Ecological data management through its life cycle

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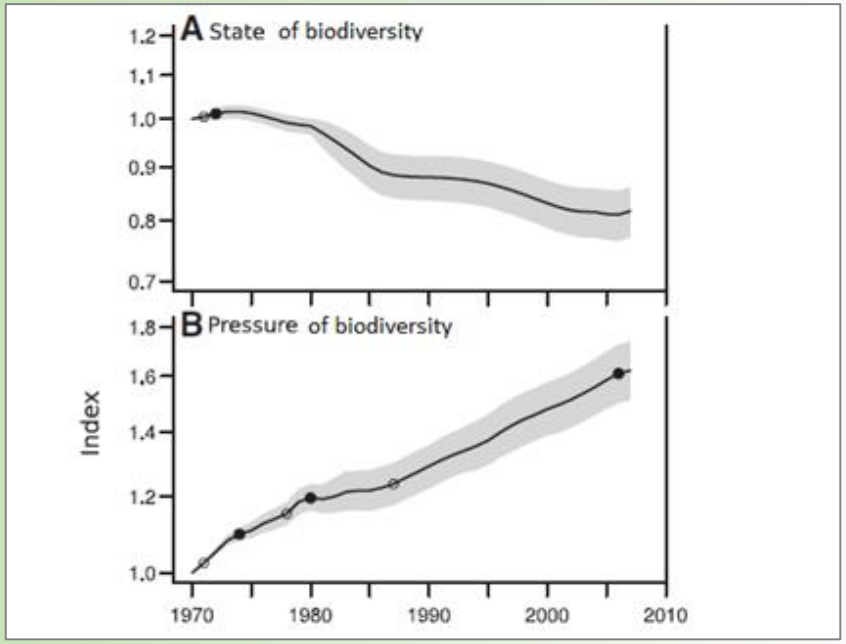
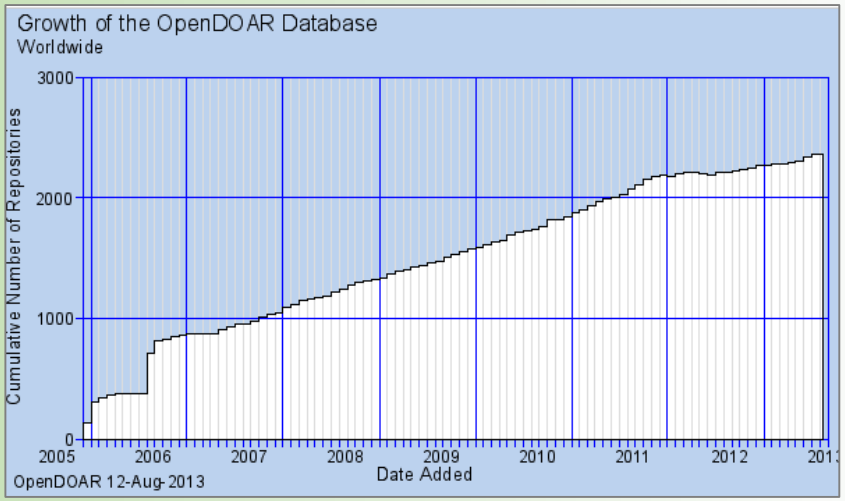


(Butchart et al., 2013, Science)



(Directory of Open Access Repositories, 2013)

