Formal Representation of Information Resulting from Data Interpretation in Scientific Investigations

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@envinf

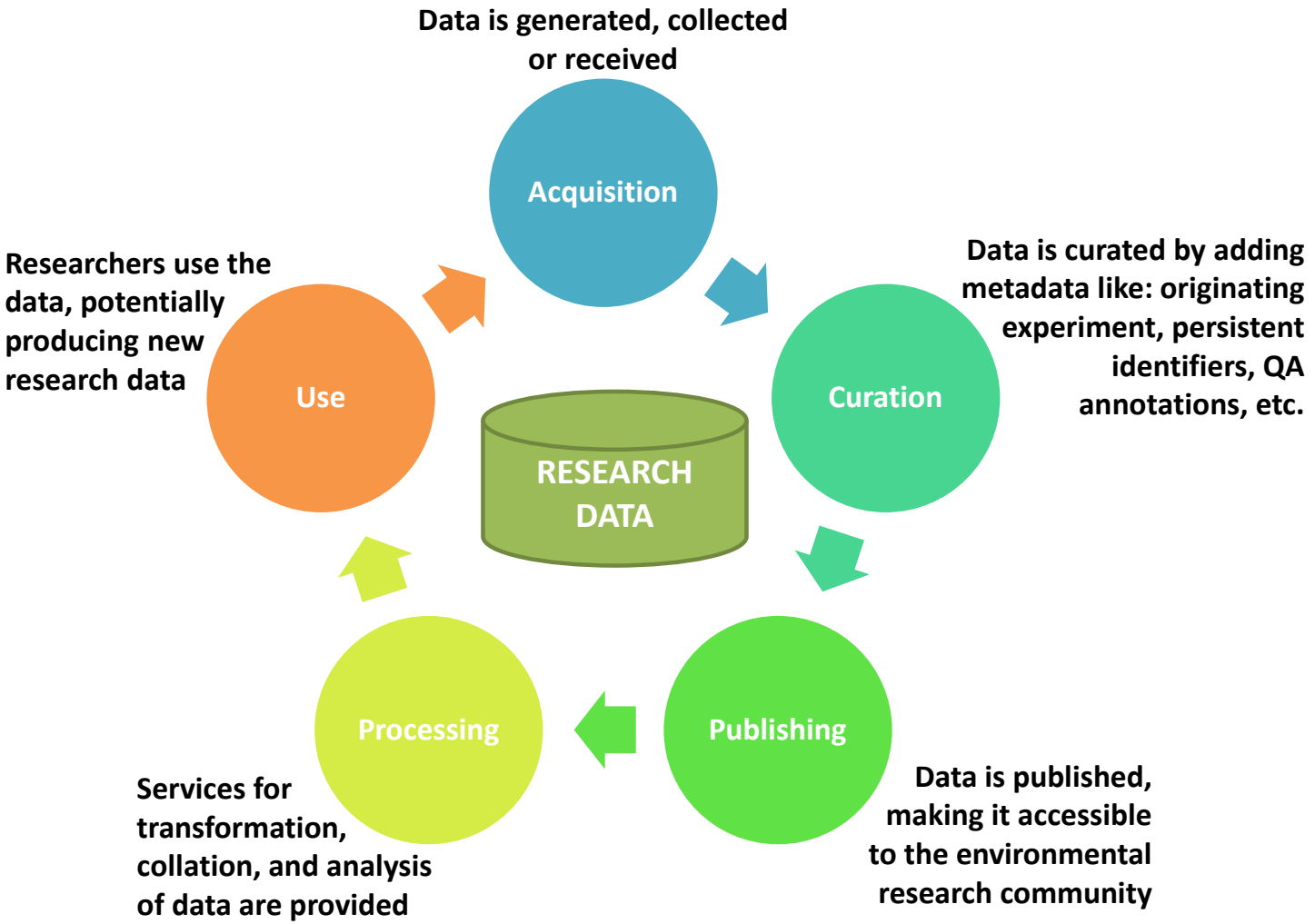
Data Aquisition

Overview

- Environmental research infrastructures
- Data interpretation
- Claim
- Application
- Significance
- Conclusion
- Discussion

