iDigBio
Integrated Digitized Biocollections

Getting Started with Digitization

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Wet Collections Digitization Workshop
4-6 May 2013

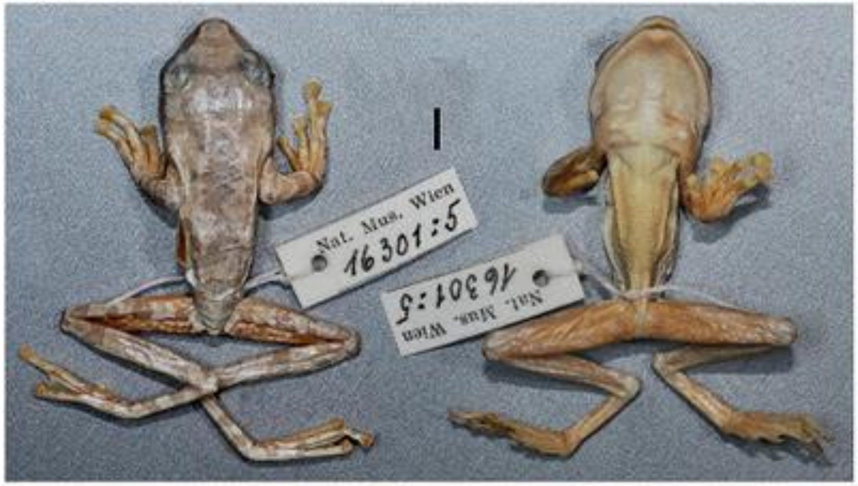


Figure 1. Dorsal (left) and ventral views (right) of the male holotype of *Rhacophorus pseudacutirostris* sp. n. (NHW 16301:5). Scale bar = 5 mm.

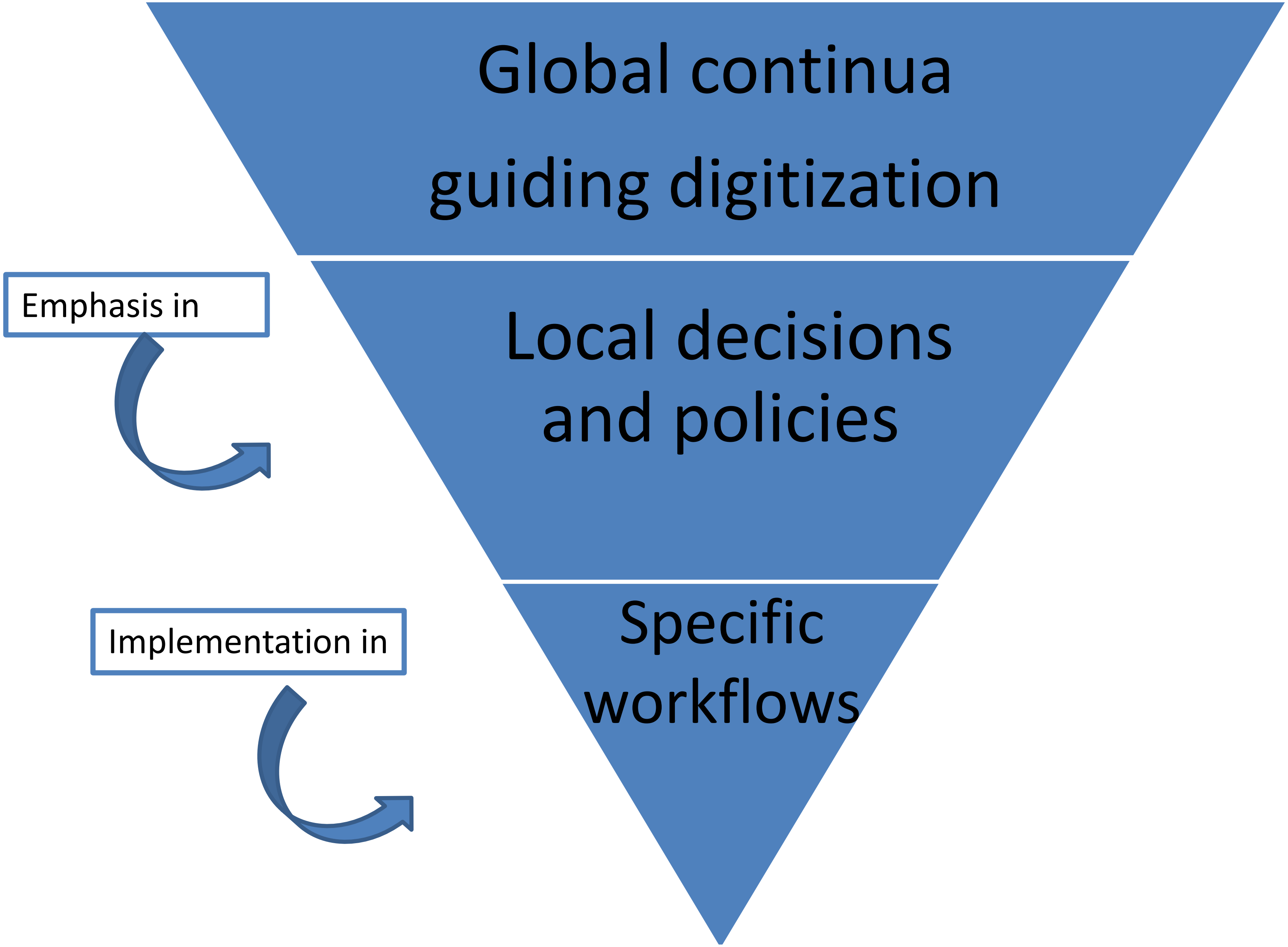
Ultimate Goals of Biological Collections Digitization