Biodiversity decrease

promotes

ecological studies

Continues growth of database

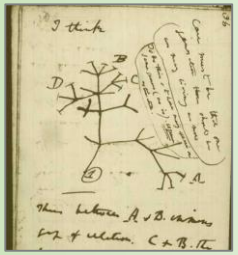
Exponential rise of ecological data

Paradigm shift of Ecological data access

Spatial scale

Temporal scale

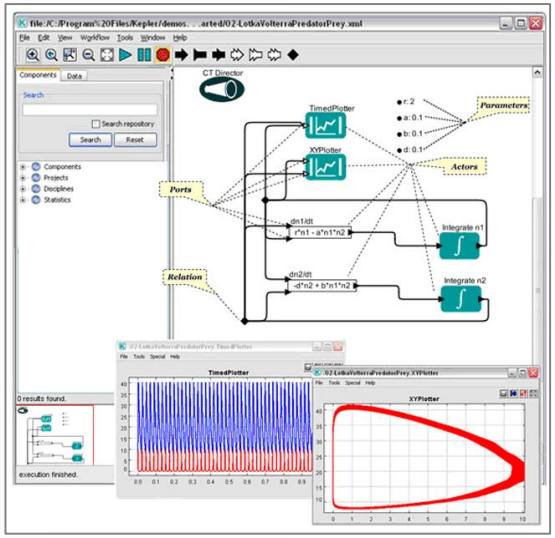
traditional



Evolutionanimation, 2013

digital data

Complex workflow



Kepler-project, 2013

Age of internet

Paradigm shift of Ecological data access

Spatial scale

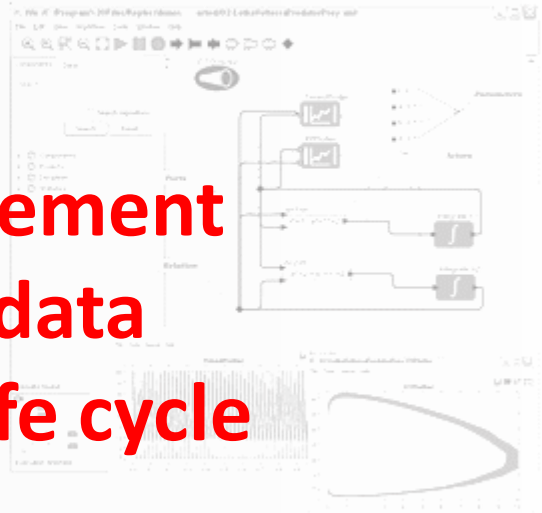
Temporal scale

traditional

Evolutionanimation, 2013

Digital data

Complex workflow



Kepler-project, 2013

Unprecedented access

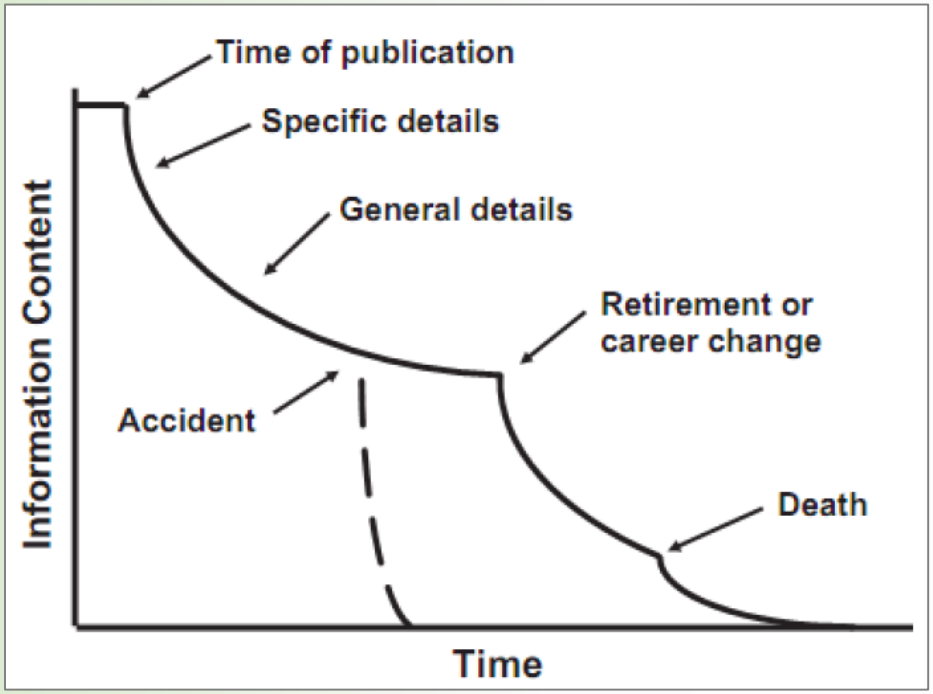
Efficient management of ecological data throughout its life cycle

Ecological Data Cycle

Barriers


credit for my work?
collect
data management concept?
publish
assure
data Citation?
metadata Standard?
analysis
describe
workflow?
data versioning?
integrate
preserve
discovery
data Repository?
data Sharing?

