Sketchfab: very easy to use, can be embedded into ContentDM

Can be embedded in Open Journal System, purchasing

TurboSquid/ different licenses of usages.

Non-profit struggles: allow for educational usages etc to monetize from the data, authoritative/legitimate version

Open model: maybe in the mission statement, or drive traffic to hosting organization, attract more visitors. Will open model drive away visitor or draw in visitors? Study says draw in visitors.

Long tail: international law of copyright…. Very convoluted but just have to push forward

Mistake: 3D and VR should not be mixed together. In the white paper: VR experience itself needs to be archived. Formats issues: lossy, etc. Reconstruct ancient history with modern technologies. Need to package the VR experience.

Infrastructural support:

Community support. Reddit /VR, etc. is a large supportive community, 17000 community users. Youtube.

Storage support: IU: Samvera/Fedora based repo. Have not had storage issues, haven't gotten to PB level of storage. Disk storage is limited. Policy-based storage allocation, anything larger than 150M(?) go to tape. Relatively transparent. LC: freak out of the large tape storage because tape migration time is too long.

Wants: easy to use like Sketchfab, but more sustainable and flexible. Can we hedge our bets?

Jenny’s notes

Storage, Access, and Management

a.Which components of existing 3D discovery platforms (e.g.
Sketchfab, Morphosource, Thingiverse, Smithsonian) would you choose to
recombine? Which would you disregard?

-Sketchfab-ease of access/embedding
into other systems/purchasing

-turbosquid, CGtrader-ease of access/licensing

-Monetization potential-Open Source model- would draw more interest to museum or library, primary resources. Value in the experience and allowing people to feel what they are viewing.

b.In what ways do 3D/VR data types differ? What sorts of special
accommodations need to be made for them in regards to storage, access, and
management?

-3D is a necessity to creating a VR
experience. 3D obj/FBX -VR experience needs to be cataloged. What do you
archive out of the experience? Package all files and zip it for reuse.

c. What existing infrastructures are useful for supporting 3D/VR?

Community support system-Reddit. /R/Occulus
YouTube-reality capture/photoscan Samvera/Fedora -Conversations about preservation

d. What services and systems are useful in the current environment?
What is missing and necessary to develop? What should the wider community of information institutions be doing to support these needs?

-Archiving/preservation of the
digital files

-Viewer that isn’t tied to a commercial vendor-platform for hosting derivatives-

 -Decentralized 3D embeddable viewer-Clearinghouse

e. What roles and responsibilities are required to support storage,
access, and management of 3D/VR data?

-Archivist

-Pipeline manager

-Trained photogrammetry team

Interns-collating

f. What barriers have you encountered and what strategies have you
adopted to overcome them?

-How much to ramp up.

**Day 1 March 1, 2018 - 1:15-2:00pm**

Group Members:

* 1. Which components of existing 3D discovery platforms (e.g. Sketchfab, Morphosource, Thingiverse, Smithsonian) would you choose to recombine? Which would you disregard?
		+ Morphosource - impressive, but not super user friendly for K-12 environment as it requires some domain mastery in searching for
		+ Searching by collections is desirable - which institution owns the original
		+ IIIF is desirable to enable sharing and comparison
		+ For scientific collections, want to have multiple specimens per species (for comparison
		+ Deep inspection tool (sketchfab feature)
		+ Data transparence tools
		+ Flexibility in metadata model
			- Ability to add metadata fields for researchers
			- Community tagging supported
		+ Annotation in the model
		+ Mukurtu handles multiples languages, and controlled-access communities so that you can represent  but also protect cultural heritage when appropriate
		+ FLEXIBLE, and SUSTAINABLE ANNOTATION SYSTEM
	2. In what ways do 3D/VR data types differ? What sorts of special accommodations need to be made for them in regards to storage, access, and management?
		+ Liz: VR is curated experience,
		+ D. Gann: VR is mathematical representation
		+ Jon - capture then store raw→process and then store high res. → process  interpret → store model → web derivative … in terms of storage, access, and management it’s a tiered model
		+ Ability to go from a high res source and then dynamically derive lower bit versions that viewer wants to see
	3. What existing infrastructures are useful for supporting 3D/VR?
	4. What services and systems are useful in the current environment? What is missing and necessary to develop? What should the wider community of information institutions be doing to support these needs?
		+ **Educating librarians about what’s available, how to access it, how to make that available to public. Curating objects in the way that libraries curate databases, and educate people about the use thereof.**
	5. What roles and responsibilities are required to support storage, access, and management of 3D/VR data?

**3D multiresolution Streaming**

**APIs**

* 1. What barriers have you encountered and what strategies have you adopted to overcome them?
		+ Cash and cache
		+ Version control for project life cycle and technology change
		+ Storage and speed.