Output level: An abundance of scientifically useful and accessible data.

Constituency level: High quality exposure of the content and value of scientific collections.

Improvement level: Collaboration and workflow sharing across the collections community.

Digitizing Biological Collections



Global continua guiding digitization

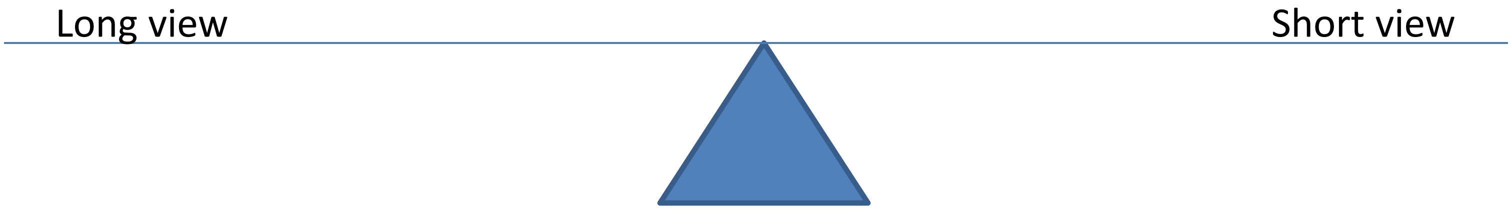
Emphasis in

Local decisions and policies

Implementation in

Specific workflows

Digitizing Biological Collections



- **Taking the long view means developing doable, effective, and sustainable strategies for robust digitization.**
- **Taking the short view means balancing long term goals with short term constraints, including a commitment to implementing future enhancements.**

Pressures mitigating the long view

So much data, so little time.
Our collections are not getting smaller.
The funding agencies have high output expectations.
We only have 3 years to get this done.
All of our data and all of our specimens are important.
Let's just use the images!
Doing the minimum now and enhance it later.

