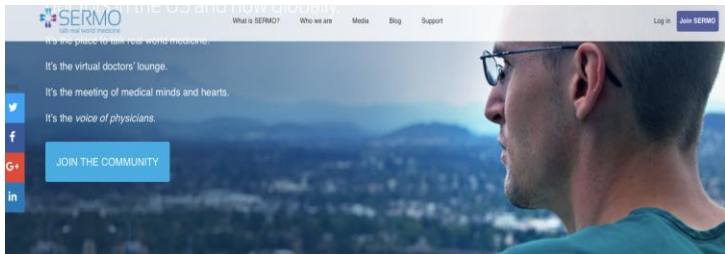


collective intelligence within the discipline – evidence, analytics, online communities of practitioners

Epistemonikos About Help Contact Sign up Login

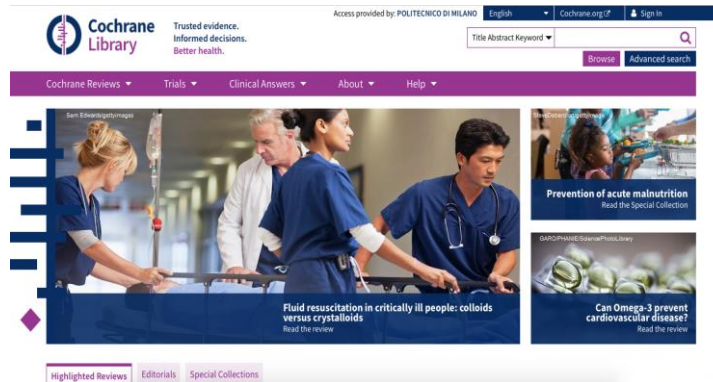


Combines the best of Evidence-Based Health Care, information technologies and a network of experts to provide a unique tool for people making decisions concerning clinical or health-policy questions.



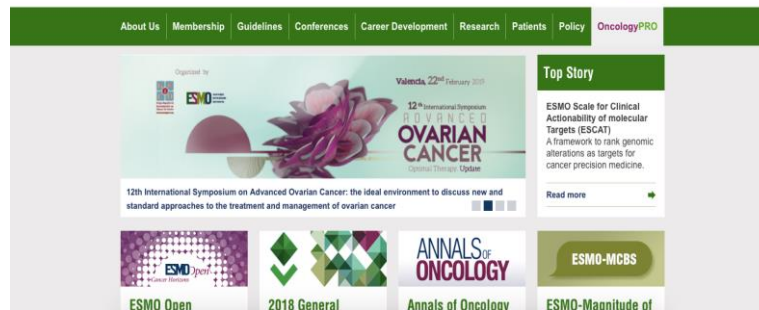
Why doctors love SERMO

"Exciting doctor interaction, very helpful with difficult cases, very interesting social topics and discussions... It is a form of collective intelligence that allows individuals to achieve more than they could on their own."



Welcome to the EUROPEAN SOCIETY FOR MEDICAL ONCOLOGY, the leading European professional organisation for medical oncology.

