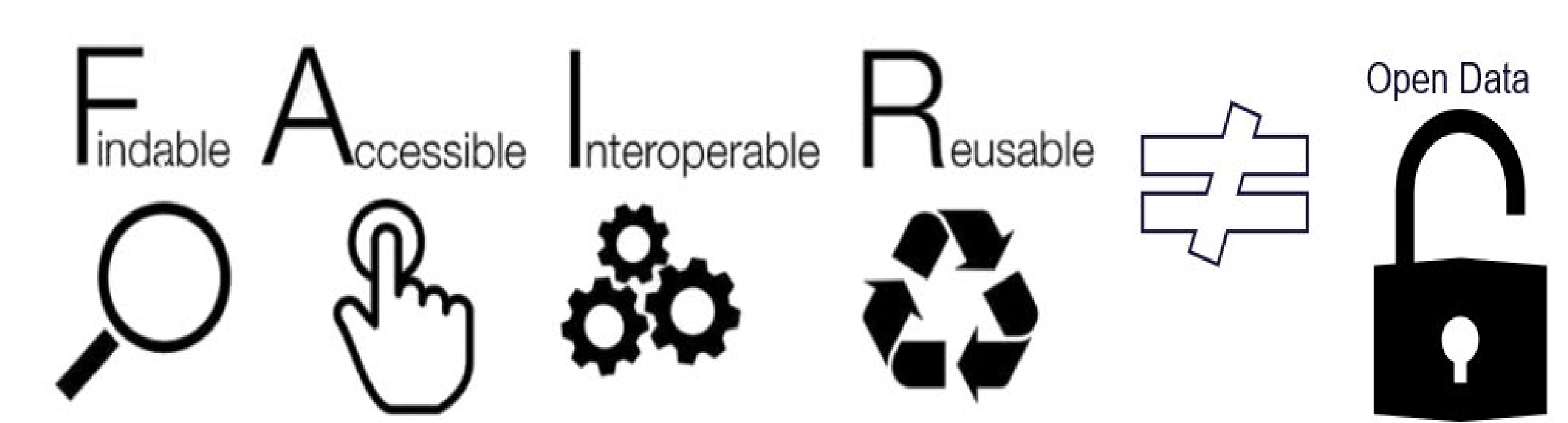
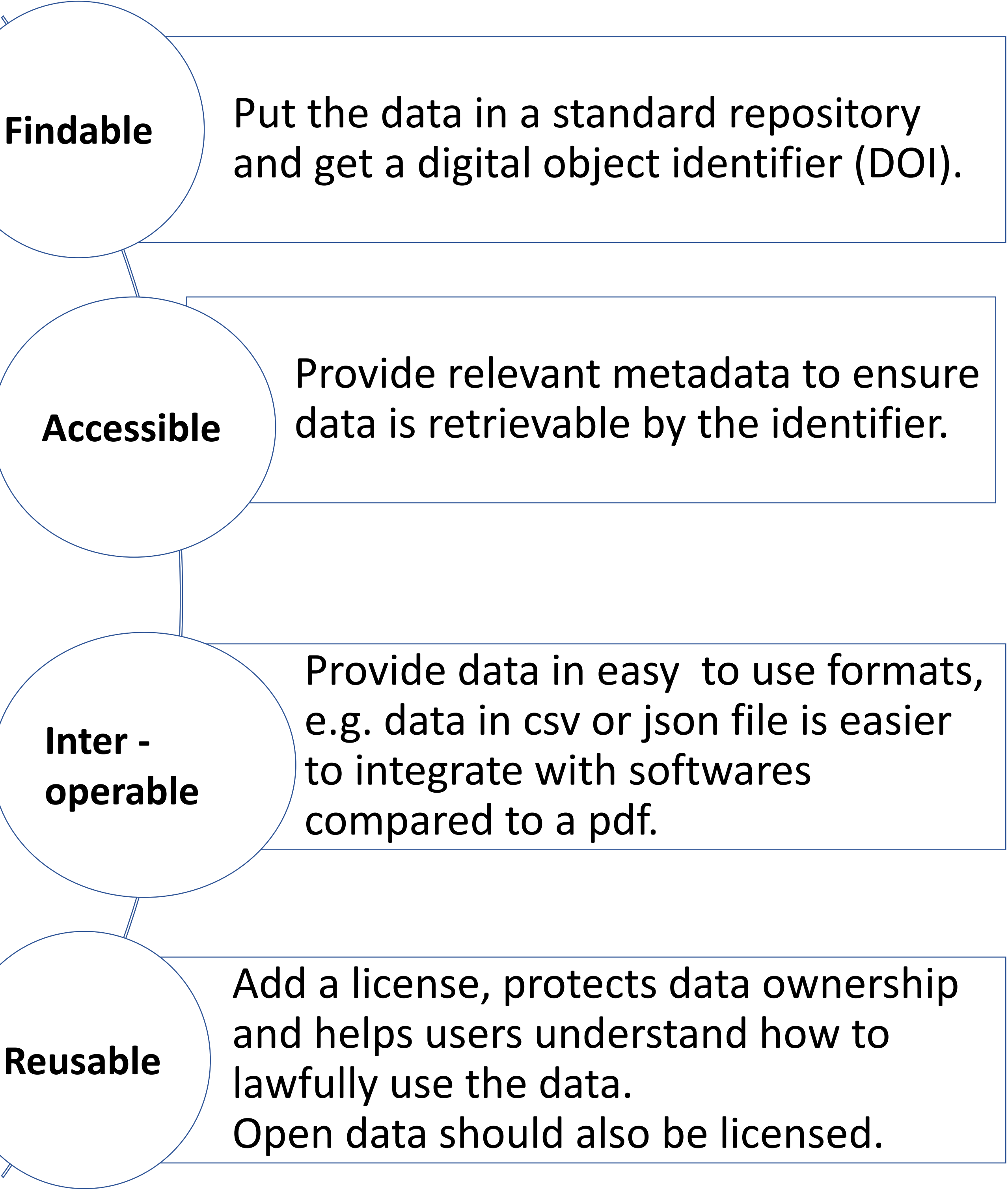


