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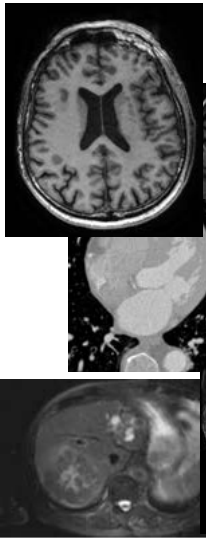
Disclosure

Wiro Niessen is founder, scientific lead (0.2 fte) and shareholder of Quantib BV

The Erasmus MC logo is located in the bottom right corner of the slide. It consists of the text "Erasmus MC" in a sans-serif font, with a stylized signature-like element below it.

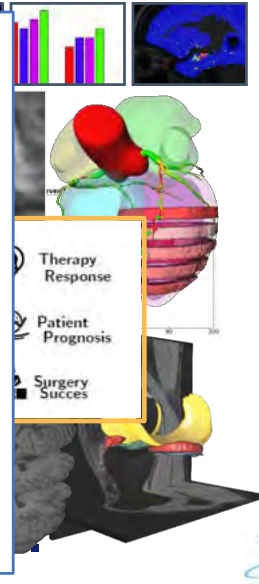
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AI is highly promising, but challenging to implement in the health domain



Specific health domain challenges:

- We need to do more than image perception.
- We need to collect more than images alone (genetics, omics, clinical information, exposome).
- Human biology and pathology is highly variable.
- Data bias is a challenge
- Solutions need to be seamlessly integrated into the workflow



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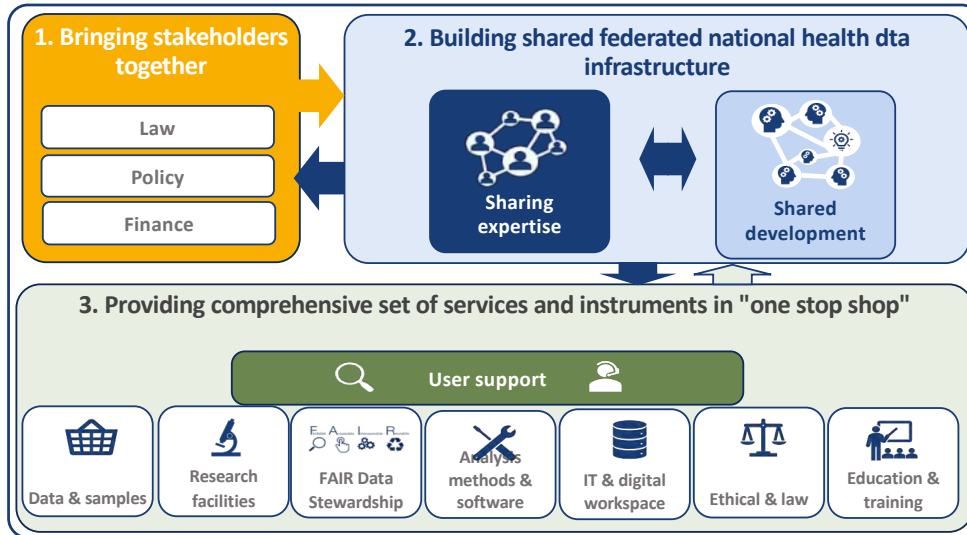
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Bottlenecks for data-driven research and innovation

- Fragmentation of data, images, and samples in healthcare chain and research
- Lack of standardisation in care and research
- Reliability, quality and re-usability of data is problematic
- Ethical and legal framework unclear and sometimes obstructive

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Action lines Health-RI



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Dutch COVID-19 Data Support Programme

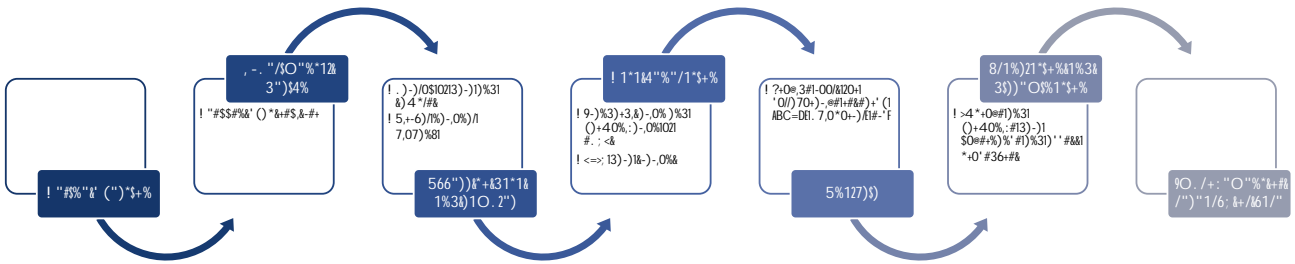
Health-RI launched the Dutch COVID-19 Data Support Programme. To support investigators and health care professionals with tools and services in their search for ways to overcome the pandemic and its health consequences.