Tracks to Digitization

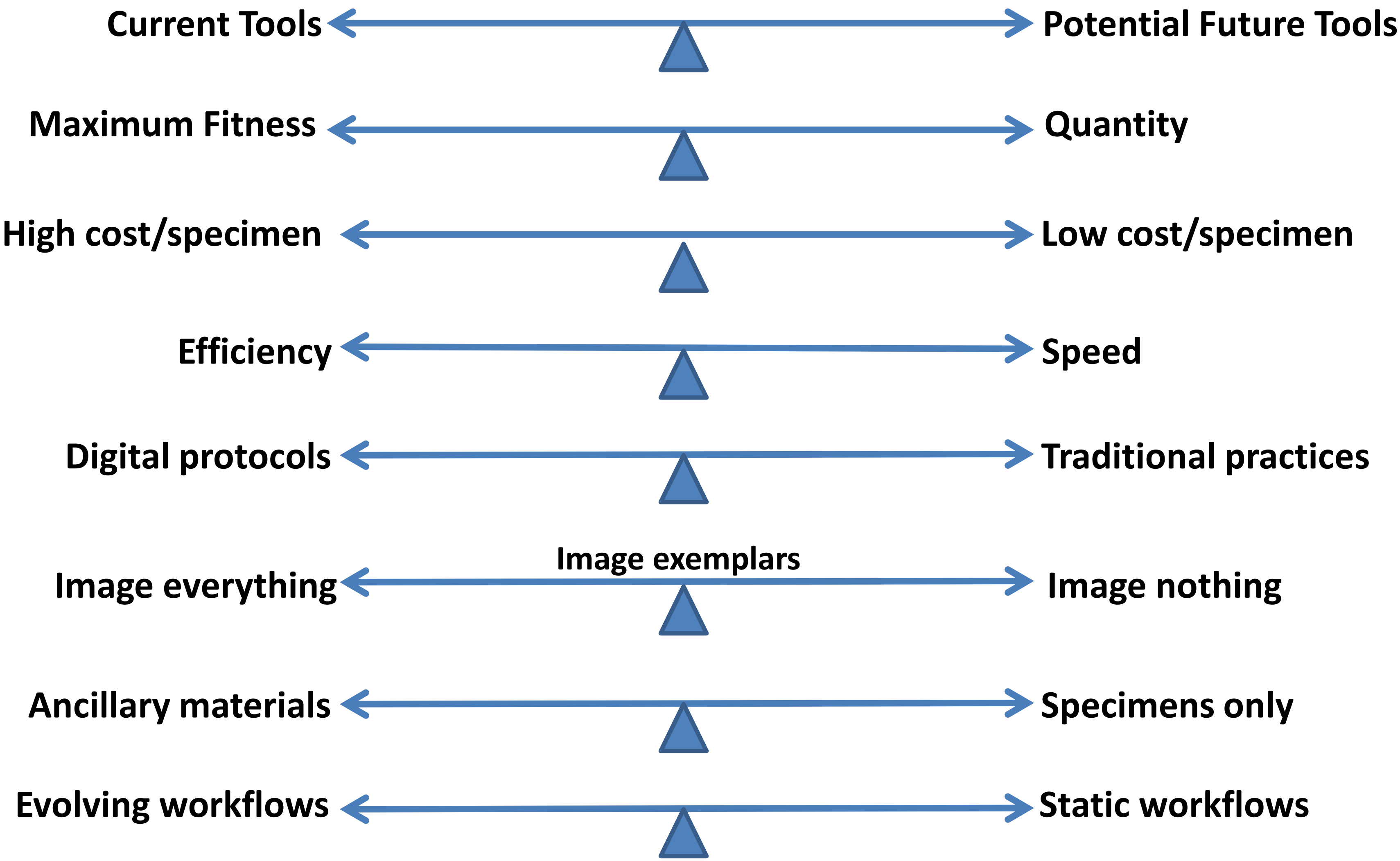
- **Taking the inside track** is often based on stretching the institution’s resources. Decisions are made to maximize resources available for user-initiated digitization by using solid baseline practices. The primary focus on the inside track is to get the job done quickly and to fill the user’s request.
- **Taking the middle track** has the widest range of options, standards, and results. This is the most flexible of the tracks, where decisions often fall in gray areas.
- **Taking the outside track** focuses on the collections themselves. While users may initiate digitization, it is undertaken to deliver materials to a greater public. These decisions may lead to comprehensive digitization, such as an entire book, series, or collection. The goal is to create maximum access to special collections, using preservation and archival standards. This track usually involves a level of thought and planning that is more in-depth than the fulfillment of day-to-day digitization requests.

Scan and Deliver: Managing User-initiated Digitization in Special Collections and Archives, 2011
J. Schaffner, F. Snyder. S. Supple

Future Tools Favoring the Inside/Middle Tracks

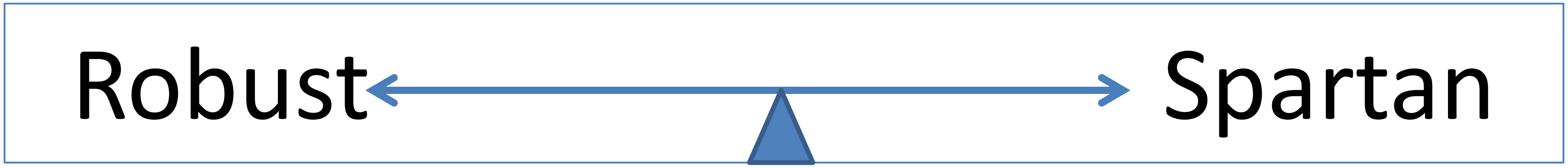
- OCR, NLP, and ICR (handwriting analysis) improvements.
- Automated image analysis for data extraction.
- Data mining of labels.
- Robotic technologies, conveyor belts, etc.
- Improvements in discovery/capture/use of duplicates.
- Improvements in voice recognition and other data entry technologies.
- Post-digitization tools for curation and quality control.
- Field data capture.