# Is your LCA FAIR?

## Data management in practice

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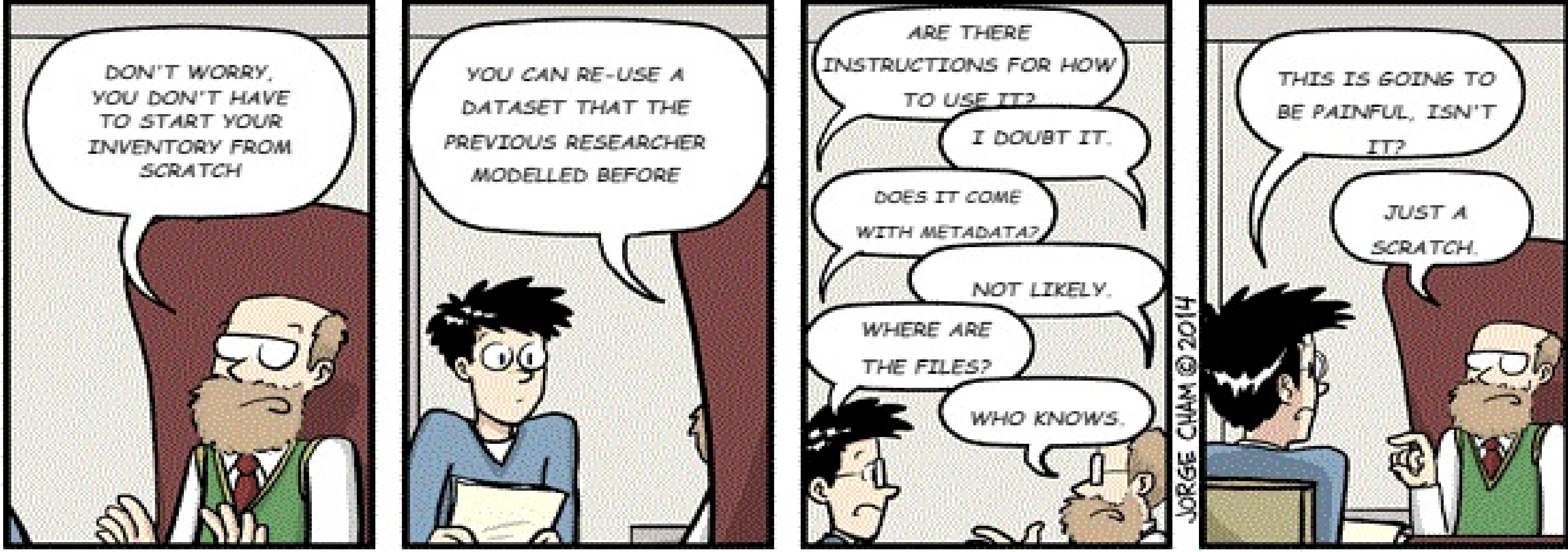
**FAIR data principles:** Introduced in 2016<sup>[1]</sup>, these principles provide a set of best practices for sharing data respecting legal, ethical or contractual restrictions. FAIR is an acronym for ‘Findable, Accessible, Interoperable and Re-usable’ for all data shared. Adhering to the FAIR principles may involve a few simple solutions as listed below:



