

The current practices, costs and benefits of FAIR implementation in the pharmaceutical industry

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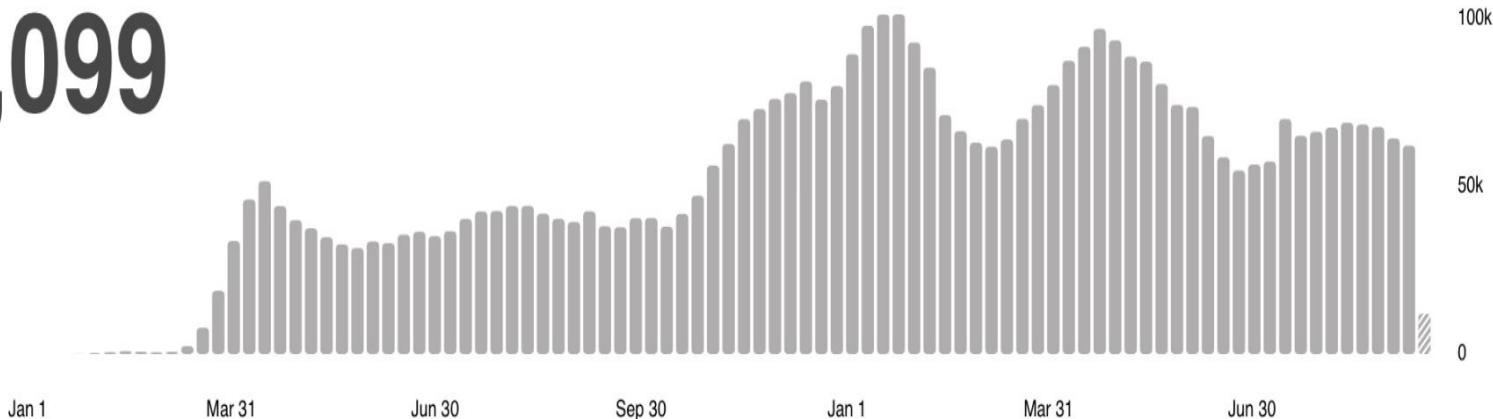
Manchester, UK

Motivation

4,697,099
deaths

Source: World Health Organization

▨ Data may be incomplete for the current day or week.



Covid-19 deaths worldwide

FAIR implementation in Pharmaceutical R&D

Overcoming the challenges to making data FAIR in pharma

By **Ted Slater** - January 8, 2020



Implementation and relevance of FAIR data principles in biopharmaceutical R&D

John Wise¹, john.wise@pistoiaalliance.org, Alexandra Grebe de Barron², Andrea Splendiani³, Beeta Balali-Mood¹, Drashti Vasant³, Eric Little⁴, Gaspare Mellino⁵, Ian Harrow¹, Ian Smith⁶, Jan Taubert⁷, Kees van Bochove⁸, Martin Romacker⁵, Peter Walgemoed⁹, Rafael C. Jimenez¹⁰, Rainer Winnenburg¹¹, Tom Plasterer¹², Vibhor Gupta¹³ and Victoria Hedley¹⁴

LABORATORY INFORMATICS SPONSORED CONTENT

Lack of FAIR data reduces life science innovation

The Need of Industry to Go FAIR

Herman van Vlijmen¹, Albert Mons¹², Arne Waalkens¹, Wouter Franke¹, Arie Baak³, Gerbrand Ruite Christine Kirkpatrick⁷, Luiz Olavo Bonino da Silva Santos⁸, Bert Meerman⁸, Renger Jellema¹⁰, Der Arts¹¹, Martijn Kersloot¹¹, Sebastiaan Knijnenburg¹¹, Scott Lusher¹, Rudi Verbeeck¹ & Jean-Marc Nee

Driving FAIR in Biopharma

Expert insider views on leading transformative FAIRification efforts within biopharma

Exploring the current practices, costs and benefits of FAIR Implementation in pharmaceutical Research and Development: A Qualitative Interview Study

Progress has been made



• <https://www.pistoiaalliance.org>

• <https://fairplus-project.eu>

Challenges of FAIR in Pharmaceutical R&D

Financial investment



- The upfront cost of revising legacy data to comply with data standards

Technical infrastructure



- Limited of availability of technology and standards

Legal compliance



- Data protection regulation (GDPR) compliance

Cultural change



- Training
- A lack of incentivise

-Wise, J., et al., *Implementation and relevance of FAIR data principles in biopharmaceutical R&D*. 2019 DOI: 10.1016/j.drudis.2019.01.008.