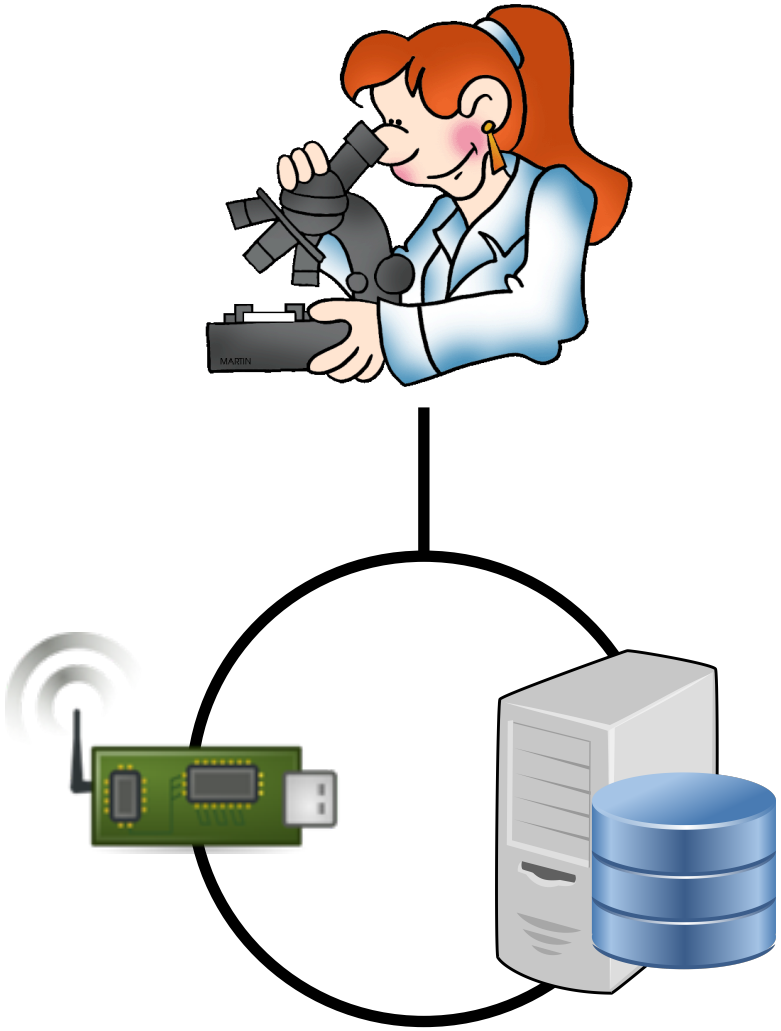
Environmental Research Infrastructures

Reference Model

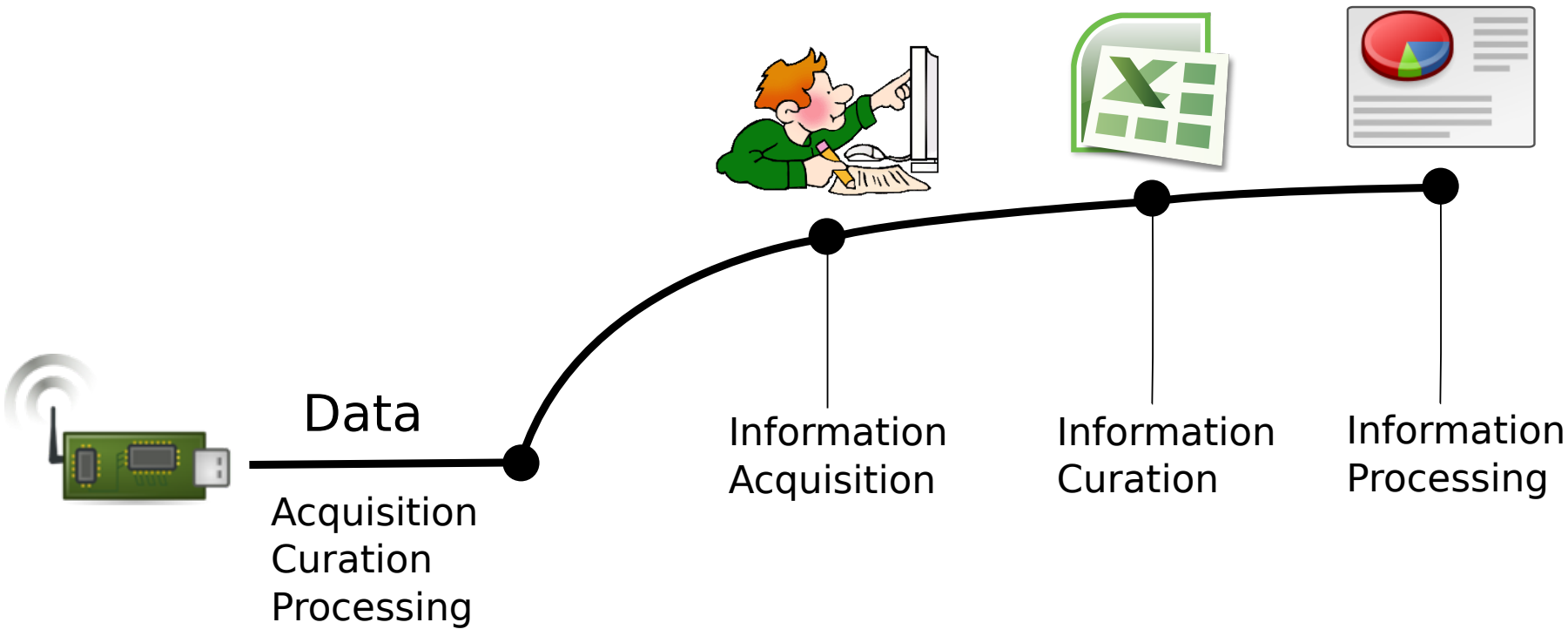


http://envri.eu/rm

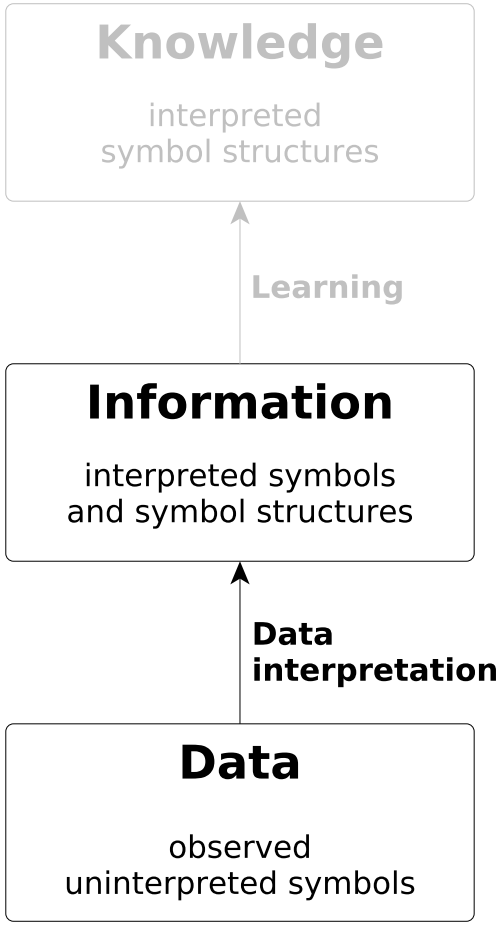
Socio-Technical Systems



