# *Goal-models to support communication, planning and guiding of FAIRification*

*César Henrique Bernabé[1], Annika Jacobsen[1], Núria Queralt Rosinach[1], Luiz Olavo Bonino da Silva Santos[1,2,3], Vitor E. Silva Souza[4], Barend Mons[1,2], Marco Roos[1]*

*[1]Department of Human Genetics, Leiden University Medical Center, Leiden, The Netherlands*
*[2]GO FAIR International Support & Coordination Office (GFISCO), Leiden, The Netherlands*
*[3]Department of Electrical Engineering, Mathematics and Computer Science, University of Twente, Enschede, The Netherlands*
*[4]Department of Computer Science, Federal University of Espírito Santo (UFES), Vitória, Brazil.*

Implementing the FAIR principles makes data ready for efficient analysis with other data. Workflows for the process of making data FAIR ('FAIRification') describe how the principles can be realised. As a multidisciplinary activity, FAIRification relies on good communication with different expertise involved. However, FAIRification workflows currently do not specify methods to meet this need.

We are designing a method that uses 'goal-oriented models' to support the FAIRification 'objective identification' and 'conceptual modelling' steps. In the former, the motivation(s) for the need for FAIR data are identified. In the latter, goal models are used to define the scope, identify important concepts and validate the resulting conceptual model. The method will also describe best practices and activities for conceptual modelling.

It is expected that the approach will contribute by improving the efficiency of FAIRification procedures, based on clear and easier communication of constraints and intentions among everyone involved in the project; and enhance the interoperability of FAIRified data, based on the expected improvement of the data models that are built following the method. We are currently finalizing the design of the method and running a set of proofs-of-concept to validate and adjust it.

**Acknowledgements**
This initiative has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°825575, the Trusted World of Corona (TWOC; LSH Health Holland) and the ROSE project (CAPES process 433844/2018-3).

## REFERENCES

Alexandrescu,A. (2001) *Modern C++ Design: Generic Programming and Design Patterens Applied.* Addision Wesley Professional, Boston.
Dormand,J.R. and Prince,P.J. (1980) A family of embedded Runge–Kutta formulae. *J. Comp. Appl. Math.*, **6**, 19–26.
Alexandrescu,A. (2001) *Modern C++ Design: Generic Programming and Design Patterens Applied.* Addision Wesley Professional, Boston.
Dormand,J.R. and Prince,P.J. (1980) A family of embedded Runge–Kutta formulae. *J. Comp. Appl. Math.*, **6**, 19–26.
Alexandrescu,A. (2001) *Modern C++ Design: Generic Programming and Design Patterens Applied.* Addision Wesley Professional, Boston.
Dormand,J.R. and Prince,P.J. (1980) A family of embedded Runge–Kutta formulae. *J. Comp. Appl. Math.*, **6**, 19–26.