-Herman van Vlijmen, A.M., Arne Waalkens, Wouter Franke, Arie Baak, Gerbrand Ruiter, Christine Kirkpatrick, Luiz Olavo Bonino da Silva Santos, Bert Meerman, Renger Jellema, Derk Arts, Martijn Kersloot, Sebastiaan Knijnenburg, Scott Lusher, Rudi Verbeeck, Jean-Marc Neefshidden, *The Need of Industry to go FAIR*. Data Intelligence, 2020. 2DOI: 10.1162/dint_a_00050.

-Slate, T. Overcoming the challenges to making data FAIR in pharma 2020; Available from: <https://pharmafield.co.uk/opinion/overcoming-the-challenges-to-making-data-fair-in-pharma/>

What are the associated costs and benefits of FAIRification?

How are decisions made about the retrospective FAIRification of datasets in pharmaceutical R&D?!

Study Method

Method

- Semi-structured interviews
- The interview guide covered the current FAIR implementation

Participants

- We recruited 14 participants
- From the European Federation of Pharmaceutical Industries and Associations (EFPIA)

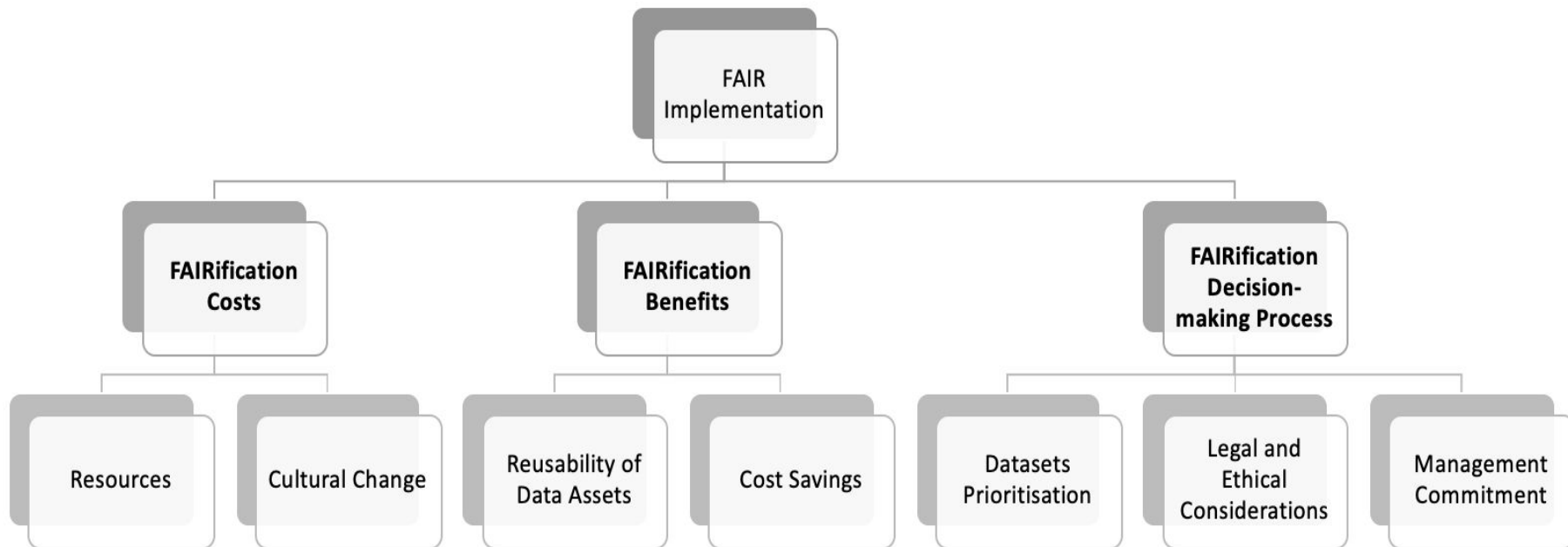
Ethical Approval

- The study was granted ethical approval by the Research Ethics Committee - University of Manchester

Data Analysis

- Thematic analysis (open coding)
- The inter-coder reliability analysis of 79.1%, indicates substantial agreement