Data Interpretation



Model and Definitional Framework



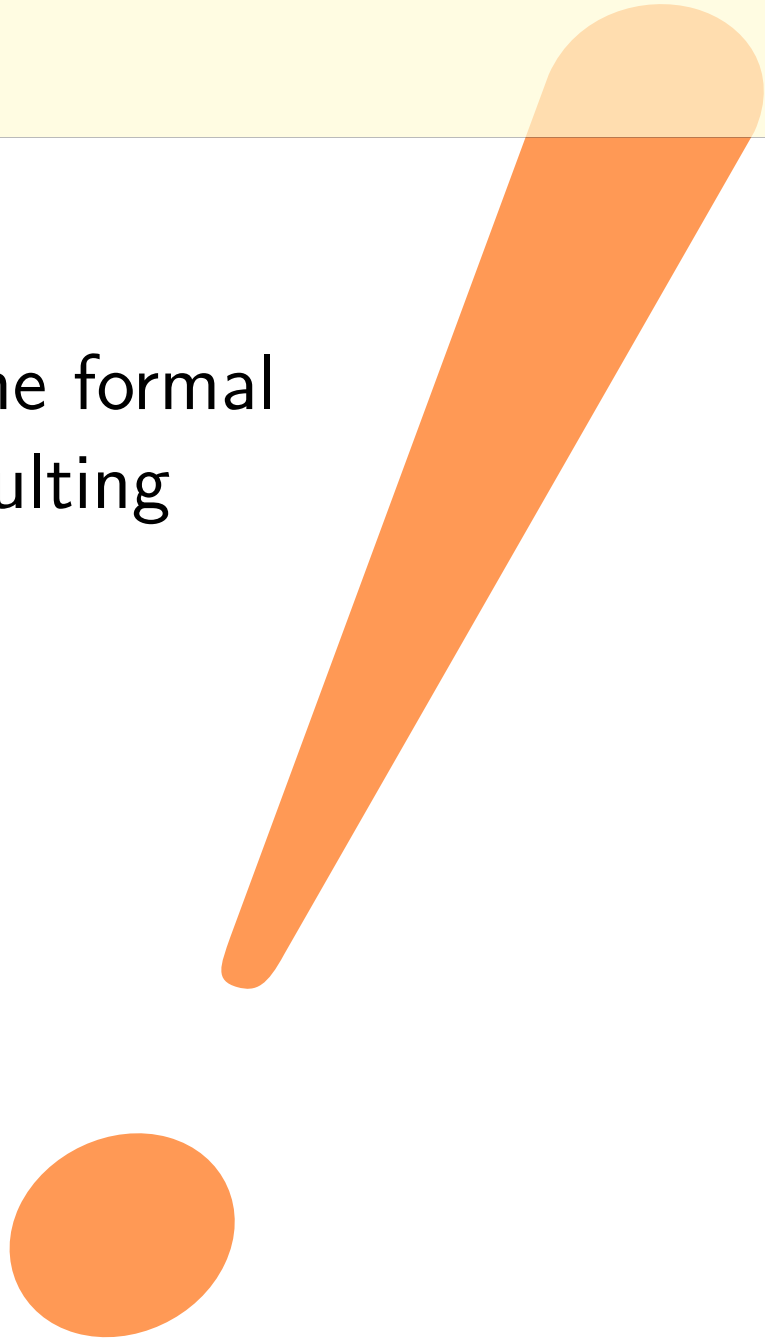
Aamodt and Nygård (1995) Data & Knowledge Engineering 16(3):191-222. doi:10.1016/0169-023X(95)00017-M

