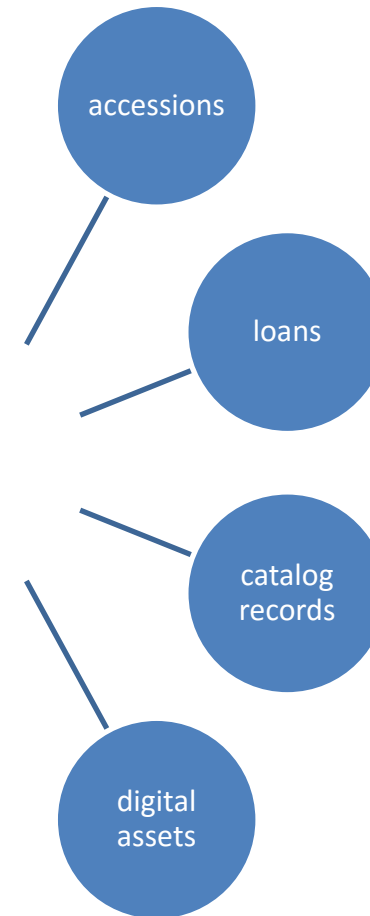# EVALUATING COLLECTION MANAGEMENT SYSTEMS FOR INTERDISCIPLINARY NATURAL HISTORY COLLECTIONS
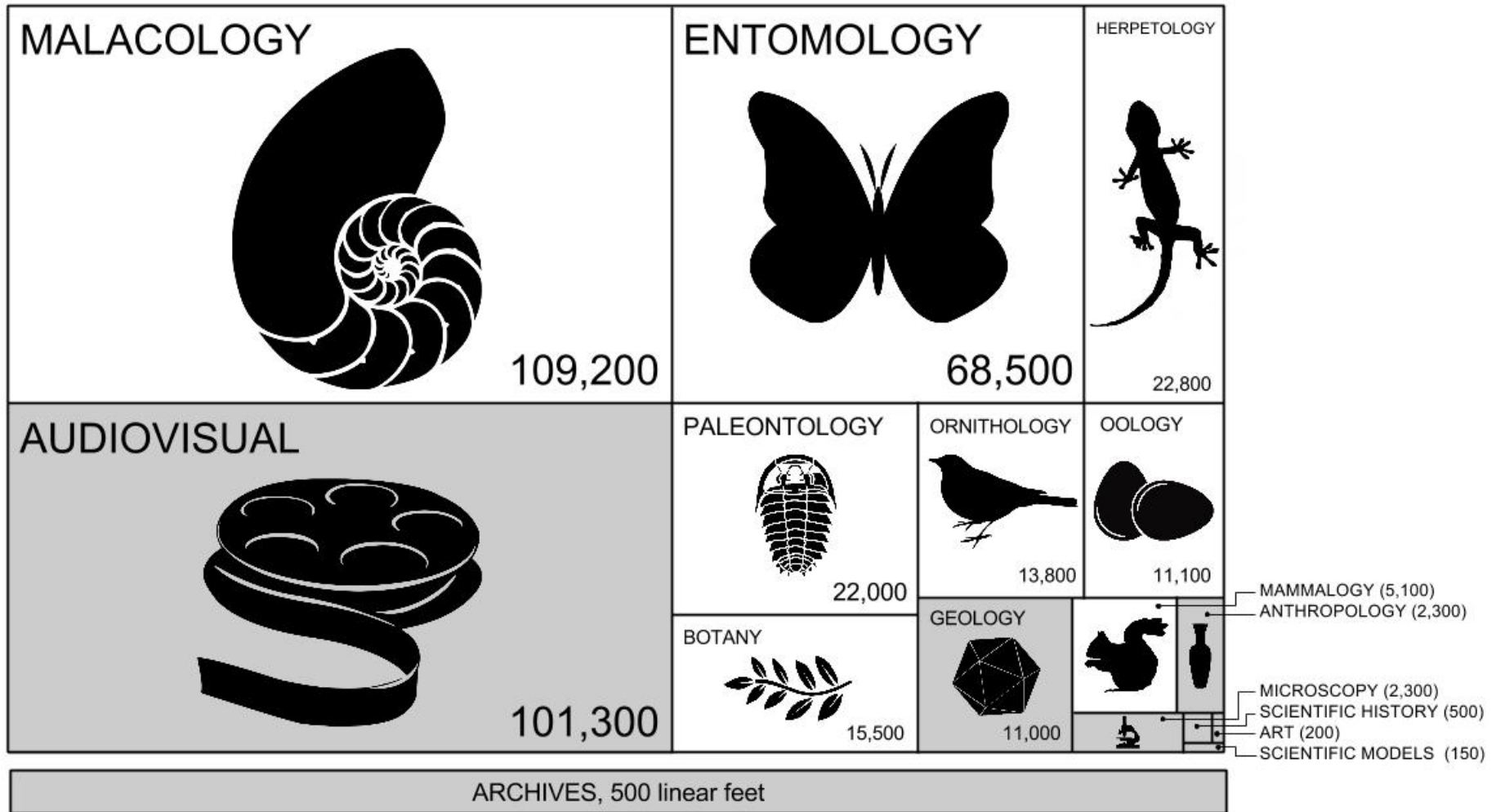
22 JUNE 2016

