Pistoia Alliance

FAIR Maturity Matrix version 1.0

FAIR implementation project - Phase 3
 2024-04-14

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Topics

- Why a FAIR organisational maturity model?
- Who is the FAIR Maturity Matrix for? And who created it?
- FAIR maturity matrix: Dimensions
- FAIR maturity matrix: Levels
- Digging deeper: content
- How to access, know more, get involved ?

Why a FAIR organisational maturity model?

- Organizations are at different stages in implementing FAIR data principles
- FAIR data metrics exist, but are not sufficient
- Benchmarking across organizations is very hard.
- Organizations spend time clarifying situations, defining possible actions for desired outcomes, and road mapping

→ How to assess, qualify, measure and manage progress towards FAIR implementation?

The FAIR Maturity Matrix V1.0

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Version: 1.0 Date: 2024-03

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Metaphor	Junkyard	Flea market	Street Market	Local Markets	Hyper Market	Digital Online Store
	0 Life is unFAIR	1 Started the FAIR journey	2 Getting FAIR	3 Pretty FAIR	4 Really FAIR	5 FAIRest of them all
FAIR data	data 0	data 1	data 2	data 3	data 4	data 5

http://fairmm.pistoiaalliance.org/

FAIR Maturity Matrix V1.0: contributors and sponsors

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From February 2023 to April 2024, over 20 experts contributed to the FAIR maturity matrix v1.0 documents.

Coordination	Affiliation
Giovanni Nisato	Pistoia Alliance

AstraZeneca

Bristol Myers Squibb

novo nordisk®

Roche

Pfizer

This work was done in the FAIR implementation project, Best Practice Working Group.

Who is the FAIR Maturity Matrix for?

Leadership
implementing FAIR
data principles

Communities of
FAIR practitioners

- Life-science companies
- Contract Research organisations
- Technology and information providers
- Consulting firms
- Academic research organisations
- Regulatory authorities

FAIR maturity matrix: intended use

- Provide a frame for actionable conversations
- Descriptive (self-)assessment tool
- Align stakeholders (e.g. reach similar evaluation of the current state of an organisation)
- Provide possible directions for improvement
- Not prescriptive: each organization and their journey are unique
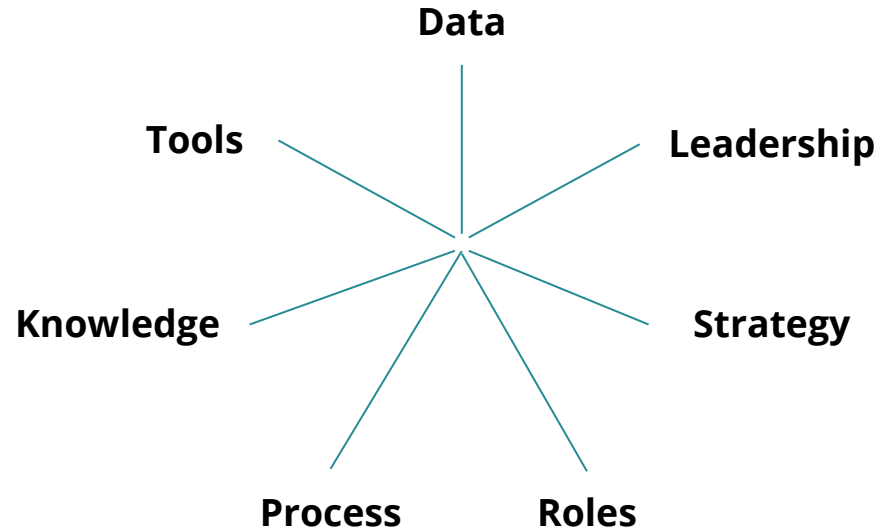- "More FAIR" is not a goal *per se*: alignment with business goals

What would we like to be able to do next ?

What can do now ?
FAIR business value ?

FAIR maturity matrix: Dimensions

FAIR maturity matrix: Dimensions

- To articulate the maturity model, 7 dimensions were identified.
- The dimensions are not hierarchical
- Each dimension provides a complementary perspective on FAIR implementation journeys

Dimension	Key notions
FAIR data	Data, metadata, data products
FAIR leadership	Types of leadership necessary for FAIR implementation
FAIR strategy	Approaches to implement FAIR data principles, use and business cases
FAIR roles	What kind of (human) roles are necessary to implement FAIR
Processes for FAIR	Which processes must we explicitly implement
FAIR knowledge	What needs to be known for FAIR implementation
FAIR tools and infrastructures	From persistent identifiers to controlled vocabularies to semantic models

FAIR maturity matrix: levels - data markets analogies *

"Digital Online Store"

"Hyper Market"

"Specialized
Local Markets"

"Street Market"

"Flea market"

"Junkyard"