Claim

Technical systems can support the formal representation of information resulting from data interpretation

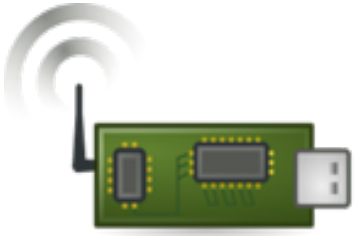
... in other words ...

Information systems can record the output of data interpretation



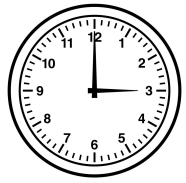
What is ... Data and Information

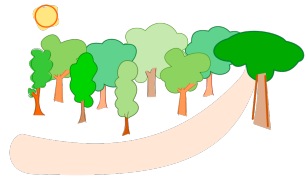
Data

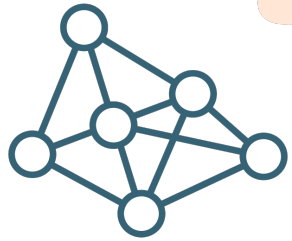


CO_2 flux

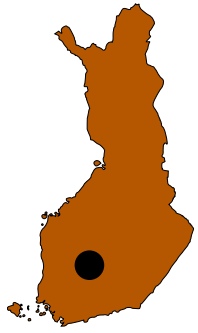
Information