ERICA KRIMMEL, ASSISTANT COLLECTIONS MANAGER

DAWN ROBERTS, DIRECTOR OF COLLECTIONS

A **Collections Management System** (**CMS**) is a methodology—often but not always based on software—used by the collections staff of an institution to organize, control, and manage collections objects by tracking information related to and about those objects.

accessions

loans

catalog records

digital assets

MALACOLOGY 109,200

ENTOMOLOGY 68,500

HERPETOLOGY 22,800

AUDIOVISUAL 101,300

PALEONTOLOGY 22,000

ORNITHOLOGY 13,800

OOLOGY 11,100

BOTANY 15,500

GEOLOGY 11,000

MAMMALOGY (5,100)
ANTHROPOLOGY (2,300)
MICROSCOPY (2,300)
SCIENTIFIC HISTORY (500)
ART (200)
SCIENTIFIC MODELS (150)

ARCHIVES, 500 linear feet

Treemap visualization of CAS/PNNM collection holdings with object or material counts specified in each discipline. Gray background on a discipline indicates that it is non-biological.

KE EMu — ELECTRONIC MUSEUM

- KE Software (Axiell)
- Licensed based on number of users
- Hosting and technical support provided for a fee
- Used at the Smithsonian, Field Museum, London Museum…

·⫶· collectionspace

- LYRASIS
- Open source, suggested membership fee
- Can easily be installed to run online
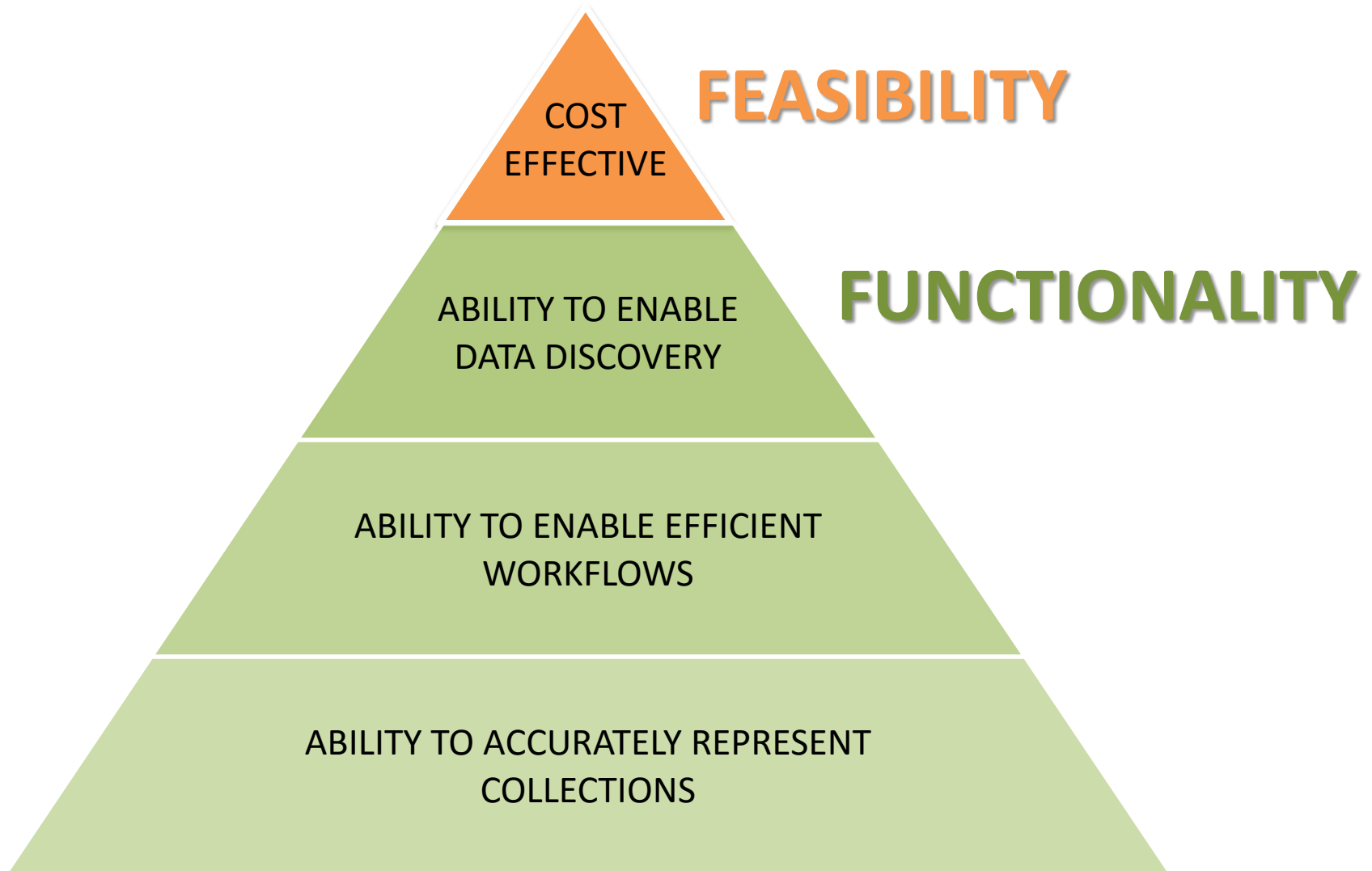- Used at the Walker Art Center, U.C. Berkeley Jepson Herbarium…

