





UNLOCKING THE VALUE OF HEALTHCARE DATA

Des Shanahan, Privitar

THE HEALTHCARE
INDUSTRY IS
UNDERGOING MASSIVE
TRANSFORMATION
DRIVEN BY EXCITING
NEW TECHNOLOGIES



AI AND MACHINE LEARNING ARE OPENING UP NEW AND INNOVATIVE OPPORTUNITIES FOR INNOVATION

The five Artificial intelligence (AI) AI cancer detectors

Researchers suggest artificial intelligence is now better and faster at detecting cancer than clinicians

An AI startup that claimed it can beat doctors in an exam is putting \$100 million into creating 500 new jobs

Shona Ghosh  
 Sep. 16, 2018, 6:47 PM  4,689

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- **British startup Babylon Health says it will invest \$100 million from its own balance sheet into hiring hundreds of scientists to push forward the use of artificial**



Ali Pai

Brazilian researchers devise AI-based approach to detect pathogens

7 Applications of Machine Learning in Pharma and Medicine

Last updated on September 16, 2018 by Daniel Faggella

    Email

When it comes to effectiveness of machine learning, more data almost always yields better results—and the healthcare sector is sitting on a data goldmine. [McKinsey](#) estimates that big data and machine learning in pharma and medicine could generate a value of up to \$100B annually, based on better decision-making, optimized innovation, improved efficiency of research/clinical trials, and new tool creation for physicians, consumers, insurers, and regulators.

UK IS WELL PLACED TO TAKE A LEAD WITH GOVERNMENT INITIATIVES AND WORLD CLASS ACADEMIA



HM Government

Personalised Health and Care 2020

Using Data and Technology to Transform Outcomes for Patients and Citizens
A Framework for Action

NHS

Next steps on the NHS Five Year Forward View

Urgent and emergency care

45 in 2017

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Theresa May says AI revolution will help NHS prevent thousands cancer-related deaths by 2030

Medical records, along with information about patients' habits and genetics, will be used to spot those at an early stage of cancer

Ashley Cowburn Political Correspondent | @ashcowburn | Sunday 20 May 2018 21:45 | 51 comments

18.06.2018

GOVERNMENT DETERMINED TO POSITION UK 'AT THE FOREFRONT OF THE AI REVOLUTION' IN HEALTHCARE

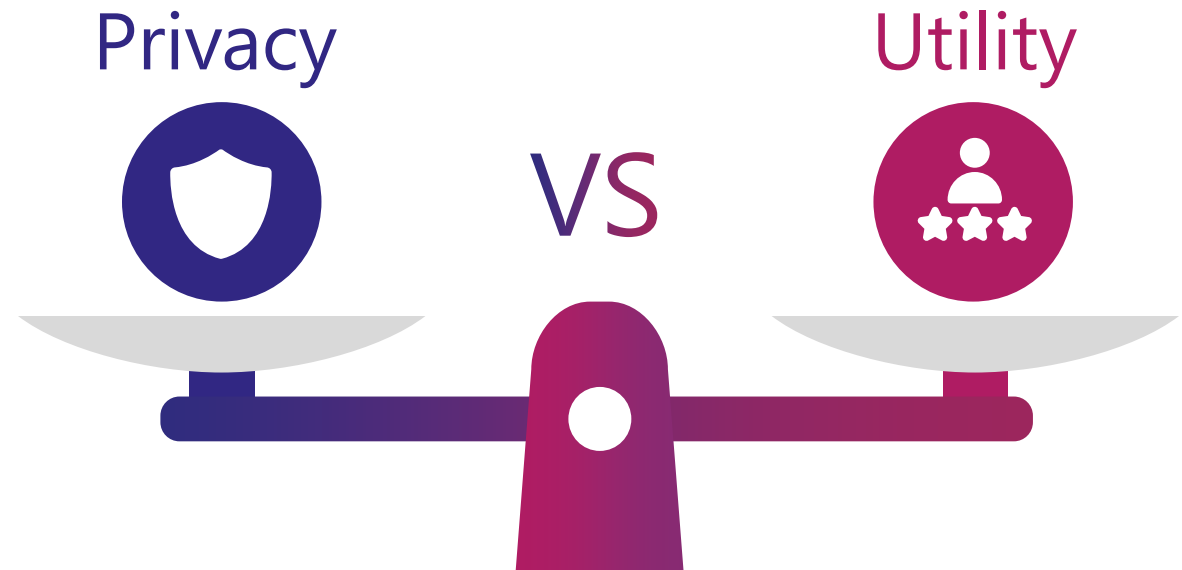
The UK has an opportunity to 'lead the world in the use of data and technology to prevent illness', Prime Minister Theresa May said in a speech today marking a £20bn funding boost for the NHS.

THERE IS NOW
RESPONSIBILITY ON
THOSE WHO HOLD
AND PROCESS
HEALTHCARE DATA TO
BUILD TRUST AND
PREVENT ATTACKS

- 41% of total breaches in 2017 targeted the healthcare industry, making it the most popular target for breach attempts.