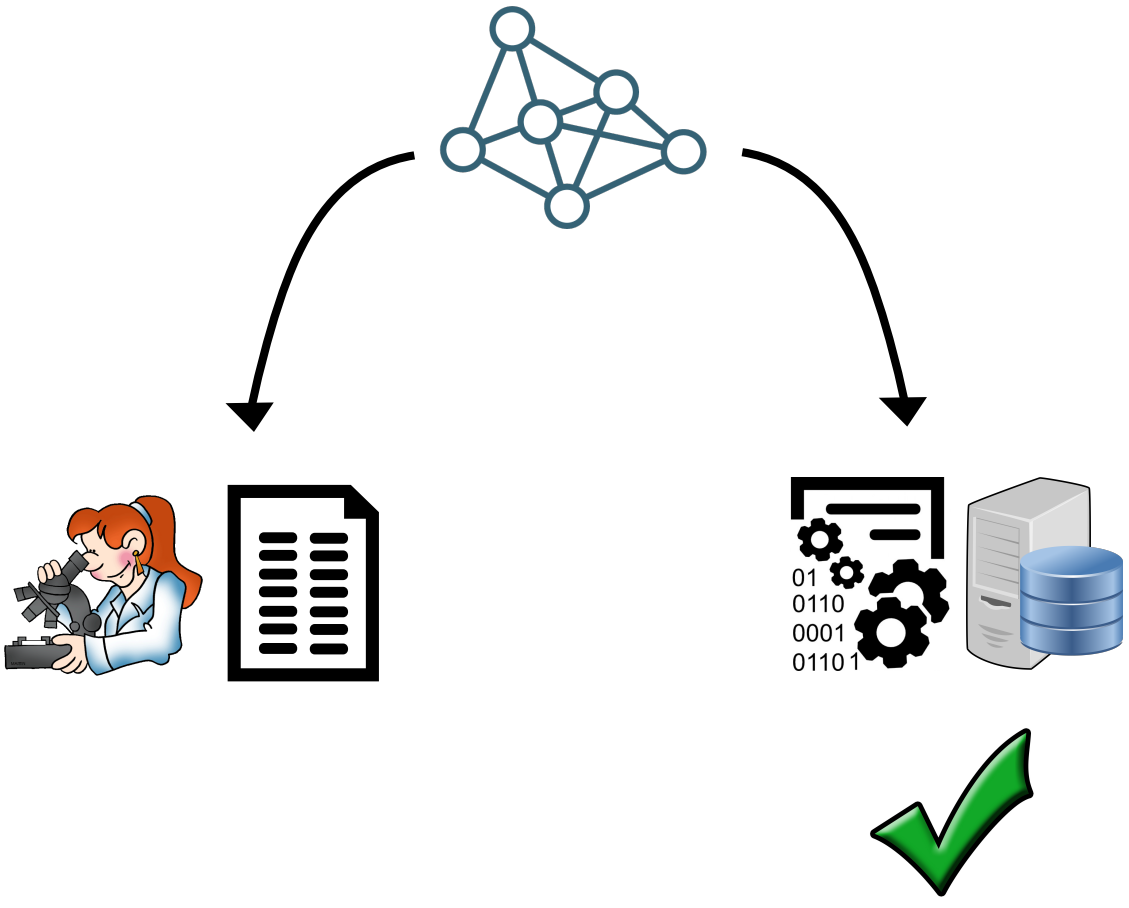




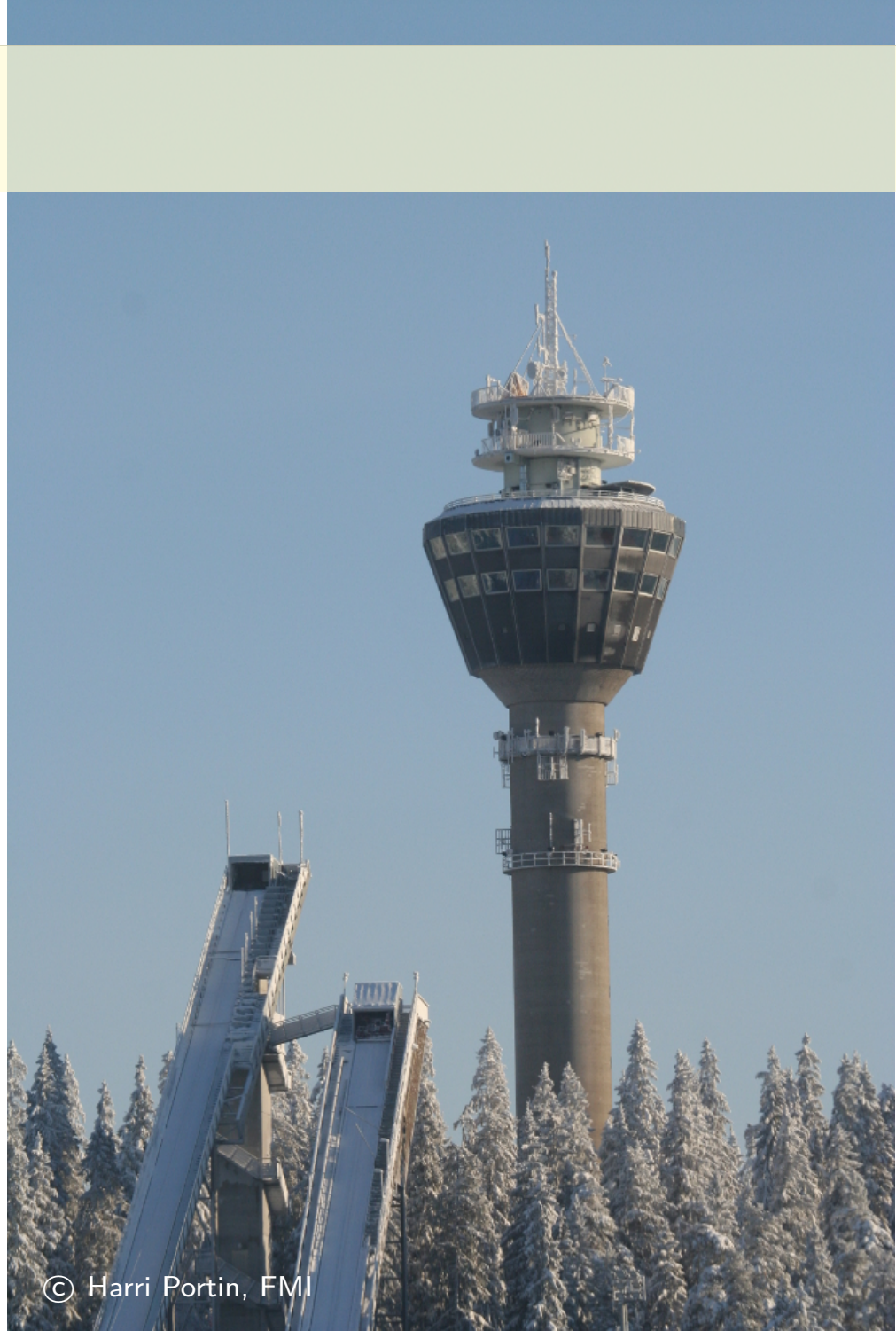
Carbon Sink



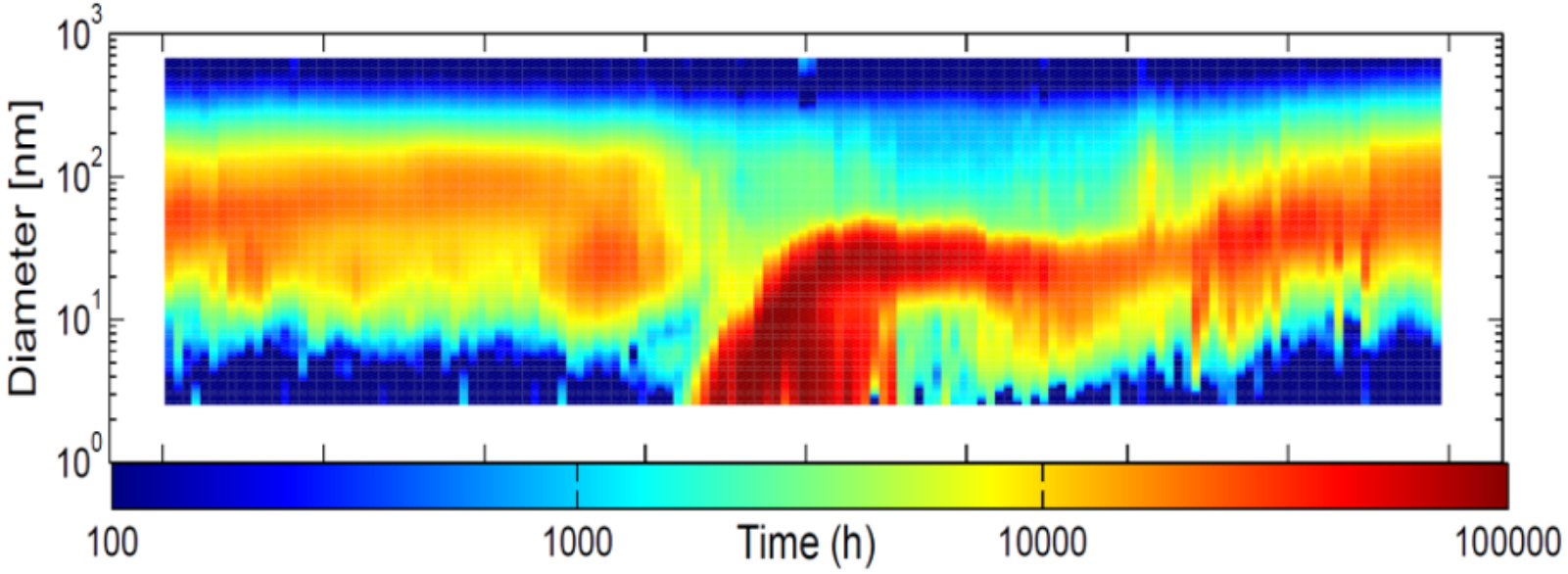
What is ... Formal Representation



Application

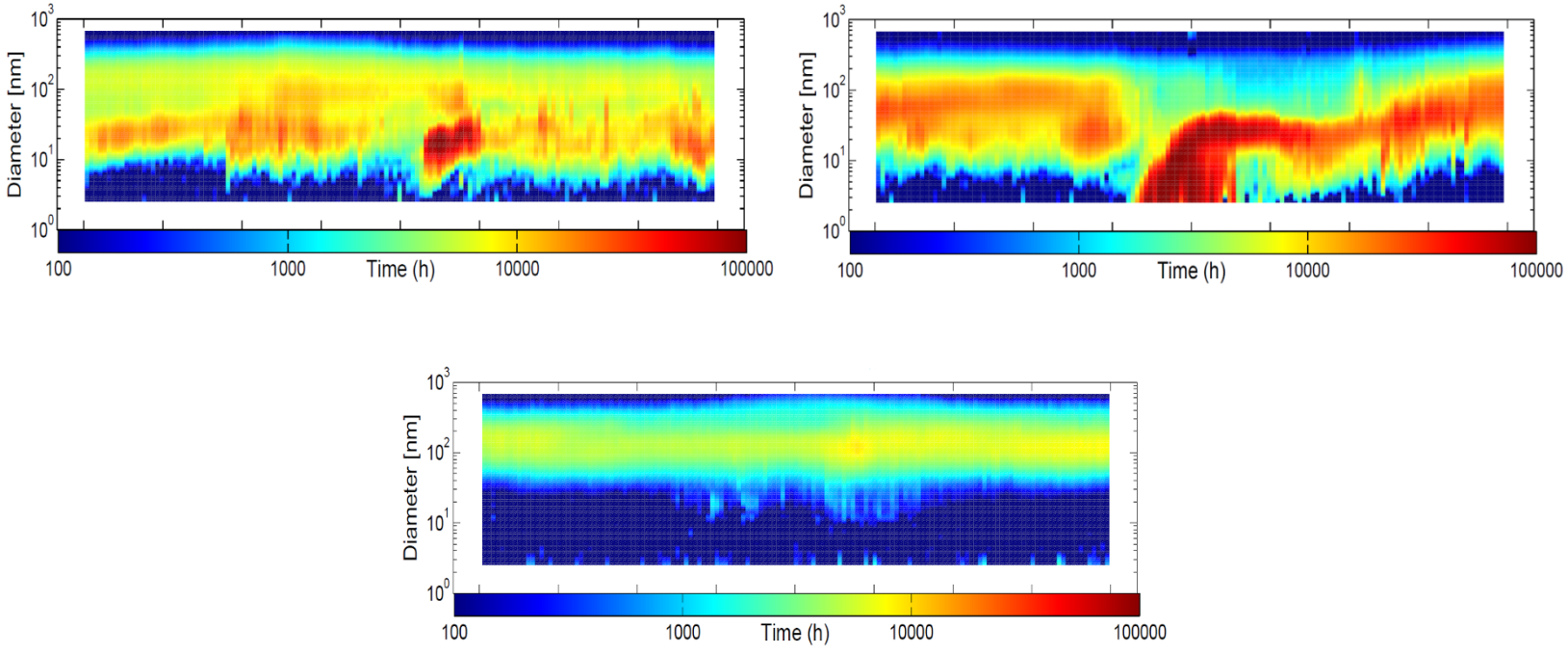


Visualization

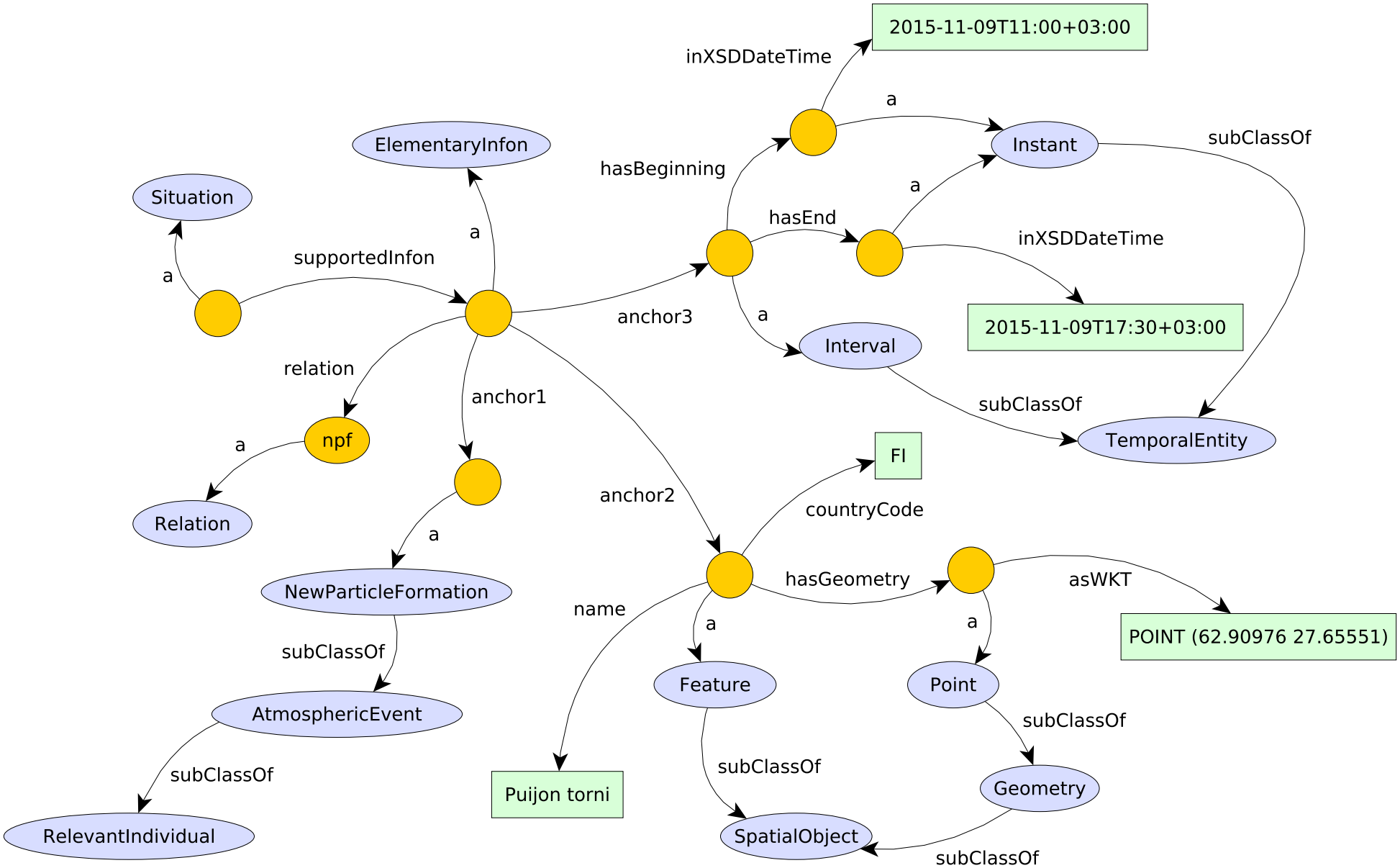


Hamed et al. (2007) *Atmos. Chem. Phys.*, 7, 355-376

Classification



Hamed et al. (2007) *Atmos. Chem. Phys.*, 7, 355-376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a
Instant
subClassOf
ElementaryInfon