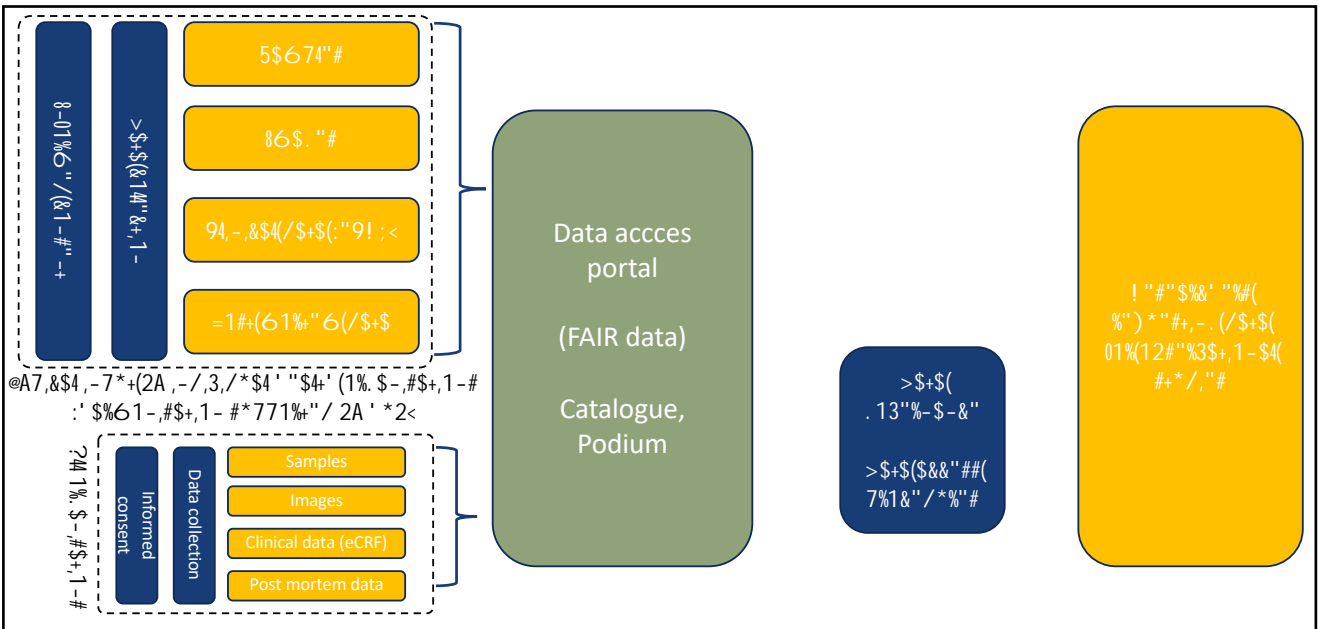
- The outcome of tomorrow's COVID-19 patient is strongly determined by having access to the data of today's patient
- To collect and find the right data, to make them accessible, and to reuse them is non-trivial
- Currently many data collection initiatives worldwide
- Health-RI provides overview of initiatives and provides services & tools

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Health-RI (community) addresses common bottlenecks and solutions in the data-driven Covid-19 research process



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June 11, 2020

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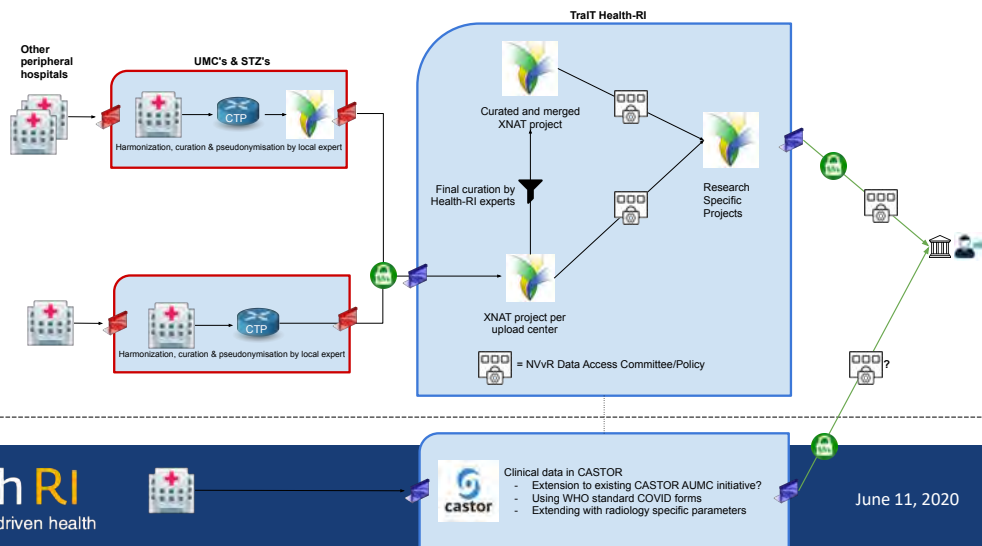
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Covid-19 response: Nvvr-Health RI imaging database



Nvvr Consortium

- Consortium agreement
- Processing agreements
- Consent forms
- Data Access Policy