The fate of data



(Michener, 2006, Ecol. Inf.)

Call for data preservation solutions!

Three-layer architecture

3

International
Data centers

DataONE

TRY

GBIF

2

Project / Institution
Data repository

1

Individual researcher




local

specific

3

International
Data centers

DataONE

TRY

GBIF

2

Project / Institution
Data repository

TMF

FOR 891
BEF China

Net PhyD

biodiversity exploratories

KiLi

BGBM

BIOTA

ilms

evoltree

1

Individual researcher









For data producers:

Original barriers:

- Time consuming
- Lack of training
- Not aware of standards
- Data misuse

Benefit:

✓ Education and support

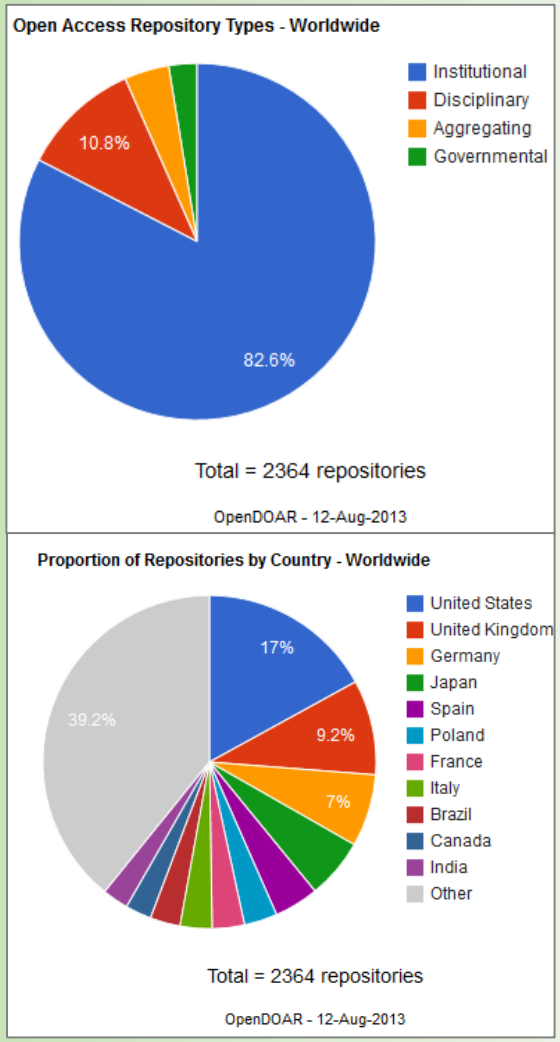
✓ Metadata standard

✓ Data sharing policy

✓ Data curation, preservation

✓ Analysis tools

For data centers:



(OpenDOAR, 2013)

(Worldatlasbook, 2013)

For data centers:

Original barriers:

- Seldom acknowledged
- Seldom compared
- No linking

Due to:

- Project specific
- Limited funding periods
- Lack of communication

(Worldatlasbook, 2013)

For data centers:

Benefit:

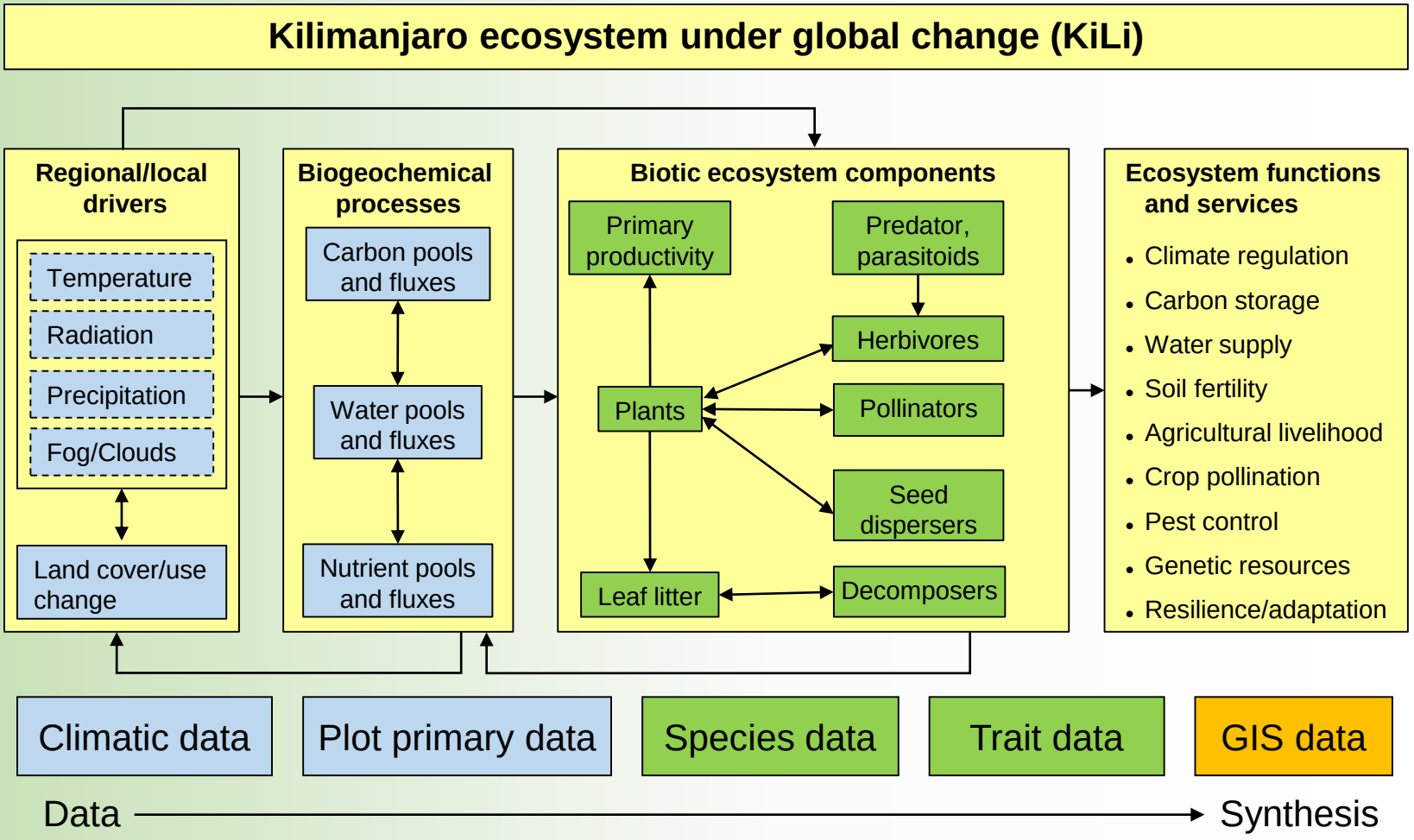
- ✓ More data income
- ✓ More funding

Lead to:

- Acknowledgement
- Unify metadata standard
- Comparison of solutions
- Promotion of existing infrastructure
- Building missing infrastructure
- Function and architecture reuse

(Worldatlasbook, 2013)