However, adhering to the FAIR principles can support best practice for open data sharing.

**How can LCA benefit from FAIR data ?**  
Validity of an LCA study depends on the data it is built on. 96 % participants at a recent LCA discussion forum highlighted that gathering relevant data remains a key obstacle in performing LCA<sup>[2]</sup>.

Given the challenges of data access, LCA practitioners can benefit largely with the consistent application of FAIR principles in data management.



## Are the data repositories available to LCA practitioners FAIR enough ?

The table below shows how data shared on different platforms adhere to FAIR principles. The colour code is - **Green** adheres to FAIR principles; **Orange** somewhat adheres to FAIR; and **Red** does not adhere to FAIR principles

Data shared on:	Findable	Accessible	Interoperable	Reusable	Other features
Supporting material with publication	• <b>No separate DOI</b>	• <b>Limited metadata</b> • <b>No possibility to update versions</b>	• <b>No for datasets shared in Word or pdf files</b>	• <b>Published material belongs to the journal unless published open access</b>	
Zenodo <sup>[3]</sup>	• <b>DOI assigned to all files</b>	• <b>Allows versioning of dataset updates</b> • <b>Data retained for the lifetime of the repository</b>	• <b>Depends on the file format shared</b>	• <b>License is mandatory</b>	GitHub integration to archive repositories
Ecoinvent <sup>[4]</sup>	• <b>No DOI but a unique ID used for internal reference</b>	• <b>Detailed metadata including description of sources and the modelling approach to create the dataset</b>	• <b>Published in ecospold2 format used by most LCA software</b>	• <b>No license, but copyright remains with data provider</b>	Free dataset review
GLAD <sup>[5]</sup>	• <b>No but provides link to data source</b>	• <b>Ensures metadata is accessible in a consistent format</b>	• <b>accessible dataset can be converted to multiple formats e.g. ecospold2, JSON LD, or .csv</b>	• <b>No, license depends on data provider</b>	Does not host databases but directs to dataset provider’s website
IE Data Commons <sup>[6]</sup>	• <b>No but provides link to data source</b>	• <b>Detailed metadata for different data types</b>	• <b>Data available in xls format</b>	• <b>Only publishes open access datasets</b>	Provides a data model that can be commonly used for most IE assessment models.
BONSAI <sup>[7]</sup>	• <b>Yes, provides unique identifier (IRI) linked to semantic web</b>	• <b>Metadata adheres to a semantically linked ontology for LCA models</b>	• <b>Data downloaded in machine readable formats e.g. .ttl, JSON LD</b>	• <b>Only publishes open access datasets</b>	Dataset linked to semantic web enhances data discoverability in other domains

## LCA specific data repositories can improve adherence to FAIR principles

- All repositories adhere to selected FAIR principles.
- Avoid storing data as supplementary information in journal articles
- Storing LCA data in generic repositories such as Zenodo maximizes FAIRness of data sharing.

References:

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