Specify

- Univ. of Kansas (funded by NSF)
- Open source, free
- Desktop and cloud-based versions
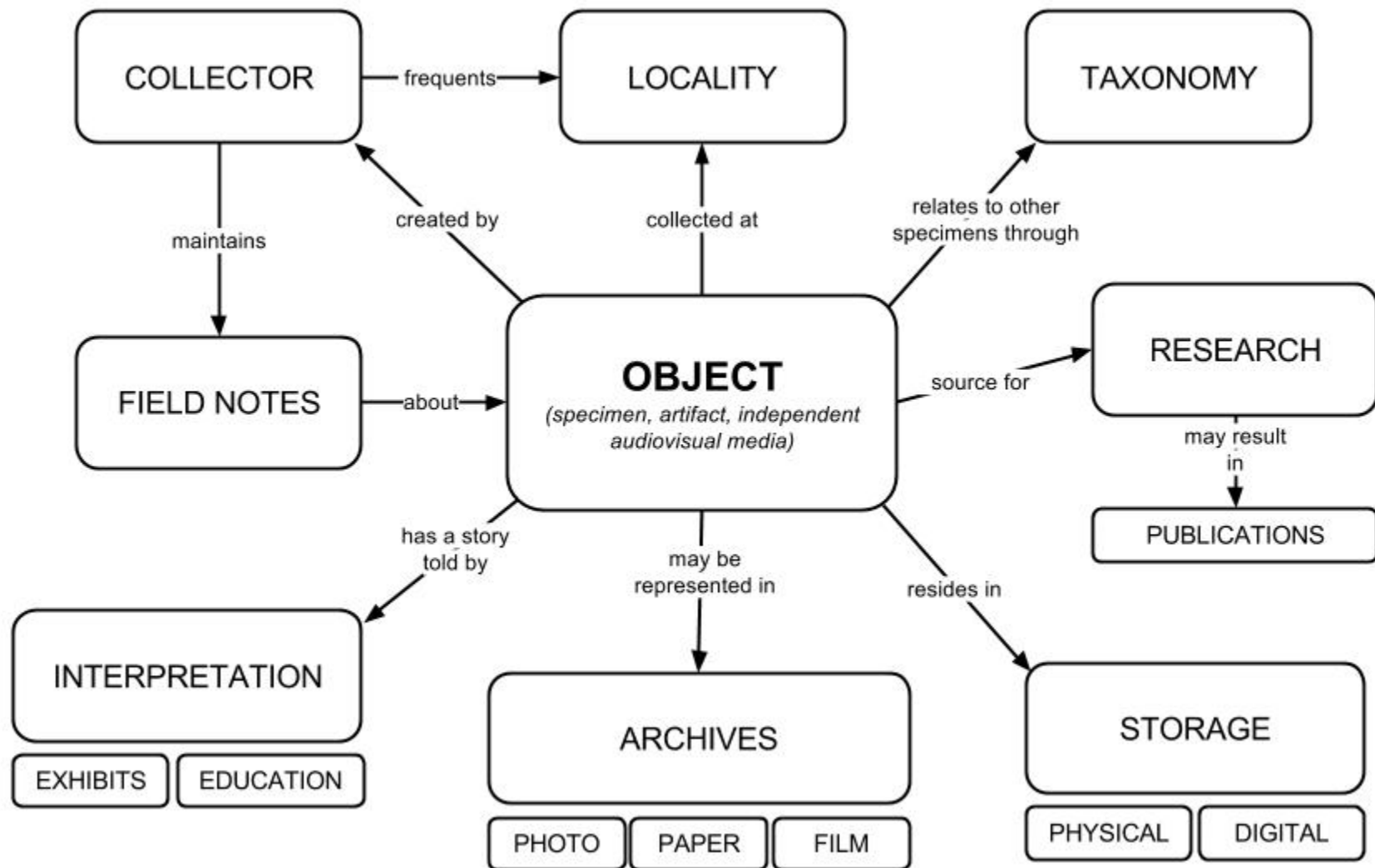- Used for 300+ collections