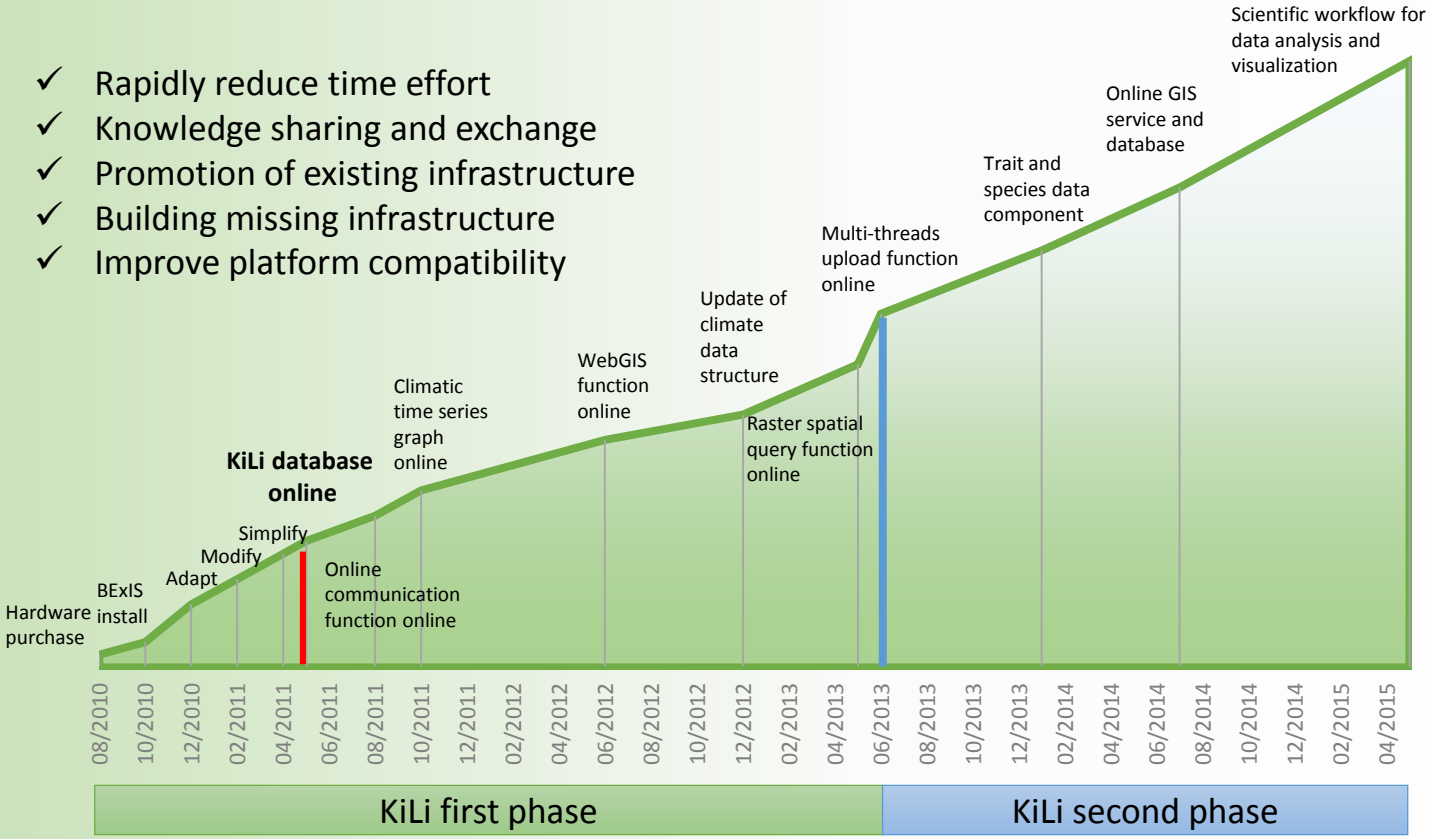
A successful case:



adapt – modify – simplify - develop

Benefit:

- ✓ Rapidly reduce time effort
- ✓ Knowledge sharing and exchange
- ✓ Promotion of existing infrastructure
- ✓ Building missing infrastructure
- ✓ Improve platform compatibility



permanent

Well-known

3

International Data centers

DataONE

TRY

GBIF

2

Project / Institution Data repository

TMF

BEF China

biodiversity exploratories

KiLi

BGBM

BIOTA

1

Individual researcher

Project / Institution
Data repository

International
Data centers

Original barriers:

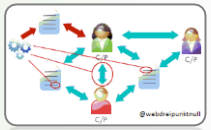
- Limited funding period
- Own metadata standard
- Less known to public user
- Less capability

Benefit:

✓ Permanent preservation

✓ Widely acknowledged

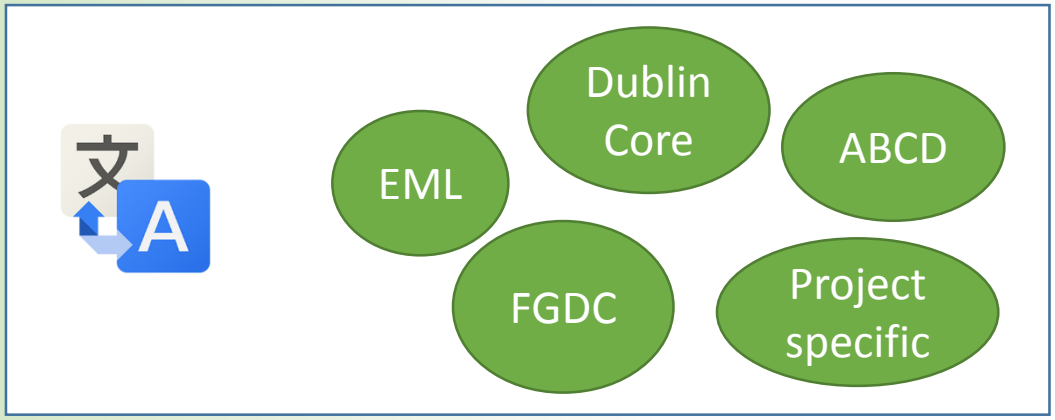
✓ Ontology



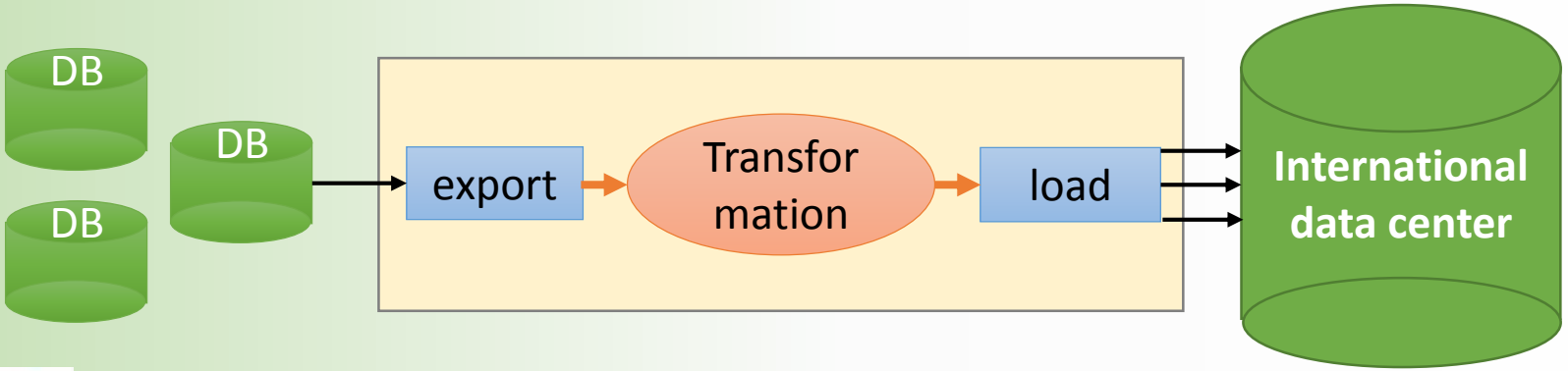
✓ Semantic Web

Technical challenges

- **Metadata translate:** mapping one metadata standard to another crosswalk needed!



- **Database immigration:** additional funding after project ends



Sociocultural challenges

Community of ecological data management

Comparison of repositories

Data sharing policy

Acknowledgement for authors


Thank you...