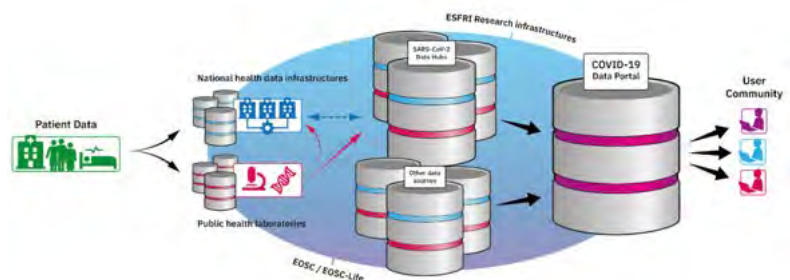
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Linking to international Covid data initiatives

- Linking to European Covid-19 data portal: <https://www.covid19dataportal.org>
 - Coordinated by ELIXIR and EMBL-EBI
 - Health-RI connected to Covid-19 data portal initiative via ELIXIR-NL and EOSC-LIFE

- *Federated national EGA to ensure rapid sharing of Covid-19 host omics – phenotypic data across Europe*

- FAIR metadata



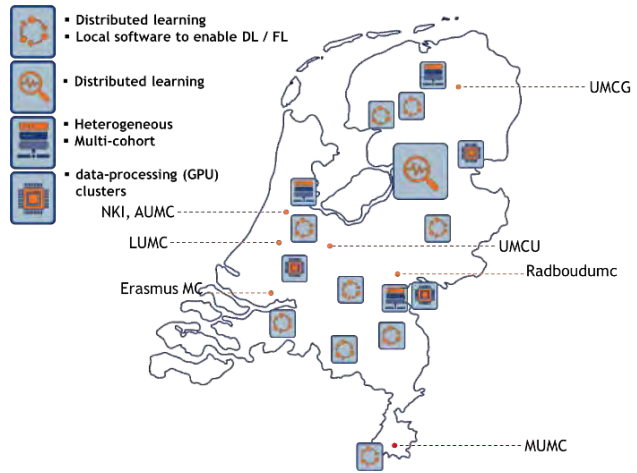
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Ideal use case for Health RI

- Fairification of data, samples & images by local Health-RI efforts
- Portal for access
- Supporting distributed analysis & learning

Open data
is about
MORE
THAN
DISCLOSURE
it must be
Fair

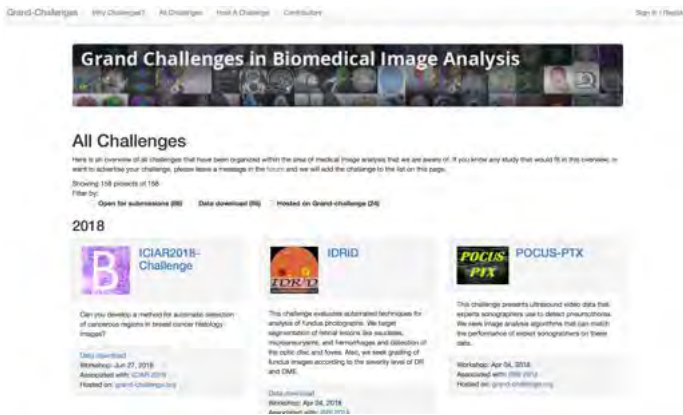
- Findable
- Accessible
- Interoperable
- Reusable



Important steps for successful introduction of AI

- High quality data to train algorithms using state of the art algorithm optimization methods
- Proper validation strategies
- Clear definition of tasks and seamless integration into the workflow

MICCAI – ACR / RSNA / ESR collaboration



- **AI use cases**
Clinically relevant, ethical and effective
- **Challenges**
Good quality data for training
Objective evaluation of performance



Our TOUCH AI use cases are scenarios where use of artificial intelligence (AI) may help improve medical imaging care. They were created to empower AI developers to produce algorithms that are clinically relevant, ethical, and effective. Each use case provides narrative descriptions and flow charts which specify the health-care goal of the algorithm, the required clinical input, how it should integrate into the clinical workflow and how it will interface with other AI tools.

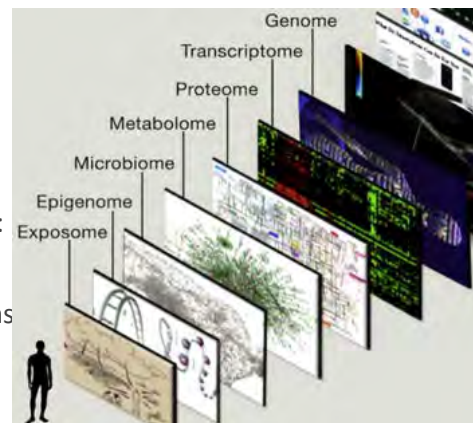


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Enabling data-driven response to Covid-19

What can we do together?

- Work on higher quality and better accessible data for science and innovation (Dutch observational Covid-19 database)
- Support FAIR data acquisition / data Fairification
- Bringing data, clinical knowledge and data science together: co-creation
- Collaborate between (-omics, imaging, clinical) data domains
- Create evaluation and validation frameworks for clearly defined clinical tasks
- Implement prospective validation studies



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Thank you!



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