**`Robert-Group on Storage, Access and Management Questions**

**Day 1 March 1, 2018 - 1:15-2:00pm**

Group Members: Carla - JD - Vince - Jeff - Robert - Doug

* 1. **Which components of existing 3D discovery platforms (e.g. Sketchfab, Morphosource, Thingiverse, Smithsonian) would you choose to recombine? Which would you disregard?**

Doug - these repositories have different end goals - link between data sets on smithsonian and morphosource and link to thingiverse - how do you make these tools more interoperable to take a model - make annotations - disseminate it and push it to sketchfab and then make it printable -

Need to add Europeana to the list - it is a discovery platform but as aggregator - not specific to 3D - includes 3D and archeological records and photos -

IIIF initiative - this could connect some pieces discussed here - 2D image based data in a viewer agnostic way -

Discoverability - explicit discussion about combining data indices to emulate a larger archive

Carla - number of platforms that are focused more on aggregating data and metadata that support 3D but not specific to it

Archeoloegy Data Service - open source 3d viewing environment -

Analogous to iDIGBio project - aggregator of museum records - serving media records back to original museum - iDIGBio not setup to promote any type of 3D discoverability - this is an issue of lack of metadata for 3D data -

May be able to do search on type of scan in iDIGBio -

3D Heritage Online Viewer -

Sketchfab - viewer and annotator

3DHop - much higher resolution models than available with sketchfab - Zoom browsing for 3D - LOD with geometry -

Sketchfab and contentdm -

Drawback to sketchfab is consumer oriented thing - that does not need the needs of the researcher -

Sketchfab model inspector is way more useful for the researcher -

CRMDig - provenance extension model ISO standard

Carla - X3D format not being used

Smithsonian - was not using X3D model - 2 person team not enough to use X3D

What are the features of X3D -

Apply capture and metadata model with X3D and keep it that way - information about the specimen itself all in one

Jeff - discovery platforms that are not up to research standards - siloed and not being used - thingiverse and sketchfab - lowering the barrer to getting things out there - ask for the upload then follow up with metadata - regularly remind them to fill it out - academia.edu and researchgate - recipe for success - demonstrating the use through constant contact -

Carla - as much or as little of data is required - have to trust that value - if there it will be more discoverable -

Doug - common taxonomies - try to get something that is consistent across all animals is very hard - requires that you have access no fro verified place - scanner make and model -

Jeff - affiliation data is key and not widely available - data dictionary - no one will think about doing it if this is required -

Do you think it is recommendable to adopt any of these standards at say Smithsonian and Morphosource?

JD - supporting download for most popular - do an a/b test on formats and try to test for that -

* 1. In what ways do 3D data types differ? What sorts of special accommodations need to be made for them in regards to storage, access, and management?
	2. What existing infrastructures are useful for supporting 3D?
	3. What services and systems are useful in the current environment? What is missing and necessary to develop? What should the wider community of information institutions be doing to support these needs?
	4. What roles and responsibilities are required to support storage, access, and management of 3D data?
	5. **What barriers have you encountered and what strategies have you adopted to overcome them?**

Most of discussion has been about barriers -

Not good discovery aids - everything is siloed

Major issue for silo - the sources don’t provide consistent metadata by date that can be used for discoverabiltiy -

Built morphosource because if put his own content into institutioanl repository would be siloed and not discoverable

Biological and 3D component -

**Zack's Group - Storage, Access, Management**

(Adam S., Jennifer M., Jarrod, Chad, Zack)

**Question A:**

Chad: Limitations of Sketchfab: file size; branding and origin; Ownership and rights issues.

Jennifer: Do people really think sketchfab should be used as a storage solution.

What about institutional repositories?

-Chad: not many; mostly custom solutions.

-Jennifer: IU project

-Chad: Imago; IIIF viewer.

-Jennifer: Morphosource is using Fedora and Samvera.

-Adam: Doesn’t necessarily work for other types of 3D objects.

-Jennifer: need metadata standards

What to add to Morphosource?

-Jennifer: 3D metadata aggregator.

Adam:  There needs to be something similar to iDigBio

Chad: DPLA?

-Ownership

-Me

-Persistent Identifier

Sketchfab:

PRO:

-Willingness to take anything

CONs:

-Ownership

Morphosource:

-

Jennifer:

-some researchers will want to keep it in their subject or institution.

-aggregator makes sense;

Thingiverse:

PRO: concept of “derived\_from”

How do we create citation networks for 3D models >

-Versioning; Crediting.

-Paradata and authorship from process of capture, processing, publication, reuse.

-In Thingiverse this is integrated.

How users can direct people’s efforts.

**Question B:**

Adam: producing 2TB / week.

120 TB RAID Array, but not backed up.

Using 60% of the island’s output pipe.

Sinology RAIDs

Gigabit speeds in the building.

No backups.

Scanning through NSF.

Using Morphosource to store processed data.

Chad: High Performance Computing; Petalibrary; Has to be “research data” $125/year per Terabyte.

Reciprocal relationships with data storage and distributed storage.

Concern: Planning for natural disasters.

Z: LTO tape backups?f

Jennifer: Do you need to keep everything that you scanned?

**Summary:**

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