Sign in How can we help you? SEARCH



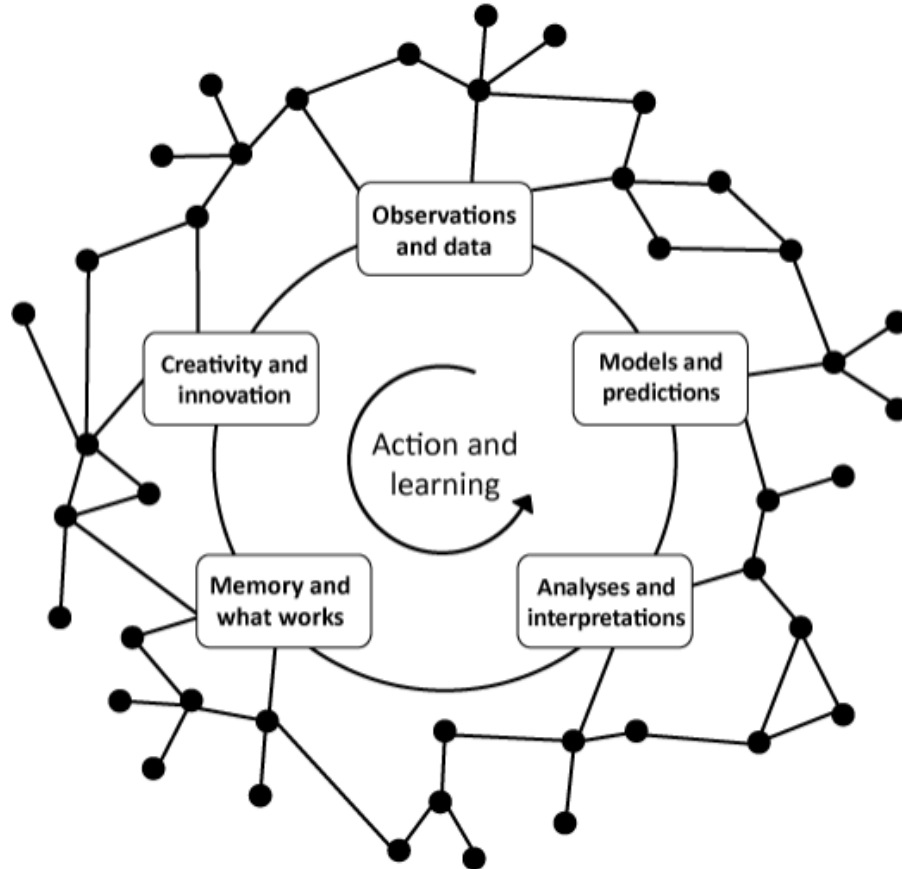
collective intelligence with patients sharing experiential knowledge and synthetic research

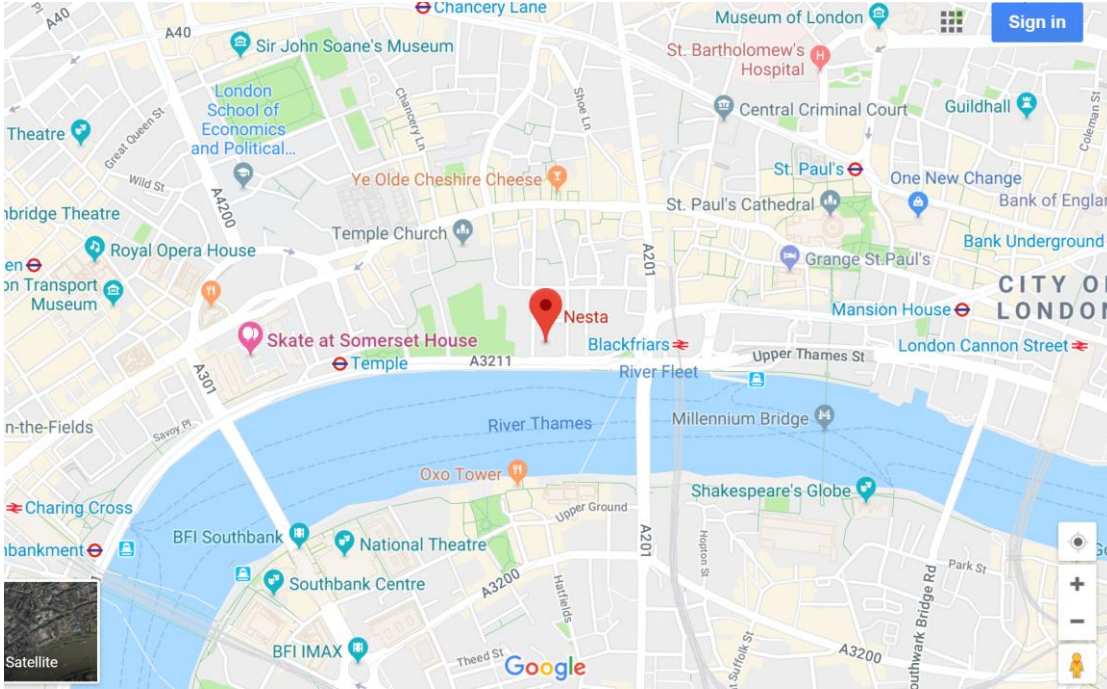
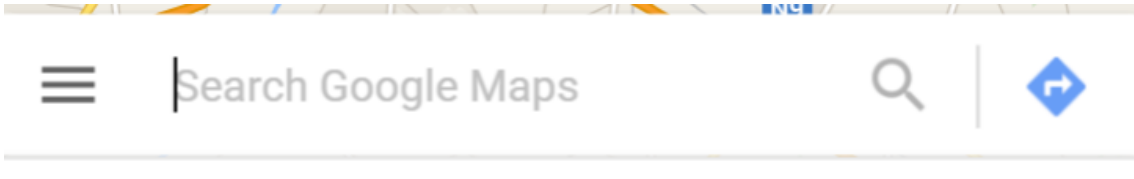
The screenshot shows the EUROORDIS website, which is the voice of rare disease patients in Europe. The header includes the logo and navigation links such as 'About EUROORDIS', 'About Rare Diseases', 'Rare Disease Policy', 'Orphan Drugs & Treatments', 'Living with a Rare Disease', 'Services & Trainings', 'Get Involved', and 'News & Events'. A prominent banner features a photograph of a family and the text 'Apply for the EUROORDIS Winter School 2019!'. Below the banner, there are sections for 'Nominate a start!', 'Veronica's story', and 'Take part in online trainings'. A sidebar on the right contains a search bar, a 'DONATE NOW' button, and a 'WELCOME, GUEST' message.