Arctos

- Consortium of 20 institutions
- Open source, funded by membership
- Data and database hosted online
- Members include U.C. Berkeley, Univ. of Alaska…

- Adlib
- ArchivesSpace
- ARGUS
- Biota
- CollectiveAccess
- Mimsy XG
- PastPerfect
- Re:discovery
- Symbiota
- The Museum System (TMS)
- Vernon CMS
- custom database development (FileMaker, Access, MySQL, etc.)

FEASIBILITY

COST EFFECTIVE

FUNCTIONALITY

ABILITY TO ENABLE DATA DISCOVERY

ABILITY TO ENABLE EFFICIENT WORKFLOWS

ABILITY TO ACCURATELY REPRESENT COLLECTIONS

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Relationships between CAS/PNNM collection objects and their data that we hope to document digitally with a collection management system.
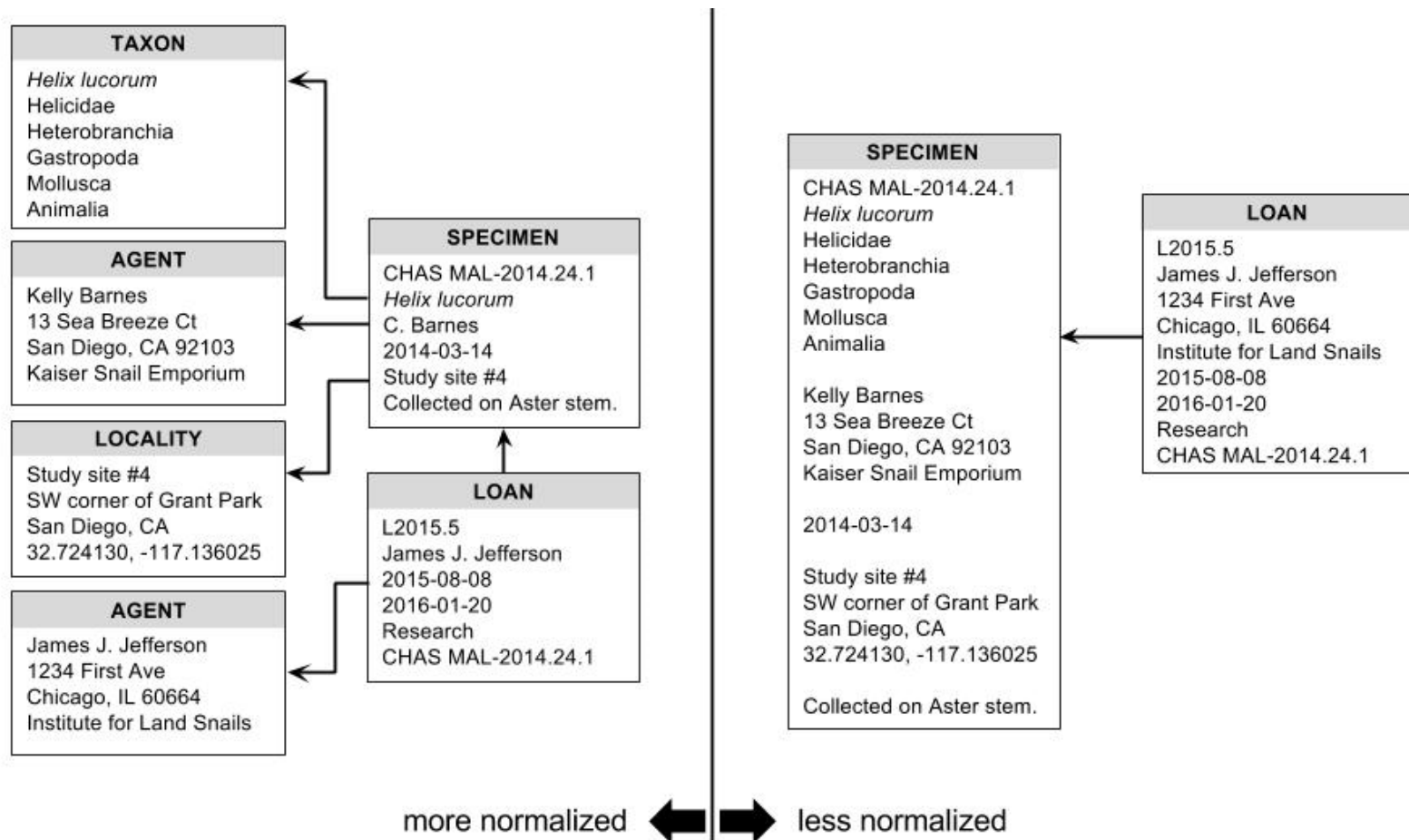
Illustrative subset of two fictitious relational databases with different levels of normalization. In the less normalized model, data associated with the person receiving the loan (James J. Jefferson) is captured on each individual loan record. In the more normalized database, data about Jefferson resides in its own table providing consistency across records. It is important to note that this figure does not represent any specific CMS options and is extremely simplified.