5 FAIRest of
them all

4 Really
FAIR

3 Pretty
FAIR

2 Getting
FAIR

1 Started the
FAIR journey

0 Life is
unFAIR

* Thanks to AstraZeneca

FAIR maturity matrix: Levels

- There are 6 maturity levels, L0-L5, in alignment with FAIR *data* frameworks.
- Capabilities tend to be cumulative (Level N encompasses Level N-1).
- Level 4 reflects current *best* practice
- Level 5 is aspirational

Level	Nickname	Marketplace metaphor	Key Features
0	"life is unFAIR"	"Junkyard"	Lack of awareness, possibly acquiring awareness.
1	"Started the FAIR journey."	"Flea market"	Awareness started, and the first pilots for implementation.
2	"Getting FAIR"	"Street Market"	Pilots for implementation are in place
3	"Pretty FAIR"	"Specialized Local Markets	Transition to good and best practice
4	"Really FAIR "	"Hyper Market"	Operational, best practice known at the time of writing. Internal organisational focus. Emerging cross-organisation
5	"FAIRest of them all"	"Digital Online Store"	Aspirational. conceivable but still needs to be realised. Cross-organisation standards and Interoperability

FAIR Maturity Matrix

- Each column and row point to the respective definitions
- Each cell points to a narrative text describing the related characteristics
- Each cell can be viewed in the context of each level (column) and also of its evolution (row)

	0 Life is unFAIR	1 Started the FAIR journey	2 Getting FAIR	3 Pretty FAIR	4 Really FAIR	5 FAIRest of them all
FAIR data	data 0	data 1	data 2	data 3	data 4	data 5
FAIR leadership	leadership 0	leadership 1	leadership 2	leadership 3	leadership 4	leadership 5
FAIR strategy	strategy 0	strategy 1	strategy 2	strategy 3	strategy 4	strategy 5
FAIR roles	roles 0	roles 1	roles 2	roles 3	roles 4	roles 5
FAIR processes	process 0	process 1	process 2	process 3	process 4	process 5
FAIR knowledge	knowledge 0	knowledge 1	knowledge 2	knowledge 3	knowledge 4	knowledge 5
FAIR tools	tools 0	tools 1	tools 2	tools 3	tools 4	tools 5

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FAIR maturity matrix document: contents

- A summary of features, capabilities is provided for each level
- A summary of all the levels provides a first orientation

Level 2: "Getting FAIR"

Level	Nickname	Marketplace metaphor	Features	Picture
2	"Getting FAIR"	"Street Market"	FAIR Pilots for implementation are in place	

Table - Level 2: "Getting FAIR"

Level 2: "Getting FAIR" summary

The organization initiates data conforming processes to local models in a shared data platform and progresses to system-level controls. These processes include Tools for metadata, controlled vocabularies, and persistent identifiers. Data is more "findable" thanks to unique identifiers. Emerging metadata and controlled vocabularies make accessing data with less specific knowledge requirements possible. Leadership awareness grows, initiating initial FAIR projects and forming champions within the company. Vision, strategy, and role development follow, integrating FAIR as a key element in the broader data strategy. Designated roles emerge, fostering prototypes and showcasing value. Formal training

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FAIR maturity matrix document: digging deeper

Each level has description of general:

- Capabilities
- Business value
- Questions to ask

A description of the level s for each dimension

- Level 2 - FAIR data
- Level 2 - FAIR leadership
- Level 2 - FAIR strategy
- Level 2 - FAIR roles
- Level 2 - FAIR processes
- Level 2 - FAIR knowledge
- Level 2 - FAIR tools and infrastructures

Level 2 "Getting FAIR"

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Level 2 – Capabilities
Level 2 – Business value
Level 2 – Questions to ask
Level 2 – FAIR data
Level 2 – FAIR leadership
Level 2 – FAIR strategy
Level 2 – FAIR roles
Level 2 – FAIR processes
Level 2 – FAIR knowledge
Level 2 – FAIR tools and infrastructures

Level	Nickname	Marketplace metaphor	Features	Picture
2	"Getting FAIR"	"Street Market"	Pilots for FAIR implementation are in place	