The screenshot displays the MELANOMA RESEARCH FOUNDATION (MRF) website. The header features the MRF logo and navigation tabs for 'Understand Melanoma', 'Find Support', 'Research Center', 'Get Involved', and 'About Us'. The main content area is titled 'Comparing Lung X-Rays' and includes a 'SUBSCRIBE TO THIS TOPIC' button. A sidebar on the right contains a search bar, a 'DONATE NOW' button, and a 'WELCOME, GUEST' message. Below the main content, there is a section for 'PATIENT RESOURCES' with a link to 'View the Melanoma Patient Guide'.

The screenshot shows the Lupus UK Facebook page. The header includes the Facebook logo, the page name 'Lupus UK', and the user 'Stefana Home'. The main content area features a post from 'Lupus UK' dated 'Yesterday at 11:09am'. The post text reads: 'Here is a really inspiring story about Lamis Mulgrave who is up for a Courageous Kids Award for helping to support young people with #lupus and other rheumatoid conditions whilst living with lupus herself! Good luck Lamis! http://www.birminghammail.co.uk/.../teenager-who-studies-reli...'. Below the text is a photograph of Lamis Mulgrave, a young woman wearing a black hijab and glasses. The post has several 'Like' and 'Comment' buttons. The left sidebar shows 'VISITOR POSTS' with three recent posts from users like Clair Rankin, Debbie Pentland, and Samantha Currie. The right sidebar shows a 'Sponsored' section with a '60 See more of Think Check guide...' link.

Intelligence Assemblies





Google Maps =

Google

+ Where 2 Technologies

+ Keyhole

+ ZipDash

+ Google Maps API

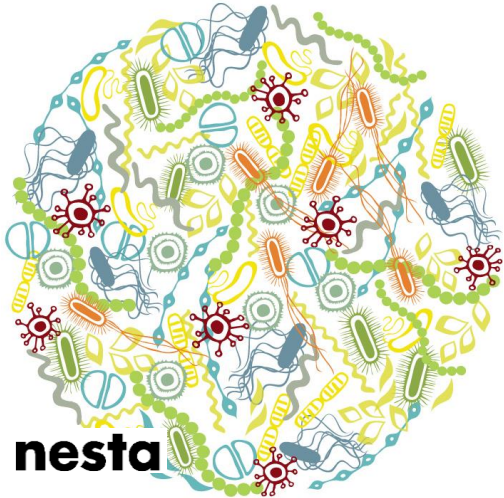
+ Vutool

+ iPhone loading

+ Google Map Maker....