more design
guidance

Arctos

EMu

CollectionSpace

less
normalized

more
normalized

Specify

less design
guidance
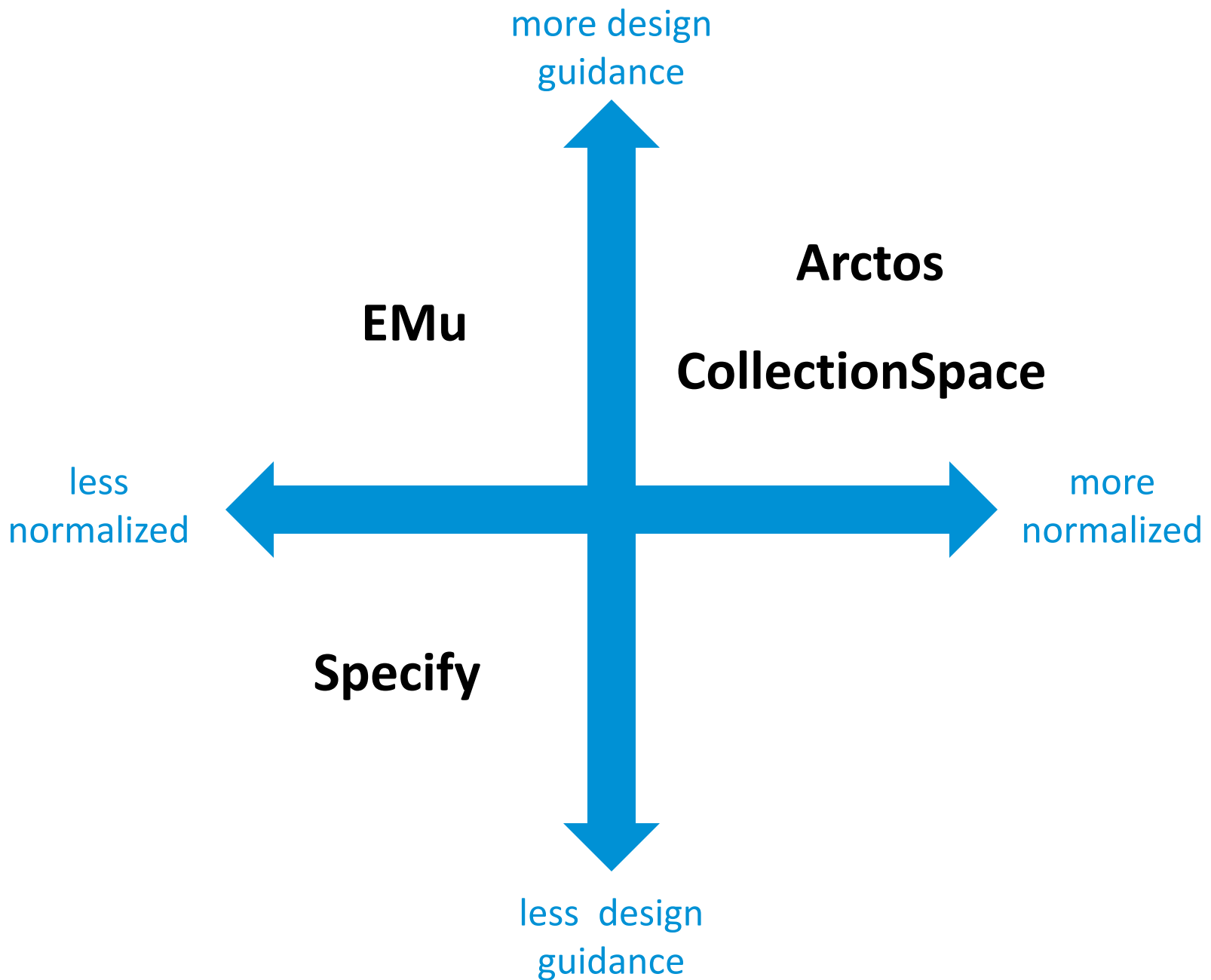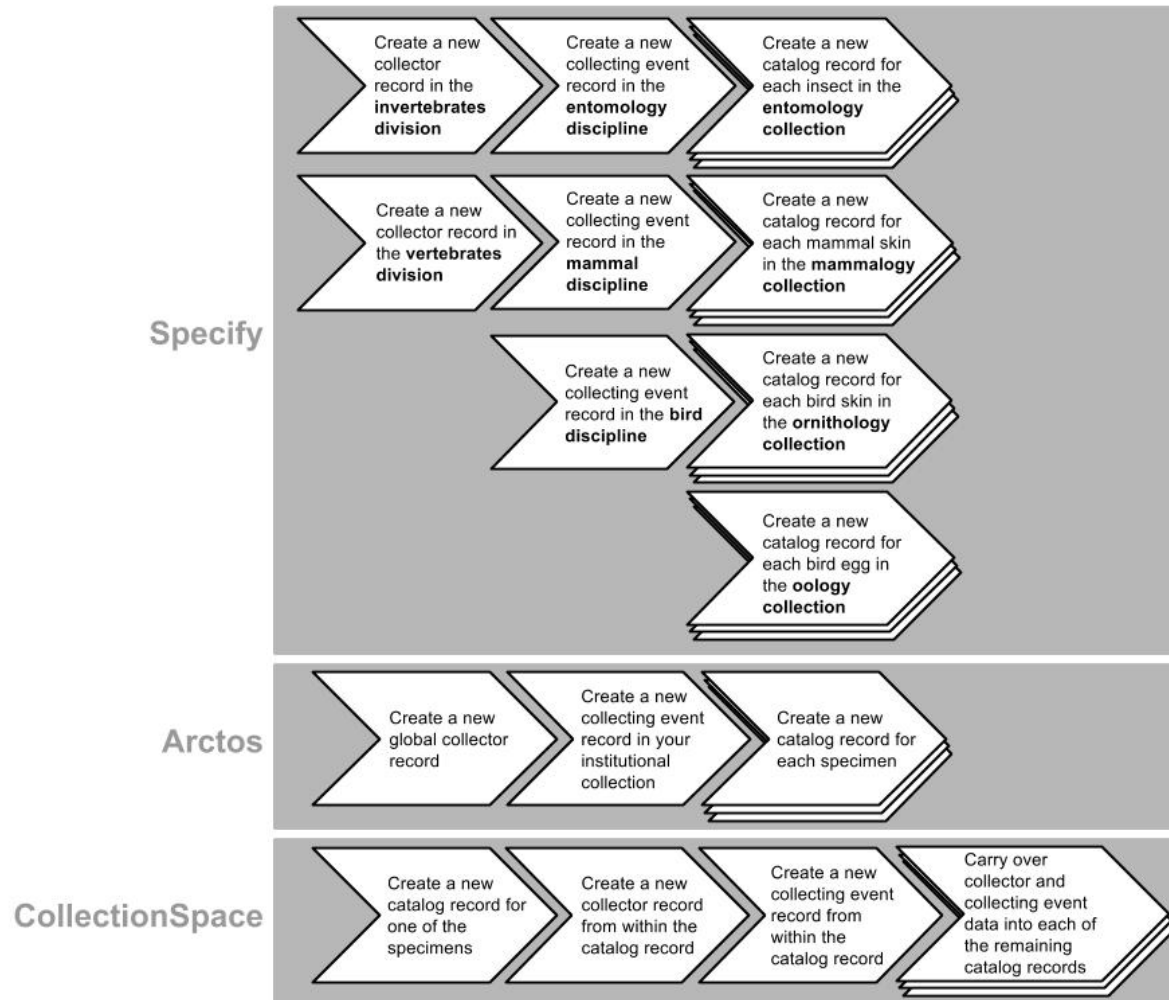
Comparison of **common transaction handling** between Specify, Arctos, and CollectionSpace for cataloguing specimens from a new accession containing five mammal skins, three bird skins, three bird eggs, and four insects all collected during the same event by the same person. EMu is excluded from this comparison because it can be customized to handle such a transaction according to an institution's preference.