FAIR maturity matrix: real-life assessments
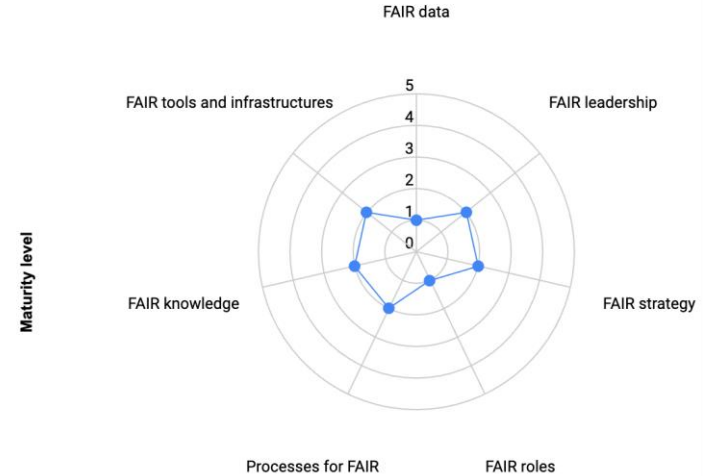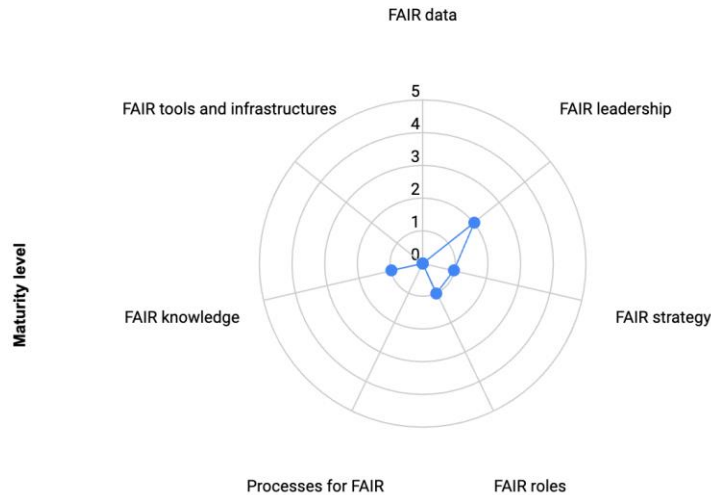
- "Spider" diagram created experts using the FAIR matrix framework
- Example of journey stages: not all dimensions are in-sync
- More add-ons to be developed for Pistoia members

FAIR maturity matrix: access   fairmm.pistoiaalliance.org

	Junkyard	Flea market	Street Market	Local Markets	Hyper Market	Digital Online Store
	0 Life is unFAIR	1 Started the FAIR journey	2 Getting FAIR	3 Pretty FAIR	4 Really FAIR	5 FAIRest of them all

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- What works for you? How would you improve the model?
- Feedback: fair-maturity-matrix@pistoiaalliance.org

What's next: Pistoia FAIR Community of Experts (CoE)

- The FAIR Community of Experts is looking for sponsors and participants

- Get involved in FAIR CoE to co-create the next version of the FAIR Maturity Matrix e.g.:
  - Maturity visualisation tools
  - (self)diagnosis questionnaires
  - actionable paths to FAIR improvements
  - connection to trainings
  - connect to business value
  - etc.

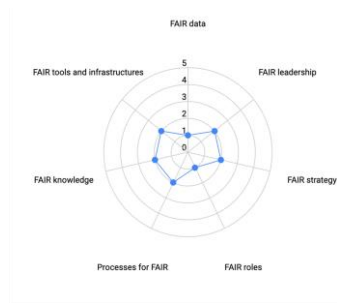 To get involved contact :
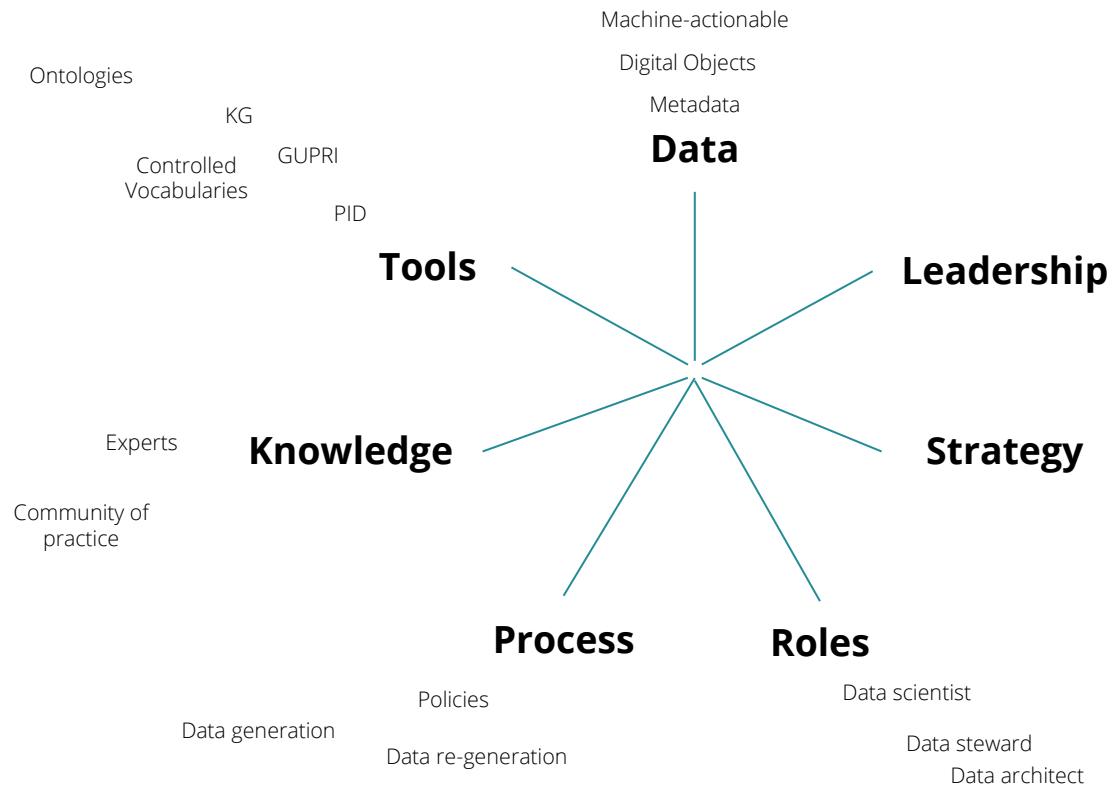 giovanni.nisato@pistoiaalliance.org