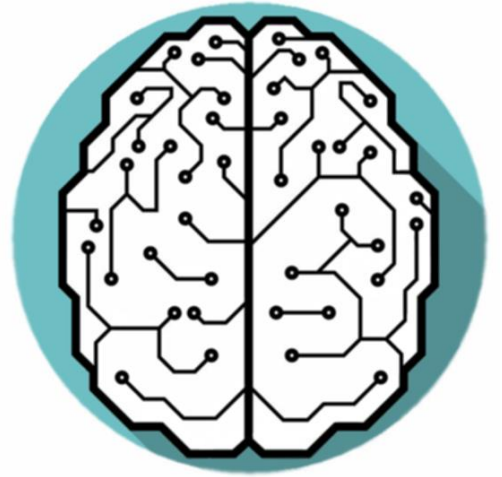
LIME

Epidemiology



**DISEASE
OUTBREAK
PREDICTION**

Machine Learning



DENGUE MALARIA EBOLA TUBERCULOSIS HIV/AIDS FLU

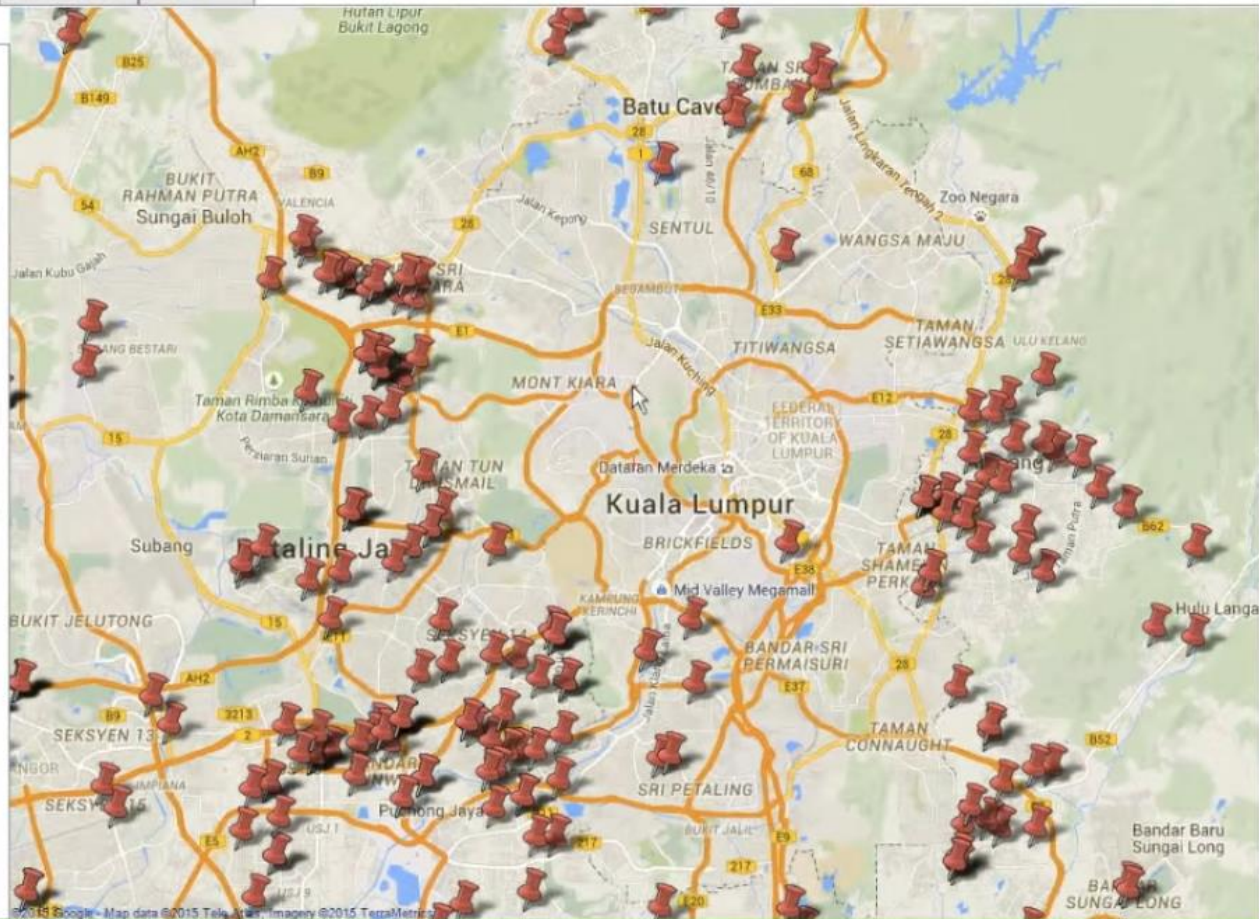
OUTBREAK PREDICTION BY YEAR BY STATE

YEAR

EXTRACT DATA

State	Accumulated Cases
JOHOR	4
KELANTAN	5977
KL	87
MELAKA	7
N. SEMBILAN	873
P. PINANG	29
PAHANG	7
PERAK	40