Digitization Decision Continua



Current Tools		Potential Future Tools
Maximum Fitness		Quantity
High cost/specimen		Low cost/specimen
Efficiency		Speed
Digital protocols		Traditional practices
Image everything	Image exemplars	Image nothing
Ancillary materials		Specimens only
Evolving workflows		Static workflows

Digitizing Biological Collections



Robust

Spartan

Facilitators	Facilitators
Emphasize fitness for use	Emphasize output
Robust datasets	Skeletal datasets
Data validation/cleaning	Defer validation/cleaning
Integrated quality control	Deferred quality control
Integrated georeferencing	Deferred georeferencing
Intensive physical curation	Deferred digital curation
Record historical annotations	Record current determination
Staff specialization	Staff generalization
Small collection	Large collection
Emphasize images	Emphasize data
High quality images	Low quality images

Focusing on Efficiency vs. Speed

Reduce or eliminate redundancy (e.g., label data entry)

Reduce or eliminate unnecessary steps in a workflow

Maintain an evidently logical, easy-to-follow workflow

Mitigate monotony for technicians

Reduce or eliminate travel time

Reduce technician fatigue

Ensure sustained output

Increase output over the long term

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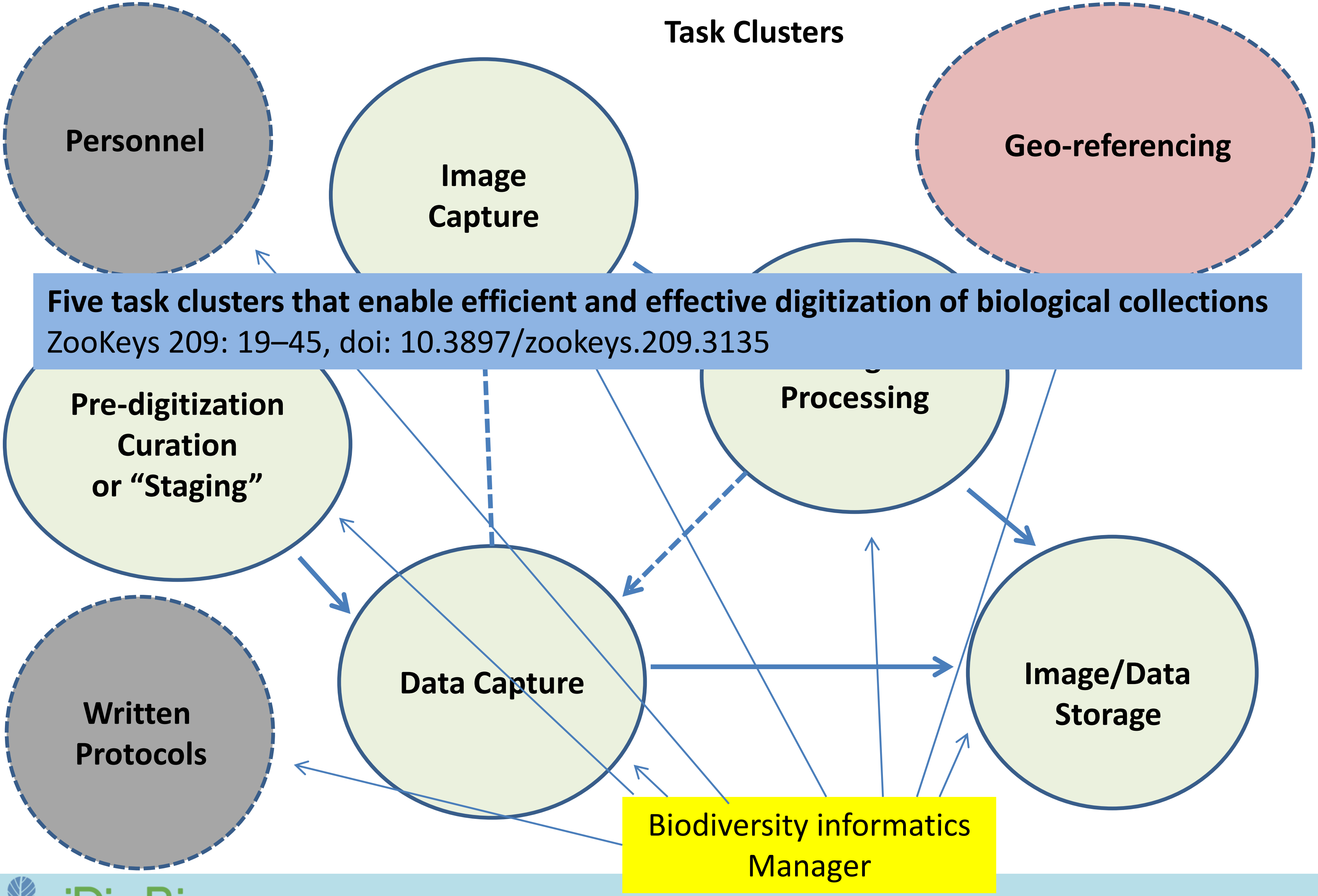
Task Clusters



Personnel

Image Capture

Geo-referencing

Five task clusters that enable efficient and effective digitization of biological collections

ZooKeys 209: 19–45, doi: 10.3897/zookeys.209.3135

Pre-digitization Curation or “Staging”

Processing

Data Capture

Written Protocols

Image/Data Storage

Biodiversity informatics Manager

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Thank You!