Thank you for your attention!

Questions?

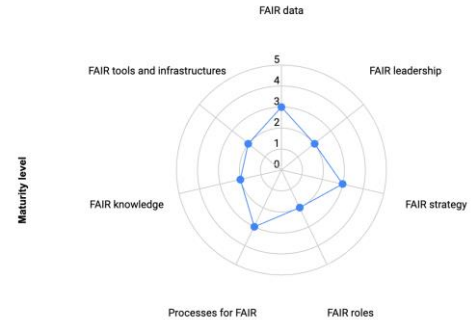giovanni.nisato@pistoiaalliance.org
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FAIR maturity matrix: Dimensions
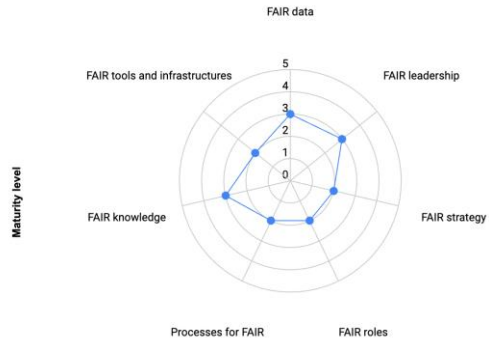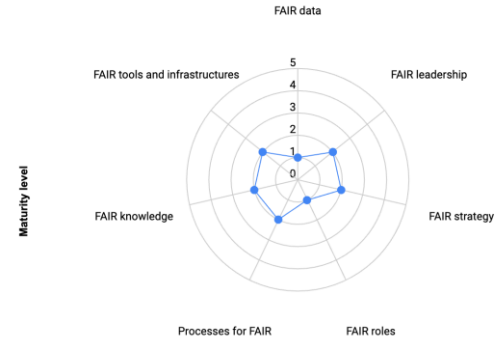

Machine-actionable

Digital Objects

Metadata

Data

Ontologies

KG

GUPRI

Controlled
Vocabularies

PID

Tools

Leadership

Finance

Time

Decisions

Commitment

People

Experts

Knowledge

Strategy

Community of
practice

now

next step

how

Process

Roles

Policies

Data scientist

Data generation

Data steward

Data re-generation

Data architect

AstraZeneca

BAYER

Boehringer Ingelheim

Bristol Myers Squibb

CSL Behring

Curlew Research

elixir

<epam>

FAQIR HEALTH DATA

GO FAIR

The Hyve

IQVIA

MANCHESTER 1824

novo nordisk

ONTOFORCE

ORCID

Perdl

Roche

XponentL Data

FAIR maturity matrix: real-life assessments
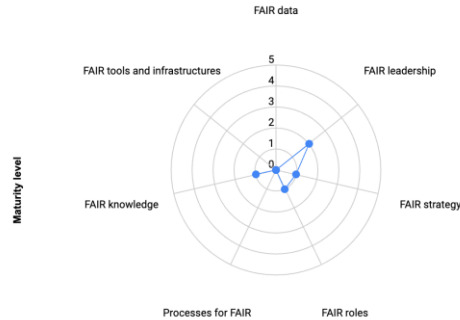
Process : from ideation to delivery

HOW AN IDEA BECOMES A PROJECT AT THE PISTOIA ALLIANCE

Project flow

Ideation → Communities of interest (CoI) / Validation discussions / Business case exploration → Project starts to take shape / Clear problem statement / Business case written → Member funded project → Member funded Community of Experts (CoE)

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Member fees | Sponsor fees

Pistoia FAIR public resources

https://www.pistoiaalliance.org/projects/current-projects/fair-implementation/

https://fairtoolkit.pistoiaalliance.org/