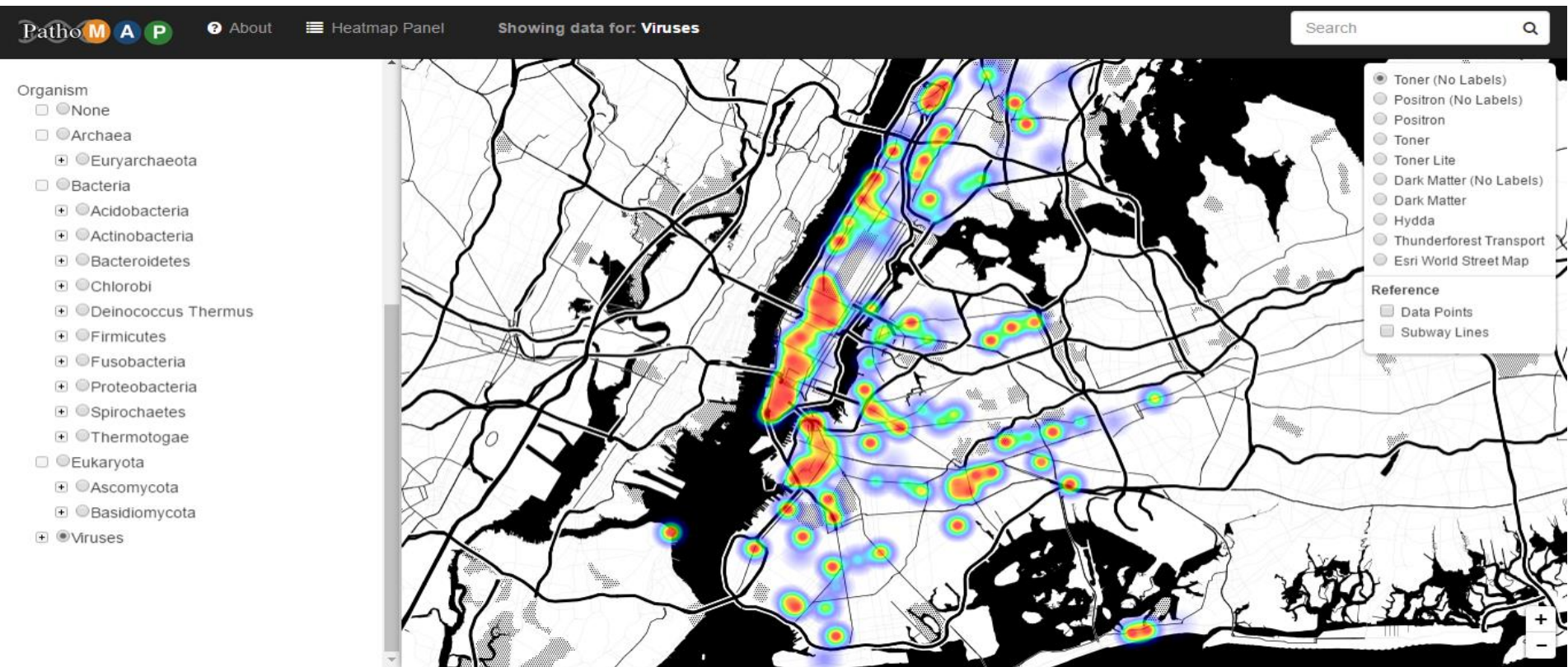
Accumulated Dengue Cases





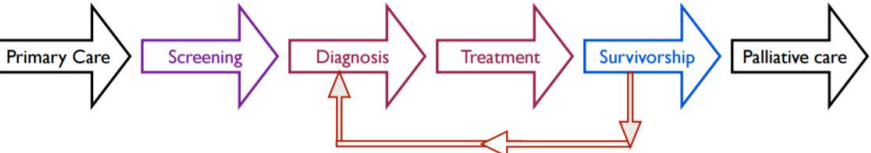
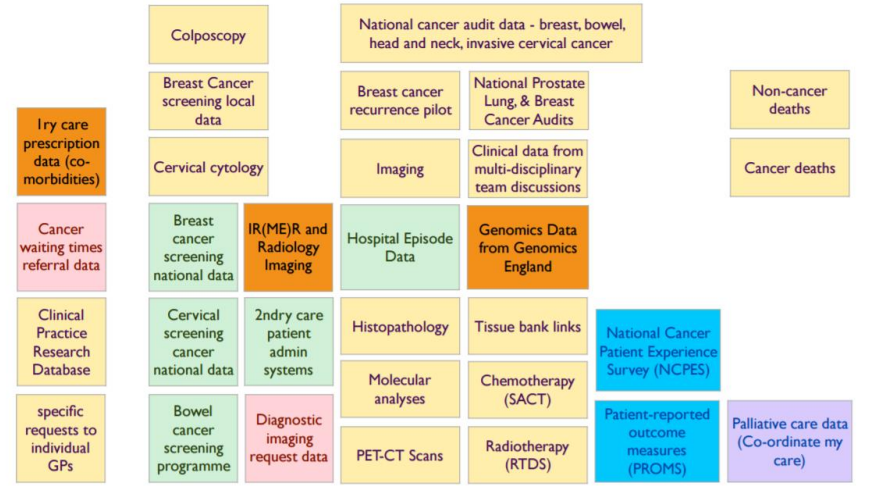
The Metagenomics and Metadesign of the Subways and Urban Biomes

PathoMAP



The English National Cancer Registration Service.

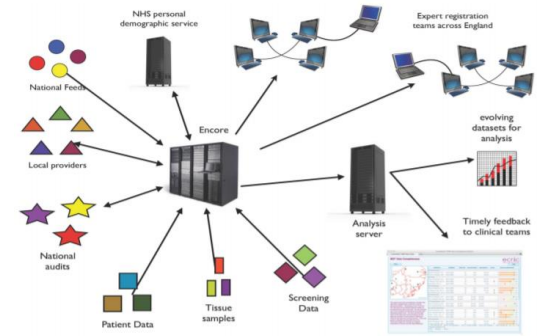
Data to support everything for population health to personalised prevention



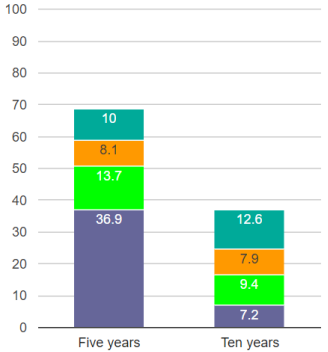
An idea of scale

	Number
National Feeds	12
Local Trust systems - Path, PAS, MDT etc	500
Number of MDTs providing data/week	2000
Chemotherapy providers	142
Molecular testing labs	22
Breast screening units	82
Radiotherapy centres	56
Clinical records each month	2,600,000
Primary care prescriptions each month	16,800,000
Historical tumours in registry	14 million
Minimum number of data items/case	180
Complete data schema - data fields	~ 1000
Annual Registrations* (new tumours)	367,793

* Includes In situ carcinomas but excludes non-melanoma skin cancers
 Figures based annual return of 2015 cases at Nov 2016



Overall Survival at 5 and 10 years (percent)



- Survival with no Adjuvant treatment
- Benefit of Adjuvant Hormone therapy
- Additional benefit of Adjuvant Chemotherapy
- Additional benefit of Trastuzumab

Future vision for collective intelligence in health

- A knowledge commons supporting every decision-maker, combining formal and informal knowledge, tailored to cognitive style
- Clinical, digital, peer and self in alignment
- Deep culture of aware health
- Place-based as well as people-centred