Results



Theme 1: FAIRification Costs

“It is the resource costs of curators and data specialists, data stewards; the resource costs of defining and building metadata models; the implementation costs of things like a reference and master data management” (P3)

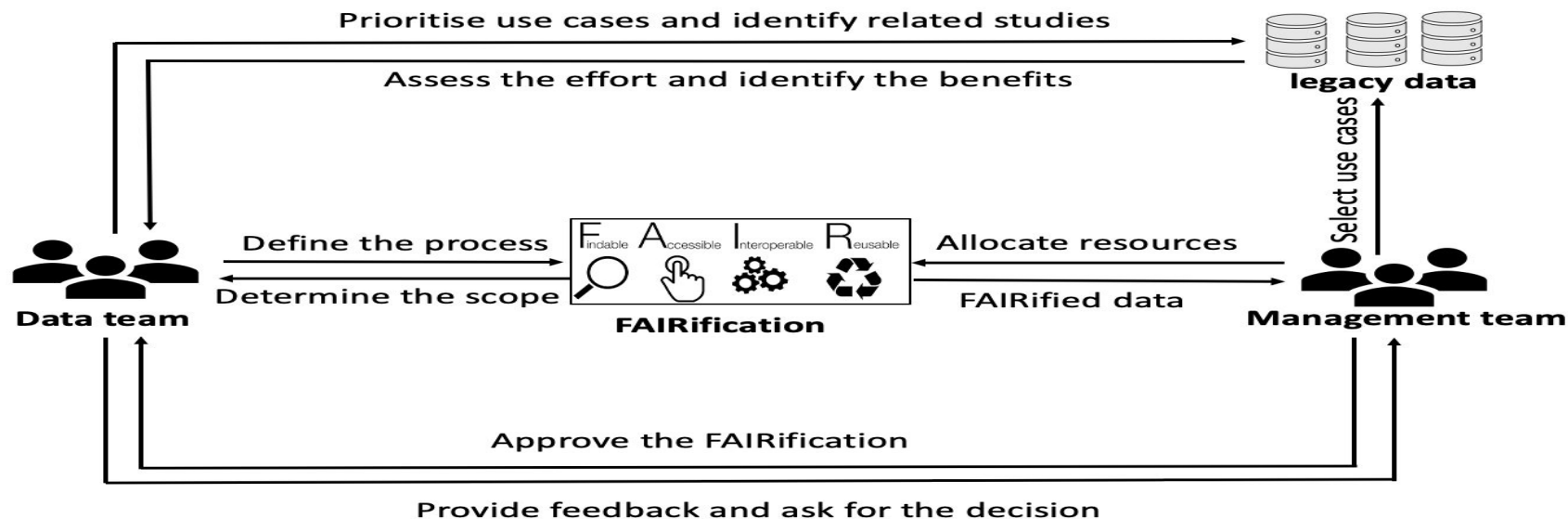
Theme 2: FAIRification Benefits

“The data is in a form that can be cut and diced based on the questions that are being asked rather than the original preformed hypothesis that's being tested. You open up the doors for machine learning and artificial intelligence.” (P5)

Theme 3: FAIRification decision-making process

“We have to be selective. The reason against would be we have a lot of legacy data, and people have to say that they're interested in it, or someone has to make a decision that these data are valuable enough to invest in the work required for FAIRification.” (P6)

Conceptual model for the FAIRification decision-making process



The Next Step

- Develop a decision-making framework to aid decision makers in pharmaceutical R&D to determine whether FAIRifying a legacy dataset is worth the cost of the investment
- It helps them prioritise their datasets accordingly.



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| Journal: | <i>Data Intelligence</i> |
| Manuscript ID | Draft |
| Manuscript Type: | Research/Application Article |
| Date Submitted by the Author: | n/a |
| Complete List of Authors: | Alharbi, Ebtisam; The University of Manchester Faculty of Science and Engineering; Umm Al-Qura University Skeva, Rigina; The University of Manchester Faculty of Science and Engineering Juty, Nick; The University of Manchester, University of Manchester Jay, Caroline; The University of Manchester Faculty of Science and Engineering Goble, Carole; The University of Manchester, Computer Science |
| Keywords: | FAIR, FAIRification, retrospective FAIRification, Pharmaceutical R&D, Cost-benefit, decision-making process |

Thank you

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