	Biological collection support	Paleo collection support	Geological collection support	Cultural collection support	Paper archive support	Observational collection support	Essential coll. mgmt. transactions	Data cleaning (for imports)	Batch editing	User permission levels	Digital asset management system	Content management system	Georeferencing tools	Condition tracking	IPM tracking	Pre-loaded vocab. authorities	Can import vocab. authorities	Email reminders	Annotation repatriation
EMu	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Specify	✓	✓				✓	✓		✓		✓	✓	✓	✓		✓			
Arctos	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓			✓		✓	✓	
CollectionSpace	✓			✓		✓	✓	✓	✓	✓		✓	✓		✓	✓	✓		

Chart showing the **presence or absence of key features** between EMu, Specify, Arctos, and CollectionSpace. The first four columns (those showing support for different types of collections) are based on our holistic assessment of suitability, and are not meant to categorically exclude any types of collections from any particular CMS.

MONETARY COMMITMENT

first year costs

annual costs (after year one)

costs required to get data online

	Arctos		Specify		EMu		CollectionSpace	
Licensing / membership fee	$8,010	*5% of whole*	$0	*N/A*	$25,555	*5 licenses*	$3,000	*optional*
Licensing / membership fee	$8,010	*5% of whole*	$0	*N/A*	$0	*N/A*	$3,000	*optional*
Technical support	$0	*included*	$0	*included*	$26,538	*install, config, proj. mgmt*	$2,900	*($145/hr)*
Technical support	$0	*included*	$0	*included*	$5,994	*for 5 licenses*	$2,900	*($145/hr)*
Additional software required	$0	*N/A*	$0	*N/A*	$495	*for one Crystal license*	$0	*N/A*
Software upgrade/ develop.	$0	*included*	$0	*included*	$0	*included*	$0	*N/A*
Data migration	$2,800	*($70/hr)*	$0	*included*	$13,089	*estimate by KE*	$3,600	*($90/hr)*
Staff training	$0	*not offered*	$1,500	*travel costs*	$9,000	*on-site, 4 days*	$0	*not offered*
Internet access license	$0	*N/A*	$0	*N/A*	$4,414	*one license*	$0	*N/A*
User interface for online data access	$0	*included*	$0	*included*	$8,000	*IMu config.*	$6,500	*site design*
Website hosting	$0	*included*	$10,000	*new server*	$10,000	*new server*	$10,000	*new server*
Website hosting	$0	*included*	$0	*N/A*	$0	*N/A*	$0	*N/A*
Cloud backup	$0	*included*	$1,230	*9 TB*	$1,230	*9 TB*	$1,230	*9 TB*
Cloud backup	$0	*included*	$1,230	*10 TB*	$1,230	*10 TB*	$1,230	*10 TB*

MONETARY COMMITMENT

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TIME COMMITMENT

	Arctos		Specify		EMu		CollectionSpace	
Collections staff training	24	*hours x 2 ppl*	24	*hours x 2 ppl*	32	*hours x 2 ppl*	40	*hours x 2 ppl*
Collections staff support for CMS	1,600	*hours*	3,000	*hours*	2,000	*hours*	3,000	*hours*
Collections staff support for CMS	100	*hours*	175	*hours*	200	*hours*	200	*hours*
Volunteer training by Collections staff	3	*hours*	3	*hours*	3	*hours*	3	*hours*
IT staff training	24	*hours x 1 pers.*	24	*hours x 1 pers.*	32	*hours x 1 pers.*	40	*hours x 1 pers.*
IT staff support	8	*hours*	30	*hours*	20	*hours*	64	*hours*
IT staff support	0	*hours*	28	*hours*	24	*hours*	28	*hours*
IT staff support	8	*hours*	40	*hours*	8	*hours*	40	*hours*

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TIME COMMITMENT

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Collections staff training	24	*hours x 2 ppl*	24	*hours x 2 ppl*	32	*hours x 2 ppl*	40	*hours x 2 ppl*
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Collections staff support for CMS	100	*hours*	175	*hours*	200	*hours*	200	*hours*
Volunteer training by Collections staff	3	*hours*	3	*hours*	3	*hours*	3	*hours*
IT staff training	24	*hours x 1 pers.*	24	*hours x 1 pers.*	32	*hours x 1 pers.*	40	*hours x 1 pers.*
IT staff support	8	*hours*	30	*hours*	20	*hours*	64	*hours*
IT staff support	0	*hours*	28	*hours*	24	*hours*	28	*hours*
IT staff support	8	*hours*	40	*hours*	8	*hours*	40	*hours*

MONETARY + TIME COMMITMENT

	Arctos		Specify		EMu		CollectionSpace	
First Year Cost of CMS	$10,810	+ 0.8 FTE	$2,730	+ 1.5 FTE	$75,907	+ 1.0 FTE	$10,730	+ 1.6 FTE
First Year Cost of Online Access	$0	+ 0 hrs	$10,000	+ 28 hrs	$22,414	+ 24 hrs	$16,500	+ 28 hrs
Annual Cost of CMS	$8,010	+ 0.05 FTE	$1,230	+ 0.1 FTE	$7,224	+ 0.1 FTE	$7,130	+ 0.12 FTE
TOTAL TEN YEAR OPERATING COST	**$82,900**	**+ 2,655 hrs**	**$23,800**	**+ 5,068 hrs**	**$163,337**	**+ 4,015 hrs**	**$91,400**	**+ 5,375 hrs**

For CAS/PNNM, Arctos was the best option.