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Situation
hasEnd
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supportedInfon
a
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2015-11-09T17:30+03:00
a
Interval
relation
anchor1
subClassOf
TemporalEntity
a
npf
FI
anchor2
countryCode
Relation
a
hasGeometry
asWKT
NewParticleFormation
name
a
a
POINT (62.90976 27.65551)
subClassOf
Feature
Point
AtmosphericEvent
subClassOf
subClassOf
Puijon torni
Geometry
RelevantIndividual
SpatialObject
subClassOf

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ex:AtmosphericEvent rdfs:subClassOf sto:RelevantIndividual .
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sf:Point rdfs:subClassOf geo:Geometry .
geo:Geometry rdfs:subClassOf geo:SpatialObject .
time:Instant rdfs:subClassOf time:TemporalEntity .
time:Interval rdfs:subClassOf time:TemporalEntity .
ex:npf a sto:Relation .

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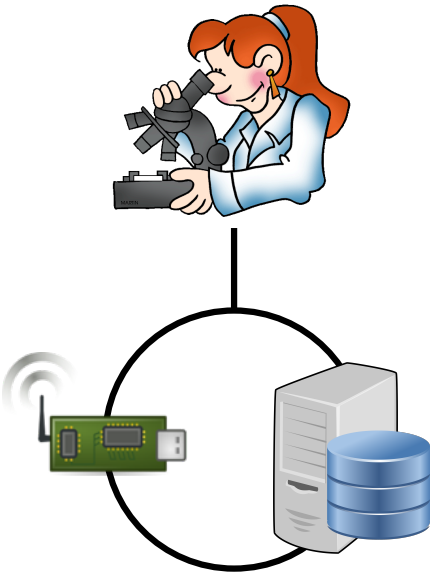