PRIVACY ENGINEERING:
HEALTHCARE
ORGANISATIONS WANT
TO UNLOCK VALUABLE
INSIGHTS IN THEIR DATA
WITHOUT
COMPROMISING
INDIVIDUAL PRIVACY

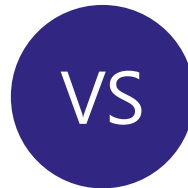


How can you act in the best interest of your customers,
while also acting in the best interest of their privacy?

SECURITY VS PRIVACY: WHAT'S THE DIFFERENCE?

Security Engineering

- Protect against unauthorised access to sensitive data
- Access controls & firewalls
- Authentication & Authorisation
- Reduce the risk of a data breach happening



Privacy Engineering

- Protect the content of sensitive data by de-identifying it
- De-Identify primary identifiers
- Generalise quasi-identifiers
- Reduce or eliminate the consequences of a data breaches, if/when it happens

Complimentary Disciplines

PRIVACY IS CONTEXTUAL
AND REQUIRES
PRINCIPLED AND
CONSISTENT POLICY
EXECUTION

Privacy



+

Innovation



*"It's not privacy **or** innovation, it's privacy **and** innovation."*

Elizabeth Denham, UK Information Commissioner, ICO

PRIVITAR IS ADVISED BY WORLD-LEADING PRIVACY ACADEMIA



Kobby Nissim
Advisor



Yves-Alexandre de Montjoye
Advisor



George Danezis
Advisor

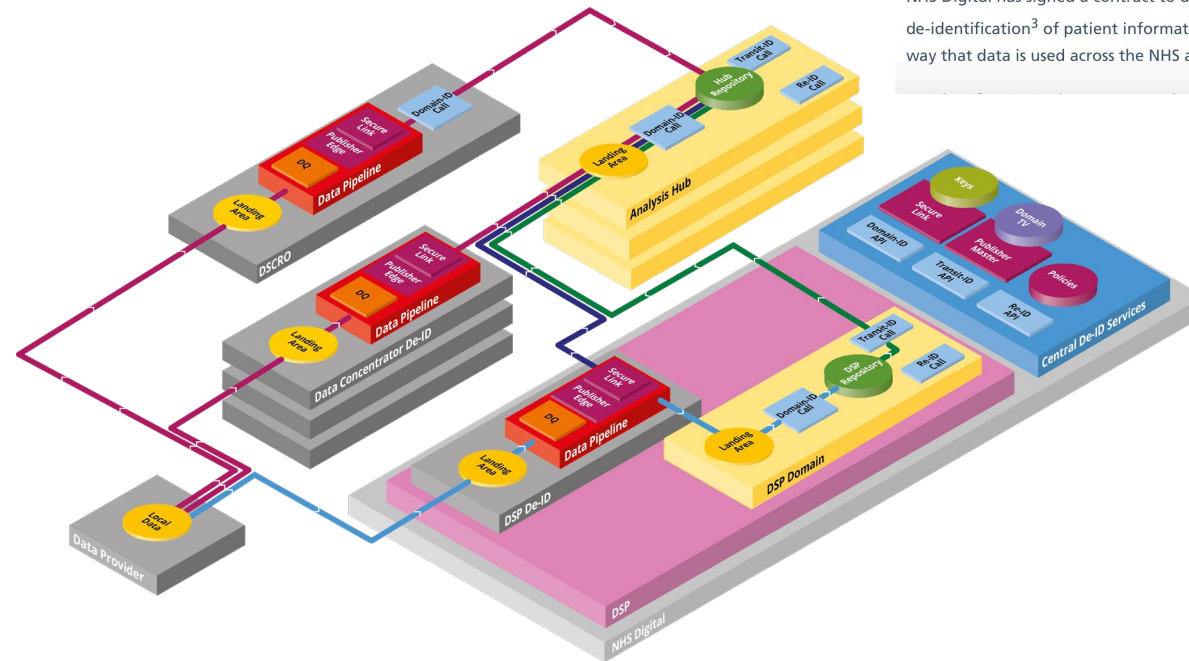
NHS Digital leading the protection of patient data with new patient de-identification solution

29 June 2018

NHS Digital must be quoted as the source of this information.

NHS Digital has signed a contract to deliver a new software solution for the de-identification³ of patient information, which will help to improve the way that data is used across the NHS and social care.

PRIVITAR AND THE NHS: CENTRALISED POLICY EXECUTION WITH FEDERATED CONTROLS TO ENABLE NATIONAL AND LOCAL DATA FLOWS





PRIVITAR AND SENSYNE HEALTH:

IMPLEMENTING A PRIVACY POLICY LAYER TO ENABLE CONSISTENT APPROACH TO DATA DE-IDENTIFICATION

Sensyne Health signs strategic research agreement

13-Aug-2018



TECHNOLOGY

Collaboration with Oxford University Hospitals NHS Foundation Trust aims to analyse anonymised genetic data using clinical artificial intelligence technology



Sensyne Health



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Sensyne Health Licenses Privitar's Data Privacy Software



TO SUMMARISE:

THE PRINCIPLES OF DATA PRIVACY

- Ensure Privacy is embedded into the design phase not a bolt on
- Data Minimisation – only store what you need
- Aggregate and statistically anonymise before sharing to minimise future linkage risks
- If the data is too complex to anonymise, extract the feature of interest and anonymise and share only those that are required.
- Be open and clear about how you protect and use private data



THANKS FOR
LISTENING