	Arctos	Specify	EMu	CollectionSpace
Collection management workflow	🟩	🟥	🟩	🟩
Data discoverability	🟩	🟥	🟩	🟩
Online data accessibility	🟩	🟨	🟨	🟨
Initial software cost	🟩	🟩	🟥	🟩
Continuing software cost	🟩	🟩	🟩	🟩
Use of collections staff time	🟩	🟨	🟨	🟥
Use of IT staff time	🟩	🟨	🟩	🟥

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But one size does not fit all.

maybe look at EMu?

maybe look at CollectionSpace?

If you have large, complex collections and can provide significant technical AND financial resources

If you value a highly user-friendly interface, and have significant technical OR financial resources

If you have a low budget, but technically-inclined staff (and their time)

maybe look at Specify?
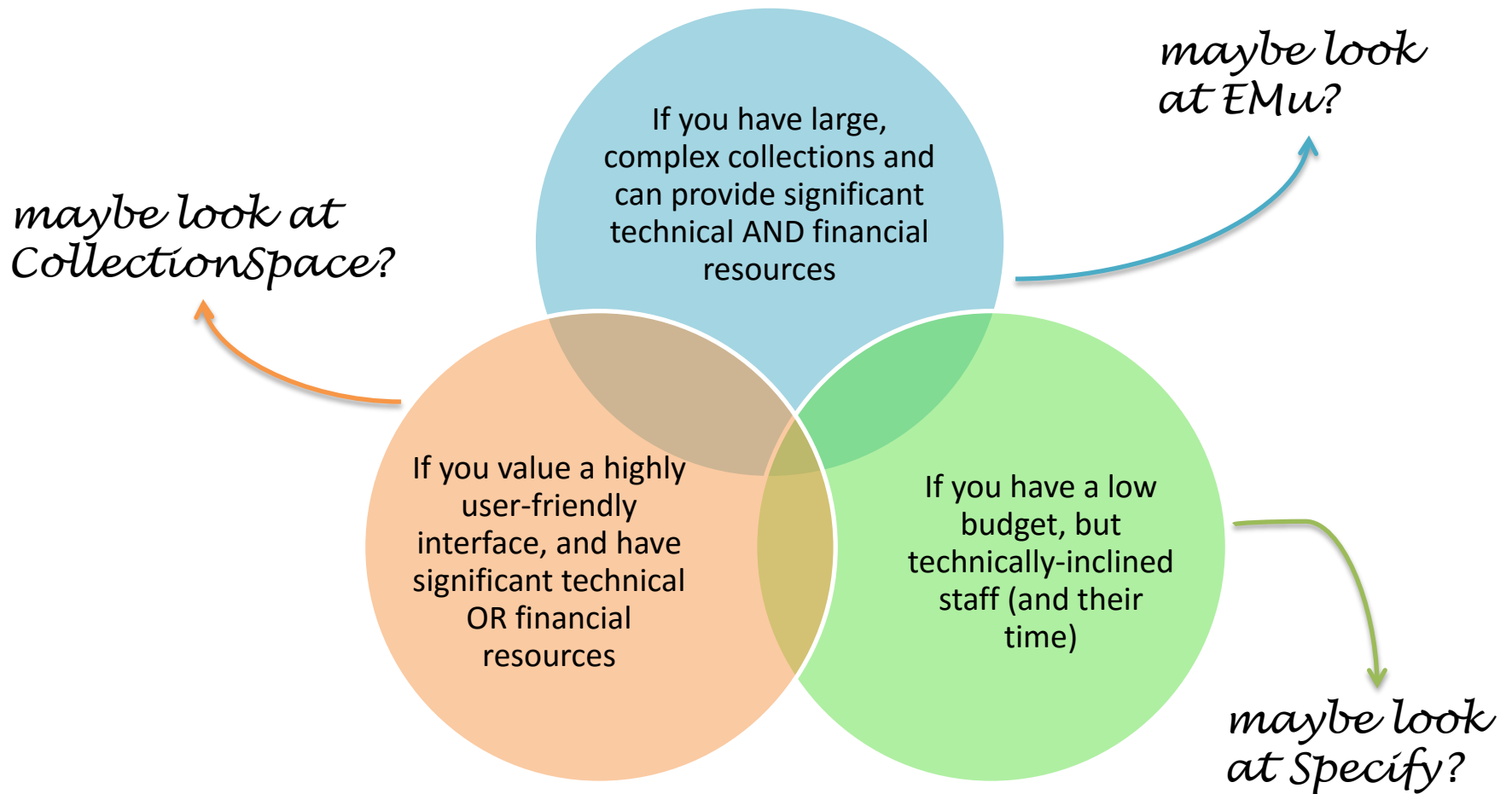
THANK YOU!

Questions and feedback may be directed to **ekrimmel@naturemuseum.org**