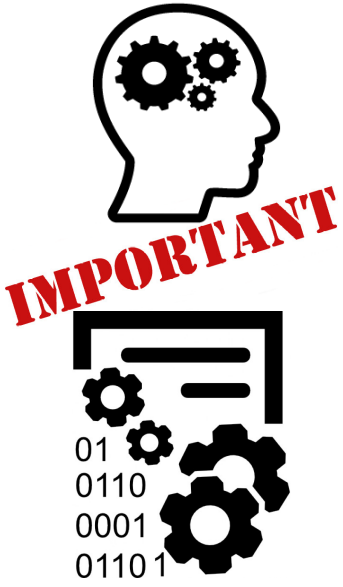
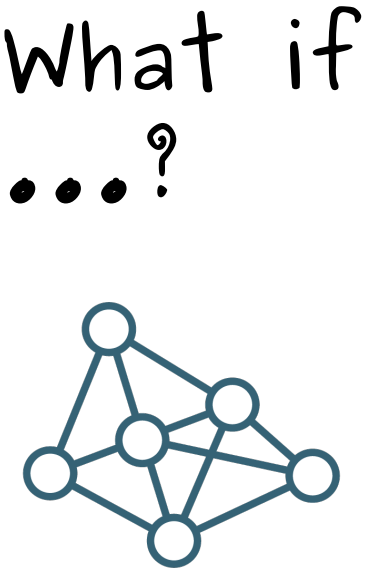
Significance







Conclusion

- Data interpretation key in scientific investigations
- Use machines to interpret data (co-learning)
- Represent resulting information also *for* machines
- Use machines to curate and process information

Discussion

- Applications in biogeochemistry?
- What data interpretation tasks are relevant?
- What abstract concepts are of interest?

Credits

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